



PROJECT NO.: TCS/00512/09

**DSD CONTRACT NO. DC/2009/13  
CONSTRUCTION OF SEWAGE TREATMENT WORKS AT  
YUNG SHUE WAN AND SOK KWU WAN**

**SOK KWU WAN PORTION AREA  
MONTHLY ENVIRONMENTAL MONITORING AND AUDIT  
(EM&A) REPORT (No.27) – OCTOBER 2012**

PREPARED FOR  
**LEADER CIVIL ENGINEERING CORPORATION LIMITED**

**Quality Index**

<b>Date</b>	<b>Reference No.</b>	<b>Prepared By</b>	<b>Approved By</b>
13 November 2012	TCS00512/09/600/R0564v2		
		Nicola Hon Environmental Consultant	T.W. Tam Environmental Team Leader

<b>Version</b>	<b>Date</b>	<b>Description</b>
1	9 November 2012	First Submission
2	13 November 2012	Amended against IEC's comments on 13 November 2012

# Scott Wilson CDM Joint Venture

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Chief Engineer/Harbour Area Treatment Scheme  
Drainage Services Department  
5/F Western Magistracy  
2A Pok Fu Lam Road  
Hong Kong

Your reference:

Our reference: 05117/6/16/394057

Date: 14 November 2012

Attention: Mr Kenley C K Kwok

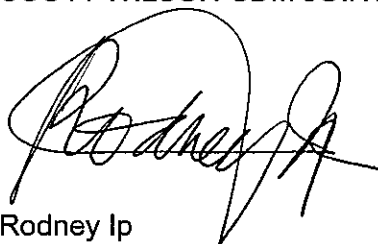
**BY FAX & EMAIL**

Dear Sirs,

**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan**  
**Sok Kwu Wan Portion Area**  
**Monthly Environmental Monitoring and Audit (EM&A) Report No. 27 (October 2012)**

We refer to the Monthly EM&A Monitoring Report No. 27 for October 2012 received under cover of the email from the Environmental Team, Action-United Environmental Services and Consulting (AUES), dated 13 November 2012. We have no comment and have verified the captioned report.

Yours faithfully  
SCOTT WILSON CDM JOINT VENTURE



Rodney Ip  
Independent Environmental Checker

ICWR/SYSL/ycky

cc    Leader Civil Engineering    (Attn: Mr Vincent Chan)  
      AUES                                (Attn: Mr T.W. Tam)  
      ER/LAMMA                        (Attn: Mr Alfred Cheng)  
      CDM                                (Attn: Mr Mark Sin)

## EXECUTIVE SUMMARY

ES.01. This is the 27<sup>th</sup> monthly Environmental Monitoring and Audit (EM&A) Report for Sok Kwu Wan (hereinafter ‘this Report’) for the designated works under the Environmental Permit [EP-281/2007/A], covering a period from **26 September to 25 October 2012** (hereinafter ‘the Reporting Period’).

### ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES.02. Environmental monitoring activities under the EM&A programme in this Reporting Period are summarized in the following table.

Issues	Environmental Monitoring Parameters / Inspection	Occasions
Air Quality	1-hour TSP	45
	24-hour TSP	15
Construction Noise	$L_{eq(30min)}$ Daytime	20
Water Quality	Marine Water Sampling	12
Inspection / Audit	ET Regular Environmental Site Inspection	3

ES.03. As informed by the Contractor, the marine work of outfall construction has been commenced on 19 July 2011, therefore, water quality was undertaken in this Reporting Period.

### BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES.04. No exceedance of air quality and construction noise monitoring were recorded in this Reporting Period. The statistics of environmental exceedance, NOE issued and investigation of exceedance are summarized in the following table.

Environmental Issues	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation	Corrective Actions
Air Quality	1-hour TSP	0	0	0	--	--
	24-hour TSP	0	0	0	--	--
Construction Noise	$L_{eq(30min)}$ Daytime	0	0	0	--	--
Water Quality	DO	0	0	0	--	--
	Turbidity	0	0	0	--	--
	SS	0	0	0	--	--

Note: NOE – Notification of Exceedance

### ENVIRONMENTAL COMPLAINT, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES.05. No written or verbal environmental complaint, summons or successful prosecutions were recorded in this Reporting Period.

### REPORTING CHANGE

ES.06. No reporting change was made in this Reporting Period.

### SITE INSPECTION BY EXTERNAL PARTIES

ES.07. No site inspection was undertaken by external parties i.e. Environmental Protection Department (EPD) or Agriculture, Fisheries and Conservation Department (AFCD) within the Reporting Period.

### FUTURE KEY ISSUES

ES.08. During dry season, special attention should be paid to the dust mitigation measures to avoid fugitive dust emissions from loose soil surface or haul road. Nevertheless, mitigation measures implemented for control the surface runoff including wheel wash facilities, covering of the loose soil surface or stockpile with tarpaulin sheet, etc., should fully implement.

ES.09. Muddy water and other water quality pollutants via site surface water runoff into the sea body within Fish Culture Zone (FCZ) at Picnic Bay and the secondary recreation contact subzone at Mo Tat Wan is the key issue of the Project. Mitigation measures for water quality should be properly maintained to prevent any muddy or sandy runoff from the loose soil surface overflow on the site boundary.

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## 1 INTRODUCTION

### PROJECT BACKGROUND

- 1.01 The Leader Civil Engineering Corporation Limited (Leader) has been awarded the *Contract DC/2009/13 - Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan* (the Project) by the Drainage Services Department (DSD) on 4 May 2010. The Project is part of an overall plan approved under a statutory EIA for Outlying Islands Sewerage Stage 1 Phase 2 Package J – Sok Kwu Wan Sewage Collection and Treatment (Register No. AEIAR-075/2003) and Disposal Facilities and Outlying Islands Sewerage Stage 1 Phase 1 Package C – Yung Shue Wan Sewage Treatment Works and Outfall (Register No. EIA-124/BC). The Environmental Permit (EP) No. EP-281/2007 and EP-282/2007 for the Project have been obtained by the DSD on 29 June 2007 for the relevant works. After July 2009, EP-281/2007/A instead EP-281/2007 is EP for Sok Kwu Wan relevant works.
- 1.02 The Project involves construction of sewage treatment works at Sok Kwu Wan and Yung She Wan with a capacity of 1,430m<sup>3</sup>/day and 2,850m<sup>3</sup>/day respectively to provide secondary treatment, construction of 2 pumping stations at Sok Kwu Wan and 1 pumping station at Yung Shue Wan, construction of submarine outfall from the coastline and laying of underground sewerage pipeline. The site layout plan for the captioned work under the Project is showing in **Appendix A**.
- 1.03 According to the Particular Specification (PS) and **Appendix 25** of the Project, Leader should establish an Environmental Team (ET) to implement the environmental monitoring and auditing works to fulfill the requirements as stipulated in the Environmental Monitoring and Audit (EM&A) Manual. This EM&A Manual is referred to the Appendix B of the Review Report on EIA Study – Sok Kwu Wan (Final) in January 2007 (Agreement No. CE 20/2005(DS)).
- 1.04 Action-United Environmental Services and Consulting (AUES) has been commissioned by Leader as the ET to implement the relevant EM&A programme. Organization chart of the Environmental Team for the Project is shown in **Appendix B**. For ease of reporting, the proposed EM&A programme for baseline and impact monitoring is split to following two stand-alone parts:
- (a) Proposed EM&A Programme for Baseline and Impact Monitoring – Sok Kwu Wan (under EP No. 281/2007/A varied on 23 September 2009)
  - (b) Proposed EM&A Programme for Baseline and Impact Monitoring – Yung Shue Wan (under EP No. 282/2007)
- 1.05 According to the EM&A Manual of Sok Kwu Wan and Yung Shue Wan, baseline water quality monitoring should be carried out for consecutive six months before the marine work commencement. Therefore, the baseline reports of Sok Kwu Wan and Yung Shue Wan are divided to two volumes i.e. the Volume 1 for air quality and noise monitoring; and the Volume II for water quality monitoring for separate submission.
- 1.06 There is a concurrent DSD contract “*DC/2007/18 Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage 1 Works*” undertaking at Sok Kwu Wan since April 2008.
- 1.07 Consider that the construction works of DC/2007/18 and DC/2009/13 at Sok Kwu Wan is under the same Environmental Permit and EM&A Manual, the performance criteria of air quality and construction noise at Sok Kwu Wan under the Project is recommended to adopt the Action/Limit Levels established by contract DC/2007/18. The Baseline Monitoring Report Volume 1 under the Project for air quality and noise at Sok Kwu Wan was submitted on 9 July 2010 and verified by IEC and for EPD endorsement before the relevant land works commencement on 27 July 2010.
- 1.08 This is the 27<sup>th</sup> monthly EM&A Report – Sok Kwu Wan Portion Area presenting the monitoring results and inspection findings for the Reporting Period from **26 September to 25 October 2012**.

### REPORT STRUCTURE

- 1.09 The Monthly Environmental Monitoring and Audit (EM&A) Report – Sok Kwu Wan is structured into the following sections:-

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<b>SECTION 1</b>	<b>INTRODUCTION</b>
<b>SECTION 2</b>	<b>PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS</b>
<b>SECTION 3</b>	<b>SUMMARY OF MONITORING REQUIREMENTS</b>
<b>SECTION 4</b>	<b>AIR QUALITY MONITORING RESULTS</b>
<b>SECTION 5</b>	<b>CONSTRUCTION NOISE MONITORING RESULTS</b>
<b>SECTION 6</b>	<b>WATER QUALITY MONITORING RESULTS</b>
<b>SECTION 7</b>	<b>WASTE MANAGEMENT</b>
<b>SECTION 8</b>	<b>SITE INSPECTIONS</b>
<b>SECTION 9</b>	<b>ENVIRONMENTAL COMPLAINTS AND NON-COMPLIANCE</b>
<b>SECTION 10</b>	<b>IMPLEMENTATION STATUES OF MITIGATION MEASURES</b>
<b>SECTION 11</b>	<b>IMPACT FORECAST</b>
<b>SECTION 12</b>	<b>CONCLUSIONS AND RECOMMENDATION</b>



## 2 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

### PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE

- 2.01 Organization structure and contact details of relevant parties with respect to on-site environmental management are shown in [Appendix B](#).

### CONSTRUCTION PROGRESS

- 2.02 The master and three month rolling construction programme are enclosed in [Appendix C](#) and the major construction activities undertaken in this Reporting Period are listed below:-
- Construction of PS1: metalworks installation, E&M Works installation and stone cladding installation
  - Construction of PS2: metalworks installation, E&M Works installation and stone cladding installation
  - Construction of SKWSTW: soil compaction, concreting, steel fixing, formwork erection, formwork removal, backfilling, scaffolding erection, dismantling scaffolding.
  - Outfall: Installation of Diffuser Cap and backfilling of foam concrete.

### SUMMARY OF ENVIRONMENTAL SUBMISSIONS

- 2.03 Summary of the relevant permits, licences, and/or notifications on environmental protection for this Project in this Reporting Period 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) Regulation	Notified EPD on 19 May 2010 Ref.: 317486
2	Chemical Waste Producer Registration	Issued on 8/6/2010 WPN 5213-912-L2720-01
3	Water Pollution Control Ordinance	Approved on 29/9/2010 Valid to: 30/09/2015 Licence no.: WT00007567-2010
4	Billing Account for Disposal of Construction Waste	Issued on 26 May 2010 A/C No: 7010815
5	Construction Noise Permit#	Permit no. GW-RS1112-12 Valid from: 30 Oct 2012 Until: 29 Mar 2013

# No CNP is covered in this Reporting Period.

- 2.04 The “Baseline/Impact Monitoring Methodology (TCS00512/09/600/R0010Ver.4)” was set out in accordance with the Sok Kwu Wan EM&A Manual’ requirements. It was approved by the Engineer Representative (ER) and agreed with the Independent Environmental Checker (IEC) and then submitted to the EPD on 8 July 2010.
- 2.05 Baseline Monitoring Report - Volume 1 for Sok Kwu Wan (TCS00512/09/600/R0020Ver.3) was verified by the IEC on 12 July 2010 and submitted to EPD on 12 July 2010.
- 2.06 Baseline Water Quality Monitoring Report - Volume 2 for Sok Kwu Wan (TCS00512/09/600/R0182v7) was revised against EPD comments and re-submitted on 11 October 2011.

### 3 SUMMARY OF BASELINE MONITORING REQUIREMENTS

#### ENVIRONMENTAL ASPECT

- 3.01 The EM&A baseline monitoring programme cover the following environmental issues:
- Air quality;
  - Construction noise; and
  - Marine water quality
- 3.02 The ET implements the EM&A programme in accordance with the aforementioned requirements. Detailed air quality, construction noise and water quality of the EM&A programme are presented in the following sub-sections.
- 3.03 A summary monitoring parameters for the air quality, noise and marine water monitoring is presented in *Table 3-1*:

**Table 3-1 Summary of EM&A Requirements**

Environmental Issue	Parameters
Air Quality	<ul style="list-style-type: none"> <li>• 1-hour TSP Monitoring by Real-Time Portable Dust Meter; and</li> <li>• 24-hour TSP Monitoring by High Volume Air Sampler.</li> </ul>
Noise	<ul style="list-style-type: none"> <li>• Leq (30min) during normal working hours; and</li> <li>• Leq (15min) during Restricted Hours.</li> </ul>
Marine Water Quality	<p><b><i>In-situ Measurements</i></b></p> <ul style="list-style-type: none"> <li>• Dissolved Oxygen Concentration (DO) (mg/L);</li> <li>• Dissolved Oxygen Saturation (% );</li> <li>• Turbidity (NTU);</li> <li>• pH unit;</li> <li>• Salinity (ppt);</li> <li>• Water depth (m); and</li> <li>• Temperature (°C).</li> </ul> <p><b><i>Laboratory Analysis</i></b></p> <ul style="list-style-type: none"> <li>• Suspended Solids (SS) (mg/L)</li> </ul>

#### MONITORING LOCATIONS

##### Air Quality

- 3.04 Three air monitoring stations: AM1, AM2 and AM3 were designated in the *EM&A Manual Section 2.5*. The detailed air monitoring stations is described in *Table 3-2* and graphical is shown in *Appendix D*.

**Table 3-2 Location of Air Quality Monitoring Station**

Sensitive Receiver	Location
AM1	Squatter house in Chung Mei Village
AM2	Squatter house in Chung Mei Village
AM3	Football court

##### Construction Noise

- 3.05 According to *EM&A Manual Section 3.4*, there were four noise sensitive receivers (NM1-NM4) designated for the construction noise monitoring. NM1, NM2 and NM4 of the three designated monitoring stations were identified and are monitored by the current DSD contract DC/2007/18. However, the premises monitoring station NM3 was rejected by the owner of 1B Sok Kwu Wan and an alternative noise monitoring station RNM3 replacement was proposed by the contract DC/2007/18 ET and accepted by the IEC and EPD before the baseline monitoring commencement in April 2008. The location RNM3 is located at Sok Kwu Wan Sitting-out area which just 3m width footpath away from the original location house 1B. The detailed construction noise monitoring stations to also 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**

Sensitive Receiver	Location
NM1	1, Chung Mei Village
NM2	20, Sok Kwu Wan
RNM3	Sok Kwu Wan Sitting-out Area
NM4	2-storey village house at Ta Shui Wan

### Water Quality

- 3.06 Three control stations (C1-C3) and three impact stations (W1-W3) were recommended in the *EM&A Manual Section 4.5*. Impact stations W1-W3 identified at the sensitive receivers (FCZ and secondary contact recreation subzone) to monitor the impacts from the construction of the submarine outfall as well as the effluent discharge from the proposed STW on water quality. Three control stations: C1, C2 & C3 were specified at locations representative of the project site in its undisturbed condition and located at upstream and downstream of the works area. Detailed and co-ordination of marine water quality monitoring stations is described in *Table 3-4* and the graphical is shown in *Appendix D* and would be performed for EM&A programme.

**Table 3-4 Location of Marine Water Quality Monitoring Station**

Station	Description	Co-ordination	
		Easting	Northing
W1	Secondary recreation contact subzone at Mo Tat Wan	832 968	807 732
W2	Fish culture zone at Picnic Bay	832 670	807 985
W3	Fish culture zone at Picnic Bay	832 045	807 893
C1 (flood)	Control Station	833 703	808 172
C2	Control Station	831 467	807 747
C3 (ebb)	Control Station	832 220	808 862

### **MONITORING FREQUENCY AND PERIOD**

- 3.07 The impact monitoring carried out in the EM&A programme is basically in accordance with the requirements in *EM&A Manual Sections 2.7, 3.6, 4.7 and 4.8*. The monitoring requirements are listed as follows.

#### Air Quality Monitoring

Parameters: 1-hour TSP and 24-hour TSP.

Frequency: Once in every six days for 24-hour TSP and three times in every six days for 1-hour TSP.

Duration: Throughout the construction period.

#### Noise Monitoring

Parameters:  $L_{eq(30min)}$  &  $L_{eq(5min)}$ ,  $L_{10}$  and  $L_{90}$ .  
 $L_{eq(15min)}$  &  $L_{eq(5min)}$ ,  $L_{10}$  and  $L_{90}$  during the construction undertaken during Restricted hours (19:00 to 07:00 hours next of normal working day and full day of public holiday and Sunday)

Frequency: Once per week during 0700-1900 hours on normal weekdays. Restricted hour monitoring should depend on conditions stipulated in Construction Noise Permit.

Duration: Throughout the construction period.

#### Marine Water Quality Monitoring

Parameters: Duplicate in-situ measurements: water depth, temperature, dissolved oxygen, pH, turbidity and salinity;  
HOKLAS-accredited laboratory analysis: suspended solids

- 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: During the course of marine works

### **Post-Construction Monitoring – Marine Water**

- 3.08 Upon the marine works (dredging and HDD pipe installation) completion, 4 weeks of post-construction monitoring would be undertaken in accordance with the *Section 4.8 of EM&A Manual*. The requirements of post-construction monitoring such as the parameter, frequency, location and sampling depth is same as the impact monitoring.

### **MONITORING EQUIPMENT**

#### Air Quality Monitoring

- 3.09 The 24-hour and 1-hour TSP levels shall be measured by following the standard high volume sampling method as set out in the *Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), Appendix B*. If the ET proposes to use a direct reading dust meter to measure 1-hour TSP levels, it shall submit sufficient information to the IEC to approve. The filter paper of 24-hour TSP measurement shall be determined by HOKLAS accredited laboratory.

#### Noise Monitoring

- 3.10 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  $m s^{-1}$ .

#### Water Quality Monitoring

- 3.11 ***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<sup>-1</sup> and 0 – 200% saturation; and a temperature of 0 – 45 degree Celsius.
- 3.12 ***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 a range of 0 to 14.
- 3.13 ***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.
- 3.14 ***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.
- 3.15 ***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.
- 3.16 ***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.

- 3.17 **Sample Containers and Storage** – Water samples for suspended solids should be stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4°C without being frozen).
- 3.18 **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.
- 3.19 **Suspended Solids Analysis** – Analysis of suspended solids shall be carried out in a HOKLAS or other international accredited laboratory.

#### EQUIPMENT CALIBRATION

- 3.20 Calibration of the HVS is performed upon installation in accordance with the manufacturer’s instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5025A). The calibration data are properly documented and the records are maintained by ET for future reference.
- 3.21 The 1-hour TSP meter was calibrated by the supplier prior to purchase. Zero response of the equipment was checked before and after each monitoring event. In-house calibration with the High Volume Sampler (HVS) in same condition was undertaken in yearly basis.
- 3.22 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.
- 3.23 The Water Quality Monitoring equipments such as DO meter, pH meter, turbidity measuring instrument and salinometer, are calibrated by HOKLAS accredited laboratory of three month intervals.
- 3.24 All updated calibration certificates of the monitoring equipment used for the impact monitoring programme in the Reporting Period would be attached in [Appendix E](#).

#### METEOROLOGICAL INFORMATION

- 3.25 The meteorological information during the construction phase is obtained from the Wong Chuk Hang Station of the Hong Kong Observatory (HKO) due to it nearby the Project site.

#### DATA MANAGEMENT AND DATA QA/QC CONTROL

- 3.26 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 programme.
- 3.27 The monitoring data recorded in the equipment e.g. 1-hour TSP meter, sound level meter and Multi-parameter Water Quality Monitoring System, are downloaded directly from the equipments 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.

#### REPORTING

- 3.28 It was agreed among the ER, IEC, Contractor and ET that, in order to streamline the EM&A report submission and to cater for the occasional delay in obtaining laboratory analysis results, the cutoff day for each month is the 25th i.e. the first day of each report is the 26<sup>th</sup> of the last month and the end

day, the 25<sup>th</sup> of that month.

#### DETERMINATION OF ACTION/LIMIT (A/L) LEVELS

- 3.29 According to the Sok Kwu Wan Environmental Monitoring and Audit Manual, the air quality, construction noise and marine water quality were set up, namely Action and Limit levels are listed in *Tables 3-5, 3-6 and 3-7* as below.

**Table 3-5 Action and Limit Levels for Air Quality**

Monitoring Station	Action Level ( $\mu\text{g}/\text{m}^3$ )		Limit Level ( $\mu\text{g}/\text{m}^3$ )	
	1-hour	24-hour	1-hour	24-hour
AM1	343	173	500	260
AM2	331	175	500	260
AM3	353	191	500	260

**Table 3-6 Action and Limit Levels for Construction Noise**

Monitoring Location	Action Level	Limit Level
	0700-1900 hours on normal weekdays	
NM1 NM2 RNM3 NM4	When one or more documented complaints are received	75 dB(A) of $L_{\text{eq}(30\text{min})}$ during normal hours from 0700 to 1900 hours on normal weekdays, reduced to 70 dB(A) of $L_{\text{eq}(30\text{min})}$ for schools and 65 dB(A) during school examination periods

**Table 3-7 Action and Limit Levels for Marine Water Quality**

Parameter	Performance Criteria	Impact Station		
		W1	W2	W3
DO Concentration (Surface and Middle) (mg/L)	Action Level	5.39	4.64	4.71
	Limit Level	5.29	4.56	4.54
DO Concentration (Bottom) (mg/L)	Action Level	N/A	3.60	3.37
	Limit Level	N/A	3.06	3.18
Turbidity (Depth-Average) (NTU)	Action Level	4.39	4.84	6.48
	Limit Level	6.06	5.99	6.71
Suspended Solids (Depth-Average) (mg/L)	Action Level	12.41	9.24	10.79
	Limit Level	12.68	11.28	12.25

- 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 - AIR QUALITY

4.01 The impact EM&A programme was carried out as compliance with the contract Particular Specification, Sok Kwu Wan EM&A Manual and the EP.

##### Results of Air Quality Monitoring

4.02 In this Reporting Period, **45** and **15** monitoring events were performed for 1-hour TSP and 24-hour TSP monitoring respectively at the designated locations AM1, AM2 and AM3. The monitoring results for 24-hour and 1-hour TSP are summarized in *Tables 4-1, 4-2 and 4-3*. The detail 24-hour TSP data are shown in *Appendix G* and the graphical plots of are shown in *Appendix H*.

**Table 4-1 Summary of 24-hour and 1-hour TSP Monitoring Results – AM1**

Date	24-hour TSP ( $\mu\text{g}/\text{m}^3$ )	1-hour TSP ( $\mu\text{g}/\text{m}^3$ )				
		Date	Start Time	1 <sup>st</sup> hour measured	2 <sup>nd</sup> hour measured	3 <sup>rd</sup> hour measured
26-Sep-12	70	26-Sep-12	8:00	46	53	59
4-Oct-12	54	4-Oct-12	12:40	103	108	105
10-Oct-12	91	10-Oct-12	12:40	121	127	116
16-Oct-12	46	16-Oct-12	9:15	107	121	116
22-Oct-12	33	22-Oct-12	14:30	107	110	119
Average (Range)	<b>59</b> (33 – 91)	Average (Range)		<b>101</b> (46 – 127)		

**Table 4-2 Summary of 24-hour and 1-hour TSP Monitoring Results – AM2**

Date	24-hour TSP ( $\mu\text{g}/\text{m}^3$ )	1-hour TSP ( $\mu\text{g}/\text{m}^3$ )				
		Date	Start Time	1 <sup>st</sup> hour measured	2 <sup>nd</sup> hour measured	3 <sup>rd</sup> hour measured
26-Sep-12	40	26-Sep-12	11:00	38	43	45
4-Oct-12	54	4-Oct-12	10:30	98	103	107
10-Oct-12	107	10-Oct-12	10:30	112	107	116
16-Oct-12	73	16-Oct-12	11:30	113	125	118
22-Oct-12	37	22-Oct-12	11:30	113	119	125
Average (Range)	<b>62</b> (37 – 107)	Average (Range)		<b>99</b> (38 – 125)		

**Table 4-3 Summary of 24-hour and 1-hour TSP Monitoring Results – AM3**

Date	24-hour TSP ( $\mu\text{g}/\text{m}^3$ )	1-hour TSP ( $\mu\text{g}/\text{m}^3$ )				
		Date	Start Time	1 <sup>st</sup> hour measured	2 <sup>nd</sup> hour measured	3 <sup>rd</sup> hour measured
26-Sep-12	93	26-Sep-12	13:30	101	104	109
4-Oct-12	31	4-Oct-12	8:00	136	139	144
10-Oct-12	95	10-Oct-12	8:00	142	145	148
16-Oct-12	43	16-Oct-12	14:00	141	133	128
22-Oct-12	46	22-Oct-12	9:00	143	147	153
Average (Range)	<b>62</b> (31 – 93)	Average (Range)		<b>134</b> (101– 153)		

4.03 As shown in *Tables 4-1, 4-2 and 4-3*, 1-hour and 24-hour TSP results fluctuated well below the Action Level during the Reporting Period.

4.04 The meteorological information during the impact monitoring days are summarized in *Appendix I*.

## 5 IMPACT MONITORING RESULTS – CONSTRUCTION NOISE

5.01 The noise monitoring results are presented in the following sub-sections.

### Results of Construction Noise Monitoring

5.02 In this Reporting Period, a total of **20** construction noise monitoring events were undertaken at designated locations. The results for  $L_{eq30min}$  at NM1, NM2, RNM3 and NM3 are summarized in *Tables 5-1, 5-2, 5-3 and 5-4* and graphical plots are shown in *Appendix H*.

**Table 5-1 Summarized of Construction Noise Monitoring Results at NM1**

Date	Start Time	End time	1 <sup>st</sup> Leq5	2 <sup>nd</sup> Leq5	3 <sup>rd</sup> Leq5	4 <sup>th</sup> Leq5	5 <sup>th</sup> Leq5	6 <sup>th</sup> Leq5	Leq30
26-Sep-12	8:05	8:35	47.8	50.7	53.6	54.1	52.3	53.9	52.5
4-Oct-12	13:00	13:30	55.2	55.3	54.5	57.4	57.0	49.1	55.4
10-Oct-12	13:00	13:30	48.3	48.2	46.0	55.0	47.0	51.0	50.5
16-Oct-12	14:30	15:00	50.0	51.4	50.5	47.0	43.7	51.7	49.8
22-Oct-12	16:30	17:00	53.6	49.2	49.9	47.6	43.5	49.7	49.9
<b>Limit Level in dB(A)</b>									<b>75</b>

**Table 5-2 Summarized of Construction Noise Monitoring Results at NM2**

Date	Start Time	End time	1 <sup>st</sup> Leq5	2 <sup>nd</sup> Leq5	3 <sup>rd</sup> Leq5	4 <sup>th</sup> Leq5	5 <sup>th</sup> Leq5	6 <sup>th</sup> Leq5	Leq30
26-Sep-12	11:30	12:00	63.9	63.6	64.2	63.4	63.3	67.6	64.6
4-Oct-12	11:20	11:50	63.1	62.9	63.2	68.5	63.1	63.2	64.6
10-Oct-12	11:25	11:55	62.8	62.7	63.0	62.8	64.6	62.8	63.2
16-Oct-12	10:50	11:20	64.8	64.5	64.3	64.3	64.3	64.5	64.5
22-Oct-12	15:50	16:20	64.5	64.4	61.5	64.2	65.1	64.2	64.1
<b>Limit Level in dB(A)</b>									<b>75</b>

**Table 5-3 Summarized of Construction Noise Monitoring Results at RNM3**

Date	Start Time	End time	1 <sup>st</sup> Leq5	2 <sup>nd</sup> Leq5	3 <sup>rd</sup> Leq5	4 <sup>th</sup> Leq5	5 <sup>th</sup> Leq5	6 <sup>th</sup> Leq5	Leq30	Corrected* Leq30
26-Sep-12	13:00	13:30	66.8	64.4	65.2	64.1	63.8	66.8	65.4	68.4
4-Oct-12	10:45	11:15	67.3	63.0	64.3	62.9	61.8	62.5	64.1	67.1
10-Oct-12	10:50	11:20	63.9	63.1	63.5	64.8	64.6	63.4	63.9	66.9
16-Oct-12	10:15	10:45	65.0	63.8	64.9	62.8	65.2	62.6	64.2	67.2
22-Oct-12	15:15	15:45	62.4	61.7	63.6	61.4	61.5	61.6	62.1	65.1
<b>Limit Level in dB(A)</b>									<b>75</b>	

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

**Table 5-4 Summarized of Construction Noise Monitoring Results at NM4**

Date	Start Time	End time	1 <sup>st</sup> Leq5	2 <sup>nd</sup> Leq5	3 <sup>rd</sup> Leq5	4 <sup>th</sup> Leq5	5 <sup>th</sup> Leq5	6 <sup>th</sup> Leq5	Leq30
26-Sep-12	14:05	14:35	60.3	53.5	63.3	64.0	63.3	69.6	64.6
4-Oct-12	10:00	10:30	59.0	56.1	57.1	56.1	57.2	57.2	57.2
10-Oct-12	10:15	10:45	51.9	55.0	59.5	55.0	61.1	73.3	66.1
16-Oct-12	9:30	10:00	50.6	63.3	45.0	63.5	50.9	64.2	60.8
22-Oct-12	14:30	15:00	59.1	59.9	59.4	57.3	59.4	58.1	59.0
<b>Limit Level in dB(A)</b>									<b>75</b>

5.03 It was noted that no noise complaint (which is an Action Level exceedance) was received. In view of the results shown in *Tables 5-1, 5-2, 5-3 and 5-4* which were all below 75dB(A), no Action or Limit Level exceedance was triggered during this month.



## 6 IMPACT MONITORING RESULTS – WATER QUALITY

- 6.01 The construction of marine outfall works was commenced on 19 July 2011 and therefore marine water quality monitoring is required in this Reporting Period. In this Reporting Period, 12 events of water quality monitoring were carried out at the designated locations.
- 6.02 The monitoring results including in-situ measurements and laboratory testing results are presented in [Appendix G](#). The graphical plots are shown in [Appendix H](#).
- 6.03 During the Reporting Period, field measurements of both control and impact stations showed that marine water of the depth average of the salinity concentration was within **33.36 to 34.98** ppt, and pH value was within **6.47 to 7.67**.
- 6.04 Monitoring results of 3 key parameters: dissolved oxygen (DO), turbidity and suspended solids (SS) in this Reporting Period, are summarized in [Tables 6-1, 6-2, 6-3 and 6-4](#). A summary of exceedances for the 3 parameters are shown in [Table 6-5](#).

**Table 6-1 Summary of Water Quality Results – Mid-ebb Tides (Dissolved Oxygen)**

Sampling date	Dissolved Oxygen conc. of Depth Ave. of Surf. and Mid Layer (mg/L)						Dissolved Oxygen conc. of Depth Ave. of Bottom Layer (mg/L)					
	W1	W2	W3	C1	C2	C3	W1	W2	W3	C1	C2	C3
26-Sep-12	6.22	5.66	5.48	6.04	6.32	6.61	NA	5.46	5.45	5.66	5.58	5.92
28-Sep-12	5.62	5.13	5.23	5.04	4.98	5.69	NA	4.73	4.95	4.94	4.63	5.19
4-Oct-12	5.63	5.37	5.62	5.79	7.26	5.89	NA	4.51	4.52	4.67	5.17	4.59
6-Oct-12	7.26	7.06	6.61	6.45	7.32	6.21	NA	5.51	5.48	4.73	5.18	4.62
8-Oct-12	6.24	7.07	6.47	6.59	6.42	6.42	NA	6.33	4.72	6.22	6.36	6.36
10-Oct-12	6.68	7.38	7.11	6.93	7.79	7.79	NA	6.28	6.30	4.86	6.55	6.55
12-Oct-12	7.74	7.28	5.95	7.32	6.85	6.85	NA	4.93	4.57	5.00	5.36	5.36
16-Oct-12	6.22	5.71	5.73	6.43	5.32	5.32	NA	4.54	4.05	5.45	4.61	4.61
18-Oct-12	6.17	5.55	5.78	5.54	7.03	7.03	NA	4.42	4.13	4.62	4.74	4.74
20-Dec-12	5.46	4.73	4.72	4.37	4.20	4.20	NA	3.78	3.67	3.49	3.46	3.46
22-Oct-12	5.55	5.33	5.43	5.04	4.43	4.43	NA	3.62	3.66	3.22	3.05	3.05
24-Oct-12	5.41	4.79	4.72	4.29	5.25	5.25	NA	3.84	3.49	3.56	3.68	3.68

**Table 6-2 Summary of Water Quality Results – Mid-ebb Tides (Turbidity & Suspended Solids)**

Sampling date	Turbidity Depth Ave. (NTU)						Suspended Solids Depth Ave. (mg/L)					
	W1	W2	W3	C1	C2	C3	W1	W2	W3	C1	C2	C3
26-Sep-12	1.45	1.52	1.37	1.54	1.40	1.58	5.40	8.07	5.33	5.40	3.40	4.00
28-Sep-12	1.00	1.18	1.20	1.28	1.33	1.24	5.20	6.50	4.67	6.90	4.47	6.50
4-Oct-12	1.18	1.44	1.27	1.46	1.49	1.57	4.30	4.37	4.67	5.47	3.97	4.67
6-Oct-12	0.71	0.89	1.13	1.14	1.27	1.19	7.20	6.17	5.60	6.20	5.33	4.57
8-Oct-12	1.07	1.19	1.21	1.37	1.21	1.39	4.80	6.27	3.70	4.73	4.37	3.37
10-Oct-12	1.35	1.41	1.32	1.52	1.29	1.58	3.60	5.93	5.97	5.57	7.67	5.73
12-Oct-12	0.96	1.13	1.15	1.19	1.05	1.28	2.70	1.97	2.80	5.33	5.07	6.47
16-Oct-12	1.30	1.39	1.41	1.64	1.38	1.64	5.80	4.17	3.70	4.57	5.40	4.47
18-Oct-12	1.49	1.71	1.76	1.69	1.58	1.68	3.60	4.20	3.60	5.70	2.57	6.97
20-Dec-12	1.15	1.28	1.29	1.41	1.46	1.52	8.40	5.63	5.93	10.27	4.93	4.07
22-Oct-12	1.11	1.25	1.26	1.40	1.32	1.36	5.40	5.73	7.70	6.30	7.27	4.87
24-Oct-12	1.05	1.18	1.26	1.45	1.23	1.33	5.70	2.30	3.70	4.93	3.23	3.50

**Table 6-3 Summary of Water Quality Results – Mid-flood Tides (Dissolved Oxygen)**

Sampling date	Dissolved Oxygen conc. of Depth Ave. of Surf. and Mid Layer (mg/L)						Dissolved Oxygen conc. of Depth Ave. of Bottom Layer (mg/L)					
	W1	W2	W3	C1	C2	C3	W1	W2	W3	C1	C2	C3
26-Sep-12	5.47	5.54	5.65	5.96	5.91	5.56	NA	5.32	5.33	5.43	5.08	5.34
28-Sep-12	5.94	5.73	5.75	5.67	5.88	4.45	NA	4.78	4.49	4.54	4.34	4.36
4-Oct-12	5.43	5.78	5.58	5.06	5.82	4.74	NA	5.61	5.26	4.76	5.28	4.65
6-Oct-12	6.94	5.73	5.81	6.86	6.35	6.25	NA	4.99	4.78	5.15	5.21	5.10
8-Oct-12	7.15	6.88	6.92	7.19	5.96	6.80	NA	5.82	5.57	5.96	5.18	5.44
10-Oct-12	6.47	5.74	6.34	6.97	5.72	6.43	NA	5.82	5.05	5.72	5.03	5.53
12-Oct-12	7.60	7.46	6.90	5.83	3.45	6.13	NA	5.88	4.90	3.45	5.68	3.56
16-Oct-12	6.06	5.38	4.90	5.60	4.34	5.79	NA	3.83	3.91	4.34	3.97	4.43
18-Oct-12	7.44	5.85	6.24	6.08	4.54	5.30	NA	4.89	4.78	4.54	4.60	4.64
20-Dec-12	5.55	5.06	5.15	5.25	4.19	5.93	NA	3.82	4.13	4.19	4.07	5.64
22-Oct-12	5.48	4.76	5.05	4.46	3.72	4.63	NA	3.66	3.65	3.72	3.37	4.13
24-Oct-12	6.00	4.75	4.79	4.55	3.29	4.14	NA	3.74	3.60	3.29	3.23	3.22

**Table 6-4 Summary of Water Quality Results – Mid-flood Tides (Turbidity & Suspended Solids)**

Sampling date	Turbidity Depth Ave. (NTU)						Suspended Solids Depth Ave. (mg/L)					
	W1	W2	W3	C1	C2	C3	W1	W2	W3	C1	C2	C3
26-Sep-12	1.33	1.34	1.38	1.32	1.35	1.34	7.70	8.93	7.07	3.10	3.93	5.40
28-Sep-12	1.09	1.29	1.42	1.55	1.23	1.66	6.10	5.40	7.57	8.87	6.20	6.93
4-Oct-12	1.25	1.42	1.24	1.58	1.34	1.61	6.30	7.03	4.27	4.43	3.40	3.73
6-Oct-12	0.85	1.09	1.23	1.26	1.29	1.35	7.80	5.20	3.23	4.50	5.80	6.60
8-Oct-12	1.12	1.31	1.37	1.42	1.22	1.51	4.00	3.93	4.60	3.07	2.13	4.87
10-Oct-12	1.41	1.34	1.49	1.54	1.43	1.47	11.00	6.97	8.00	5.07	7.17	15.70
12-Oct-12	0.72	1.15	0.96	1.30	0.93	1.39	3.50	2.40	5.70	4.60	3.57	6.43
16-Oct-12	1.46	1.55	1.39	1.52	1.43	1.64	7.70	4.13	3.70	5.20	4.80	3.63
18-Oct-12	1.65	1.61	1.51	1.83	1.59	1.69	5.40	3.43	5.87	4.47	4.90	5.53
20-Dec-12	1.52	1.51	1.44	1.61	1.56	1.58	2.40	1.53	2.13	6.33	9.87	9.47
22-Oct-12	1.05	1.16	1.27	1.36	1.25	1.40	6.20	7.93	4.93	6.20	6.13	5.80
24-Oct-12	1.04	1.20	1.24	1.34	1.23	1.36	4.60	2.63	3.00	4.17	2.23	3.43

**Table 6-5 Summarized Exceedances of Marine Water Quality**

Station	DO (Ave of Surf. & mid-depth)		DO (Ave. of Bottom Layer)		Turbidity (Depth Ave.)		SS (Depth Ave)		Total Exceedance	
	Action	Limit	Action	Limit	Action	Limit	Action	Limit	Action	Limit
<b>Mid-Ebb</b>										
W1	0	0	0	0	0	0	0	0	0	0
W2	0	0	0	0	0	0	0	0	0	0
W3	0	0	0	0	0	0	0	0	0	0
<b>Mid-Flood</b>										
W1	0	0	0	0	0	0	0	0	0	0
W2	0	0	0	0	0	0	0	0	0	0
W3	0	0	0	0	0	0	0	0	0	0
No of Exceedance	0	0	0	0	0	0	0	0	0	0

6.05 For marine water monitoring, no exceedance of Action/Limit levels was recorded in this Reporting Period. Therefore, no associated corrective actions were then required.

## 7 ECOLOGY

- 7.01 According to Clause 3.7 and Figure 4 in the Environmental Permit No. EP-281/2007/A, a total of 12 numbers *Celtis Timorensis* (uncommon species) in Chung Mei at Sok Kwu Wan, are identified to require labeling, fencing and protection. Out of these, four numbers located in the Pumping Station No.1 area are required to be transplanted in advance of pumping station construction and the transplantation proposal has been submitted to EPD previously.
- 7.02 Regular inspection of the transplanted tree was carried out by the landscaping sub-Contractor (Melofield Nursery and Landscape Contractor Limited) on **29 September and 15 October 2012**. As a contingency measure in case that CT7 to CT10 can no longer be recovered, additional 7 no. of *Celtis Timorensis* (No. CT\_1A to CT7A) were planted adjacent to the under-monitoring *Celtis Timorensis* CT7 to CT10 on 30 April 2011. In April 2012, CT\_1A and CT\_7A were damaged by the fell broken tree trunk due to tree decayed by white ants. Therefore, only 5 no. of additional *Celtis Timorensis*, namely CT\_2A, CT\_3A, CT4A, CT\_5A and CT\_6A were inspected since May 2012. Furthermore, during tree inspection on 30 July, CT4A was disappeared after typhoon No.10 on 24 July and it was certified as dead. Eventually, 4 no. of additional *Celtis Timorensis*, namely CT\_2A, CT\_3A, CT\_5A and CT\_6A were inspected in the remaining period.
- 7.03 The tree inspection report for this Reporting Period is presented in [Appendix M](#).

## 8 WASTE MANAGEMENT

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

### Records of Waste Quantities

8.02 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

8.03 The quantities of waste for disposal in this Reporting Period are summarized in [Table 8-1](#) and [8-2](#) and the Monthly Summary Waste Flow Table is shown in [Appendix J](#). Whenever possible, materials were reused on-site as far as practicable.

**Table 8-1 Summary of Quantities of Inert C&D Materials**

Type of Waste	Quantity	Disposal Location
C&D Materials (Inert) ('000m <sup>3</sup> )	0	-
Reused in the Contract (Inert) ('000m <sup>3</sup> )	0	-
Reused in other Projects (Inert) ('000m <sup>3</sup> )	0	-
Disposal as Public Fill (Inert) ('000m <sup>3</sup> )	0	-

**Table 8-2 Summary of Quantities of C&D Wastes**

Type of Waste	Quantity	Disposal Location
Metal (kg)	0	-
Paper / Cardboard Packing (kg)	0	-
Plastic (kg)	0	-
Chemical Wastes (kg)	0	-
General Refuses (tonne)	3.47	Outlying Islands Transfer Facilities (Sok Kwu Wan)

8.04 There was no site effluent discharged but the estimated volume of surface runoff was less than 50m<sup>3</sup> in this monthly period.

**9 SITE INSPECTION**

- 9.01 According to the Environmental Monitoring and Audit Manual, the environmental site inspection should be formulated by ET Leader. Regular environmental site inspections had been carried out by the ET to confirm the environmental performance. In this Reporting Period, weekly joint site inspection by RE, the Contractor and ET was carried out on **5, 9 and 16 October 2012**.
- 9.02 The findings/ deficiencies that observed during the weekly site inspection are listed in *Table 9-1* and the relevant checklists are attached in *Appendix K*.

**Table 9-1 Site Observations**

<b>Date</b>	<b>Findings / Deficiencies</b>	<b>Follow-Up Status</b>
5 October 2012	<ul style="list-style-type: none"> <li>No adverse environmental impacts were observed during site inspection. However, full implementation of the required environmental mitigation measures is reminded.</li> </ul>	N.A.
9 October 2012	<ul style="list-style-type: none"> <li>No adverse environmental impacts were observed during site inspection. However, full implementation of the required environmental mitigation measures, particularly construction dust suppression measures during dusty activities under dry and wind conditions, is reminded.</li> </ul>	Not required for general reminders.
16 October 2012	<ul style="list-style-type: none"> <li>No adverse environmental impacts were observed during site inspection. However, full implementation of the required environmental mitigation measures, particularly construction dust suppression measures during dusty activities under dry and wind conditions, is reminded.</li> </ul>	Not required for general reminders.

**10 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE**

10.01 No environmental complaint, summons and prosecution was received in this Reporting Period. The statistical summary table of environmental complaint is presented in *Tables 10-1, 10-2* and *10-3*.

**Table 10-1 Statistical Summary of Environmental Complaints**

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
27 July 2010 – 31 December 2011	1 (Nov 2011)	1 (Nov 2011)	water quality
January - September 2012	0	1 (Nov 2011)	NA
October 2012	0	1 (Nov 2011)	NA

**Table 10-2 Statistical Summary of Environmental Summons**

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
27 July 2010 – 31 December 2011	0	0	NA
January - September 2012	0	0	NA
October 2012	0	0	NA

**Table 10-3 Statistical Summary of Environmental Prosecution**

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
27 July 2010 – 31 December 2011	0	0	NA
January - September 2012	0	0	NA
October 2012	0	0	NA

## 11 IMPLEMENTATION STATUS OF MITIGATION MEASURES

11.01 The environmental mitigation measures that recommended in the Sok Kwu Wan Environmental Monitoring and Audit covered the issues of dust, noise, water and waste and they are summarized as following:

### Dust Mitigation Measure

11.02 Installation of 2m high solid fences around the construction site of Pumping Station P2 is recommended. Implementation of the requirements stipulated in the Air Pollution Control (Construction Dust) Regulation and the following good site practices are recommended to control dust emission from the site:

- (a) Stockpiles of imported material kept on site should be contained within hoardings, dampened and / or covered during dry and windy weather;
- (b) Material stockpiled alongside trenches should be covered with tarpaulins whenever works are close to village houses;
- (c) Water sprays should be used during the delivery and handling of cement, sands, aggregates and the like.
- (d) Any vehicle used for moving sands, aggregates and construction waste shall have properly fitting side and tail boards. Materials should not be loaded to a level higher than the side and tail boards, and should be covered by a clean tarpaulin.

### Noise Mitigation Measure

11.03 As detailed in the EIA report, concreting work of the Pumping Station P1a and sewer alignment construction activities would likely cause adverse noise impacts on some of the noise sensitive receivers. Appropriate mitigation measures have therefore been recommended. The mitigation measures recommended in the EIA report are summarised below:

- (a) Use of quiet equipment for the construction activities of the Pumping Stations and sewer alignment;
- (b) Use of temporary noise barrier around the site boundary of Pumping Station P1a;
- (c) Use of kick ripper (saw and lift) method to replace the breaker for pavement removal during sewer alignment construction;
- (d) Restriction on the number of plant during sewer alignment construction;
- (e) Use of noise screening structures in the form of acoustic shed or movable barrier wherever practicable and feasible in areas with sufficient clearance and headroom during the construction of sewer alignment;
- (f) Adoption of manual working method wherever practicable and feasible in areas where the worksites of the proposed sewer alignment are located less than 20m from the residential noise sensitive receivers and less than 30m from the temple and the public library; and
- (g) Implementation of the following good site practices:
  - Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme.
  - Mobile plant, if any, should be sited as far away from NSRs as possible.
  - Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.
  - Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.
  - Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.

### Water Quality Mitigation Measure

11.04 No-dig method using Horizontal Directional Drilling (HDD) would be used for the installation of outfall pipe of about 480 m from shore to minimize the potential water quality impacts arising from the dredging works required for the submarine outfall construction. For the remaining outfall pipe of about 240m and the diffuser section, open trench dredging would still be required.

- 11.05 During the dredging works, the Contractor should be responsible for the design and implementation of the following mitigation measures.
- Dredging should be undertaken using closed grab dredgers with a total production rate of 55m<sup>3</sup>/hr;
  - Deployment of 2-layer silt curtains with first layer enclosing the grab and the second layer at around 50, from the dredging area while dredging works are in progress;
  - all vessels should be sized such that adequate clearance (i.e. minimum clearance of 0.6m) is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;
  - all pipe leakages should be repaired promptly and plant shall not be operated with leaking pipes;
  - excess material should be cleaned from the decks and exposed fittings of barges before the vessel is moved;
  - adequate freeboard (i.e. minimum of 200m) should be maintained on barges to ensure that decks are not washed by wave action;
  - all barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material; and
  - loading of barges and hoppers should be controlled to prevent splashing of dredged material to the surrounding water, and barges and hoppers should not be filled to a level which would cause the overflow of materials or sediment laden water during loading or transportation; and
  - the decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard.

Construction Run-off and Drainage

- 11.06 The Contractor should observe and comply with the Water Pollution Control Ordinance and the subsidiary regulations. The Contractor should follow the practices, and be responsible for the design, construction, operation and maintenance of all the mitigation measures as specified in ProPECC PN 1/94 “Construction Site Drainage”. The design of the mitigation measures should be submitted by the Contractor to the Engineer for approval. These mitigation measures should include the following practices to minimise site surface runoff and the chance of erosion, and also to retain and reduce any suspended solids prior to discharge:
- Provision of perimeter channels to intercept storm-runoff from outside the site. These should be constructed in advance of site formation works and earthworks.
  - Works programmes should be designed to minimize works areas at any one time, thus minimising exposed soil areas and reducing the potential for increased siltation and runoff.
  - Sand/silt removal facilities such as sand traps, silt traps and sediment basins should be provided to remove the sand/silt particles from run-off. These facilities should be properly and regularly maintained. These facilities shall be carefully planned to ensure that they would be installed at appropriate locations to capture all surface water generated on site.
  - Careful programming of the works to minimise soil excavation works during rainy seasons.
  - Exposed soil surface should be protected by paving or hydroseeding as soon as possible to reduce the potential of soil erosion.
  - Trench excavation should be avoided in the wet season, and if necessary, these should be excavated and backfilled in short sections.
  - Open stockpiles of construction materials on site should be covered with tarpaulin or similar fabric.

General Construction Activities

- 11.07 Debris and rubbish generated on-site should be collected, handled and disposed of properly to avoid entering the nearby coastal waters and stormwater drains. All fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. Open drainage channels and culverts near the works areas should be covered to block the entrance of large debris and refuse.



Wastewater Arising from Workforce

- 11.08 Portable toilets shall be provided by the Contractors, where necessary, to handle sewage from the workforce. The Contractor shall also be responsible for waste disposal and maintenance practices

**Sediment Contamination Mitigation Measure**

- 11.09 The basic requirements and procedures for dredged mud disposal are specified under the WBTC No. 34/2002. The management of the dredging, use and disposal of marine mud is monitored by the MFC, while the licensing of marine dumping is the responsibility of the Director of Environmental Protection (DEP).
- 11.10 The uncontaminated dredged sediment will be loaded onto barges and transported to the designated marine disposal site. Appropriate dredging methods have been incorporated into the recommended water quality mitigation measures including the use of closed-grab dredgers and silt curtains. Category L sediment would be suitable for disposal at a gazetted open sea disposal ground.
- 11.11 During transportation and disposal of the dredged marine sediments, the following measures should be taken to minimize potential impacts on water quality:
- Bottom opening of barges should be fitted with tight fitting seals to prevent leakage of material. Excess material should be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved.
  - Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels should be equipped with automatic self-monitoring devices as specified by the DEP.

**Construction Waste Mitigation Measure**

Good Site Practices and Waste Reduction Measures

- 11.12 It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are strictly followed. Recommendations for good site practices for the construction waste arising include:
- Nomination of an approved person, such as a site manager, to be responsible for the implementation of good site practices, arranging for collection and effective disposal to an appropriate facility, of all wastes generated at the site.
  - Training of site personnel in proper waste management and chemical handling procedures.
  - Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.
  - Provision of sufficient waste disposal points and regular collection for disposal.
  - Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility.
  - Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.
  - Maintain records of the quantities of wastes generated, recycled and disposed.
- 11.13 In order to monitor the disposal of C&D waste at landfills and to control fly tipping, a trip-ticket system should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.
- 11.14 Good management and control can prevent the generation of significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:
- segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;

- to encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to segregate this waste from other general refuse generated by the work force;
- any unused chemicals or those with remaining functional capacity should be recycled;
- use of reusable non-timber formwork to reduce the amount of C&D material;
- prior to disposal of C&D waste, it is recommended that wood, steel and other metals should be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill;
- proper storage and site practices to minimise the potential for damage or contamination of construction materials; and
- plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.

#### General Site Wastes

- 11.15 A collection area should be provided where waste can be stored prior to removal from site. An enclosed and covered area is preferred for the collection of the waste to reduce 'wind blow' of light material.

#### Chemical Wastes

- 11.16 After use, chemical waste (eg. cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Any unused chemicals or those with remaining functional capacity should be recycled. Spent chemicals should be properly stored on site within suitably designed containers, and should be collected by an approved operator for disposal at the Chemical Waste Treatment Facility or other licenced facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation under the Waste Disposal Ordinance.
- 11.17 Any service shop and minor maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakages and spillage should only be undertaken with the areas appropriately equipped to control these discharges.

#### Construction and Demolition Material

- 11.18 The C&D material should be separated on-site into three categories: (i) public fill, the inert portion of the C&D material (e.g. concrete and rubble), which should be re-used on-site or disposed of at a public filling area; (ii) C&D waste for re-use and/or recycling, the non-inert portion of the C&D material, (e.g. steel and other metals, wood, glass and plastic); (iii) C&D waste which cannot be re-used and/or recycled. The waste producers are responsible for its disposal at strategic landfills.
- 11.19 In order to minimise the impact resulting from collection and transportation of material for off-site disposal, it was recommended that inert material should be re-used on-site where possible. Prior to disposal of C&D material, it was also recommended that steel and other metals should be separated for re-use and/or recycling where practicable to minimise the quantity of waste to be disposed of to landfill.

#### Ecology Mitigation Measure

##### Terrestrial Ecology

- 11.20 The uncommon tree species should be labelled and probably fenced to avoid direct or indirect disturbance during construction. Works areas should avoid woodland habitats, in particular where these trees are located.
- 11.21 Construction and maintenance of site runoff control measures would be required at all work sites during construction. These should include barriers to direct runoff to sand/silt removal facilities (sand/silt/traps and/or sediment basins); minimisation of earthworks during rainy season (May to September); and coverage of sand/fill piles and exposed earth during storms.

- 11.22 Special attention should be paid during the breeding season of Romer’s Tree Frog (March to September) to ensure their habitat landward to Pumping Station P2 site is well protected from site runoff. Barriers should be deployed completely along the landward side of the pumping station site boundary to prevent any site runoff from entering the tree frog habitat. Intactness of the barriers should be frequently inspected.

Intertidal and Subtidal Ecology

- 11.23 Construction and maintenance of site runoff control measures would be required at all work sites during construction. These should include barriers to direct runoff to sand/silt removal facilities (sand/silt/traps and/or sediment basins); use of silt curtains along coastline; minimisation of earthworks during rainy season (May to September); and coverage of sand/fill piles and exposed earth during storms.
- 11.24 To reduce impacts of sediment resuspension upon nearby habitats and organisms during dredging, all dredging should be done using a closed-grab dredger, and silt curtains should be deployed around the dredger during all dredging activity

Fisheries Mitigation Measure

- 11.25 Closed grab dredger, deployment of silt curtains around the immediate dredging area and low dredging rate have been recommended in Water Quality of the EIA report in order to minimise sediment release into the water column.

Landscape & Visual Mitigation Measure

- 11.26 Mitigation measures recommended in the EIA Report for landscape and visual impacts during the construction stage are summarised below.
- Screening of site construction works by use of hoarding that is appropriate to its site context;
  - Retaining existing trees and minimising damage to vegetation where possible by close co-ordination and on site alignment adjusted of rising main and gravity sewer pipelines. Tree protective measures should be implemented to ensure trees identified as to be retained are satisfactorily protected during the construction phase;
  - Careful and efficient transplanting of affected trees (1 no.) to temporary or final transplant location (the proposed tree to be transported is a semi-mature *Macaranga tanarius* and is located at the proposed Pumping Station P2 location);
  - Short excavation and immediate backfilling of sections upon completion of works to reduce active site area;
  - Conservation of top-soil for reuse.
  - Night-time light source from marine fleets should be directed away from the residential units
- 11.27 The implementation schedule of mitigation measures is presented in [Appendix L](#).
- 11.28 Leader had been implementing the required environmental mitigation measures according to the Sok Kwu Wan Environmental Monitoring and Audit Manual subject to the site condition. Environmental mitigation measures generally implemented by Leader in this Reporting Period are summarized in [Table 11-1](#).

**Table 11-1 Environmental Mitigation Measures**

Issues	Environmental Mitigation Measures
Water Quality	<ul style="list-style-type: none"> <li>• Drainage channels were provided to convey run-off into the treatment facilities; and</li> <li>• Drainage systems were regularly and adequately maintained.</li> </ul>
Air Quality	<ul style="list-style-type: none"> <li>• Cover all excavated or stockpile of dusty material by impervious sheeting or sprayed with water to maintain the entire surface wet;</li> <li>• Public roads around the site entrance/exit had been kept clean and free from dust; and</li> <li>• Tarpaulin covering of any dusty materials on a vehicle leaving the site.</li> </ul>

Issues	Environmental Mitigation Measures
Noise	<ul style="list-style-type: none"><li>• Good site practices to limit noise emissions at the sources;</li><li>• Use of quiet plant and working methods;</li><li>• Use of site hoarding or other mass materials as noise barrier to screen noise at ground level of NSRs; and</li><li>• To minimize plant number use at the worksite.</li></ul>
Waste and Chemical Management	<ul style="list-style-type: none"><li>• 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;</li><li>• Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner;</li><li>• The Contractor should adopt a trip ticket system for the disposal of C&amp;D materials to any designed public filling facility and/or landfill; and</li><li>• Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.</li></ul>
General	<ul style="list-style-type: none"><li>• The site was generally kept tidy and clean.</li></ul>

## 12 IMPACT FORECAST

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

### Water Quality

- Erect of sand bag in proper area to avoid any muddy surface runoff from the loose soil surface or haul road during the rainy days; and
- The accumulated stagnant water should be drained away.

### Air Quality

- Vehicles shall be cleaned of mud and debris before leaving the site;
- Stockpile and loose soil surface shall be covered with tarpaulin sheet or other means to eliminate the fugitive dust;
- Water spaying on the dry haul road and exit/entrance of the site in regular basis is reminded; and
- Public roads around the site entrance/exit had been kept clean and free from dust.

### Noise

- Works and equipment should be located to minimize noise nuisance from the nearest sensitive receiver; and
- Idle equipments should be either turned off or throttled down;

### Waste and Chemical Management

- Housekeeping on site shall be improved;
- The Contractor is advised to fence off the construction waste at a designated area in order to maintain the tidiness of the site;
- Drip tray and proper label should be provided for all chemical containers.
- C&D waste should be disposed in regular basis.

### 13 CONCLUSIONS AND RECOMMENDATIONS

#### CONCLUSIONS

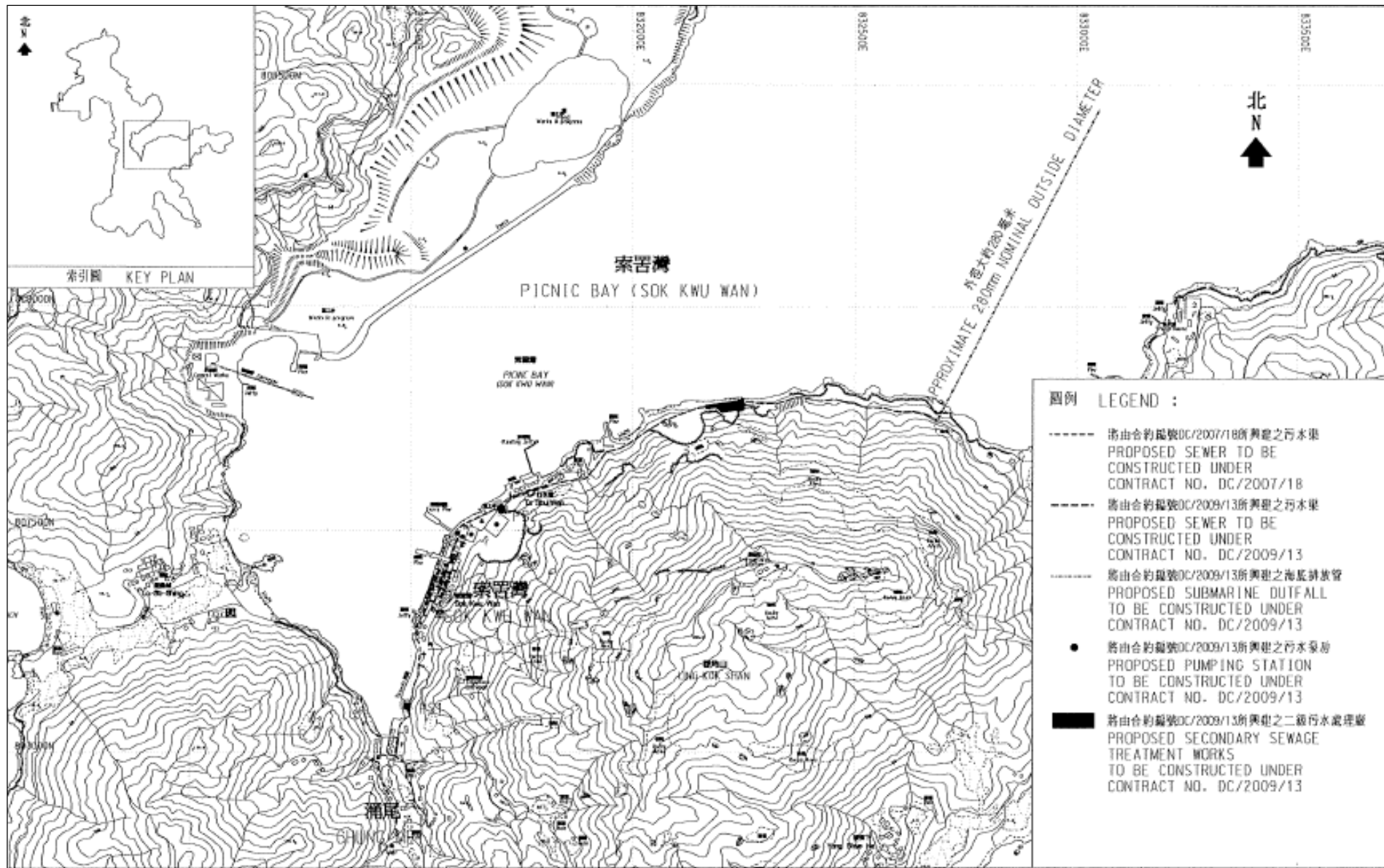
- 13.01 This is the 27<sup>th</sup> monthly EM&A Report covering the construction period from **26 September to 25 October 2012**.
- 13.02 In this Reporting Period, no 1-hour and 24-hour TSP results were found to be triggered the Action or Limit Level
- 13.03 No noise complaint (an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in this Reporting Period.
- 13.04 The monitoring result demonstrated no exceedance of Action or Limit Level of marine water quality monitoring in this Reporting Period.
- 13.05 No documented complaint, notification of summons or successful prosecution was received.
- 13.06 In this Reporting Period, weekly joint site inspection by RE, the Contractor and ET was carried out on **5, 9 and 16 October 2012**. All the observation has been rectified during the next week site inspection. The environmental performance of the Project was therefore considered as satisfactory.
- 13.07 No site inspection was undertaken by external parties i.e. Environmental Protection Department (EPD) or Agriculture, Fisheries and Conservation Department (AFCD) within the Reporting Period.

#### RECOMMENDATIONS

- 13.08 During dry season, special attention should be paid to the dust mitigation measures to avoid fugitive dust emissions from loose soil surface or haul road. Nevertheless, mitigation measures implemented for control the surface runoff including wheel wash facilities, covering of the loose soil surface or stockpile with tarpaulin sheet, etc., should fully implement.
- 13.09 Muddy water and other water quality pollutants via site surface water runoff into the sea body within Fish Culture Zone (FCZ) at Picnic Bay and the secondary recreation contact subzone at Mo Tat Wan is the key issue of the Project. Mitigation measures for water quality should be properly maintained to prevent any muddy or sandy runoff from the loose soil surface overflow on the site boundary.

## **Appendix A**

### **Site Layout Plan – Sok Kwu Wan Portion Area**





## **Appendix B**

### **Organization Structure and Contact Details of Relevant Parties**

Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
DSD	Employer	Mr Kenley C K Kwok	-	-
SCJV	Engineer's Representative	Mr. Neil Wong	2982 0240	2982 4129
SCJV	Resident Engineer	Mr. Alfred Cheung	2982 0240	2982 4129
Scott Wilson	Independent Environmental Checker	Mr. Rodney Ip	2410 3750	2428 9922
Leader	Project Manager	Mr. Vincent Chan	2982 1750	2982 1163
Leader	Construction Manager	Mr. K. Y. So	2982 1750	2982 1163
Leader	Assistant Construction Manager	Mr. Ron Hung	2982 1750	2982 1163
Leader	Environmental Officer	Mr. William Wong	2982 8652	2982 8650
Leader	Sub-Agent	Mr. Burgess Yip	2982 1750	2982 1163
Leader	Safety Officer	Mr. Edwin Leung	2982 1750	2982 1163
AUES	Environmental Team Leader	Mr. T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Ms. Nicola Hon	2959 6059	2959 6079
AUES	Team Supervisor	Mr. Ben Tam	2959 6059	2959 6079

Legend:

*DSD (Employer) – Drainage Services Department*

*CDM (Engineer) – Scott Wilson CDM Joint Venture*

*Leader (Main Contractor) – Leader Civil Engineering Corporation Limited*

*Scott Wilson (IEC) – Scott Wilson Limited*

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

## **Appendix C**

### **A Master and Three Months Rolling Construction Programme**

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012				2013	
											SEP	OCT	NOV	DEC	JAN	
<b>Project Key Date</b>																
KD0010	Receive Letter of Acceptance	0	100		05/05/10 A		05/05/10 A			KD0125						
KD0020	Project Commencement Date	0	100		17/05/10 A		17/05/10 A			E&M0010, E&M0070, E&M1001, E&M2001, KD0125, PRE0020, PRE0040, PRE0050, PRE0060, PRE0090, PRE0100, PRE0130, SKW0250, SKW0588, SKW0651, SKW0881, SKW1131, SKW1481, SKW1591, SKW1611, YSW0020, YSW0050, YSW0075, YSW0180, YSW0200, YSW0220, YSW0240, YSW02401, YSW0412, YSW0422						
KD0030	Section W1 - Slope Works in Portion A & C	0	100		14/10/11 A		14/10/11 A		YSW0100, YSW0110, YSW0140,	KD0125, KD0130						
KD0050	Section W3 - Footpath Diversion in Ptn G	0	100		24/03/11 A		24/03/11 A		SKW0481	KD0125						
KD0060	Section W4 - Slope Works in Portion H & I	0	100		27/03/12 A		27/03/12 A		SKW05938, SKW059416	KD0125, KD0135, SKW05941						
KD0070	Section W5 - P.S. No. 1 in Portion D	0	100		10/02/12 A		10/02/12 A		SKW0741	KD0125						
KD0080	Section W6 - Sewer & PS No2 in Ptn. E & F	0	100		10/02/12 A		10/02/12 A		SKW0971	KD0125						
KD0115	Start Operate Temp Sewage Treatment in Port. A&H	0	0		27/01/13		27/01/13	0	E&M0510	KD0125						
KD0130	Completion of Maintenance Period of W1	1	0	13/10/12	13/10/12 *	13/10/12	13/10/12 *	0	KD0030, YSW01755, YSW01805, YSW01810							
<b>Preliminary (Civil)</b>																
PRE0020	Pre-condition Survey	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A		KD0020							
PRE0040	Erection of Engineer's Site Accommodation at YSW	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A		KD0020							
PRE0050	Taking over the Secondary Engineer's Site Accom	75	100	17/05/10 A	30/07/10 A	17/05/10 A	30/07/10 A		KD0020							
PRE0060	Application of Consent from Marine Department	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A		KD0020							
PRE0090	Working Group Meeting for Outfall Construction	120	100	17/05/10 A	13/09/10 A	17/05/10 A	13/09/10 A		KD0020	SKW1151						
PRE0100	Application & Consent of XP from HyD (Mo Tat Rd)	120	100	17/05/10 A	13/09/10 A	17/05/10 A	13/09/10 A		KD0020	SKW1491, SKW1501						
PRE0130	Setup Web-site for EM&A Reporting	90	100	17/05/10 A	14/08/10 A	17/05/10 A	14/08/10 A		KD0020							
<b>Preliminary (E&amp;M)</b>																
<b>Technical Submission</b>																
<b>Process Design of SKWSTW &amp; YSWSTW</b>																
E&M0010	Submission	38	100	17/05/10 A	23/06/10 A	17/05/10 A	23/06/10 A		KD0020	E&M0020, E&M0040, E&M0235						
E&M0020	Verfing and Comment by ER	21	100	24/06/10 A	14/07/10 A	24/06/10 A	14/07/10 A		E&M0010	E&M0030, E&M0040						
E&M0030	Revision and Resubmission	125	100	15/07/10 A	16/11/10 A	15/07/10 A	16/11/10 A		E&M0020	E&M0080						
E&M0080	Approval from the Engineer	14	100	17/11/10 A	30/11/10 A	17/11/10 A	30/11/10 A		E&M0030	E&M0295						
<b>Hydraulic Design</b>																
E&M0040	Submission	21	100	15/07/10 A	04/08/10 A	15/07/10 A	04/08/10 A		E&M0010, E&M0020	E&M0050, E&M0101, E&M0240, E&M0260,						
E&M0050	Verfing and Comment by ER	14	100	05/08/10 A	18/08/10 A	05/08/10 A	18/08/10 A		E&M0040	E&M0060						
E&M0060	Revision and Resubmission	97	100	19/08/10 A	10/11/10 A	19/08/10 A	10/11/10 A		E&M0050	E&M0430						
E&M0430	Approval from the Engineer	7	100	24/11/10 A	30/11/10 A	24/11/10 A	30/11/10 A		E&M0060	E&M0295						
<b>Equipment Submission &amp; Approval</b>																
E&M0070	Submission of Membrane Module	50	100	17/05/10 A	05/07/10 A	17/05/10 A	05/07/10 A		KD0020	E&M0090						
E&M0090	Verfing and Comment by ER	14	100	06/07/10 A	19/07/10 A	06/07/10 A	19/07/10 A		E&M0070	E&M0100						
E&M0100	Revision and Resubmission	14	100	20/07/10 A	24/02/11 A	20/07/10 A	24/02/11 A		E&M0090	E&M0160						
E&M0101	Submission of Equipment	90	100	05/08/10 A	30/11/11 A	05/08/10 A	30/11/11 A		E&M0040	E&M0102						
E&M0102	Verfing and Comment by ER	60	100	03/11/10 A	30/11/11 A	03/11/10 A	30/11/11 A		E&M0101	E&M0103						
E&M0103	Revision and Resubmission	60	100	01/02/11 A	30/11/11 A	01/02/11 A	30/11/11 A		E&M0102	E&M0110, E&M0120, E&M0130, E&M0140,						
E&M0110	Approval on Coarse Screens	30	100	25/05/11 A	25/05/11 A	25/05/11 A	25/05/11 A		E&M0103	E&M0390						
E&M0120	Approval on Fine Screens	30	100	12/09/11 A	12/09/11 A	12/09/11 A	12/09/11 A		E&M0103	E&M0400, E&M3060						
E&M0130	Approval on Pumps	30	100	23/06/11 A	23/06/11 A	23/06/11 A	23/06/11 A		E&M0103	E&M0410, E&M3070						
E&M0140	Approval on Submersible Mixers	30	100	23/03/11 A	23/03/11 A	23/03/11 A	23/03/11 A		E&M0103	E&M0420, E&M3080						
E&M0150	Approval on Grit Removal Equipment	30	100	10/10/11 A	10/10/11 A	10/10/11 A	10/10/11 A		E&M0103	E&M0380, E&M3030						
E&M0160	Approval on MBR Membrane Modules (M.M.)	105	100	03/08/10 A	24/02/11 A	03/08/10 A	24/02/11 A		E&M0100	E&M0360, E&M0370, E&M3010						
E&M0170	Approval on Sludge Dewatering Equipment	30	100	01/09/11 A	01/09/11 A	01/09/11 A	01/09/11 A		E&M0103	E&M0440, E&M3090						
E&M0180	Approval on Valves, Pipes & Fittings	30	85	19/11/11 A	04/10/12	19/11/11 A	15/04/13	194d	E&M0103	E&M0450, E&M3100						
E&M0190	Approval on Penstocks	30	100	15/11/11 A	15/11/11 A	15/11/11 A	15/11/11 A		E&M0103	E&M0460, E&M3110						
E&M0200	Approval on Instrumentation	30	100	21/06/11 A	08/03/12 A	21/06/11 A	08/03/12 A		E&M0103	E&M0470, E&M3130						
E&M0210	Approval on MCC & LVSB	30	95	19/11/11 A	01/10/12	19/11/11 A	10/07/12	-83d	E&M0103	E&M0480, E&M3140						
E&M0220	Approval on BS Equipment	30	71	30/11/11 A	14/10/12	30/11/11 A	30/01/13	108d	E&M0103, E&M0280	E&M0490, E&M3150						
E&M0230	Approval on FS Equipment	30	81	30/11/11 A	23/10/12	30/11/11 A	18/02/13	118d	E&M0103, E&M0290	E&M0295, E&M0320, E&M0500, E&M3160						
<b>Drawings Submission &amp; Approval</b>																
E&M0235	Sub. P&ID Drawings	100	75	24/06/10 A	24/10/12	24/06/10 A	15/03/13	142d	E&M0010	E&M0250						
E&M0240	Sub. Plant GA Drawings	45	68	04/08/10 A	14/10/12	04/08/10 A	15/03/13	153d	E&M0040	E&M0250, E&M0280, E&M0290						
E&M0250	Sub. Builder's Works Requirements Drawings	15	85	04/08/10 A	27/10/12	04/08/10 A	18/03/13	142d	E&M0235, E&M0240, E&M0260, E&M0270	E&M0280, E&M0290						
E&M0260	Sub. Mechanical Installation Drawings	60	70	27/09/10 A	17/10/12	27/09/10 A	15/03/13	149d	E&M0040	E&M0250						
E&M0270	Sub. Electrical Installation Drawings	60	75	27/09/10 A	14/10/12	27/09/10 A	15/03/13	152d	E&M0040	E&M0250, E&M0280						
E&M0280	Sub. BS Installation Drawings	120	95	27/09/10 A	05/10/12	27/09/10 A	22/01/13	108d	E&M0240, E&M0250, E&M0270	E&M0220						
E&M0290	Sub. FS Installation Drawings	120	85	13/11/10 A	17/10/12	13/11/10 A	13/02/13	118d	E&M0240, E&M0250	E&M0230						
<b>Statutory Submission</b>																

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**Leader Civil Engineering Corp. Ltd.**  
**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works at YSW & SKW**  
**3-month Rolling Programme (Oct 2012 - Dec 2012)**

(Marked on 30 September 2012)

Date	Revision	Checked	Approved
30/09/12	Revision 0	RH	VC

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012				2013	
											SEP	OCT	NOV	DEC	JAN	
E&M0295	Preparation of Submission to HEC	39	100	01/11/11 A	30/11/11 A	01/11/11 A	30/11/11 A		E&M0080, E&M0230, E&M0430	E&M0300						
E&M0300	Application & Approval from HEC	150	90	01/11/11 A	07/11/12	01/11/11 A	15/04/13	159d	E&M0295	E&M0305						
E&M0305	Provision of Cables to the STWs	180	0	07/11/12	06/05/13	16/04/13	12/10/13	159d	E&M0300	E&M0680						
E&M0320	Form 314 Submission to FSD	14	0	23/10/12	06/11/12	08/08/13	21/08/13	288d	E&M0230	E&M0325, E&M0670						
E&M0325	Submission to WSD	14	100	01/11/11 A	29/02/12 A	01/11/11 A	29/02/12 A		E&M0320	E&M0670, E&M0680						
E&M0350	Form 501 Submission to FSD (PS1 & PS2)	28	0	21/12/12	18/01/13	14/11/12	11/12/12	-37d	E&M2016	E&M1800, E&M2180						
<b>Yung Shue Wan</b>																
<b>Preliminary</b>																
YSW0020	Approval of Environmental Team	16	100	17/05/10 A	01/06/10 A	17/05/10 A	01/06/10 A		KD0020	YSW00201, YSW0030, YSW00351, YSW0040						
YSW00201	Change Baseline Monitoring Location (Air&Noise)	59	100	02/06/10 A	30/07/10 A	02/06/10 A	30/07/10 A		YSW0020	YSW0030						
YSW0030	Baseline monitoring (Air & Noise)	23	100	31/07/10 A	22/08/10 A	31/07/10 A	22/08/10 A		YSW0020, YSW00201	YSW0035						
YSW0035	Baseline Monitoring Report Submission (A & N)	16	100	23/08/10 A	07/09/10 A	23/08/10 A	07/09/10 A		YSW0030	YSW0120, YSW01545, YSW0500, YSW0610,						
YSW00351	Submission & Approval for Monitoring Method (W)	58	100	02/06/10 A	29/07/10 A	02/06/10 A	29/07/10 A		YSW0020	YSW0040						
YSW0040	Baseline monitoring (Water)	155	100	30/07/10 A	31/12/10 A	30/07/10 A	31/12/10 A		YSW0020, YSW00351	YSW0350						
YSW0050	Erect Hoarding and Fencing	60	100	19/05/10 A	17/07/10 A	19/05/10 A	17/07/10 A		KD0020	YSW0155						
<b>Section W1 - Slope Works in Portion A &amp; C</b>																
YSW0075	Mobilization	30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020	YSW0080, YSW0100						
YSW0080	Site Clearance	30	100	16/06/10 A	15/07/10 A	16/06/10 A	15/07/10 A		YSW0075	YSW0085, YSW0090, YSW0120						
YSW0085	Initial Survey	14	100	02/07/10 A	15/07/10 A	02/07/10 A	15/07/10 A		YSW0080	YSW0120						
YSW0090	Verify the Rock Boulder required Stabilization Wk	249	100	16/07/10 A	21/03/11 A	16/07/10 A	21/03/11 A		YSW0080	YSW0100, YSW0110						
YSW0100	Removal of Rock Boulder	257	100	20/09/10 A	03/06/11 A	20/09/10 A	03/06/11 A		YSW0075, YSW0090	KD0030						
YSW0110	Stabilizing work for rock boulder	35	100	16/07/11 A	19/08/11 A	16/07/11 A	19/08/11 A		YSW0090	KD0030						
YSW0120	Cut the slope to design profile	2	100	24/09/10 A	25/09/10 A	24/09/10 A	25/09/10 A		YSW0035, YSW0080, YSW0085	YSW0131, YSW0155, YSW0170						
YSW0131	Mobilization of Plant and Material of Soil Nails	14	100	12/09/10 A	25/09/10 A	12/09/10 A	25/09/10 A		YSW0120	YSW0132						
YSW0132	Erect Scaffold and Working Platform	2	100	26/09/10 A	27/09/10 A	26/09/10 A	27/09/10 A		YSW0131	YSW0133						
YSW0133	Setting out and Verify Locations of Soil Nails	45	100	28/09/10 A	11/11/10 A	28/09/10 A	11/11/10 A		YSW0132	YSW0134						
YSW0134	Drilling and Soil Nails Installation	43	100	19/10/10 A	30/11/10 A	19/10/10 A	30/11/10 A		YSW0133	YSW0135						
YSW0135	Construction of Nail Heads	12	100	01/12/10 A	12/12/10 A	01/12/10 A	12/12/10 A		YSW0134	YSW0136						
YSW0136	Mesh Installation on Cut Slope	3	100	13/12/10 A	15/12/10 A	13/12/10 A	15/12/10 A		YSW0135	YSW01361						
YSW01361	Verify alignment of access & channels on slope	118	100	16/12/10 A	12/04/11 A	16/12/10 A	12/04/11 A		YSW0136	YSW0140						
YSW0140	Construct U-channels & Step Channel on Cut Slope	182	100	13/04/11 A	11/10/11 A	13/04/11 A	11/10/11 A		YSW01361	KD0030						
YSW0153	Removal of Ex U-Channel where clash with B. Wall	151	100	10/05/11 A	07/10/11 A	10/05/11 A	07/10/11 A		YSW01545	YSW01750						
YSW01545	Temporary Diversion of Drainage	244	100	08/09/10 A	09/05/11 A	08/09/10 A	09/05/11 A		YSW0035	YSW0153						
YSW0155	RC Barrier Wall Bay 1-13 (below Ground Level)	256	100	26/09/10 A	08/06/11 A	26/09/10 A	08/06/11 A		YSW0050, YSW0120	KD0030, YSW0170, YSW0175						
YSW0170	RC Barrier Wall Bay 1-13 (above Ground Level)	125	100	09/06/11 A	11/10/11 A	09/06/11 A	11/10/11 A		YSW0120, YSW0155	KD0030, YSW01750						
YSW0175	Construct U-channels and Catchpits (Phase 1)	76	100	09/06/11 A	23/08/11 A	09/06/11 A	23/08/11 A		YSW0155	KD0030						
YSW01750	Construction of subsoil drain (phase 1)	120	100	12/10/11 A	08/02/12 A	12/10/11 A	08/02/12 A		YSW0153, YSW0170	YSW01755						
YSW01755	Construct subsoil drain (phase 2)	60	0	08/07/12 A	28/11/12	08/07/12 A	12/10/12	-47d	YSW01750	KD0130						
YSW01800	RC Barrier Wall Bay 14 (below & above Ground)	30	60	03/09/12 A	11/10/12	03/09/12 A	13/09/12	-28d	YSW0760	YSW01805, YSW01810						
YSW01805	Hydroseeding	14	0	12/10/12	25/10/12	29/09/12	12/10/12	-13d	YSW01800	KD0130						
YSW01810	Construct U-channels and Catchpits (Phase 2)	30	0	12/10/12	10/11/12	14/09/12	13/10/12	-28d	YSW01800	KD0130						
<b>Section W2 - YSW STW &amp; Submarine Outfall</b>																
<b>Civil &amp; Structural Work</b>																
YSW0412	Mobilization	30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020	YSW0422						
YSW0422	Site Clearance	30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020, YSW0412	YSW0432, YSW0500, YSW0610, YSW0650						
YSW0432	Initial Survey	14	100	02/06/10 A	15/06/10 A	02/06/10 A	15/06/10 A		YSW0422	YSW0510						
<b>YSW STW - GL H - T</b>																
YSW0500	ELS & Excavation for Inlet Pumping Station	105	100	08/09/10 A	21/12/10 A	08/09/10 A	21/12/10 A		YSW0035, YSW0422	YSW0510						
YSW0510	Sub-structure construction (Inlet Pumping Stn)	129	100	22/12/10 A	29/04/11 A	22/12/10 A	29/04/11 A		YSW0432, YSW0500	YSW0520						
YSW0520	Backfill & Remove ELS (Inlet Pumping Stn)	40	100	30/04/11 A	08/06/11 A	30/04/11 A	08/06/11 A		YSW0510	YSW05701						
YSW0530	ELS & Excavation for Equalization Tank	159	100	01/01/11 A	08/06/11 A	01/01/11 A	08/06/11 A		YSW0660	YSW0540, YSW05701						
YSW0540	Sub-structure construction (Equalization Tank)	112	100	09/06/11 A	28/09/11 A	09/06/11 A	28/09/11 A		YSW0530	YSW0550, YSW05901						
YSW0550	Backfilling & Remove ELS (Equalization Tank)	20	100	29/09/11 A	18/10/11 A	29/09/11 A	18/10/11 A		YSW0540	YSW05901						
YSW05701	ELS & Excavation for Grit Chambers	28	100	09/06/11 A	06/07/11 A	09/06/11 A	06/07/11 A		YSW0520, YSW0530	YSW05711, YSW05731						
YSW05711	Construct sub-structure for Grit Chambers	106	100	07/07/11 A	20/10/11 A	07/07/11 A	20/10/11 A		YSW05701	YSW05721, YSW05911						
YSW05721	Backfill & Remove ELS for Grit Chambers	12	100	21/10/11 A	01/11/11 A	21/10/11 A	01/11/11 A		YSW05711	YSW05911						
YSW05731	ELS & Excavation for Grease Separators (GS)	34	100	07/07/11 A	09/08/11 A	07/07/11 A	09/08/11 A		YSW05701	YSW05741						
YSW05741	Construct sub-structure for Grease Separators	52	100	10/08/11 A	30/09/11 A	10/08/11 A	30/09/11 A		YSW05731	YSW05751						
YSW05751	Install Dia.400 Puddles in Grease Separators	27	100	01/10/11 A	27/10/11 A	01/10/11 A	27/10/11 A		YSW05741	YSW05752						
YSW05752	Construct sub-structure for GS (above puddles)	48	100	28/10/11 A	14/12/11 A	28/10/11 A	14/12/11 A		YSW05751	YSW05761						
YSW05761	Backfill & remove ELS for Grease Separators	10	100	15/12/11 A	24/12/11 A	15/12/11 A	24/12/11 A		YSW05752	YSW0580, YSW05921						
YSW0580	Excavate to Formation for Deodorizer Room	10	100	25/12/11 A	03/01/12 A	25/12/11 A	03/01/12 A		YSW05761	YSW05801, YSW05922						
YSW05801	Excavate to formation - Grid J-N/5-7	40	100	04/01/12 A	12/02/12 A	04/01/12 A	12/02/12 A		YSW0580	YSW05802, YSW05923						
YSW05802	Excavate to formation - Grid GA-H/5-7	10	100	13/02/12 A	22/02/12 A	13/02/12 A	22/02/12 A		YSW05801	YSW05924						

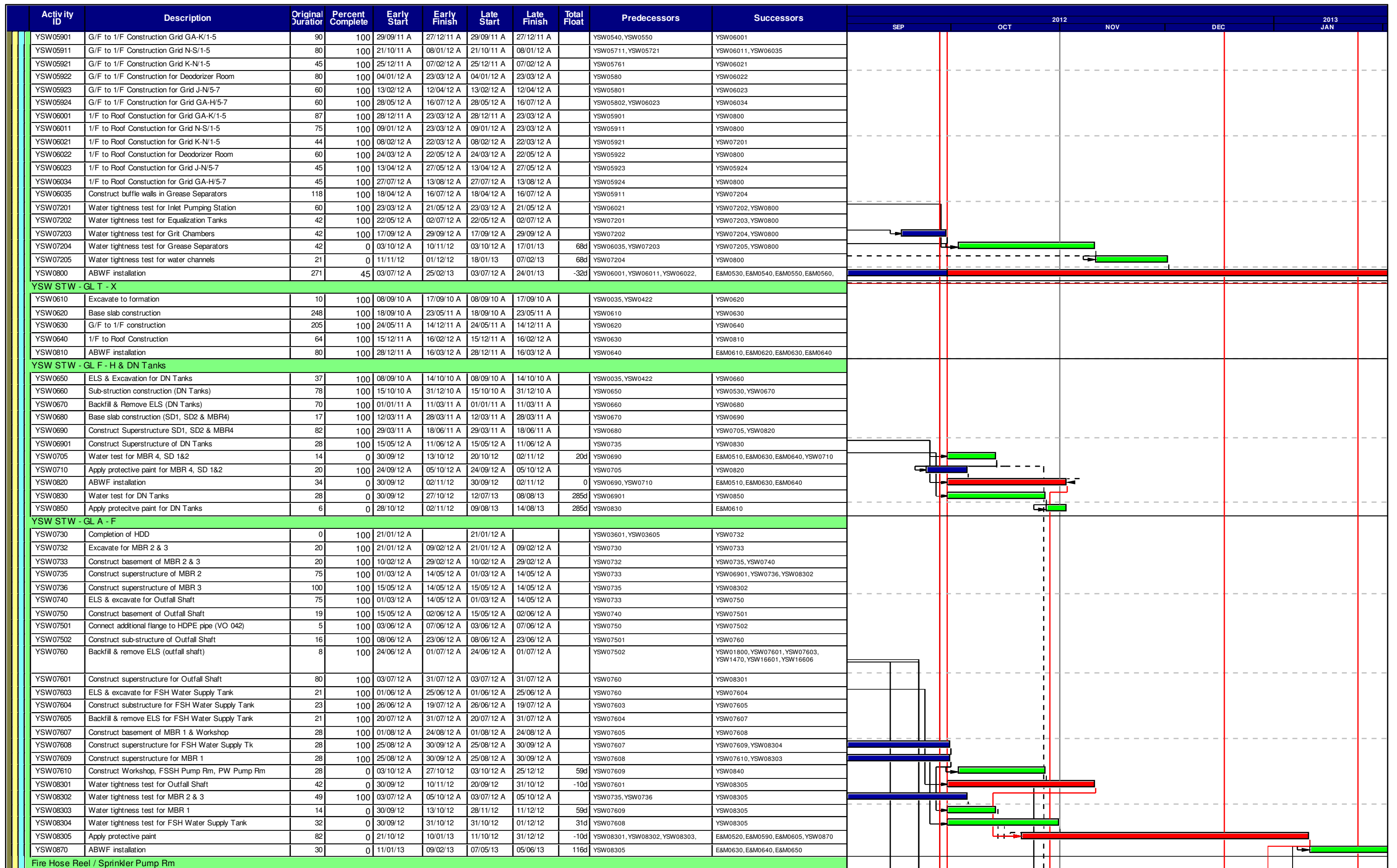
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Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012					2013
											SEP	OCT	NOV	DEC	JAN	
YSW0840	ELS & excavate to formation (+0 mPD approx.)	30	0	28/10/12	26/11/12	26/12/12	24/01/13	59d	YSW07610	YSW0860						
YSW0860	Sub-structure construction	30	0	27/11/12	26/12/12	25/01/13	23/02/13	59d	YSW0840	YSW0880						
YSW0880	Backfill & remove ELS	30	0	27/12/12	25/01/13	24/02/13	25/03/13	59d	YSW0860	YSW0890						
<b>Emergency Storage Tank</b>																
YSW1470	ELS & excavate to formation (+3.5mPD Approx.)	30	50	17/09/12 A	14/10/12	17/09/12 A	30/10/12	16d	YSW0760	YSW1480						
YSW1480	Sub-structure construction	40	0	15/10/12	23/11/12	09/12/12		16d	YSW1470	YSW1490						
YSW1490	Backfill & extract sheetpile	30	0	24/11/12	23/12/12	10/12/12	08/01/13	16d	YSW1480	YSW1500						
YSW1500	Superstructure construction upto +10.5mPD	40	0	24/12/12	01/02/13	09/01/13	17/02/13	16d	YSW1490	YSW1530, YSW1536						
YSW1530	Underground pipeline works	40	0	02/02/13	13/03/13	18/02/13	29/03/13	16d	YSW1500	E&M0690, YSW1680						
YSW1536	Water tightness test	40	0	02/02/13	13/03/13	26/06/13	04/08/13	144d	YSW1500	YSW1538						
<b>Road, Drain, Cable Draw Pits &amp; Ducting</b>																
YSW16601	Construct 6m deep sewer YFMH5-YFMH6 (Grid Q-X)	60	0	30/09/12	28/11/12	16/10/12	14/12/12	16d	YSW0760	YSW16602						
YSW16602	Connect 6m deep sewer to existing manhole FM1	45	0	29/11/12	12/01/13	15/12/12	28/01/13	16d	YSW16601	YSW16603						
YSW16603	Construct UU & pipes along sea side (Grid Q-X)	60	0	13/01/13	13/03/13	29/01/13	29/03/13	16d	YSW16602	YSW16604, YSW16703						
YSW16606	Construct UU & pipes along hill side (Grid D-Q)	60	0	30/09/12	28/11/12	04/02/13	04/04/13	127d	YSW0760	YSW16607						
YSW16607	Construct UU & pipes along hill side (Grid Q-X)	60	10	20/08/12 A	21/01/13	20/08/12 A	28/05/13	127d	YSW16606	YSW16608						
YSW16608	Construct UU & pipes along hill side (Grid XA-D)	60	0	22/01/13	22/03/13	29/05/13	27/07/13	127d	YSW16607	YSW1690						
<b>Submarine Outfall</b>																
YSW0180	Coordination of HEC	53	100	17/05/10 A	08/07/10 A	17/05/10 A	08/07/10 A		KD0020	YSW0350						
YSW0200	Submission and Approval of Ecologist	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A		KD0020	YSW0210						
YSW0210	Ecology Survey	211	100	16/07/10 A	11/02/11 A	16/07/10 A	11/02/11 A		YSW0200	YSW0350						
YSW0220	Submission and Approval of In. Hydro Survey	103	100	17/05/10 A	27/08/10 A	17/05/10 A	27/08/10 A		KD0020	YSW0230						
YSW0230	Hydrographical Survey (YSW)	157	100	28/08/10 A	31/01/11 A	28/08/10 A	31/01/11 A		YSW0220	YSW0350						
YSW0240	Material Submission, Approval of HDPE pipe	319	100	17/05/10 A	31/03/11 A	17/05/10 A	31/03/11 A		KD0020	YSW0360						
YSW02401	Clarify Coordinate of Point Y (Reply of RFI 010)	83	100	28/06/10 A	18/09/10 A	28/06/10 A	18/09/10 A		KD0020	YSW0250						
YSW0250	Submit and Approval of Method Statement for HDD	188	100	19/09/10 A	25/03/11 A	19/09/10 A	25/03/11 A		YSW02401	YSW0260, YSW0270, YSW0340						
YSW0260	Submission of HDD Method Statement to HEC	14	100	26/03/11 A	08/04/11 A	26/03/11 A	08/04/11 A		YSW0250	YSW0340						
YSW0270	Additional G.I. Boreholes (YSW)	123	100	19/09/10 A	19/01/11 A	19/09/10 A	19/01/11 A		YSW0250	YSW0280, YSW0290						
YSW0280	Submission of propose alignment	44	100	20/01/11 A	04/03/11 A	20/01/11 A	04/03/11 A		YSW0270	YSW0310, YSW0340						
YSW0290	Submission of Marine Notice	69	100	20/01/11 A	29/03/11 A	20/01/11 A	29/03/11 A		YSW0270	YSW0350						
YSW0310	Construction of Entry Pit and Preparation Work	27	100	05/03/11 A	31/03/11 A	05/03/11 A	31/03/11 A		YSW0280	YSW0320						
YSW0320	Prepare of HDD Drill Rig Set-up (YSW)	28	100	01/04/11 A	28/04/11 A	01/04/11 A	28/04/11 A		YSW0310	YSW0330, YSW0350						
YSW0330	Establishment of HDD plant & equipment	6	100	09/04/11 A	14/04/11 A	09/04/11 A	14/04/11 A		YSW0320	YSW0340						
YSW0340	Setting up at drillhole location	14	100	15/04/11 A	28/04/11 A	15/04/11 A	28/04/11 A		YSW0250, YSW0260, YSW0280,	YSW0350						
YSW0350	Drill pilot hole and reaming hole - NS400 - 530m	229	100	29/04/11 A	13/12/11 A	29/04/11 A	13/12/11 A		YSW0040, YSW0180, YSW0210,	YSW0360						
YSW0360	Installation of NS400 HDPE 530m	17	100	14/12/11 A	30/12/11 A	14/12/11 A	30/12/11 A		YSW0240, YSW0350	SKW1181, YSW03601, YSW03620, YSW0370						
YSW03601	Demobilization of HDD plant & equipment	7	100	31/12/11 A	06/01/12 A	31/12/11 A	06/01/12 A		YSW0360	YSW03605, YSW03641, YSW0730						
YSW03605	Remove Entry pit of HDD	14	100	07/01/12 A	20/01/12 A	07/01/12 A	20/01/12 A		YSW03601	YSW0730						
YSW03620	Removal of Receiving Pit	14	100	31/12/11 A	13/01/12 A	31/12/11 A	13/01/12 A		YSW0360	YSW0365						
YSW03641	Prepare backfilling material under VO 046A	120	100	07/01/12 A	05/05/12 A	07/01/12 A	05/05/12 A		YSW03601	YSW0365						
YSW0365	Set up of Silt Curtain as per EP	30	0	21/11/12	21/12/12	02/07/13	31/07/13	223d	SKW1431, YSW03620, YSW03641	YSW0370						
YSW0370	Dredging of Marine Deposit for Diffuser (YSW)	14	0	21/12/12	04/01/13	01/08/13	14/08/13	223d	YSW0360, YSW0365	YSW0380						
YSW0380	Diffuser Construction (YSW)	60	0	04/01/13	05/03/13	15/08/13	13/10/13	223d	YSW0370	E&M0690, YSW0400						
<b>E&amp;M Works - YSW STW</b>																
E&M0360	Delivery of MBR Memb. Mod. (MBR Tk 4)	137	100	24/02/11 A	21/06/11 A	24/02/11 A	21/06/11 A		E&M0160	E&M0510						
E&M0370	Delivery of MBR Membrane Modules - 2nd Shipment	150	100	24/02/11 A	17/10/11 A	24/02/11 A	17/10/11 A		E&M0160	E&M0520						
E&M0380	Delivery of Grit Removal Equipment	180	100	10/10/11 A	29/12/11 A	10/10/11 A	29/12/11 A		E&M0150	E&M0530						
E&M0390	Delivery of Coarse Screens	162	100	06/09/11 A	12/01/12 A	06/09/11 A	12/01/12 A		E&M0110	E&M0540						
E&M0400	Delivery of Fine Screens	180	100	12/09/11 A	30/11/11 A	12/09/11 A	30/11/11 A		E&M0120	E&M0550						
E&M0410	Delivery of Pumps	162	100	23/06/11 A	05/09/11 A	23/06/11 A	05/09/11 A		E&M0130	E&M0560						
E&M0420	Delivery of Submersible Mixers	162	100	26/02/11 A	17/11/11 A	26/02/11 A	17/11/11 A		E&M0140	E&M0570						
E&M0440	Delivery of Sludge Dewatering Equipment	180	50	01/09/11 A	28/12/12	01/09/11 A	03/03/13	65d	E&M0170	E&M0580						
E&M0450	Delivery of Valves, Pipes & Fittings	180	90	30/08/11 A	22/10/12	30/08/11 A	03/03/13	194d	E&M0180	E&M0590, E&M0605						
E&M0460	Delivery of Penstocks	180	100	12/08/11 A	24/12/11 A	12/08/11 A	24/12/11 A		E&M0190	E&M0600						
E&M0470	Delivery of Instruments	180	100	03/11/11 A	21/06/11 A	03/11/11 A	21/06/11 A		E&M0200	E&M0610						
E&M0480	Delivery of MCC LVSB	177	0	01/10/12	27/03/13	11/07/12	03/01/13	-83d	E&M0210	E&M0620						
E&M0490	Delivery of BS Equipment	180	30	11/12/11 A	17/02/13	11/12/11 A	05/06/13	108d	E&M0220	E&M0630						
E&M0500	Delivery FS Equipment	180	25	11/12/11 A	07/03/13	11/12/11 A	03/07/13	118d	E&M0230	E&M0330, E&M0640						
E&M0510	Install Membrane Modules in MBR Tank no. 4	90	5	03/11/12 A	27/01/13	03/11/12 A	27/01/13	0	E&M0360, YSW0705, YSW0820	KD0115						
E&M0520	Install Membrane Modules in MBR Tank No. 1 to 3	130	0	04/01/13	13/05/13	25/12/12	03/05/13	-10d	E&M0370, YSW08305	E&M0590, E&M0690						
E&M0530	Install Grit Removal Equipment	60	100	01/06/12 A	30/09/12 A	01/06/12 A	30/09/12 A		E&M0380, E&M0540, YSW0800	E&M0590, E&M0660						
E&M0540	Install Coarse Screens	75	90	23/04/12 A	05/03/13	23/04/12 A	19/03/13	15d	E&M0390, YSW0800	E&M0530, E&M0550, E&M0570, E&M0590, E&M0660						
E&M0550	Install Fine Screens	60	80	01/06/12 A	17/03/13	01/06/12 A	03/05/13	48d	E&M0400, E&M0540, YSW0800	E&M0590, E&M0660						

Start date	05/05/10
Finish date	21/09/15
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	Early bar
	Progress bar
	Critical bar
	Summary bar
	Progress point
	Critical point
	Summary point
	Start milestone point
	Finish milestone point

**Leader Civil Engineering Corp. Ltd.**  
**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works at YSW & SKW**  
**3-month Rolling Programme (Oct 2012 - Dec 2012)**

(Marked on 30 September 2012)

Date	Revision	Checked	Approved
30/09/12	Revision 0	RH	VC

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012				2013
											SEP	OCT	NOV	DEC	JAN
E&M0560	Install Pumps	90	40	23/04/12 A	20/04/13	23/04/12 A	19/03/13	-32d	E&M0410, YSW0800	E&M0570, E&M0590, E&M0660					
E&M0580	Install Sludge Dewatering Equipment	280	20	29/05/12 A	07/10/13	29/05/12 A	13/10/13	6d	E&M0440, YSW0800	E&M0690					
E&M0600	Install Penstocks (Batch 1, GL H - T)	180	60	23/04/12 A	08/05/13	23/04/12 A	13/10/13	158d	E&M0460, YSW0800	E&M0690					
E&M0605	Install Penstocks (Batch 2, GL A - F)	120	0	11/01/13	10/05/13	16/06/13	13/10/13	156d	E&M0450, YSW08305	E&M0690					
<b>Sok Kwu Wan</b>															
<b>Preliminary</b>															
SKW0250	Approval of Environmental Team	16	100	17/05/10 A	01/06/10 A	17/05/10 A	01/06/10 A		KD0020	SKW0260					
SKW0260	Baseline monitoring (Air & Noise)	14	100	02/06/10 A	15/06/10 A	02/06/10 A	15/06/10 A		SKW0250	SKW0242, SKW0265, SKW0592, SKW0681,					
SKW0265	Baseline Monitoring Submission (A & N)	14	100	16/06/10 A	08/07/10 A	16/06/10 A	08/07/10 A		SKW0260	SKW0242, SKW0592, SKW0681, SKW0921,					
<b>Section W3 - Footpath Diversion in Portion G</b>															
<b>Civil &amp; Geotechnical Works</b>															
SKW0240	Site Clearance	21	100	17/05/10 A	06/06/10 A	17/05/10 A	06/06/10 A			SKW0241					
SKW0241	Initial Survey	9	100	07/06/10 A	15/06/10 A	07/06/10 A	15/06/10 A		SKW0240	SKW0242					
SKW0242	Retaining Wall Bay 0-10 (Incl. VO. 001A)	177	100	30/06/10 A	23/12/10 A	30/06/10 A	23/12/10 A		SKW0241, SKW0260, SKW0265	SKW0461					
SKW0461	Utilities Laying and Diversion	70	100	24/12/10 A	03/03/11 A	24/12/10 A	03/03/11 A		SKW0242	SKW0471					
SKW0471	Concreting for Pavement	7	100	04/03/11 A	10/03/11 A	04/03/11 A	10/03/11 A		SKW0461	SKW0481					
SKW0481	Footpath Diversion - Stage 1	14	100	11/03/11 A	24/03/11 A	11/03/11 A	24/03/11 A		SKW0471	KD0050, SKW04811, SKW0491					
SKW04811	Excavate for FP transition at CH0-35 & CH130-141	37	100	25/03/11 A	30/04/11 A	25/03/11 A	30/04/11 A		SKW0481	SKW04821					
SKW04821	Construction of Drainage outfall near bay 10	3	100	01/05/11 A	03/05/11 A	01/05/11 A	03/05/11 A		SKW04811	SKW04831					
SKW04831	Cable diversion by HEC	26	100	04/05/11 A	29/05/11 A	04/05/11 A	29/05/11 A		SKW04821	SKW04841					
SKW04841	Diversion of Ducting and Drawpit by PCCW	12	100	20/05/11 A	31/05/11 A	20/05/11 A	31/05/11 A		SKW04831	SKW04851					
SKW04851	Soil backfilling behind FP retaining wall	14	100	01/06/11 A	14/06/11 A	01/06/11 A	14/06/11 A		SKW04841	SKW04861					
SKW04861	Concreting for footpath pavement	7	100	15/06/11 A	21/06/11 A	15/06/11 A	21/06/11 A		SKW04851	SKW04871					
SKW04871	Relocation of Temp Safety Fence at SKW STW A-G	57	100	22/06/11 A	17/08/11 A	22/06/11 A	17/08/11 A		SKW04861	SKW04881					
SKW04881	Disposal of excavation material at A-G SKW STW	138	100	18/08/11 A	02/01/12 A	18/08/11 A	02/01/12 A		SKW04871	SKW04885					
SKW04885	Footpath Diversion - Stage 2	7	100	03/01/12 A	09/01/12 A	03/01/12 A	09/01/12 A		SKW04881	SKW1261					
<b>Section W4 - Slope Works in Portions H &amp; I</b>															
<b>Geotechnical Works</b>															
SKW0588	Construct scaffolding access	30	100	15/06/10 A	14/07/10 A	15/06/10 A	14/07/10 A		KD0020	SKW0590					
SKW0590	Site Clearance for Slope	100	100	15/07/10 A	22/10/10 A	15/07/10 A	22/10/10 A		SKW0588	SKW0591					
SKW0591	Initial Survey for Slope	28	100	21/09/10 A	18/10/10 A	21/09/10 A	18/10/10 A		SKW0590	SKW0592					
SKW0592	Temporary Rockfall fence at ex. Footpath	43	100	31/08/10 A	12/10/10 A	31/08/10 A	12/10/10 A		SKW0260, SKW0265, SKW0591	SKW05931					
SKW05931	Construction of Haul Road (To +30mPD)	50	100	03/09/10 A	22/10/10 A	03/09/10 A	22/10/10 A		SKW0592	SKW05932					
SKW05932	Construction of Haul Road (To +42.5mPD)	68	100	23/10/10 A	29/12/10 A	23/10/10 A	29/12/10 A		SKW05931	SKW059322					
SKW059321	Removal of Boulders (IBG 1 - 119, SI No. 11B)	121	100	03/11/10 A	03/03/11 A	03/11/10 A	03/03/11 A			SKW059411					
SKW059322	Add. Site Invest. Works (VO. No. 9,12 & 16)	174	100	11/01/11 A	03/07/11 A	11/01/11 A	03/07/11 A		SKW05932	SKW059341					
SKW059323	Revised Profile at West Slope (+56 to +42.5mPD)	1	100	17/03/11 A	17/03/11 A	17/03/11 A	17/03/11 A			SKW059324					
SKW059324	Construction of Haul Road (+42.5 to +56mPD)	12	100	18/03/11 A	29/03/11 A	18/03/11 A	29/03/11 A		SKW059323	SKW059325					
SKW059325	Removal of Boulders (IBG 120-139, SI No. 11C)	17	100	30/03/11 A	15/04/11 A	30/03/11 A	15/04/11 A		SKW059324	SKW05933					
SKW05933	West Slope Cutting (+56mPD to +42.5mPD)	2	100	16/04/11 A	17/04/11 A	16/04/11 A	17/04/11 A		SKW059325	SKW059331					
SKW059331	Removal of Boulders (IBG 140-189, SI No. 11D)	45	100	18/04/11 A	01/06/11 A	18/04/11 A	01/06/11 A		SKW05933	SKW05934					
SKW05934	West Slope Cutting (+42.5mPD to +35mPD)	32	100	02/06/11 A	03/07/11 A	02/06/11 A	03/07/11 A		SKW059331	SKW059341					
SKW059341	Revised Profile at West Slope (+20 to +4.8mPD)	1	100	04/07/11 A	04/07/11 A	04/07/11 A	04/07/11 A		SKW059322, SKW05934	SKW05935					
SKW05935	West Slope Cutting (+35mPD to +27.5mPD)	83	100	08/07/11 A	28/09/11 A	08/07/11 A	28/09/11 A		SKW059341	SKW05936					
SKW05936	West Slope Cutting (+27.5mPD to +20mPD)	61	100	29/09/11 A	28/11/11 A	29/09/11 A	28/11/11 A		SKW05935	SKW05937					
SKW05937	West Slope Cutting (+20mPD to +12.5mPD)	39	100	29/11/11 A	06/01/12 A	29/11/11 A	06/01/12 A		SKW05936	SKW05938					
SKW05938	West Slope Cutting (+12.5mPD to +4.8mPD)	90	100	07/01/12 A	27/03/12 A	07/01/12 A	27/03/12 A		SKW05937	KD0060, SKW1261, SKW1311, SKW1371					
SKW05941	Slope Stormwater Drainage	300	100	28/03/12 A	25/05/12 A	28/03/12 A	25/05/12 A		KD0060	SKW05942					
SKW059411	East Slope Cutting (+50mPD to +42.5mPD)	72	100	04/03/11 A	14/05/11 A	04/03/11 A	14/05/11 A		SKW059321	SKW059412					
SKW059412	East Slope Cutting (+42.5mPD to +35mPD)	82	100	15/05/11 A	04/08/11 A	15/05/11 A	04/08/11 A		SKW059411	SKW059413					
SKW059413	East Slope Cutting (+35mPD to +27.5mPD)	55	100	05/08/11 A	28/09/11 A	05/08/11 A	28/09/11 A		SKW059412	SKW059414					
SKW059414	East Slope Cutting (+27.5mPD to +20mPD)	61	100	29/09/11 A	28/11/11 A	29/09/11 A	28/11/11 A		SKW059413	SKW059415					
SKW059415	East Slope Cutting (+20mPD to +12.5mPD)	39	100	29/11/11 A	06/01/12 A	29/11/11 A	06/01/12 A		SKW059414	SKW059416					
SKW059416	East Slope Cutting (+12.5mPD to +4.8mPD)	81	100	07/01/12 A	27/03/12 A	07/01/12 A	27/03/12 A		SKW059415	KD0060, SKW1311, SKW1371					
SKW05942	Slope Miscellaneous Works	61	100	26/05/12 A	31/07/12 A	26/05/12 A	31/07/12 A		SKW05941	SKW05943, SKW0595					
SKW05943	Buttress & surface Protection (SI No. 31)	60	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW05942	SKW05944					
SKW05944	Slope Treatment (SI. No. 36)	60	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW05943	SKW05945					
SKW05945	Rock Slope Treatment (SI. No. 68)	60	100	01/08/12 A	30/09/12 A	01/08/12 A	30/09/12 A		SKW05944	SKW05946					
SKW05946	Rock Slope Treatment (SI. No. 98)	60	40	10/09/12 A	04/11/12	10/09/12 A	08/02/13	96d	SKW05945	SKW05947					
SKW05947	Rock Slope Treatment (SI. No. 115)	60	0	22/10/12	20/12/12	26/01/13	26/03/13	96d	SKW05946	KD0135					
SKW05948	Soil Nailing Works (VO. No. 52)	300	70	10/02/12 A	28/12/12	10/02/12 A	04/06/14	523d		SKW05963					
SKW05963	Determine Alignment & Foundation Design of RFB	120	100	10/02/13 A	08/06/12 A	10/02/13 A	08/06/12 A		SKW05948	SKW059631, SKW05964, SKW05965					
SKW059631	GEO Approval of Foundation Design	70	100	09/06/12 A	31/07/12 A	09/06/12 A	31/07/12 A		SKW05963	SKW05968					
SKW05964	Fabrication & Shipping of RFB Material	180	75	09/06/12 A	13/11/12	09/06/12 A	14/04/15	882d	SKW05963	SKW05972					

Start date	05/05/10		Early bar
Finish date	21/09/15		Progress bar
Data date	30/09/12		Critical bar
Run date	13/10/12		Summary bar
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			Summary point
			Start milestone point
			Finish milestone point

**Leader Civil Engineering Corp. Ltd.**  
**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works at YSW & SKW**  
**3-month Rolling Programme (Oct 2012 - Dec 2012)**

(Marked on 30 September 2012)

Date	Revision	Checked	Approved
30/09/12	Revision 0	RH	VC



Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012				2013
											SEP	OCT	NOV	DEC	JAN
SKW05965	Site clearance & Formation of access	62	100	09/06/12 A	31/07/12 A	09/06/12 A	31/07/12 A		SKW05963	SKW05967					
SKW05967	Plant mobilization	14	0	30/09/12	13/10/12	07/03/14	20/03/14	523d	SKW05965	SKW05968					
SKW05968	Construction of anchors & pull out test	180	0	14/10/12	11/04/13	21/03/14	16/09/14	523d	SKW059631, SKW05967	SKW05969					
<b>Section W5 - P.S. No. 1 in Portion D</b>															
<b>Civil &amp; Geotechnical Works</b>															
SKW0651	Site Clearance	7	100	17/05/10 A	23/05/10 A	17/05/10 A	23/05/10 A		KD0020	SKW0652					
SKW0652	Initial Survey	7	100	24/05/10 A	30/05/10 A	24/05/10 A	30/05/10 A		SKW0651	SKW0661, SKW0681					
SKW0661	Transplantation for uncommon vegetation	30	100	31/05/10 A	29/06/10 A	31/05/10 A	29/06/10 A		SKW0652	SKW0681					
SKW0681	Excavate to lower the working platform to +3mPD	49	100	30/06/10 A	17/08/10 A	30/06/10 A	17/08/10 A		SKW0260, SKW0265, SKW0652,	SKW0691					
SKW0691	ELS to +2.2mPD	40	100	18/08/10 A	26/09/10 A	18/08/10 A	26/09/10 A		SKW0681	SKW0721					
SKW0721	Excavate to formation	270	100	17/09/10 A	13/06/11 A	17/09/10 A	13/06/11 A		SKW0691	SKW0741					
<b>Structural Works</b>															
SKW0741	RC Works for Structure	240	100	14/06/11 A	08/02/12 A	14/06/11 A	08/02/12 A		SKW0721	KD0070, SKW0841					
SKW0841	ABWF works	60	100	09/02/12 A	08/04/12 A	09/02/12 A	08/04/12 A		SKW0741	E&M1101, E&M1102, E&M1103, E&M1104,					
<b>E&amp;M Works (PS1)</b>															
<b>Submission &amp; Delivery</b>															
E&M1001	Submission of Pumps	198	100	17/05/10 A	24/02/11 A	17/05/10 A	24/02/11 A		KD0020	E&M1011					
E&M1002	Submission of Gen-Set	198	100	17/05/10 A	24/02/11 A	17/05/10 A	24/02/11 A			E&M1012					
E&M1003	Submission of DeO System	198	100	17/05/10 A	11/07/11 A	17/05/10 A	11/07/11 A			E&M1013					
E&M1004	Submission of LV SB & MCC	180	100	17/05/10 A	09/01/12 A	17/05/10 A	09/01/12 A			E&M1014					
E&M1005	Submission of Instrumentation	243	100	17/05/10 A	12/03/12 A	17/05/10 A	12/03/12 A			E&M1015					
E&M1006	Submission of FS System	243	100	17/05/10 A	30/09/12 A	17/05/10 A	30/09/12 A			E&M1016					
E&M1007	Submission of BS System	243	97	17/05/10 A	07/10/12	17/05/10 A	09/04/13	185d		E&M1017					
E&M1011	Delivery of Pumps	150	100	24/02/11 A	21/07/11 A	24/02/11 A	21/07/11 A		E&M1001	E&M1101					
E&M1012	Delivery of Gen-Set	150	100	24/02/11 A	23/09/11 A	24/02/11 A	23/09/11 A		E&M1002	E&M1102					
E&M1013	Delivery of DeO System	150	100	11/07/11 A	28/10/11 A	11/07/11 A	28/10/11 A		E&M1003	E&M1103					
E&M1014	Delivery of LV SB & MCC	150	100	01/06/12 A	31/07/12 A	01/06/12 A	31/07/12 A		E&M1004	E&M1104					
E&M1015	Delivery of Instrumentation	90	100	01/11/11 A	03/11/11 A	01/11/11 A	03/11/11 A		E&M1005	E&M1105					
E&M1016	Delivery of FS Equipment	107	30	01/12/11 A	13/12/12	01/12/11 A	22/05/13	160d	E&M1006	E&M1106					
E&M1017	Delivery of BS Equipment	107	60	15/11/11 A	18/11/12	15/11/11 A	22/05/13	185d	E&M1007	E&M1107					
<b>Installation, T&amp;C</b>															
E&M1101	Install Pumps	55	0	30/09/12	23/11/12	22/05/13	16/07/13	235d	E&M1011, SKW0841	E&M1110, E&M1140					
E&M1102	Install Gen Set	55	0	30/09/12	23/11/12	22/05/13	16/07/13	235d	E&M1012, SKW0841	E&M1110, E&M1140					
E&M1103	Install DeO System	55	0	30/09/12	23/11/12	22/05/13	16/07/13	235d	E&M1013, SKW0841	E&M1110, E&M1140					
E&M1104	Install LV SB & MCC	55	0	30/09/12	23/11/12	22/05/13	16/07/13	235d	E&M1014, SKW0841	E&M1140					
E&M1105	Install Instrumentation	55	0	30/09/12	23/11/12	22/05/13	16/07/13	235d	E&M1015, SKW0841	E&M1140					
E&M1106	Install FS Equipment	55	0	13/12/12	06/02/13	22/05/13	16/07/13	160d	E&M1016, SKW0841	E&M1130, E&M1140					
E&M1107	Install BS Equipment	55	0	19/11/12	12/01/13	22/05/13	16/07/13	185d	E&M1017, SKW0841	E&M1110, E&M1140					
E&M1110	Install Valves, Pipes & Fittings	46	0	13/01/13	27/02/13	15/08/13	30/09/13	215d	E&M1101, E&M1102, E&M1103, E&M1107	E&M1120					
<b>Section W6 - Sewer and PS No.2 in Portions E&amp;H</b>															
<b>Civil &amp; Geotechnical Works</b>															
SKW0881	Site Clearance	7	100	17/05/10 A	23/05/10 A	17/05/10 A	23/05/10 A		KD0020	SKW0891					
SKW0891	Plant mobilization	7	100	17/05/10 A	23/05/10 A	17/05/10 A	23/05/10 A		SKW0881	SKW0892					
SKW0892	Initial Survey	30	100	24/05/10 A	22/06/10 A	24/05/10 A	22/06/10 A		SKW0891	SKW0901					
SKW0901	Tree Transplantation	90	100	23/06/10 A	20/09/10 A	23/06/10 A	20/09/10 A		SKW0892	SKW0921					
SKW0921	Cut Slope & U-Channel	14	100	21/09/10 A	04/10/10 A	21/09/10 A	04/10/10 A		SKW0260, SKW0265, SKW0901	SKW0931, SKW0951					
SKW0931	Hoarding & Fencing	14	100	05/10/10 A	18/10/10 A	05/10/10 A	18/10/10 A		SKW0921	SKW0950, SKW0951					
SKW0950	Removal of Rock Boulders before ELS	66	100	19/10/10 A	23/12/10 A	19/10/10 A	23/12/10 A		SKW0931	SKW0951					
SKW0951	ELS & Excavate to formation	169	100	24/12/10 A	10/06/11 A	24/12/10 A	10/06/11 A		SKW0921, SKW0931, SKW0950	SKW0971					
SKW0961	Mass Conc. Retaining Wall	90	0	15/10/12	12/01/13	12/11/12	09/02/13	28d	SKW1081	KD0155					
SKW1491	LCS (ChA0+45 to 1+75) VO.7	90	100	24/03/12 A	21/06/12 A	24/03/12 A	21/06/12 A		PRE0100, SKW1021	SKW15111					
SKW15111	Twin DN150 DI Rising Main (ChA1+75 - ChA5+79)	180	60	22/06/12 A	10/12/12	22/06/12 A	17/01/13	38d	SKW1491	SKW1531					
SKW1531	Extent village sewers S163.1 & S164.1	34	0	11/12/12	13/01/13	18/01/13	20/02/13	38d	SKW15111	SKW1581					
SKW1581	Construct Manhole no. S163 & S164	34	0	14/01/13	16/02/13	21/02/13	26/03/13	38d	SKW1531	KD0135, SKW15112					
<b>Structural Works</b>															
SKW0971	Structural Works (Phase 1)	245	100	11/06/11 A	10/02/12 A	11/06/11 A	10/02/12 A		SKW0951	KD0080, SKW1021					
SKW1021	Structural Works (Phase 2)	42	100	11/02/12 A	23/03/12 A	11/02/12 A	23/03/12 A		SKW0971	SKW1061, SKW1081, SKW1491					
SKW1061	ABWF Works	90	100	24/03/12 A	21/06/12 A	24/03/12 A	21/06/12 A		SKW1021	E&M2101, E&M2102, E&M2103, E&M2104,					
SKW1081	375mm U-channel/catchpits/outfall	30	50	22/06/12 A	14/10/12	22/06/12 A	11/11/12	28d	SKW1021, SKW1061	KD0155, SKW0961					
<b>E&amp;M Works (PS2)</b>															
<b>Submission &amp; Delivery</b>															
E&M2001	Submission of Pumps	198	100	17/05/10 A	24/02/11 A	17/05/10 A	24/02/11 A		KD0020	E&M2011					
E&M2002	Submission of Gen-Set	198	100	17/05/10 A	24/02/11 A	17/05/10 A	24/02/11 A			E&M2012					
E&M2003	Submission of DeO System	198	100	17/05/10 A	11/07/11 A	17/05/10 A	11/07/11 A			E&M2013					

Start date	05/05/10		Early bar
Finish date	21/09/15		Progress bar
Data date	30/09/12		Critical bar
Run date	13/10/12		Summary bar
Page number	6A		Progress point
c Primavera Systems, Inc.			Critical point
			Summary point
			Start milestone point
			Finish milestone point

**Leader Civil Engineering Corp. Ltd.**  
**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works at YSW & SKW**  
**3-month Rolling Programme (Oct 2012 - Dec 2012)**

(Marked on 30 September 2012)

Date	Revision	Checked	Approved
30/09/12	Revision 0	RH	VC

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012				2013	
											SEP	OCT	NOV	DEC	JAN	
E&M2004	Submission of LV SB & MCC	271	100	17/05/10 A	30/06/12 A	17/05/10 A	30/06/12 A			E&M2014						
E&M2005	Submission of Instrumentation	243	100	17/05/10 A	30/06/12 A	17/05/10 A	30/06/12 A			E&M2015						
E&M2006	Submission of FS System	243	97	17/05/10 A	07/10/12	17/05/10 A	13/05/12	-147d		E&M2016						
E&M2007	Submission of BS System	243	97	17/05/10 A	07/10/12	17/05/10 A	06/06/12	-123d		E&M2017						
E&M2011	Delivery of Pumps	150	100	24/02/11 A	21/07/11 A	24/02/11 A	21/07/11 A		E&M2001	E&M2101						
E&M2012	Delivery of Gen-Set	150	100	24/02/11 A	23/09/11 A	24/02/11 A	23/09/11 A		E&M2002	E&M2102						
E&M2013	Delivery of DeO System	150	100	11/07/11 A	28/10/11 A	11/07/11 A	28/10/11 A		E&M2003	E&M2103						
E&M2014	Delivery of LV SB & MCC	150	100	29/02/12 A	31/07/12 A	29/02/12 A	31/07/12 A		E&M2004	E&M2104						
E&M2015	Delivery of Instrumentation	90	100	21/06/11 A	03/11/11 A	21/06/11 A	03/11/11 A		E&M2005	E&M2105						
E&M2016	Delivery of FS Equipment	107	30	01/12/11 A	21/12/12	01/12/11 A	26/07/12	-147d	E&M2006	E&M0350, E&M2106						
E&M2017	Delivery of BS Equipment	107	50	15/01/11 A	29/11/12	15/01/11 A	29/07/12	-123d	E&M2007	E&M2107						
<b>Installation, T&amp;C</b>																
E&M2101	Install Pumps	55	0	30/09/12	23/11/12	27/09/12	20/11/12	-3d	E&M2011, SKW1061	E&M2110						
E&M2102	Install Gen Set	55	50	01/09/12 A	27/10/12	01/09/12 A	20/11/12	24d	E&M2012, SKW1061	E&M2110						
E&M2103	Install DeO System	55	0	30/09/12	23/11/12	27/09/12	20/11/12	-3d	E&M2013, SKW1061	E&M2110						
E&M2104	Install LV SB & MCC	55	0	30/09/12	23/11/12	27/07/12	19/09/12	-65d	E&M2014, SKW1061	E&M2140						
E&M2105	Install Instrumentation	55	0	30/09/12	23/11/12	27/07/12	19/09/12	-65d	E&M2015, SKW1061	E&M2140						
E&M2106	Install FS Equipment	55	0	21/12/12	14/02/13	27/07/12	19/09/12	-147d	E&M2016, SKW1061	E&M2140						
E&M2107	Install BS Equipment	55	5	01/09/12 A	20/01/13	01/09/12 A	19/09/12	-123d	E&M2017, SKW1061	E&M2110, E&M2140						
E&M2110	Install Valves, Pipes & Fittings	46	0	21/01/13	07/03/13	21/11/12	05/01/13	-61d	E&M2101, E&M2102, E&M2103, E&M2107	E&M2120						
<b>Section W7 - SKW STW, Sewer and Submarine Outfall</b>																
<b>Submarine Outfall</b>																
SKW1130	Approval of IHS Consultant	180	100	17/05/10 A	27/08/10 A	17/05/10 A	27/08/10 A			SKW1131						
SKW1131	Hydrographical Survey (SKW)	300	100	01/02/11 A	28/02/11 A	01/02/11 A	28/02/11 A		KD0020, SKW1130	SKW1231						
SKW1141	Baseline Monitoring (Water)	213	100	27/07/10 A	31/12/10 A	27/07/10 A	31/12/10 A		SKW0260, SKW0265	SKW1151						
SKW1151	Set up Temporary Working Platform	90	100	15/06/11 A	30/09/11 A	15/06/11 A	30/09/11 A		PRE0090, SKW1141	SKW1171						
SKW1171	ELS for HDD Set-up (SKW)	90	100	01/09/11 A	30/09/11 A	01/09/11 A	30/09/11 A		SKW1151	SKW1181						
SKW1181	Mobilization of HDD plant & equipment to SKW	60	100	06/01/12 A	07/01/12 A	06/01/12 A	07/01/12 A		SKW1171, YSW0360	SKW1191						
SKW1191	Setting up at drillhole location	33	100	09/01/12 A	14/01/12 A	09/01/12 A	14/01/12 A		SKW1181	SKW1201						
SKW1201	Drill pilot hole and reaming hole - NS280 - 750m	45	100	16/01/12 A	16/02/12 A	16/01/12 A	16/02/12 A		SKW1191	SKW1211						
SKW1211	Receiving Pit for HDD (SKW)	60	100	16/01/12 A	29/02/12 A	16/01/12 A	29/02/12 A		SKW1201	SKW1221						
SKW1221	Installation of NS280 HDPE 450mm dia. pipe	30	100	31/03/12 A	30/04/12 A	31/03/12 A	30/04/12 A		SKW1211	KD0090, SKW1231, SKW1441						
SKW1231	Removal of Receiving Platform	60	100	01/05/12 A	19/06/12 A	01/05/12 A	19/06/12 A		SKW1131, SKW1221	SKW1241						
SKW1241	Dredging of MD for Diffuser (PS Cl. 1.122(3))	60	100	20/06/12 A	05/07/12 A	20/06/12 A	05/07/12 A		SKW1231	E&M3359, SKW1251						
SKW1251	Diffuser Construction	45	50	01/09/12 A	22/10/12	01/09/12 A	25/04/13	185d	SKW1241	SKW1431						
SKW1431	Removal of silt curtain	30	0	22/10/12	21/11/12	25/04/13	25/05/13	185d	SKW1251	KD0090, SKW1440, YSW0365						
SKW1440	Sewer of Outfall Chamber to connection pit VO37A	90	0	21/11/12 *	19/02/13	25/05/13	23/08/13	185d	SKW1431	SKW1441						
<b>SKW STW</b>																
<b>Submission &amp; Delivery (E&amp;M)</b>																
E&M3010	Delivery of MBR M.M. - 1st shipment for Temp STP	150	100	24/02/11 A	17/10/11 A	24/02/11 A	17/10/11 A		E&M0160	E&M3170						
E&M3030	Delivery of Grit Removal Equipment	180	100	10/10/11 A	29/12/11 A	10/10/11 A	29/12/11 A		E&M0150	E&M3190						
E&M3060	Delivery of Fine Screens	136	100	12/09/11 A	30/11/11 A	12/09/11 A	30/11/11 A		E&M0120	E&M3210						
E&M3070	Delivery of Pumps	136	100	23/06/11 A	05/09/11 A	23/06/11 A	05/09/11 A		E&M0130	E&M3220						
E&M3080	Delivery of Submersible Mixers	180	100	26/07/11 A	17/11/11 A	26/07/11 A	17/11/11 A		E&M0140	E&M3230						
E&M3090	Delivery of Sludge Dewatering Equipment	210	50	01/09/11 A	12/01/13	01/09/11 A	26/09/13	257d	E&M0170	E&M3240						
E&M3100	Delivery of Valves, Pipes & Fittings	180	50	30/08/11 A	02/01/13	30/08/11 A	04/08/13	214d	E&M0180	E&M3250						
E&M3110	Delivery of Penstocks	180	100	12/08/11 A	24/12/11 A	12/08/11 A	24/12/11 A		E&M0190	E&M3260						
E&M3130	Delivery of instruments	180	100	21/06/11 A	03/11/11 A	21/06/11 A	03/11/11 A		E&M0200	E&M3270						
E&M3140	Delivery of MCC LVSB	180	0	01/10/12	30/03/13	20/12/12	18/06/13	80d	E&M0210	E&M3261						
E&M3150	Delivery of BS Equipment	180	8	03/07/12 A	29/03/13	03/07/12 A	19/08/13	143d	E&M0220	E&M3291						
E&M3160	Delivery of FS Equipment	180	5	30/06/12 A	12/04/13	30/06/12 A	07/09/13	148d	E&M0230	E&M0340, E&M3300						
<b>Construction of Grid A-G</b>																
SKW1261	Excavate for SKW STW Structure (Grid A -G)	164	100	28/03/12 A	31/08/12 A	28/03/12 A	31/08/12 A		SKW04885, SKW05938	SKW1271, SKW1371						
SKW1271	55 M3 Fire Sprinkle Water Tank (FL +0.9 mPD)	36	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW1261	SKW1281						
SKW1281	Ground Floor Slab (Grid A-G)	46	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW1271	SKW1291						
SKW1291	Columns & Walls to 1/F & 1/F Slab (Grid A-G)	50	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW1281	KD0090, SKW1301						
SKW1301	Columns & Walls to R/F & R/F Slab (Grid A-G)	50	80	01/09/12 A	09/10/12	01/09/12 A	08/03/13	150d	SKW1291	E&M3261, E&M3291, E&M3311, SKW1411						
SKW1411	ABWF Works	105	0	30/09/12	12/01/13	12/02/13	27/05/13	135d	SKW1301	E&M3261, E&M3291, E&M3311, SKW1551						
<b>Construction of Grid G-N</b>																
SKW1311	Excavate for SKW STW Structure (Grid G-N)	90	100	28/03/12 A	25/06/12 A	28/03/12 A	25/06/12 A		SKW05938, SKW059416	SKW1321, SKW1371						
SKW1321	Equalization Tank no.1 & 2 with base slabs (-2.1	42	100	26/06/12 A	30/09/12 A	26/06/12 A	30/09/12 A		SKW1311	SKW1331						
SKW1331	Columns & Walls from B/S to G/F Slab (Grid G-N)	35	100	01/09/12 A	30/09/12 A	01/09/12 A	30/09/12 A		SKW1321	SKW1341						
SKW1341	Ground Floor Slab (Grid G-N)	35	30	01/09/12 A	24/10/12	01/09/12 A	15/10/12	-9d	SKW1331	SKW1351						
SKW1351	Columns & Walls to 1/F & 1/F Slab (Grid G-N)	28	0	24/10/12	21/11/12	16/10/12	12/11/12	-9d	SKW1341	SKW1361						

Start date	05/05/10
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	Early bar
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	Start milestone point
	Finish milestone point

**Leader Civil Engineering Corp. Ltd.**  
**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works at YSW & SKW**  
**3-month Rolling Programme (Oct 2012 - Dec 2012)**

(Marked on 30 September 2012)

Date	Revision	Checked	Approved
30/09/12	Revision 0	RH	VC

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012				2013
											SEP	OCT	NOV	DEC	JAN
SKW1361	Columns & Walls to R/F & R/F Slab (Grid G-N)	26	0	21/11/12	17/12/12	13/11/12	08/12/12	-9d	SKW1351	SKW1451					
<b>Construction of Grid N-T</b>															
SKW1371	Excavate for SKW STW Structure (Grid N-T)	97	90	03/07/12 A	09/10/12	03/07/12 A	13/12/12	65d	SKW05938, SKW059416, SKW1261,	SKW1381					
SKW1381	Ground Floor Slabs include MBR Tank (Grid N-T)	45	0	09/10/12	23/11/12	14/12/12	27/01/13	65d	SKW1371	SKW1391					
<b>Rising Main</b>															
SKW1481	Subm, Approval & Delivery of DI pipes	120	100	17/05/10 A	13/09/10 A	17/05/10 A	13/09/10 A		KD0020	SKW1501					
SKW1501	LCS (ChB0+00 - ChB1+20)	300	100	14/09/10 A	10/07/11 A	14/09/10 A	10/07/11 A		PRE0100, SKW1481	SKW1521					
SKW1521	Twin DN150 DI Rising Main (ChB0+00 - ChA4+55)	250	80	11/07/11 A	18/11/12	11/07/11 A	12/09/14	663d	SKW1501	KD0090					
<b>Section W8 - Landscape Softworks in All Portions</b>															
SKW1591	Tree Survey	21	100	17/05/10 A	06/06/10 A	17/05/10 A	06/06/10 A		KD0020	SKW1621					
SKW1611	Preservation & Protection of Trees	822	98	17/05/10 A	16/10/12	17/05/10 A	08/03/13	144d	KD0020	KD0100, SKW1631					
SKW1621	Transplantation at SKW	90	100	07/06/10 A	04/09/10 A	07/06/10 A	04/09/10 A		SKW1591	KD0100					
<b>Section W9 - Establishment Works in All Portions</b>															
SKW1631	Section W9 - Establishment Works	365	0	16/10/12	16/10/13	12/03/13	11/03/14	147d	SKW1611	KD0110					

Start date	05/05/10		Early bar
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Data date	30/09/12		Critical bar
Run date	13/10/12		Summary bar
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			Finish milestone point

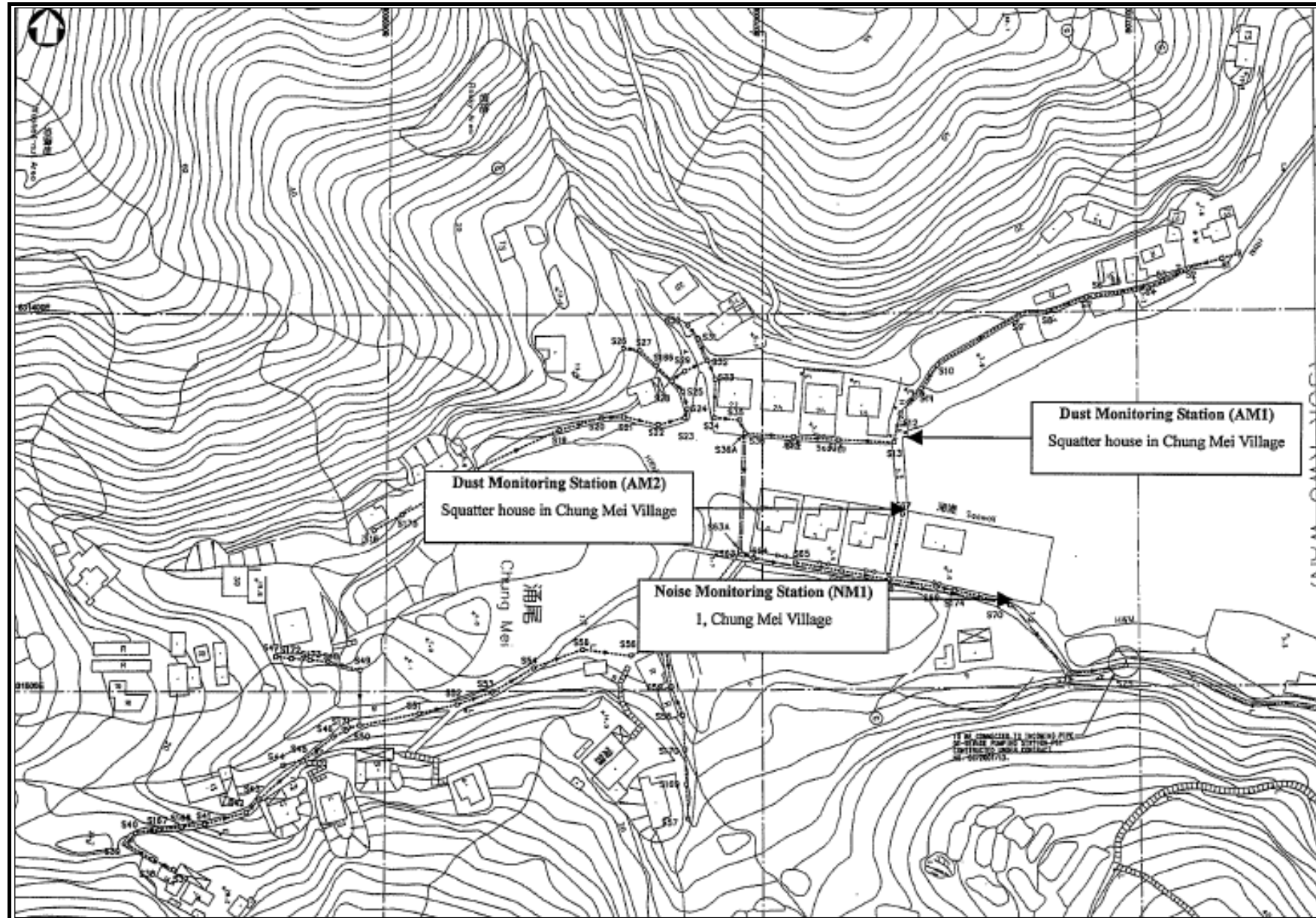
**Leader Civil Engineering Corp. Ltd.**  
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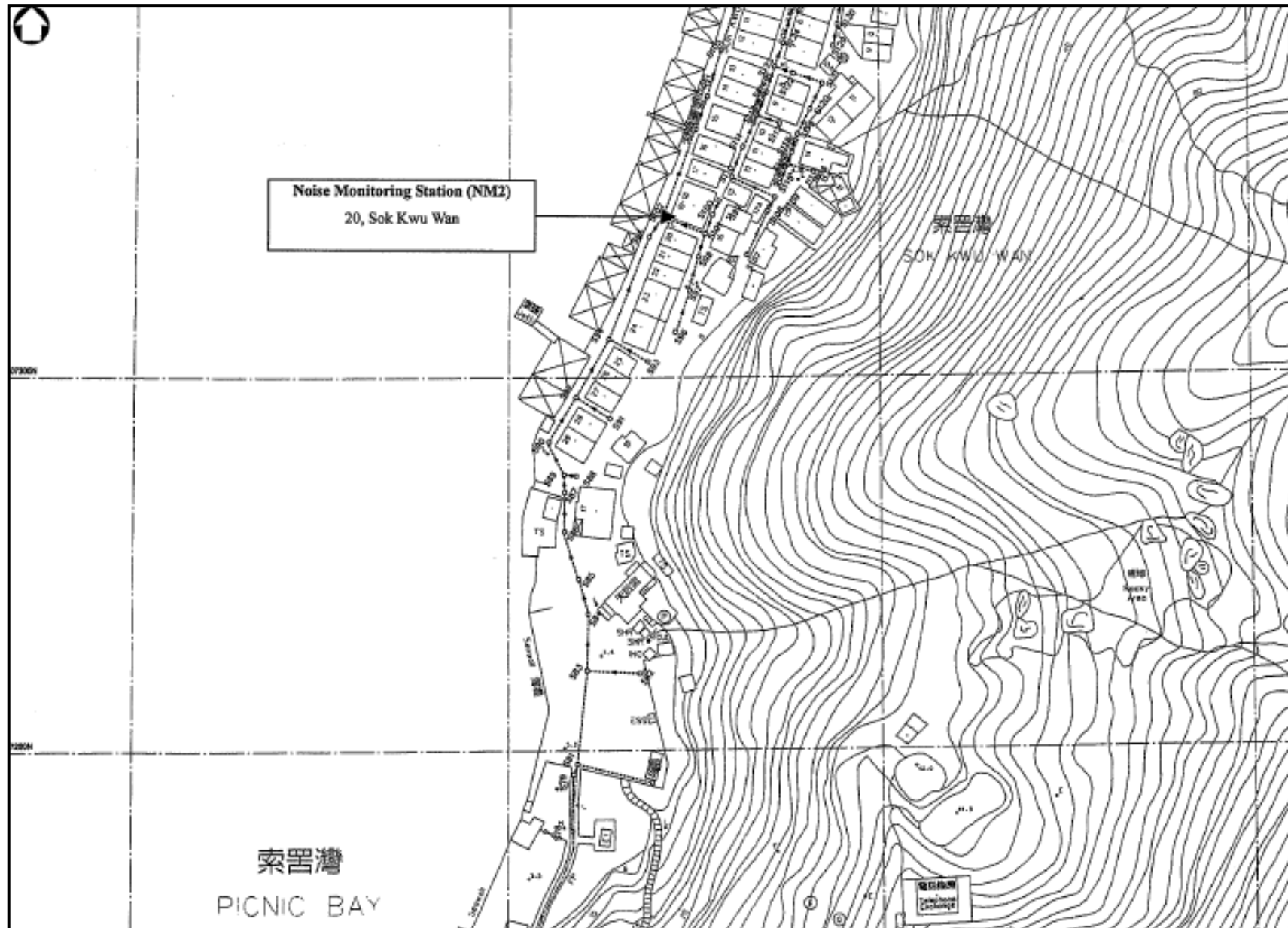
(Marked on 30 September 2012)

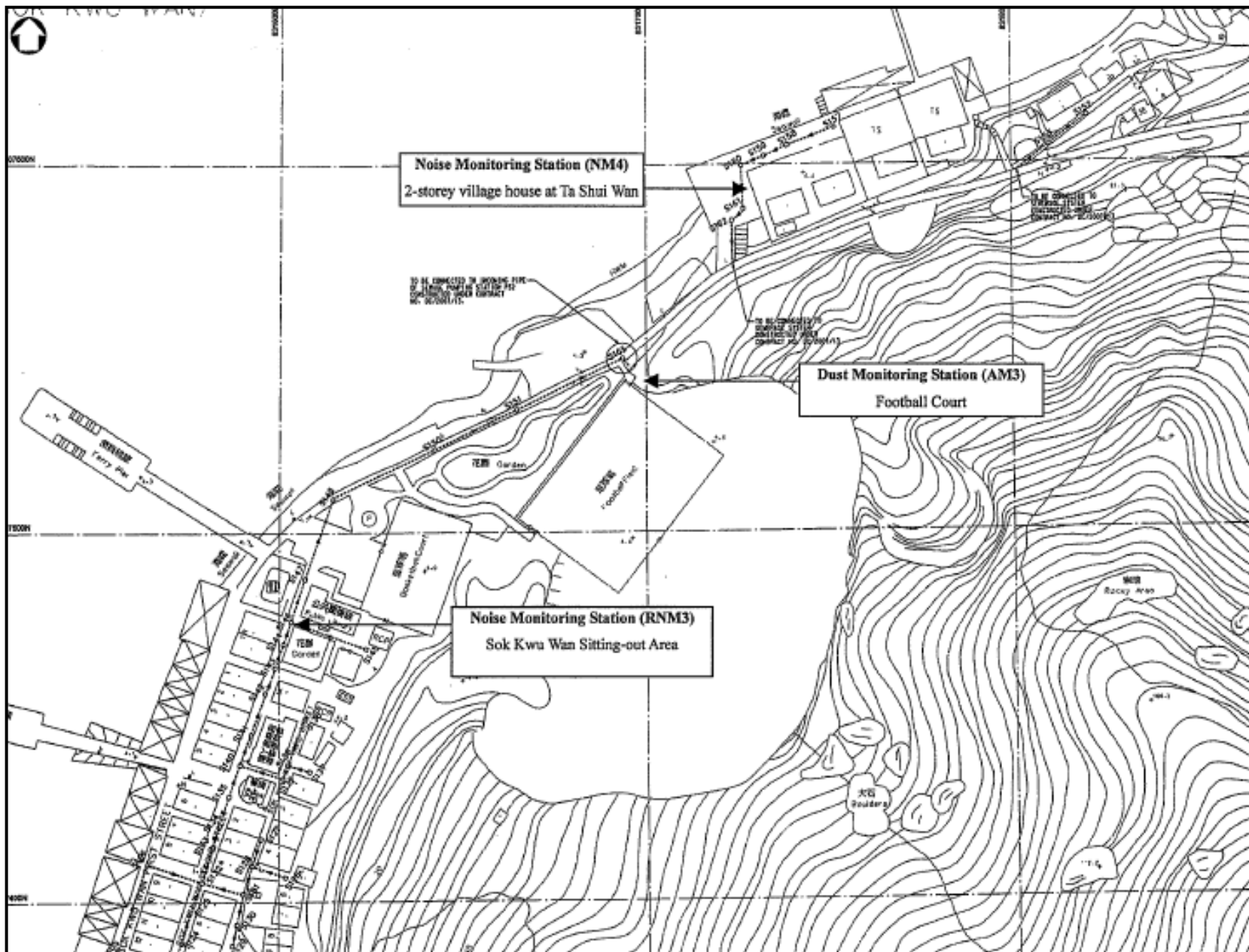
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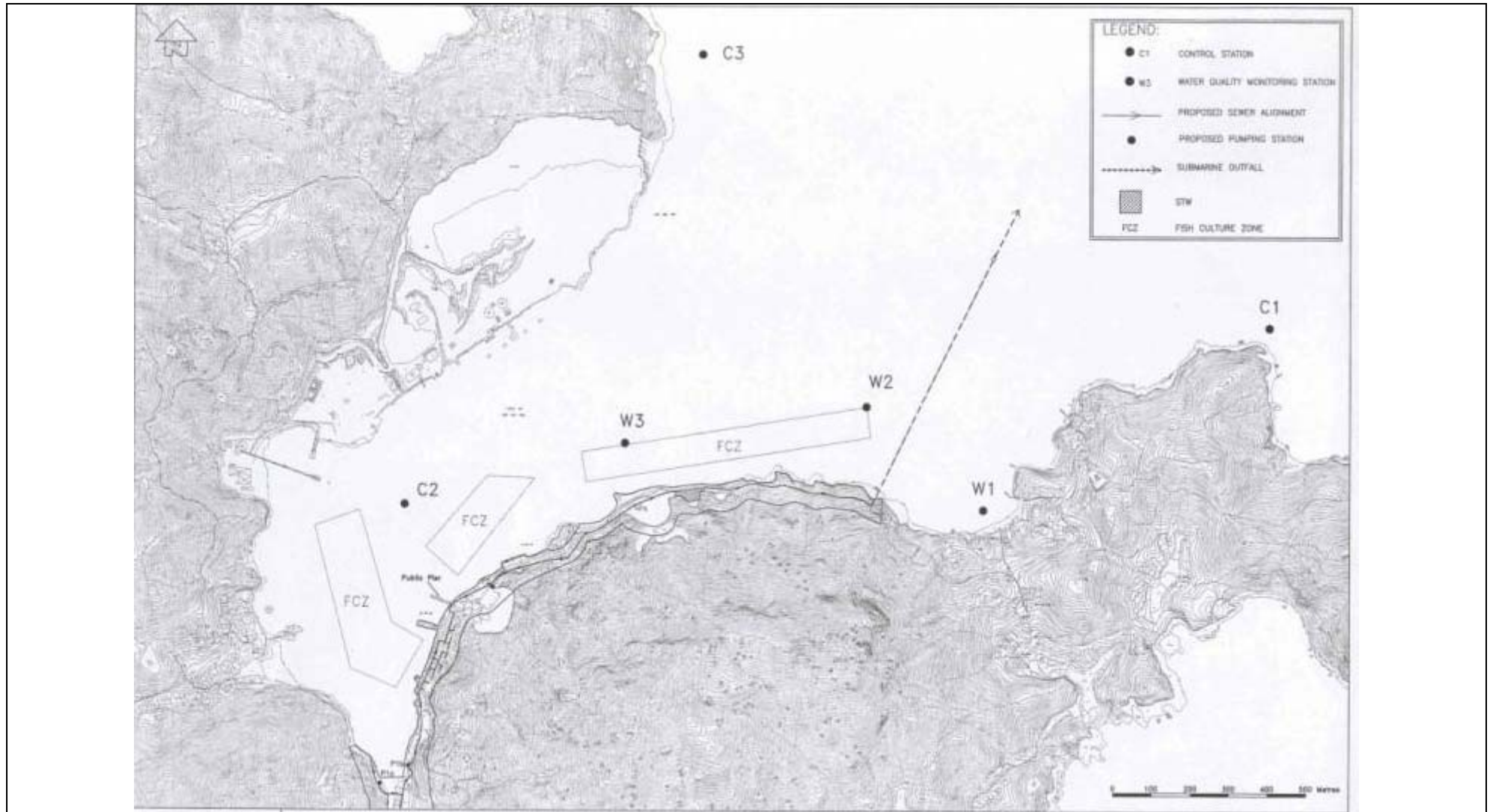
## **Appendix D**

### **Location of Monitoring Stations (Air Quality / Construction Noise / Water Quality)**











**Appendix E**

**Monitoring Equipments Calibration Certificate**



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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 17, 2012 Rootsometer S/N 0438320 Ta (K) - 294  
 Operator Tisch Orifice I.D. - 1483 Pa (mm) - 754.38

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4140	3.2	2.00
2	NA	NA	1.00	0.9960	6.4	4.00
3	NA	NA	1.00	0.8910	7.9	5.00
4	NA	NA	1.00	0.8510	8.7	5.50
5	NA	NA	1.00	0.7020	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0018	0.7085	1.4185	0.9957	0.7042	0.8829
0.9976	1.0016	2.0061	0.9915	0.9955	1.2486
0.9955	1.1173	2.2429	0.9894	1.1105	1.3959
0.9945	1.1686	2.3524	0.9884	1.1615	1.4641
0.9890	1.4088	2.8371	0.9830	1.4003	1.7657
Qstd slope (m) = 2.02742			Qa slope (m) = 1.26953		
intercept (b) = -0.02027			intercept (b) = -0.01262		
coefficient (r) = 0.99996			coefficient (r) = 0.99996		
y axis = SQRT[H2O(Pa/760) (298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

$$Vstd = \text{Diff. Vol}[(Pa - \text{Diff. Hg})/760] (298/Ta)$$

$$Qstd = Vstd/Time$$

$$Va = \text{Diff Vol} [(Pa - \text{Diff Hg})/Pa]$$

$$Qa = Va/Time$$

For subsequent flow rate calculations:

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

$$Qa = 1/m\{[\text{SQRT} H2O(Ta/Pa)] - b\}$$

## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Football court  
 Location ID : AM3

Date of Calibration: 3-Jul-12  
 Next Calibration Date: 3-Sep-12  
 Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)	1005.3	Corrected Pressure (mm Hg)	753.975
Temperature (°C)	29.1	Temperature (K)	302

### CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.02742
Model->	5025A	Qstd Intercept ->	-0.02027
Serial # ->	1483		

### CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.5	5.5	11	1.628	46	45.20	Slope = 22.1554 Intercept = 9.1345 Corr. coeff. = 0.9996
13	4.1	4.1	8.2	1.407	41	40.28	
10	2.7	2.7	5.4	1.144	35	34.39	
7	1.5	1.5	3	0.855	29	28.49	
5	0.9	0.9	1.8	0.665	24	23.58	

**Calculations :**

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

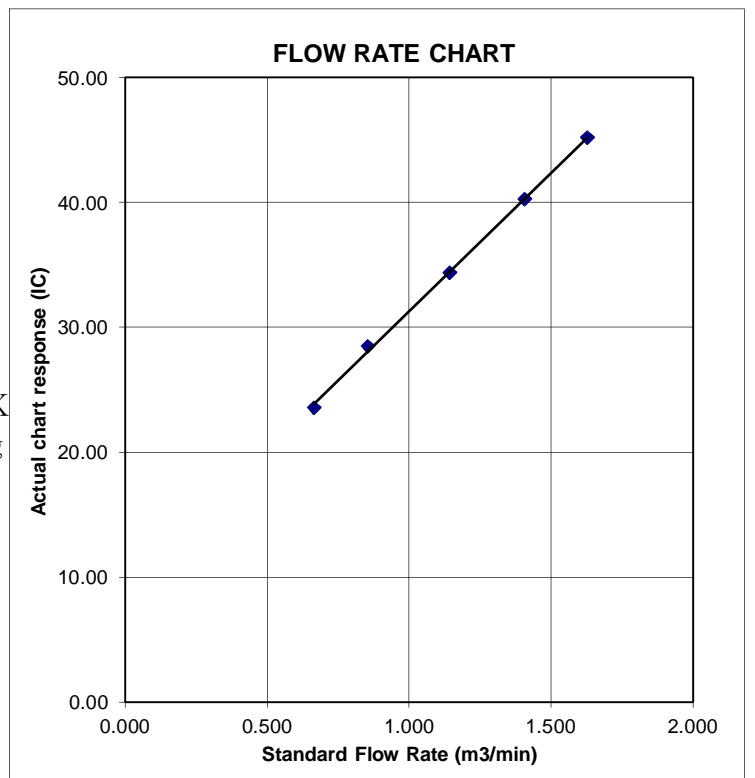
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate  
 IC = corrected chart responses  
 I = actual chart response  
 m = calibrator Qstd slope  
 b = calibrator Qstd intercept  
 Ta = actual temperature during calibration ( deg K)  
 Pstd = actual pressure during calibration ( mm Hg)

**For subsequent calculation of sampler flow:**

$$1/m(( I )[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

m = sampler slope  
 b = sampler intercept  
 I = chart response  
 Tav = daily average temperature  
 Pav = daily average pressure



## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Squatter house in Chung Mei Village	Date of Calibration: 30-Aug-12
Location ID : AM1	Next Calibration Date: 30-Oct-12
	Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)	1007.6	Corrected Pressure (mm Hg)	755.7
Temperature (°C)	30.1	Temperature (K)	303

### CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.02742
Model->	5025A	Qstd Intercept ->	-0.02027
Serial # ->	1483		

### CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.1	5.1	10.2	1.568	57	55.88	Slope = 27.8573 Intercept = 11.8124 Corr. coeff. = 0.9960
13	4	4	8	1.389	52	50.98	
10	3.1	3.1	6.2	1.224	46	45.10	
7	1.6	1.6	3.2	0.882	36	35.29	
5	0.9	0.9	1.8	0.664	32	31.37	

**Calculations :**

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

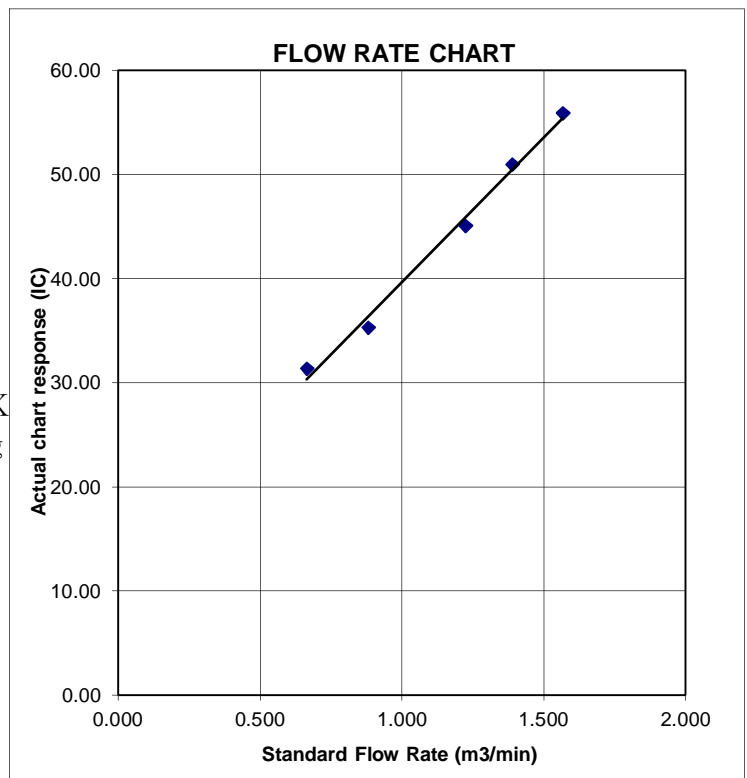
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate  
 IC = corrected chart responses  
 I = actual chart response  
 m = calibrator Qstd slope  
 b = calibrator Qstd intercept  
 Ta = actual temperature during calibration ( deg K)  
 Pstd = actual pressure during calibration ( mm Hg)

**For subsequent calculation of sampler flow:**

$$1/m(( I )[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

m = sampler slope  
 b = sampler intercept  
 I = chart response  
 Tav = daily average temperature  
 Pav = daily average pressure



## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Squatter house in Chung Mei Village  
 Location ID : AM2

Date of Calibration: 30-Aug-12  
 Next Calibration Date: 30-Oct-12  
 Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)	1007.6	Corrected Pressure (mm Hg)	755.7
Temperature (°C)	30.1	Temperature (K)	303

### CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.02742
Model->	5025A	Qstd Intercept ->	-0.02027
Serial # ->	1483		

### CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.8	5.8	11.6	1.671	60	58.82	Slope = 30.2545 Intercept = 8.0077 Corr. coeff. = 0.9969
13	4.2	4.2	8.4	1.423	51	50.00	
10	3	3	6	1.205	46	45.10	
7	1.8	1.8	3.6	0.935	38	37.25	
5	1.1	1.1	2.2	0.733	30	29.41	

**Calculations :**

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

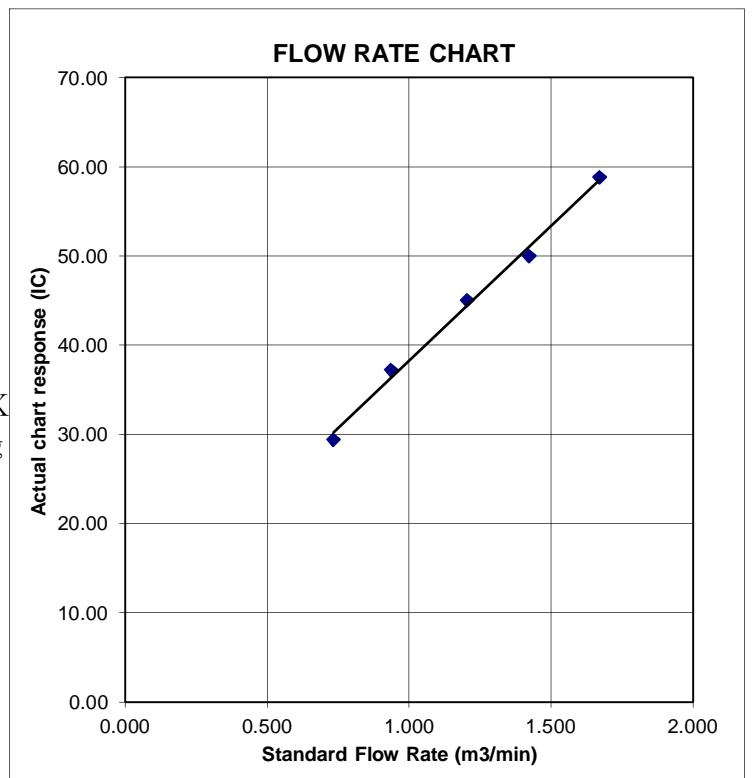
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate  
 IC = corrected chart responses  
 I = actual chart response  
 m = calibrator Qstd slope  
 b = calibrator Qstd intercept  
 Ta = actual temperature during calibration ( deg K)  
 Pstd = actual pressure during calibration ( mm Hg)

**For subsequent calculation of sampler flow:**

$$1/m(( I )[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

m = sampler slope  
 b = sampler intercept  
 I = chart response  
 Tav = daily average temperature  
 Pav = daily average pressure



## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Football court  
 Location ID : AM3

Date of Calibration: 30-Aug-12  
 Next Calibration Date: 30-Oct-12  
 Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)	1007.6	Corrected Pressure (mm Hg)	755.7
Temperature (°C)	30.1	Temperature (K)	303

### CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.02742
Model->	5025A	Qstd Intercept ->	-0.02027
Serial # ->	1483		

### CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.4	5.4	10.8	1.613	47	46.08	Slope = 23.9872 Intercept = 7.1655 Corr. coeff. = 0.9985
13	4	4	8	1.389	41	40.20	
10	2.7	2.7	5.4	1.143	35	34.31	
7	1.5	1.5	3	0.855	29	28.43	
5	1.0	1.0	2	0.700	24	23.53	

**Calculations :**

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

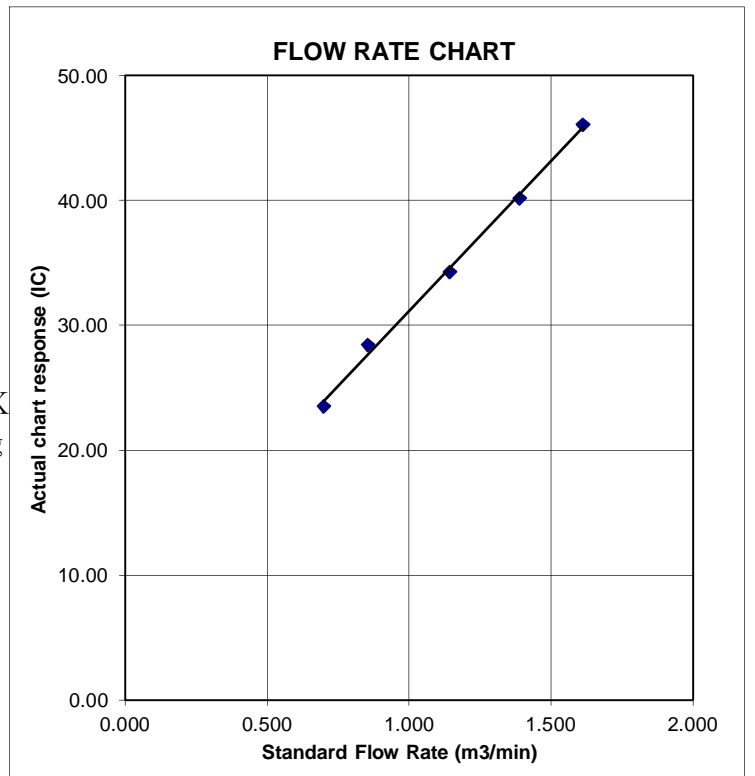
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate  
 IC = corrected chart responses  
 I = actual chart response  
 m = calibrator Qstd slope  
 b = calibrator Qstd intercept  
 Ta = actual temperature during calibration ( deg K)  
 Pstd = actual pressure during calibration ( mm Hg)

**For subsequent calculation of sampler flow:**

$$1/m(( I )[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

m = sampler slope  
 b = sampler intercept  
 I = chart response  
 Tav = daily average temperature  
 Pav = daily average pressure



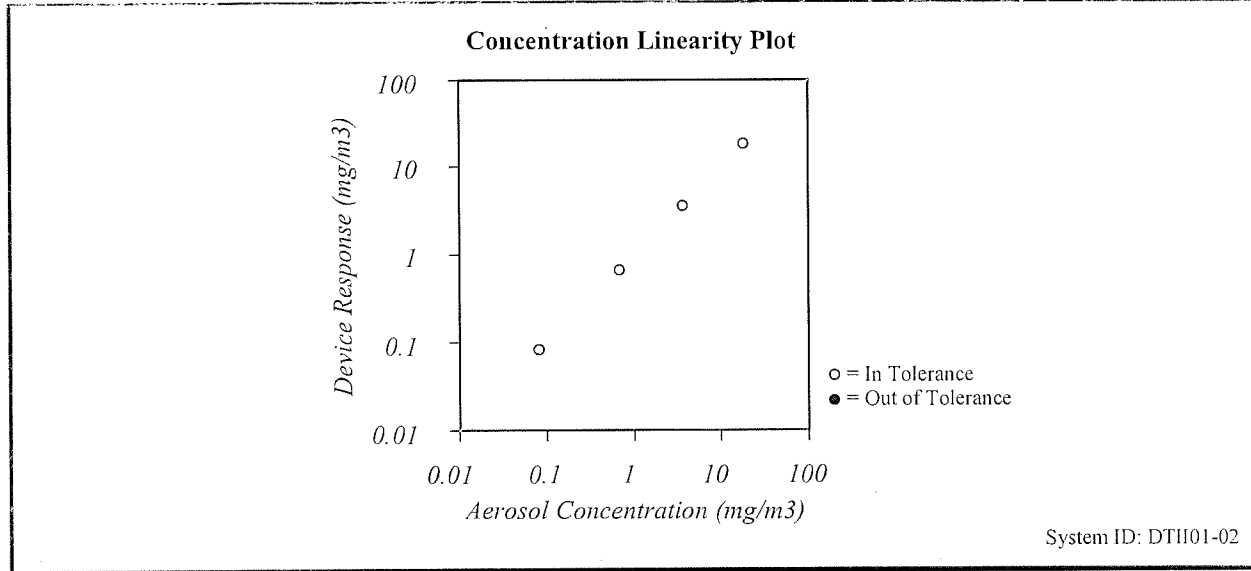


# CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA  
 Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 <http://www.tsi.com>

Environment Condition			<b>Model</b>	<b>8520</b>
Temperature	68.5 (20.3)	°F (°C)		
Relative Humidity	19	%RH		
Barometric Pressure	29.11 (985.8)	inHg (hPa)		
			<b>Serial Number</b>	<b>23080</b>

<input checked="" type="checkbox"/> As Left	<input checked="" type="checkbox"/> In Tolerance
<input type="checkbox"/> As Found	<input type="checkbox"/> Out of Tolerance



Zero Stability Results			
Average:	Minimum:	Maximum:	Time:
0.000 :mg/m <sup>3</sup>	0.000 :mg/m <sup>3</sup>	0.001 :mg/m <sup>3</sup>	2:00 :hrs.

*TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1*

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Barometric Pressure	E003733	02-25-12	02-25-13	Temperature	E002873	11-14-11	11-14-12
Humidity	E002873	11-14-11	11-14-12	DC Voltage	E003314	01-03-12	01-03-13
DC Voltage	E003315	01-03-12	01-03-13	Photometer	E003319	01-26-12	07-26-12
Microbalance	M001324	01-04-11	01-04-13	Pressure	E003511	11-11-11	11-11-12
Flowmeter	E003769	06-13-11	06-13-12				

Final Function Check
March 8, 2012

Calibrated
Date

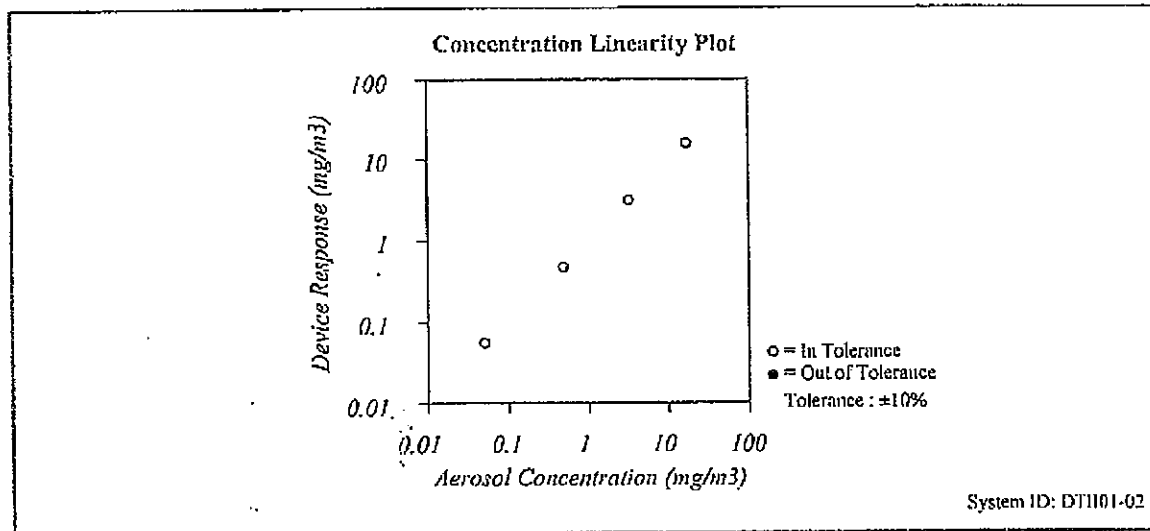


# CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA  
 Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 <http://www.tsi.com>

Environment Condition			Model	AM510
Temperature	68.4 (20.2)	°F (°C)	Serial Number	11008017
Relative Humidity	59	%RH		
Barometric Pressure	28.97 (981.0)	inHg (hPa)		

<input type="checkbox"/> As Left	<input checked="" type="checkbox"/> In Tolerance
<input checked="" type="checkbox"/> As Found	<input type="checkbox"/> Out of Tolerance



*TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1*

Measurement Variable	System ID	Last Cal.	Exp. Date	Measurement Variable	System ID	Last Cal.	Exp. Date
Barometric Pressure	E003733	02-25-12	02-25-13	Temperature	E002875	11-14-11	11-14-12
Humidity	E002873	11-14-11	11-14-12	DC Voltage	E003314	01-03-12	01-03-13
DC Voltage	E003315	01-03-12	01-03-13	Photometer	E003319	07-26-12	01-26-13
Microbalance	M001324	01-04-11	01-04-13	Pressure	E003511	11-11-11	11-11-12
Flowmeter	E002006	03-06-12	03-06-13				

*Carlene Johnson*  
 Verified

Final Function  
 Check

August 9, 2012  
 Date





# Certificate of Calibration 校正證書

Certificate No. : C122418  
證書編號

**ITEM TESTED / 送檢項目** ( Job No. / 序引編號 : IC12-0960 )

Description / 儀器名稱 : Sound Level Meter (EQ068)  
Manufacturer / 製造商 : Rion  
Model No. / 型號 : NL-31  
Serial No. / 編號 : 00410247  
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  
Line Voltage / 電壓 : ---  
Relative Humidity / 相對濕度 : (55 ± 20)%

**TEST SPECIFICATIONS / 測試規範**

Calibration

**DATE OF TEST / 測試日期** : 20 April 2012

**TEST RESULTS / 測試結果**

The results apply to the particular unit-under-test only.  
All results are within manufacturer's specification. (after adjustment)  
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 Precision Measurement Ltd., UK
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By :   
測試 : L K Yeung

Certified By :   
核證 : K C Lee

Date of Issue : 23 April 2012  
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

# Certificate of Calibration

## 校正證書

Certificate No. : C122418  
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 the internal standard (After Adjustment) was performed before the test form 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	C120016
CL281	Multifunction Acoustic Calibrator	DC110233

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L <sub>A</sub>	A	Fast	94.00	1	* 92.9	± 0.7

\* Out of Mfr's Spec.

6.1.1.2 After Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L <sub>A</sub>	A	Fast	94.00	1	94.0	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 120	L <sub>A</sub>	A	Fast	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

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

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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 – 校正及檢測實驗室

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. : C122418

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)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L <sub>A</sub>	A	Fast	94.00	1	94.0	Ref.
			Slow			94.0	± 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)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
20 -110	L <sub>A</sub>	A	Fast	106.00	Continuous	106.0	Ref.
	L <sub>Amax</sub>				200 ms	105.1	-1.0 ± 1.0
	L <sub>A</sub>	Slow	Continuous		106.0	Ref.	
	L <sub>Amax</sub>		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)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L <sub>A</sub>	A	Fast	94.00	31.5 Hz	54.3	-39.4 ± 1.5
					63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.0	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	90.1	-4.3 (+3.0; -6.0)					

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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# Certificate of Calibration

## 校正證書

Certificate No. : C122418  
證書編號

### 6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L <sub>C</sub>	C	Fast	94.00	31.5 Hz	90.7	-3.0 ± 1.5
					63 Hz	93.1	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	94.0	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.4	-0.8 ± 1.0
					8 kHz	91.1	-3.0 (+1.5; -3.0)
					12.5 kHz	88.2	-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)	Mode	Frequency Weighting	Integrating Time	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
20 - 110	L <sub>Aeq</sub>	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5
								1/10 <sup>2</sup>	90	± 0.5
								1/10 <sup>3</sup>	80	± 1.0
								1/10 <sup>4</sup>	70	± 1.0
								60 sec.		
			5 min.							

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

- Uncertainties of Applied Value : 94 dB : 63 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.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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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. : C122426  
證書編號

**ITEM TESTED / 送檢項目** (Job No. / 序引編號 : IC12-0960)

Description / 儀器名稱 : Acoustical Calibrator (EQ082)  
Manufacturer / 製造商 : Bruel & Kjaer  
Model No. / 型號 : 4231  
Serial No. / 編號 : 2713428  
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 :  $(23 \pm 2)^{\circ}\text{C}$   
Line Voltage / 電壓 : ---

Relative Humidity / 相對濕度 :  $(55 \pm 20)\%$

**TEST SPECIFICATIONS / 測試規範**

Calibration

**DATE OF TEST / 測試日期** : 20 April 2012

**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 : L K Yeung

Certified By :   
核證 : K/C Lee

Date of Issue : 23 April 2012  
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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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 – 校正及檢測實驗室

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. : C122426  
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL130	Universal Counter	C113350
CL281	Multifunction Acoustic Calibrator	DC110233
TST150A	Measuring Amplifier	C120886

- Test procedure : MA100N.

- Results :

### 5.1 Sound Level Accuracy

#### 5.1.1 Before Adjustment

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.1	± 0.2	± 0.2
114 dB, 1 kHz	114.1		

#### 5.1.2 After Adjustment

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

#### 5.2.1 Before Adjustment

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

#### 5.2.2 After Adjustment

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

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## Certificate of Calibration 校正證書

Certificate No. : C122426  
證書編號

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.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

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 – 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

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# ALS Technichem (HK) Pty Ltd

## REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

**CONTACT:** MR RAY CHEUNG  
**CLIENT:** ACTION UNITED ENVIRO SERVICES  
**ADDRESS:** RM A 20/F., GOLDEN KING IND BLDG,  
NO. 35-41 TAI LIN PAI ROAD,  
KWAI CHUNG,  
N.T., HONG KONG.

**WORK ORDER:** HK1219668  
**LABORATORY:** HONG KONG  
**DATE RECEIVED:** 25/07/2012  
**DATE OF ISSUE:** 01/08/2012

**PROJECT:** --

### COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory.  
Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of ALS will be followed.

**Scope of Test:** Dissolved Oxygen, pH, Salinity, Temperature and Trubidity  
**Description:** YSI Sonde  
**Brand Name:** YSI  
**Model No.:** YSI 6820 / 650MDS  
**Serial No.:** 02J0912/02K0788 AA  
**Equipment No.:** --  
**Date of Calibration:** 31 July, 2012

### NOTES

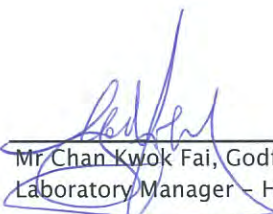
This is the Final Report and supersedes any preliminary report with this batch number.  
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

### ISSUING LABORATORY: HONG KONG

#### **Address**

ALS Technichem (HK) Pty Ltd  
11/F Chung Shun Knitting Centre  
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HONG KONG

**Phone:** 852-2610 1044  
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Mr. Chan Kwok Fai, Godfrey  
Laboratory Manager - Hong Kong

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Page 1 of 3

ADDRESS 11/F, Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong PHONE +852 2610 1044 FAX +852 2610 2021  
ALS TECHNICHEM (HK) PTY LTD Part of the ALS Laboratory Group A Campbell Brothers Limited Company



# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

**Work Order:** HK1219668  
**Date of Issue:** 01/08/2012  
**Client:** ACTION UNITED ENVIRO SERVICES



**Description:** YSI Sonde  
**Brand Name:** YSI  
**Model No.:** YSI 6820 / 650MDS  
**Serial No.:** 02J0912/02K0788 AA  
**Equipment No.:** --  
**Date of Calibration:** 31 July, 2012

**Date of next Calibration:** 31 October, 2012

**Parameters:**

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

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
3.08	2.93	-0.15
6.46	6.64	0.18
8.33	8.17	-0.16
Tolerance Limit (±mg/L)		0.20

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

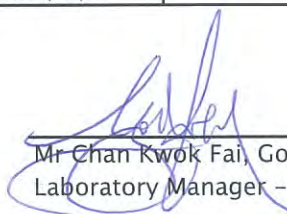
Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	4.03	0.03
7.0	6.98	-0.02
10.0	9.93	-0.07
Tolerance Limit (±unit)		0.20

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

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)
0	0.00	--
10	9.40	-6.0
20	20.66	3.3
30	30.99	3.3
Tolerance Limit (±%)		10.0

**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)
10.0	9.15	-0.9
21.5	21.60	0.1
40.5	39.17	-1.3
Tolerance Limit (°C)		2.0

  
 \_\_\_\_\_  
 Mr Chan Kwok Fai, Godfrey  
 Laboratory Manager - Hong Kong

# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1219668  
Date of Issue: 01/08/2012  
Client: ACTION UNITED ENVIRO SERVICES



Description: YSI Sonde  
Brand Name: YSI  
Model No.: YSI 6820 / 650MDS  
Serial No.: 02J0912/02K0788 AA  
Equipment No.: --  
Date of Calibration: 31 July, 2012      Date of next Calibration: 31 October, 2012

## Parameters:

### Turbidity

Method Ref: ALPHA 21st Ed. 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.1	--
4	4.3	7.50
40	41.6	4.00
80	82.9	3.63
400	414.6	3.65
800	836.7	4.59
	Tolerance Limit ( $\pm\%$ )	10.0

  
Mr Chan Kwok Fai, Godfrey  
Laboratory Manager - 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



## **Appendix F**

### **Event/Action Plan**

### Air Quality

EVENT	ACTION	IC(E)	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>2. Inform IC(E) and ER;</li> <li>3. Repeat measurement to confirm finding;</li> <li>4. Increase monitoring frequency to daily.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method.</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Rectify any unacceptable practice;</li> <li>2. Amend working methods if appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IC(E) and ER;</li> <li>3. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>4. Repeat measurements to confirm findings;</li> <li>5. Increase monitoring frequency to daily;</li> <li>6. Discuss with IC(E) and Contractor on remedial actions required;</li> <li>7. If exceedance continues, arrange meeting with IC(E) and ER;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and Contractor on possible remedial measures;</li> <li>4. Advise the ET on the effectiveness of the proposed remedial measures;</li> <li>5. Supervise Implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Ensure remedial measures properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit proposals for remedial to ER within 3 working days of notification;</li> <li>2. Implement the agreed proposals;</li> <li>3. Amend proposal if appropriate.</li> </ol>
LIMIT LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>2. Inform ER, Contractor and EPD;</li> <li>3. Repeat measurement to confirm finding;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and Contractor on possible remedial measures;</li> <li>4. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>5. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Ensure remedial measures properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IC(E) within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Amend proposal if appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Notify IC(E), ER, Contractor and EPD;</li> <li>2. Identify source;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>6. Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. In consolidation with the IC(E), agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Ensure remedial measures properly implemented;</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IC(E) within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Resubmit proposals if problem still not under control;</li> <li>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>

### Construction Noise

EVENT	ACTION	IC(E)	ER	CONTRACTOR
	ET			
Action Level	<ol style="list-style-type: none"> <li>1. Notify IC(E) and Contractor;</li> <li>2. Carry out investigation;</li> <li>3. Report the results of investigation to the IC(E), ER and Contractor;</li> <li>4. Discuss with the Contractor and formulate remedial measures;</li> <li>5. Increase monitoring frequency to check mitigation effectiveness</li> </ol>	<ol style="list-style-type: none"> <li>1. Review the analysed results submitted by the ET;</li> <li>2. Review the proposed remedial measures by the Contractor and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>4. Ensure remedial measures are properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit noise mitigation proposals to IC(E);</li> <li>2. Implement noise mitigation proposals.</li> </ol>
Limit Level	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IC(E), ER, EPD and Contractor;</li> <li>3. Repeat measurements to confirm findings;</li> <li>4. Increase monitoring frequency;</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>6. Inform IC(E), ER and EPD the causes and actions taken for the exceedances;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>4. Ensure remedial measures properly implemented;</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IC(E) within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Resubmit proposals if problem still not under control;</li> <li>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>

### Water Quality

EVENT	ACTION			
	ET	IC(E)	ER	CONTRACTOR
<b>ACTION LEVEL</b>				
1. Exceedance for one sampling day	<ol style="list-style-type: none"> <li>Repeat in-situ measurement on the next day of exceedance to confirm findings;</li> <li>Identify source(s) of impact;</li> <li>Inform ICE, Contractor, ER, EPD and AFCD; and</li> <li>Check monitoring data, all plant, equipment and Contractor's working methods.</li> </ol>	<ol style="list-style-type: none"> <li>Check monitoring data submitted by ET and Contractor's working methods</li> </ol>	<ol style="list-style-type: none"> <li>Confirm receipt of notification of non-compliance in writing; and</li> <li>Notify Contractor</li> </ol>	<ol style="list-style-type: none"> <li>Information the ER and confirm notification of the non-compliance in writing;</li> <li>Rectify unacceptable practice; and</li> <li>Amend working methods if appropriate</li> </ol>
2. Exceedance for two or more consecutive sampling days	<ol style="list-style-type: none"> <li>Same as the above;</li> <li>Inform ICE, Contractor, ER, EPD and AFCD;</li> <li>Discuss mitigation measures with IC(E), RE and Contractor;</li> <li>Ensure well implementation of mitigation measures; and</li> <li>Increase the monitoring frequency to daily until no exceedance of Action Level</li> </ol>	<ol style="list-style-type: none"> <li>Same as the above;</li> <li>Discuss with ET and Contractor on possible remedial actions;</li> <li>Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly; and</li> <li>Supervise the implementation of mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>Discuss with IC(E) on the proposed mitigation measures;</li> <li>Ensure well implementation of mitigation measures; and</li> <li>Assess the effectiveness of the implemented mitigation measures</li> </ol>	<ol style="list-style-type: none"> <li>Same as the above;</li> <li>Check all plant and equipment and consider changes of working methods;</li> <li>Submit proposal of additional mitigation measures to ER within 3 working days of notification and discuss with ET, IC(E), and ER; and</li> <li>Implement the agreed mitigation measures</li> </ol>
<b>LIMIT LEVEL</b>				
1. Exceedance for one sampling day	<ol style="list-style-type: none"> <li>Repeat in-situ measurement on the next day of exceedance to confirm findings;</li> <li>Identify source(s) of impact;</li> <li>Inform ICE, Contractor, ER, EPD and AFCD;</li> <li>Check monitoring data, all plant, equipment and Contractor's working methods; and</li> <li>Discuss mitigation measures with IC(E), RE and Contractor</li> </ol>	<ol style="list-style-type: none"> <li>Check monitoring data submitted by ET and Contractor's working method</li> <li>Discuss with ER and Contractor on possible remedial actions; and</li> <li>Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly</li> </ol>	<ol style="list-style-type: none"> <li>Confirm receipt of notification failure in writing; and</li> <li>Discuss with IC(E), ET and Contractor on the proposed mitigation measures; and</li> <li>Request Contractor to review the working methods</li> </ol>	<ol style="list-style-type: none"> <li>Inform the ER and confirm notification of the failure in writing;</li> <li>Rectify unacceptable practice;</li> <li>Check all plant and equipment and consider changes of working methods; and</li> <li>Submit proposal of mitigation measures to ER within 3 working days of notification and discuss with ET and ER</li> </ol>
2. Exceedance for two or more consecutive sampling days	<ol style="list-style-type: none"> <li>Same as the above;</li> <li>Ensure mitigation measures are implemented; and</li> <li>Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days</li> </ol>	<ol style="list-style-type: none"> <li>Same as the above; and</li> <li>Supervise the Implementation of mitigation measures</li> </ol>	<ol style="list-style-type: none"> <li>Same as the above;</li> <li>Ensure well implementation of mitigation measures</li> <li>Make agreement on the mitigation measures to be implemented; and</li> <li>Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of limit level</li> </ol>	<ol style="list-style-type: none"> <li>Same as the above;</li> <li>Take immediate action to avoid further exceedance;</li> <li>Implement the agreed mitigation measures;</li> <li>Resubmit proposals of mitigation measures if problem still not under control; and</li> <li>As directed by the Engineer, to slow down or to stop all or part of the construction activities until to no exceedance of Limit Level.</li> </ol>

## **Appendix G**

### **Monitoring Data Sheet**



## 24-hour TSP Monitoring Data Sheet

### Air Quality Monitoring - 24-hour TSP Monitoring data sheet

DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP (oC)	STANDARD			INITIAL FILTER WEIGHT (g)	FINAL FILTER WEIGHT (g)	WEIGHT DUST COLLECTED (g)	DUST 24-hour TSP IN AIR (ug/m <sup>3</sup> )
		INITIAL	FINAL	ACTUAL (min)	MIN	MAX	AVG		AVG PRESS (hPa)	FLOW RATE (m3/min)	AIR VOLUME (std m3)				
<b>24-hour TSP Monitoring Results - AM1</b>															
26-Sep-12	25073	12559.65	12583.64	1439.40	32	33	32.5	27	1010.7	0.74	1061	2.8264	2.9002	0.0738	70
4-Oct-12	25078	12583.64	12607.63	1439.40	33	34	33.5	26	1010.4	0.77	1115	2.8241	2.8841	0.0600	54
10-Oct-12	25083	12607.63	12631.62	1439.40	33	34	33.5	26.3	1012.8	0.78	1116	2.8438	2.9449	0.1011	91
16-Oct-12	25086	12631.62	12655.61	1439.40	33	35	34.0	26.2	1014.7	0.79	1144	2.8129	2.8659	0.0530	46
22-Oct-12	25089	12655.61	12679.6	1439.40	33	35	34.0	25.7	1015.9	0.80	1147	2.8202	2.8586	0.0384	33
<b>24-hour TSP Monitoring Results - AM2</b>															
26-Sep-12	25074	11053.75	11077.74	1439.40	32	33	32.5	27	1010.7	0.80	1158	2.8161	2.8629	0.0468	40
4-Oct-12	25079	11077.74	11101.73	1439.40	33	34	33.5	26	1010.4	0.84	1208	2.8037	2.8695	0.0658	54
10-Oct-12	25084	11101.73	11125.72	1439.40	33	34	33.5	26.3	1012.8	0.84	1209	2.8179	2.9474	0.1295	107
16-Oct-12	25087	11125.72	11149.71	1439.40	33	35	34.0	26.2	1014.7	0.86	1234	2.8132	2.9029	0.0897	73
22-Oct-12	25090	11149.71	11173.7	1439.40	33	35	34.0	25.7	1015.9	0.86	1237	2.8083	2.8538	0.0455	37
<b>24-hour TSP Monitoring Results - AM3</b>															
26-Sep-12	25075	6595.66	6619.65	1439.4	33	34	33.5	27	1010.7	1.09	1571	2.8282	2.975	0.1468	93
4-Oct-12	25080	6619.65	6643.64	1439.4	33	34	33.5	26	1010.4	1.09	1574	2.8244	2.8726	0.0482	31
10-Oct-12	25085	6643.64	6667.63	1439.4	33	34	33.5	26.3	1012.8	1.09	1575	2.831	2.9814	0.1504	95
16-Oct-12	25088	6667.63	6691.62	1439.4	33	35	34	26.2	1014.7	1.12	1608	2.8241	2.8928	0.0687	43
22-Oct-12	25136	6691.62	6715.61	1439.4	33	35	34	25.7	1015.9	1.12	1610	2.7725	2.8465	0.0740	46

## Marine Water Quality Monitoring Data Sheet

Contract No. DC/2009/13

Construction of Sewage Treatment Works  
at Yung Shue Wan and Sok Kwu Wan



Sok Kwu Wan

Date 26-Sep-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/9/26 9:16	W1	ME	832970	807737	2.3	1.150	28.01	6.32	97.6	1.4	33.96	7.52	5.4
						1.150	28.02	6.12	94.4	1.5	33.96	7.51	
2012/9/26 9:27	W2	ME	832679	807992	12.4	1.000	28.03	5.75	88.8	1.3	33.96	7.48	10.7
						1.000	28.03	5.71	88.2	1.3	33.96	7.48	
						6.200	27.97	5.60	86.5	1.5	34.01	7.48	9.9
						6.200	27.95	5.58	86.0	1.6	34.01	7.46	
						11.400	27.96	5.50	84.9	1.8	34.20	7.45	3.6
						11.400	27.98	5.42	83.7	1.6	34.24	7.47	
2012/9/26 9:40	W3	ME	832048	807880	12.2	1.000	28.13	5.57	86.1	1.2	33.83	7.50	6.7
						1.000	28.13	5.40	83.5	1.3	33.89	7.50	
						6.100	28.00	5.40	83.5	1.2	34.23	7.52	2.4
						6.100	28.00	5.56	85.9	1.3	34.24	7.52	
						11.200	27.94	5.51	85.2	1.5	34.43	7.49	6.9
						11.200	27.94	5.38	83.2	1.7	34.42	7.49	
2012/9/26 9:00	C1	ME	833712	808179	14.3	1.000	27.97	6.02	92.8	1.3	33.77	7.42	2.2
						1.000	27.97	6.16	94.8	1.5	33.71	7.41	
						7.150	28.01	6.06	93.6	1.4	34.13	7.41	8.2
						7.150	27.99	5.92	91.5	1.6	34.14	7.40	
						13.300	28.01	5.67	87.7	1.7	34.19	7.40	5.8
						13.300	28.01	5.64	87.1	1.8	34.19	7.40	
2012/9/26 9:57	C2	ME	831477	807735	10.6	1.000	27.89	6.69	102.3	1.3	32.72	7.61	5.7
						1.000	27.87	6.44	98.5	1.1	32.68	7.58	
						5.300	28.05	5.95	92.0	1.4	34.02	7.58	2.4
						5.300	28.00	6.19	95.5	1.5	34.02	7.58	
						9.600	28.00	5.70	87.7	1.5	33.47	7.50	2.1
						9.600	27.97	5.46	83.8	1.6	33.23	7.44	
2012/9/26 8:39	C3	ME	832241	808847	14.7	1.000	27.98	7.28	112.2	1.5	33.81	7.40	3.1
						1.000	27.95	6.83	105.2	1.6	33.78	7.40	
						7.350	27.97	6.22	96.0	1.5	34.15	7.41	4.0
						7.350	28.00	6.12	94.6	1.6	34.16	7.42	
						13.700	28.00	5.94	91.9	1.6	34.21	7.42	4.9
						13.700	27.99	5.89	91.0	1.6	34.11	7.41	
2012/9/26 16:15	W1	MF	832971	807732	2.7	1.350	28.07	5.52	85.8	1.3	33.56	7.47	7.7
						1.350	28.06	5.41	83.4	1.4	33.54	7.44	
2012/9/26 16:02	W2	MF	832663	807980	13.3	1.000	28.04	5.92	91.2	1.1	33.48	7.47	10.0
						1.000	28.03	5.70	87.7	1.2	33.33	7.46	
						6.650	28.01	5.29	81.6	1.2	33.79	7.47	9.6
						6.650	28.01	5.24	80.8	1.4	33.81	7.47	
						12.300	28.02	5.30	82.2	1.5	34.54	7.53	7.2
						12.300	28.02	5.33	82.6	1.5	34.55	7.53	
2012/9/26 15:45	W3	MF	832046	807903	13.1	1.000	28.17	5.99	92.5	1.2	33.75	7.51	8.1
						1.000	28.14	5.77	89.1	1.4	33.76	7.48	
						6.550	28.12	5.43	84.1	1.3	34.02	7.48	4.7
						6.550	28.12	5.39	83.4	1.4	34.03	7.47	
						12.100	27.97	5.40	83.5	1.4	34.51	7.49	8.4
						12.100	27.97	5.26	81.4	1.5	34.59	7.48	
2012/9/26 16:35	C1	MF	833715	808169	15.4	1.000	28.09	6.44	99.3	1.2	33.61	7.61	2.8
						1.000	28.10	6.12	94.4	1.1	33.62	7.60	
						7.700	28.10	5.65	87.2	1.3	33.75	7.57	4.0
						7.700	28.08	5.62	86.6	1.5	33.61	7.56	
						14.400	28.06	5.45	84.3	1.4	33.96	7.57	2.5
						14.400	28.04	5.41	83.5	1.5	33.81	7.56	
2012/9/26 15:32	C2	MF	831454	807742	11.6	1.000	28.18	6.74	104.0	1.2	33.48	7.28	3.5
						1.000	28.15	6.37	98.2	1.3	33.39	7.24	
						5.800	28.00	5.25	81.2	1.2	34.36	7.17	3.1
						5.800	28.01	5.27	81.6	1.3	34.60	7.17	
						10.600	27.96	5.15	79.8	1.5	34.80	7.17	5.2
						10.600	27.96	5.01	77.6	1.6	34.80	7.17	
2012/9/26 16:54	C3	MF	832215	808856	16.1	1.000	28.07	5.71	88.1	1.2	33.63	7.53	2.7
						1.000	28.07	5.63	86.8	1.3	33.63	7.53	
						8.050	28.06	5.45	84.1	1.3	33.62	7.52	6.1
						8.050	28.07	5.43	83.8	1.3	33.80	7.53	
						15.100	28.05	5.34	82.4	1.5	33.92	7.54	7.4
						15.100	28.05	5.33	82.3	1.5	33.96	7.54	

MF- Mid Flood Tide  
ME- Mid Ebb tide

Contract No. DC/2009/13

**Construction of Sewage Treatment Works  
at Yung Shue Wan and Sok Kwu Wan**



**Sok Kwu Wan**

Date 28-Sep-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/9/28 11:04	W1	ME	832963	807730	2.2	1.100	28.18	5.63	87.5	1.0	34.58	7.14	5.2
						1.100	28.21	5.60	87.0	1.0	34.58	7.14	
2012/9/28 11:19	W2	ME	832681	807988	12.5	1.000	28.18	5.61	87.1	1.0	34.41	7.34	6.2
						1.000	28.20	5.32	82.7	1.0	34.42	7.32	
						6.250	28.03	4.85	75.1	1.1	34.57	7.26	6.6
						6.250	28.03	4.74	73.4	1.3	34.54	7.25	
						11.500	28.04	4.72	73.1	1.3	34.64	7.24	
11.500	28.03	4.73	73.3	1.4	34.65	7.23	6.7						
2012/9/28 11:31	W3	ME	832047	807893	12.3	1.000	28.17	5.44	84.4	1.1	34.51	7.07	4.4
						1.000	28.16	5.37	83.3	1.2	34.55	7.08	
						6.150	28.06	5.06	78.5	1.2	34.63	7.08	5.1
						6.150	28.07	5.04	78.2	1.2	34.65	7.10	
						11.300	27.99	4.95	76.7	1.3	34.70	7.06	
11.300	28.01	4.94	76.6	1.2	34.69	7.07	4.5						
2012/9/28 10:43	C1	ME	833707	808179	13.6	1.000	28.17	5.08	78.9	1.2	34.64	6.81	7.4
						1.000	28.14	5.08	78.9	1.2	34.64	6.80	
						6.800	28.05	5.00	77.5	1.2	34.69	6.80	6.1
						6.800	28.05	4.99	77.4	1.3	34.69	6.81	
						12.600	27.98	4.99	77.3	1.3	34.75	6.80	
12.600	28.00	4.89	75.7	1.5	34.74	6.83	7.2						
2012/9/28 11:43	C2	ME	831472	807740	10.2	1.000	28.27	5.42	84.2	1.2	34.41	7.32	2.9
						1.000	28.27	5.18	80.5	1.2	34.40	7.32	
						5.100	27.88	4.68	72.2	1.3	34.43	7.29	4.2
						5.100	27.87	4.65	71.8	1.4	34.41	7.28	
						9.200	27.89	4.65	71.9	1.4	34.51	7.27	
9.200	27.89	4.60	71.0	1.5	34.51	7.25	6.3						
2012/9/28 10:19	C3	ME	832216	808867	14.3	1.000	28.20	6.08	94.4	1.1	34.63	6.92	6.1
						1.000	28.17	5.78	89.9	1.2	34.64	6.87	
						7.150	28.12	5.48	85.1	1.2	34.70	6.84	6.4
						7.150	28.09	5.41	83.9	1.3	34.69	6.83	
						13.300	28.07	5.21	80.9	1.3	34.72	6.81	
13.300	28.07	5.16	80.0	1.3	34.72	6.81	7.0						
2012/9/28 17:13	W1	MF	832973	807733	2.6	1.300	28.18	5.85	90.80	1.1	34.54	7.35	6.1
						1.300	28.19	6.03	93.60	1.0	34.48	7.35	
2012/9/28 17:00	W2	MF	832665	807991	13.7	1.000	28.22	6.30	97.90	1.3	34.44	7.44	5.5
						1.000	28.21	6.19	96.10	1.3	34.45	7.43	
						6.850	28.22	5.23	81.20	1.3	34.51	7.41	5.3
						6.850	28.21	5.20	80.90	1.3	34.52	7.40	
						12.700	28.19	4.76	73.90	1.3	34.60	7.37	
12.700	28.19	4.79	74.40	1.3	34.60	7.37	5.4						
2012/9/28 16:48	W3	MF	832051	807889	13.5	1.000	28.38	6.88	107.20	1.3	34.58	7.27	6.9
						1.000	28.26	6.84	106.40	1.4	34.50	7.22	
						6.750	28.24	4.59	71.40	1.3	34.60	7.25	7.8
						6.750	28.22	4.67	72.60	1.4	34.60	7.23	
						12.500	27.97	4.57	70.70	1.5	34.67	7.21	
12.500	27.97	4.40	68.10	1.7	34.67	7.21	8.0						
2012/9/28 17:25	C1	MF	833714	808186	15.2	1.000	28.18	6.19	96.10	1.4	34.38	7.55	7.2
						1.000	28.21	6.07	94.30	1.6	34.39	7.52	
						7.600	28.19	5.22	80.90	1.4	34.02	7.48	8.0
						7.600	28.18	5.20	80.60	1.4	34.04	7.48	
						14.200	28.14	4.55	70.70	1.7	34.54	7.46	
14.200	28.14	4.53	70.20	1.8	34.54	7.46	11.4						
2012/9/28 16:36	C2	MF	831459	807736	11.4	1.000	28.36	6.76	105.20	1.2	34.27	7.16	5.1
						1.000	28.33	6.36	98.90	1.3	34.33	7.07	
						5.700	28.18	5.41	83.90	1.2	34.43	7.01	5.5
						5.700	28.15	4.99	77.40	1.2	34.44	6.99	
						10.400	27.96	4.30	66.50	1.3	34.56	6.99	
10.400	27.95	4.38	67.80	1.3	34.61	6.98	8.0						
2012/9/28 17:52	C3	MF	832213	808872	15.9	1.000	28.22	4.54	70.50	1.4	34.34	7.41	5.6
						1.000	28.22	4.46	69.20	1.5	34.37	7.42	
						7.950	28.20	4.41	68.50	1.6	34.43	7.42	6.8
						7.950	28.22	4.40	68.30	1.6	34.44	7.42	
						14.900	28.17	4.37	67.80	1.8	34.54	7.41	
14.900	28.18	4.35	67.60	2.0	34.56	7.42	8.4						

MF- Mid Flood Tide  
ME- Mid Ebb tide

Contract No. DC/2009/13

**Construction of Sewage Treatment Works  
at Yung Shue Wan and Sok Kwu Wan**



**Sok Kwu Wan**

Date 4-Oct-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/10/4 14:51	W1	ME	832963	807730	2.4	1.200	27.82	5.39	82.9	1.3	34.08	7.05	4.3
						1.200	27.82	5.87	90.4	1.1	34.08	7.05	
2012/10/4 14:35	W2	ME	832651	807988	12.7	1.000	27.82	5.89	90.7	1.2	34.08	7.14	3.9
						1.000	27.82	5.82	89.6	1.3	34.09	7.14	
						6.350	27.75	4.89	75.3	1.5	34.19	7.10	4.2
						6.350	27.74	4.88	75.1	1.5	34.20	7.10	
						11.700	27.58	4.59	70.5	1.6	34.32	7.09	5.0
						11.700	27.57	4.42	67.9	1.7	34.34	7.07	
2012/10/4 14:18	W3	ME	832051	807886	12.1	1.000	27.84	6.10	93.9	1.2	34.15	6.90	4.5
						1.000	27.83	6.00	92.5	1.0	34.16	6.88	
						6.050	27.70	5.30	81.5	1.2	34.23	6.82	4.7
						6.050	27.70	5.06	77.8	1.1	34.23	6.81	
						11.100	27.59	4.58	70.3	1.5	34.48	6.79	4.8
						11.100	27.60	4.46	68.7	1.6	34.51	6.80	
2012/10/4 15:11	C1	ME	833694	808159	14.4	1.000	27.74	6.76	104.0	1.2	34.10	7.26	5.7
						1.000	27.72	6.09	93.7	1.4	34.11	7.24	
						7.200	27.60	5.23	80.2	1.4	34.07	7.21	5.0
						7.200	27.60	5.06	77.6	1.5	34.18	7.20	
						13.400	27.53	4.67	71.6	1.6	34.43	7.20	5.7
						13.400	27.53	4.67	71.8	1.6	34.44	7.20	
2012/10/4 14:02	C2	ME	831452	807733	10.7	1.000	27.88	8.34	128.9	1.5	34.43	6.69	3.8
						1.000	27.86	7.89	121.9	1.3	34.43	6.66	
						5.350	27.77	6.50	100.3	1.5	34.47	6.53	3.5
						5.350	27.79	6.31	97.3	1.6	34.45	6.53	
						9.700	27.77	5.45	84.2	1.5	34.58	6.51	4.6
						9.700	27.78	4.89	75.5	1.5	34.58	6.52	
2012/10/4 15:35	C3	ME	832202	808858	15.1	1.000	27.74	6.59	101.3	1.4	34.08	7.17	4.5
						1.000	27.69	6.06	93.1	1.5	34.13	7.18	
						7.550	27.63	5.37	82.6	1.5	34.27	7.18	5.5
						7.550	27.61	5.53	84.7	1.6	33.80	7.18	
						14.100	27.52	4.58	69.9	1.6	33.65	7.18	4.0
						14.100	27.52	4.60	70.3	1.8	33.69	7.18	
2012/10/4 9:26	W1	MF	832963	807742	2.8	1.400	27.62	5.44	83.60	1.2	34.09	7.47	6.3
						1.400	27.61	5.41	81.50	1.3	34.09	7.46	
2012/10/4 9:13	W2	MF	832664	807977	13.8	1.000	27.58	6.78	104.10	1.2	34.10	7.50	4.2
						1.000	27.57	5.37	82.40	1.3	34.10	7.49	
						6.900	27.54	5.50	84.30	1.4	34.20	7.48	9.1
						6.900	27.54	5.45	83.70	1.4	34.21	7.48	
						12.800	27.52	5.98	91.80	1.5	34.39	7.48	7.8
						12.800	27.51	5.24	80.50	1.8	34.40	7.47	
2012/10/4 8:56	W3	MF	832040	807899	13.4	1.000	27.59	5.91	90.60	1.1	34.13	7.50	3.8
						1.000	27.60	5.87	90.00	1.2	34.14	7.50	
						6.700	27.53	5.29	81.20	1.2	34.35	7.46	3.5
						6.700	27.52	5.24	80.30	1.3	34.34	7.45	
						12.400	27.56	5.38	82.60	1.2	34.48	7.48	5.5
						12.400	27.57	5.13	78.90	1.4	34.48	7.48	
2012/10/4 9:42	C1	MF	833716	808185	15.6	1.000	27.65	5.28	81.00	1.4	34.07	7.56	4.4
						1.000	27.64	5.16	79.20	1.6	34.07	7.53	
						7.800	27.57	4.86	74.50	1.5	34.14	7.48	4.8
						7.800	27.58	4.92	75.50	1.8	34.15	7.48	
						14.600	27.58	4.75	72.90	1.6	34.26	7.48	4.1
						14.600	27.57	4.76	73.10	1.7	34.26	7.46	
2012/10/4 8:37	C2	MF	831455	807760	11.6	1.000	27.60	6.00	92.20	1.3	34.26	7.31	2.8
						1.000	27.61	6.73	103.30	1.2	34.26	7.31	
						5.800	27.58	5.29	81.30	1.2	34.35	7.33	3.4
						5.800	27.58	5.26	80.80	1.4	34.36	7.33	
						10.600	27.57	5.32	81.80	1.5	34.48	7.35	4.0
						10.600	27.57	5.23	80.30	1.4	34.45	7.33	
2012/10/4 10:06	C3	MF	832233	808849	16.2	1.000	27.64	4.76	73.10	1.3	34.06	7.42	4.2
						1.000	27.61	4.86	74.60	1.4	34.06	7.40	
						8.100	27.61	4.67	71.60	1.6	34.11	7.40	3.3
						8.100	27.61	4.65	71.30	1.6	34.11	7.39	
						15.200	27.58	4.65	71.30	1.8	34.23	7.40	3.7
						15.200	27.57	4.65	71.40	1.9	34.22	7.38	

MF- Mid Flood Tide

ME- Mid Ebb tide

Contract No. DC/2009/13

**Construction of Sewage Treatment Works  
at Yung Shue Wan and Sok Kwu Wan**



**Sok Kwu Wan**

Date 6-Oct-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/10/6 15:03	W1	ME	832960	807744	2.5	1.250	27.74	7.25	111.5	0.7	34.21	6.60	7.2
						1.250	27.75	7.26	111.8	0.7	34.22	6.63	
2012/10/6 14:49	W2	ME	832658	808000	12.7	1.000	27.73	8.14	125.2	0.6	34.23	6.71	7.3
						1.000	27.73	8.38	128.9	0.8	34.23	6.70	
						6.350	27.46	6.06	92.8	0.8	34.34	6.59	3.8
						6.350	27.44	5.67	86.9	0.9	34.35	6.58	
						11.700	27.43	5.79	88.8	1.1	34.41	6.55	
11.700	27.42	5.23	80.1	1.1	34.42	6.56	7.4						
2012/10/6 14:32	W3	ME	832055	807890	12.6	1.000	27.74	7.16	110.3	1.1	34.34	6.50	6.0
						1.000	27.78	7.07	108.9	1.0	34.34	6.50	
						6.300	27.54	6.10	93.7	1.2	34.40	6.54	5.6
						6.300	27.52	6.10	93.7	1.1	34.39	6.65	
						11.600	27.44	5.51	84.5	1.3	34.47	6.66	
11.600	27.41	5.45	83.5	1.1	34.48	6.66	5.2						
2012/10/6 15:19	C1	ME	833712	808184	14.5	1.000	27.67	6.82	104.9	1.0	34.20	6.99	8.5
						1.000	27.67	7.32	112.4	1.1	34.21	6.94	
						7.250	27.55	5.81	89.2	1.2	34.40	6.87	6.4
						7.250	27.54	5.85	89.7	1.2	34.39	6.83	
						13.500	27.55	4.82	74.1	1.2	34.45	6.83	3.7
13.500	27.55	4.63	71.2	1.2	34.46	6.84							
2012/10/6 14:19	C2	ME	831453	807744	10.7	1.000	27.74	8.87	136.8	1.2	34.60	6.40	5.0
						1.000	27.76	8.72	134.5	1.2	34.59	6.50	
						5.350	27.66	5.91	91.1	1.3	34.64	6.40	6.4
						5.350	27.67	5.78	89.1	1.3	34.63	6.50	
						9.700	27.39	5.34	81.9	1.4	34.65	6.58	
9.700	27.37	5.01	76.9	1.3	34.65	6.70	4.6						
2012/10/6 15:46	C3	ME	832236	808880	14.8	1.000	27.67	6.26	96.3	1.1	34.21	6.82	3.3
						1.000	27.71	6.89	106.0	1.0	34.19	6.84	
						7.400	27.56	5.47	84.1	1.2	34.38	6.87	7.1
						7.400	27.53	6.21	95.3	1.3	34.39	6.84	
						13.800	27.54	4.57	70.2	1.3	34.45	6.87	
13.800	27.53	4.67	71.7	1.2	34.46	6.85	3.3						
2012/10/6 11:08	W1	MF	832957	807741	2.8	1.400	27.59	6.57	100.9	0.8	34.26	7.37	7.8
						1.400	27.57	7.30	112.0	0.9	34.25	7.36	
2012/10/6 10:53	W2	MF	832649	807971	13.4	1.000	27.56	5.89	90.4	0.9	34.27	7.48	3.9
						1.000	27.57	6.90	106.0	0.9	34.28	7.46	
						6.700	27.43	5.07	77.6	1.0	34.35	7.39	7.3
						6.700	27.42	5.06	77.6	1.1	34.34	7.38	
						12.400	27.32	5.07	77.6	1.3	34.53	7.36	
12.400	27.32	4.90	75.0	1.3	34.53	7.36	4.4						
2012/10/6 10:38	W3	MF	832055	807903	13.1	1.000	27.49	7.36	112.80	1.1	34.35	7.25	2.8
						1.000	27.51	6.41	98.30	1.0	34.33	7.25	
						6.550	27.40	4.75	72.70	1.2	34.48	7.20	2.9
						6.550	27.39	4.73	72.40	1.2	34.44	7.19	
						12.100	27.40	4.75	72.80	1.4	34.57	7.21	
12.100	27.40	4.80	72.10	1.5	30.96	6.94	4.0						
2012/10/6 11:23	C1	MF	833700	808198	15.1	1.000	27.52	8.19	125.50	0.8	34.20	7.42	7.7
						1.000	27.52	8.32	127.60	1.1	34.22	7.43	
						7.550	27.50	5.60	85.80	1.4	34.31	7.40	1.8
						7.550	27.50	5.32	81.50	1.4	34.31	7.40	
						14.100	27.48	5.02	77.00	1.5	34.33	7.40	
14.100	27.48	5.28	81.00	1.4	34.33	7.39	4.0						
2012/10/6 10:24	C2	MF	831462	807738	11.3	1.000	27.43	7.73	118.4	1.5	34.34	7.19	7.3
						1.000	27.46	6.74	103.3	1.0	34.34	7.21	
						5.650	27.34	5.50	84.2	1.2	34.43	7.22	3.5
						5.650	27.33	5.42	83.0	1.2	34.47	7.20	
						10.300	27.35	5.24	80.1	1.4	34.40	7.21	
10.300	27.35	5.17	79.1	1.4	34.22	7.16	6.6						
2012/10/6 11:47	C3	MF	832204	808875	15.9	1.000	27.55	6.75	103.5	1.1	34.21	7.36	6.1
						1.000	27.56	6.67	102.3	1.3	34.20	7.36	
						7.950	27.50	5.90	90.5	1.4	34.29	7.35	6.0
						7.950	27.49	5.69	87.2	1.5	34.23	7.34	
						14.900	27.52	5.12	78.6	1.4	34.32	7.35	
14.900	27.52	5.07	77.8	1.5	34.34	7.35	7.7						

MF- Mid Flood Tide  
ME- Mid Ebb tide

Contract No. DC/2009/13

Construction of Sewage Treatment Works  
at Yung Shue Wan and Sok Kwu Wan



Sok Kwu Wan

Date 8-Oct-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/10/8 8:53	W1	ME	832968	807745	2.3	1.150	27.29	6.25	95.5	1.1	34.23	7.40	4.8
						1.150	27.29	6.23	95.3	1.1	34.58	7.40	
2012/10/8 8:40	W2	ME	832682	807988	12.6	1.000	27.32	7.66	117.4	1.1	34.58	7.51	4.4
						1.000	27.30	7.92	121.3	1.1	34.59	7.47	
						6.300	27.28	6.29	96.2	1.2	34.62	7.46	3.3
						6.300	27.29	6.39	97.9	1.2	34.62	7.46	
						11.600	27.29	6.29	96.3	1.2	34.66	7.45	11.1
						11.600	27.31	6.37	97.6	1.3	34.65	7.46	
2012/10/8 8:24	W3	ME	832046	807899	12.4	1.000	27.34	7.76	118.8	1.2	34.42	7.38	1.9
						1.000	27.34	7.35	112.5	1.2	34.41	7.38	
						6.200	27.30	4.88	74.7	1.2	34.55	7.36	3.8
						6.200	27.28	5.88	90.0	1.3	34.57	7.35	
						11.400	27.31	4.63	70.9	1.2	34.66	7.38	5.4
						11.400	27.30	4.81	73.6	1.3	34.30	7.36	
2013/10/22 17:00	C1	ME	833711	808187	14.2	1.000	27.40	6.76	103.5	1.2	34.27	7.39	3.2
						1.000	27.40	7.54	115.5	1.2	34.32	7.39	
						7.100	27.29	6.33	96.9	1.4	34.52	7.41	3.2
						7.100	27.29	5.74	87.9	1.4	34.52	7.40	
						13.200	27.29	6.70	102.5	1.5	34.63	7.40	7.8
						13.200	27.29	5.73	87.8	1.6	34.67	7.40	
2012/10/8 8:07	C2	ME	831453	807761	10.3	1.000	27.35	7.76	118.8	1.1	34.43	7.23	3.0
						1.000	27.36	7.71	118.0	1.2	34.40	7.23	
						5.150	27.41	5.32	81.5	1.2	34.55	7.24	3.3
						5.150	27.41	4.90	75.1	1.2	34.52	7.23	
						9.300	27.39	6.76	103.6	1.2	34.67	7.27	6.8
						9.300	27.38	5.95	91.3	1.4	34.67	7.27	
2012/10/8 9:34	C3	ME	832235	808855	14.7	1.000	27.43	7.95	121.8	1.3	34.29	7.37	1.5
						1.000	27.39	7.50	114.9	1.2	34.33	7.36	
						7.350	27.29	6.56	99.6	1.4	33.22	7.35	3.2
						7.350	27.31	7.15	109.4	1.4	34.52	7.36	
						13.700	27.28	6.37	97.5	1.5	34.70	7.36	5.4
						13.700	27.28	5.95	91.2	1.5	34.71	7.36	
2012/10/8 17:46	W1	MF	832963	807741	2.8	1.400	27.48	7.63	117.1	1.0	34.46	7.48	4.0
						1.400	27.49	6.66	102.2	1.2	34.45	7.48	
2012/10/8 17:34	W2	MF	832666	807974	13.5	1.000	27.46	7.91	121.4	1.1	34.42	7.67	3.6
						1.000	27.48	7.54	115.7	1.2	34.43	7.65	
						6.750	27.48	6.19	95.0	1.2	34.57	7.60	4.7
						6.750	27.41	5.88	90.1	1.4	34.60	7.58	
						12.500	27.34	5.59	85.7	1.4	34.63	7.56	3.5
						12.500	27.32	6.05	92.7	1.6	34.64	7.53	
2012/10/8 17:18	W3	MF	832057	807900	13.2	1.000	27.54	7.61	116.7	1.2	34.29	7.54	3.6
						1.000	27.54	7.36	113.0	1.3	34.40	7.56	
						6.600	27.45	6.58	101.0	1.3	34.60	7.51	5.6
						6.600	27.44	6.12	93.8	1.5	34.60	7.49	
						12.200	27.32	5.72	87.3	1.4	33.76	7.47	4.6
						12.200	27.33	5.42	83.1	1.6	34.76	7.48	
2012/10/8 18:05	C1	MF	833715	808178	15.4	1.000	27.38	7.98	122.1	1.2	34.41	7.62	4.3
						1.000	27.37	7.81	119.7	1.4	34.44	7.60	
						7.700	27.38	7.06	108.2	1.4	34.54	7.57	3.3
						7.700	27.40	5.92	90.8	1.4	34.55	7.58	
						14.400	27.34	6.25	95.8	1.5	34.61	7.56	1.6
						14.400	27.32	5.67	86.1	1.7	33.09	7.53	
2012/10/8 17:00	C2	MF	831490	807760	11.4	1.000	27.59	6.59	101.3	1.2	34.31	7.76	1.3
						1.000	27.56	7.70	118.3	1.1	34.45	7.66	
						5.700	27.59	6.14	94.4	1.2	34.48	7.43	3.3
						5.700	27.60	6.37	98.0	1.0	34.48	7.42	
						10.400	27.56	5.30	81.4	1.4	34.55	7.37	1.8
						10.400	27.49	5.05	77.6	1.5	34.58	7.35	
2012/10/8 18:28	C3	MF	832231	808856	16.3	1.000	27.36	7.49	114.7	1.4	34.46	7.53	3.3
						1.000	27.36	7.41	113.4	1.5	34.41	7.54	
						8.150	27.35	6.14	94.1	1.5	34.56	7.53	4.9
						8.150	27.37	6.15	94.3	1.4	34.55	7.54	
						15.300	27.34	5.21	79.9	1.6	34.65	7.52	6.4
						15.300	27.33	5.66	86.8	1.7	34.65	7.52	

MF- Mid Flood Tide  
ME- Mid Ebb tide



Contract No. DC/2009/13

Construction of Sewage Treatment Works  
at Yung Shue Wan and Sok Kwu Wan



Sok Kwu Wan

Date 10-Oct-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/10/10 8:55	W1	ME	832954	807730	2.4	1.200	27.24	7.32	111.9	1.2	34.48	7.33	3.6
						1.200	27.24	6.03	92.2	1.5	34.55	7.32	
2012/10/10 8:40	W2	ME	832656	807967	12.7	1.000	27.23	7.96	121.7	1.3	34.48	7.44	4.2
						1.000	27.23	7.82	119.5	1.4	34.49	7.43	
						6.350	27.30	6.90	105.6	1.3	34.58	7.39	3.6
						6.350	27.29	6.84	104.7	1.5	34.58	7.39	
						11.700	27.28	6.17	94.5	1.4	34.71	7.36	10.0
						11.700	27.30	6.38	97.7	1.6	34.72	7.39	
2012/10/10 8:19	W3	ME	832041	807889	12.6	1.000	27.35	7.67	117.4	1.2	34.48	7.46	5.7
						1.000	27.33	7.43	113.8	1.4	34.51	7.43	
						6.300	27.34	6.13	93.8	1.3	34.59	7.46	8.6
						6.300	27.33	7.22	110.6	1.4	34.60	7.46	
						11.600	27.28	6.12	93.7	1.3	34.71	7.44	3.6
						11.600	27.28	6.47	99.2	1.4	34.72	7.44	
2012/10/10 10:10	C1	ME	833716	808149	14.1	1.000	27.26	7.99	122.2	1.4	34.49	7.54	6.1
						1.000	27.27	7.74	118.4	1.6	34.49	7.53	
						7.050	27.26	6.19	94.6	1.5	34.53	7.50	6.7
						7.050	27.26	5.79	88.6	1.7	34.55	7.49	
						13.100	27.23	4.75	72.7	1.4	34.64	7.47	3.9
						13.100	27.22	4.97	76.0	1.6	34.65	7.45	
2012/10/10 8:06	C2	ME	831454	807753	10.4	1.000	27.30	8.09	123.7	1.2	34.46	7.37	6.9
						1.000	27.31	7.83	119.8	1.2	34.47	7.34	
						5.200	27.33	7.87	120.5	1.3	34.54	7.29	9.5
						5.200	27.30	7.35	112.5	1.4	34.57	7.25	
						9.400	27.34	6.33	97.1	1.4	34.67	7.33	6.6
						9.400	27.33	6.76	103.6	1.3	34.67	7.32	
2012/10/10 10:35	C3	ME	832241	808884	14.7	1.000	27.25	6.83	104.5	1.4	34.53	7.42	6.3
						1.000	27.24	7.71	117.8	1.6	34.51	7.42	
						7.350	27.25	5.59	85.6	1.5	34.57	7.43	5.2
						7.350	27.26	5.67	86.8	1.7	34.57	7.43	
						13.700	27.23	5.44	83.2	1.6	34.63	7.41	5.7
						13.700	27.23	5.40	82.6	1.7	34.65	7.41	
2012/10/10 15:20	W1	MF	832954	807744	2.7	1.350	27.75	6.55	100.8	1.3	34.40	7.36	11.0
						1.350	27.73	6.39	98.4	1.5	34.41	7.30	
2012/10/10 15:08	W2	MF	832657	807991	13.5	1.000	27.79	6.27	96.6	1.2	34.47	7.22	5.1
						1.000	27.79	6.48	99.9	1.4	34.46	7.19	
						6.750	27.35	5.19	79.5	1.2	34.54	7.08	9.6
						6.750	27.33	5.03	76.8	1.5	33.79	7.07	
						12.500	27.28	5.83	89.3	1.4	34.70	7.05	6.2
						12.500	27.28	5.80	88.8	1.4	34.69	7.04	
2012/10/10 14:52	W3	MF	832038	807912	13.2	1.000	27.82	7.41	114.4	1.3	34.49	6.97	8.1
						1.000	27.81	7.64	117.9	1.4	34.50	6.95	
						6.600	27.43	5.15	79.0	1.5	34.57	6.76	8.5
						6.600	27.42	5.17	79.3	1.4	34.58	6.74	
						12.200	27.29	5.35	82.0	1.6	34.69	6.66	7.4
						12.200	27.28	4.75	72.8	1.7	34.73	6.69	
2012/10/10 15:33	C1	MF	833687	808155	15.3	1.000	27.52	7.81	119.9	1.3	34.35	7.32	5.8
						1.000	27.56	7.66	117.6	1.6	34.33	7.33	
						7.650	27.33	6.35	97.3	1.5	34.49	7.26	3.9
						7.650	27.33	6.04	92.4	1.6	34.50	7.26	
						14.300	27.30	5.59	85.7	1.5	34.65	7.25	5.5
						14.300	27.30	5.84	89.5	1.7	34.67	7.23	
2012/10/10 14:37	C2	MF	831458	807732	11.3	1.000	27.67	7.84	120.7	1.1	34.64	6.81	4.3
						1.000	27.67	7.65	117.8	1.4	34.63	6.74	
						5.650	27.37	5.38	82.5	1.4	34.71	6.39	7.4
						5.650	27.38	5.37	82.3	1.6	34.69	6.33	
						10.300	27.35	5.08	77.8	1.5	34.75	6.28	9.8
						10.300	27.33	4.97	76.2	1.7	34.75	6.25	
2012/10/10 15:59	C3	MF	832201	808869	15.8	1.000	27.58	7.59	116.6	1.4	34.33	7.25	6.7
						1.000	27.56	7.48	114.8	1.5	34.33	7.25	
						7.900	27.30	5.24	80.3	1.3	34.53	7.22	23.7
						7.900	27.33	5.40	82.6	1.4	34.51	7.25	
						14.800	27.28	5.60	85.4	1.6	34.03	7.21	16.7
						14.800	27.30	5.46	83.7	1.6	34.68	7.22	

MF- Mid Flood Tide  
ME- Mid Ebb tide

Contract No. DC/2009/13

Construction of Sewage Treatment Works  
at Yung Shue Wan and Sok Kwu Wan



Sok Kwu Wan

Date 12-Oct-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/10/12 9:56	W1	ME	832968	807745	2.3	1.150	27.32	7.82	119.8	0.9	34.68	7.60	2.7
						1.150	27.34	7.66	117.4	1.0	34.67	7.58	
2012/10/12 9:36	W2	ME	832683	807980	12.3	1.000	27.33	7.94	121.6	1.2	34.66	7.51	1.1
						1.000	27.34	7.48	114.6	1.0	34.66	7.50	
						6.150	27.27	7.06	108.2	1.1	34.74	7.51	3.0
						6.150	27.27	6.65	101.9	1.1	34.75	7.52	
						11.300	27.20	4.33	65.9	1.2	33.90	7.46	1.8
						11.300	27.22	5.52	84.6	1.2	34.82	7.49	
2012/10/12 9:24	W3	ME	832040	807899	12.1	1.000	27.31	6.08	93.1	1.1	34.67	7.38	3.2
						1.000	27.31	7.46	114.3	1.2	34.66	7.37	
						6.050	27.25	5.10	78.1	0.9	34.76	7.37	1.8
						6.050	27.25	5.14	78.7	1.1	34.77	7.34	
						11.100	27.25	4.17	63.9	1.2	34.81	7.32	3.4
						11.100	27.24	4.96	75.9	1.4	34.83	7.31	
2012/10/12 10:12	C1	ME	833722	808161	14.2	1.000	27.26	7.42	113.6	1.0	34.65	7.53	6.4
						1.000	27.27	7.45	114.1	1.0	34.66	7.54	
						7.100	27.23	7.37	112.7	1.2	34.74	7.51	4.0
						7.100	27.23	7.02	107.5	1.4	34.74	7.52	
						13.200	27.25	4.65	71.3	1.2	34.80	7.54	5.6
						13.200	27.23	5.35	81.9	1.3	34.81	7.51	
2012/10/12 9:10	C2	ME	831458	807756	10.3	1.000	27.36	7.97	122.2	1.0	34.70	7.40	5.9
						1.000	27.35	7.74	118.7	0.8	34.69	7.40	
						5.150	27.29	6.25	95.7	1.0	34.67	7.37	4.8
						5.150	27.29	5.45	83.4	1.2	34.64	7.37	
						9.300	27.30	5.43	83.3	1.1	34.84	7.41	4.5
						9.300	27.33	5.29	81.2	1.2	34.83	7.43	
2012/10/12 10:37	C3	ME	832225	808874	14.8	1.000	27.23	7.60	116.3	1.0	34.70	7.49	4.0
						1.000	27.25	7.50	114.7	1.2	34.68	7.49	
						7.400	27.27	6.43	98.5	1.3	34.74	7.50	8.2
						7.400	27.24	5.99	91.7	1.3	34.75	7.46	
						13.800	27.23	4.13	63.2	1.4	34.81	7.47	7.2
						13.800	27.24	4.22	64.6	1.5	34.82	7.48	
2012/10/12 16:11	W1	MF	832960	807743	2.8	1.400	27.56	7.55	116.30	0.8	34.74	7.43	3.5
						1.400	27.57	7.64	117.60	0.6	34.69	7.43	
2012/10/12 15:56	W2	MF	832691	807973	13.7	1.000	27.55	7.97	122.60	1.0	34.64	7.50	2.1
						1.000	27.55	7.90	121.50	1.3	34.65	7.49	
						6.850	27.29	7.11	108.90	1.1	34.70	7.44	1.2
						6.850	27.28	6.86	105.10	1.2	34.71	7.43	
						12.700	27.23	5.47	83.80	1.2	34.83	7.39	3.9
						12.700	27.24	6.28	96.10	1.1	34.83	7.42	
2012/10/12 15:44	W3	MF	832050	807916	13.3	1.000	27.57	7.51	115.40	0.9	34.62	7.37	6.3
						1.000	27.60	7.13	109.70	0.8	34.64	7.36	
						6.650	27.33	6.55	100.40	1.0	34.79	7.24	4.9
						6.650	27.33	6.42	98.40	0.8	34.80	7.23	
						12.300	27.22	4.86	74.40	1.1	34.93	7.20	5.9
						12.300	27.23	4.94	75.80	1.3	34.92	7.21	
2012/10/12 16:26	C1	MF	833700	808201	15.4	1.000	27.53	6.62	101.70	1.2	34.58	7.46	3.2
						1.000	27.56	6.57	101.10	1.4	34.56	7.49	
						7.700	27.25	5.10	78.10	1.2	34.65	7.48	5.8
						7.700	27.25	5.01	76.70	1.3	34.68	7.48	
						14.400	27.24	3.63	55.50	1.3	34.78	7.48	4.8
						14.400	27.23	3.26	49.90	1.4	34.79	7.47	
2012/10/12 15:32	C2	MF	831477	807744	11.6	1.000	27.56	8.08	124.40	0.9	34.71	7.46	4.1
						1.000	27.58	7.67	118.10	0.7	34.73	7.38	
						5.800	27.46	6.96	106.90	1.1	34.71	7.18	1.7
						5.800	27.41	7.20	110.40	0.9	34.72	7.15	
						10.600	27.34	5.72	87.70	1.1	34.72	6.99	4.9
						10.600	27.35	5.64	86.50	0.9	34.72	6.99	
2012/10/12 16:51	C3	MF	832229	808855	16.1	1.000	27.51	7.23	111.00	1.3	34.60	7.46	4.8
						1.000	27.57	7.17	110.20	1.5	34.58	7.50	
						8.050	27.26	4.64	71.00	1.4	34.74	7.48	7.3
						8.050	27.26	5.49	84.00	1.3	34.74	7.48	
						15.100	27.24	3.73	57.10	1.4	34.79	7.46	7.2
						15.100	27.24	3.38	51.80	1.6	34.79	7.46	

MF- Mid Flood Tide  
ME- Mid Ebb tide

Contract No. DC/2009/13

**Construction of Sewage Treatment Works  
at Yung Shue Wan and Sok Kwu Wan**



**Sok Kwu Wan**

Date 16-Oct-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/10/16 12:58	W1	ME	832971	807736	2.4	1.200	27.22	6.06	92.8	1.2	34.92	7.34	5.8
						1.200	27.23	6.37	97.7	1.4	34.94	7.31	
2012/10/16 13:04	W2	ME	832677	807973	12.6	1.000	27.33	6.78	103.9	1.3	34.86	7.34	3.6
						1.000	27.34	6.65	102.0	1.4	34.86	7.32	
						6.300	27.23	4.90	75.0	1.4	34.98	7.28	3.5
						6.300	27.26	4.52	69.4	1.5	34.96	7.30	
						11.600	27.17	4.61	70.6	1.4	35.12	7.28	5.4
						11.600	27.16	4.48	68.5	1.5	35.12	7.27	
2012/10/16 13:21	W3	ME	832049	807899	12.3	1.000	27.42	6.80	104.3	1.3	34.58	7.40	2.8
						1.000	27.38	6.36	97.6	1.4	34.60	7.36	
						6.150	27.28	4.82	73.5	1.4	34.80	7.36	4.1
						6.150	27.28	4.92	75.3	1.5	34.81	7.35	
						11.300	27.17	4.02	61.6	1.4	35.05	7.37	4.2
						11.300	27.19	4.08	62.5	1.5	35.04	7.39	
2012/10/16 12:33	C1	ME	833719	808164	13.9	1.000	27.30	6.65	101.9	1.4	34.88	7.19	4.6
						1.000	27.30	6.78	104.0	1.5	34.88	7.19	
						6.950	27.30	6.60	101.2	1.6	34.90	7.19	5.0
						6.950	27.29	5.69	87.3	1.8	34.89	7.17	
						12.900	27.23	5.46	83.6	1.7	35.00	7.18	4.1
						12.900	27.22	5.44	83.3	1.8	35.00	7.18	
2012/10/16 13:34	C2	ME	831454	807761	10.7	1.000	27.38	5.68	87.0	1.3	34.47	7.52	2.8
						1.000	27.40	6.03	92.4	1.3	34.47	7.49	
						5.350	27.19	4.87	74.6	1.4	34.60	7.40	2.3
						5.350	27.18	4.70	71.3	1.5	33.38	7.37	
						9.700	27.19	4.60	70.4	1.4	34.87	7.42	11.1
						9.700	27.18	4.62	70.7	1.5	34.89	7.42	
2012/10/16 12:10	C3	ME	832231	808876	14.7	1.000	27.32	6.13	94.0	1.5	34.85	7.31	3.6
						1.000	27.34	5.89	90.4	1.5	34.87	7.27	
						7.350	27.31	5.57	85.5	1.7	34.91	7.21	5.0
						7.350	27.29	5.74	88.1	1.7	34.93	7.20	
						13.700	27.25	6.38	97.9	1.7	35.02	7.21	4.8
						13.700	27.27	5.39	82.7	1.7	34.99	7.18	
2012/10/16 17:42	W1	MF	832974	807726	2.7	1.350	27.37	5.94	91.1	1.4	34.66	7.47	7.7
						1.350	27.35	6.18	94.8	1.5	34.67	7.45	
2012/10/16 17:29	W2	MF	832681	807998	13.6	1.000	27.36	6.13	94.0	1.5	34.63	7.49	3.2
						1.000	27.35	6.00	91.9	1.4	34.65	7.49	
						6.800	27.25	4.74	72.6	1.5	34.75	7.47	5.2
						6.800	27.24	4.65	71.2	1.5	34.77	7.48	
						12.600	27.16	3.72	56.9	1.6	34.63	7.47	4.0
						12.600	27.17	3.94	59.8	1.8	33.47	7.30	
2012/10/16 17:12	W3	MF	832040	807901	13.4	1.000	27.37	6.13	93.9	1.3	34.49	7.52	2.8
						1.000	27.36	4.91	75.2	1.3	34.50	7.50	
						6.700	27.24	3.97	60.2	1.4	33.23	7.46	4.1
						6.700	27.24	4.60	70.4	1.5	34.78	7.48	
						12.400	27.17	3.91	59.7	1.4	34.40	7.45	4.2
						12.400	27.17	3.91	59.6	1.5	34.41	7.45	
2012/10/16 18:00	C1	MF	833716	808165	15.2	1.000	27.39	6.36	97.4	1.5	34.21	7.50	3.2
						1.000	27.39	6.80	104.1	1.6	34.26	7.49	
						7.600	27.30	4.67	71.0	1.6	33.28	7.46	3.2
						7.600	27.32	4.57	70.0	1.6	34.62	7.48	
						14.200	27.25	4.39	67.2	1.5	34.80	7.47	9.2
						14.200	27.24	4.29	65.6	1.4	34.82	7.49	
2012/10/16 17:00	C2	MF	831472	807753	11.6	1.000	27.37	6.21	95.1	1.3	34.51	7.39	3.6
						1.000	27.36	6.19	94.8	1.4	34.49	7.39	
						5.800	27.20	4.91	75.1	1.5	34.62	7.34	3.0
						5.800	27.19	4.35	66.4	1.5	34.62	7.33	
						10.600	27.21	4.03	61.7	1.4	34.87	7.35	7.8
						10.600	27.20	3.91	59.5	1.5	33.66	7.35	
2012/10/16 18:23	C3	MF	832200	808876	15.9	1.000	27.41	6.82	104.5	1.6	34.28	7.45	4.0
						1.000	27.42	6.16	94.3	1.6	34.28	7.46	
						7.950	27.32	5.49	84.1	1.6	34.69	7.45	3.6
						7.950	27.33	4.68	71.8	1.6	34.67	7.45	
						14.900	27.19	4.54	69.5	1.7	34.88	7.44	3.3
						14.900	27.19	4.32	66.2	1.7	34.89	7.45	

MF- Mid Flood Tide  
ME- Mid Ebb tide

Contract No. DC/2009/13

**Construction of Sewage Treatment Works  
at Yung Shue Wan and Sok Kwu Wan**



**Sok Kwu Wan**

Date 18-Oct-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/10/18 14:29	W1	ME	832971	807741	2.4	1.200	27.00	5.55	84.7	1.5	34.93	7.57	3.6
						1.200	26.87	6.79	102.6	1.5	33.61	7.55	
2012/10/18 14:14	W2	ME	832642	807976	12.3	1.000	26.99	6.77	103.3	1.7	34.92	7.57	3.1
						1.000	27.01	6.69	102.2	1.5	34.93	7.57	
						6.150	27.00	4.33	66.1	1.9	34.98	7.57	5.4
						6.150	26.99	4.40	67.2	1.6	34.99	7.56	
						11.300	27.03	4.43	67.7	1.9	35.19	7.58	4.1
						11.300	27.01	4.40	66.9	1.6	34.17	7.54	
2012/10/18 13:57	W3	ME	832040	807878	12.1	1.000	26.88	6.90	105.1	1.7	34.86	7.50	4.9
						1.000	26.89	6.67	101.7	1.5	34.87	7.49	
						6.050	26.97	5.07	77.4	1.7	35.00	7.50	3.1
						6.050	26.96	4.48	68.3	1.8	34.97	7.49	
						11.100	27.02	4.23	64.7	1.9	35.12	7.44	2.8
						11.100	27.02	4.03	61.4	1.9	34.86	7.29	
2012/10/18 14:46	C1	ME	833695	808153	14.5	1.000	26.97	6.48	98.8	1.7	34.84	7.60	4.2
						1.000	27.00	6.63	101.1	1.8	34.86	7.60	
						7.250	27.00	4.63	70.7	1.8	34.94	7.58	6.4
						7.250	27.02	4.43	67.7	1.6	34.96	7.60	
						13.500	27.01	4.76	72.7	1.7	35.12	7.58	6.5
						13.500	27.00	4.47	68.3	1.5	35.14	7.58	
2012/10/18 13:42	C2	ME	831451	807732	10.3	1.000	26.86	8.39	127.5	1.6	34.52	7.69	2.8
						1.000	26.86	7.78	118.3	1.4	34.64	7.62	
						5.150	26.89	6.27	95.5	1.7	34.83	7.53	2.8
						5.150	26.92	5.67	86.4	1.4	34.86	7.55	
						9.300	26.90	4.63	69.9	1.7	33.11	7.47	2.1
						9.300	26.94	4.84	73.4	1.8	33.84	7.50	
2012/10/18 15:09	C3	ME	832213	808869	15.1	1.000	27.00	6.19	94.4	1.5	34.85	7.57	7.3
						1.000	27.01	6.29	95.9	1.5	34.86	7.57	
						7.550	27.01	4.80	73.3	1.7	34.94	7.56	5.7
						7.550	27.00	4.58	69.9	1.7	34.94	7.55	
						14.100	26.98	4.98	75.5	1.9	33.97	7.54	7.9
						14.100	26.99	4.70	71.8	1.7	35.18	7.56	
2012/10/18 8:52	W1	MF	832974	807730	2.7	1.350	26.98	7.55	115.0	1.6	34.61	7.67	5.4
						1.350	26.99	7.33	111.6	1.7	34.61	7.66	
2012/10/18 8:39	W2	MF	832657	808003	13.5	1.000	26.91	6.85	104.2	1.4	34.60	7.68	3.3
						1.000	26.93	6.78	103.1	1.5	34.60	7.67	
						6.750	26.91	5.03	76.5	1.7	34.69	7.62	3.7
						6.750	26.92	4.73	72.1	1.8	34.70	7.61	
						12.500	26.99	5.01	76.4	1.6	34.89	7.61	3.3
						12.500	27.01	4.76	72.7	1.7	34.89	7.64	
2012/10/18 8:24	W3	MF	832054	807881	13.3	1.000	26.88	7.36	111.9	1.4	34.62	7.64	6.9
						1.000	26.86	7.29	110.3	1.5	33.74	7.61	
						6.650	26.90	5.14	78.3	1.5	34.76	7.63	6.0
						6.650	26.87	5.17	78.7	1.5	34.75	7.59	
						12.300	27.05	4.86	74.3	1.6	35.00	7.63	4.7
						12.300	27.05	4.69	71.7	1.6	35.00	7.63	
2012/10/18 9:08	C1	MF	833719	808194	15.4	1.000	26.92	7.73	117.5	1.7	34.54	7.59	4.1
						1.000	26.91	7.22	109.7	1.8	34.54	7.57	
						7.700	27.04	4.72	72.1	1.8	34.82	7.61	5.4
						7.700	27.01	4.64	70.4	2.0	33.78	7.56	
						14.400	27.04	4.54	69.4	1.8	34.95	7.59	3.9
						14.400	27.06	4.53	69.2	1.9	34.95	7.60	
2012/10/18 8:06	C2	MF	832446	807721	11.7	1.000	26.89	5.49	83.6	1.5	34.78	7.56	4.6
						1.000	26.88	5.01	76.3	1.6	34.81	7.54	
						5.850	27.03	5.32	81.2	1.5	34.94	7.54	5.3
						5.850	27.02	5.14	78.5	1.6	34.92	7.54	
						10.700	27.10	5.02	76.8	1.6	35.06	7.55	4.8
						10.700	27.10	4.17	63.4	1.8	33.91	7.54	
2012/10/18 9:31	C3	MF	832247	808841	16	1.000	26.92	7.10	108.0	1.5	34.54	7.46	4.7
						1.000	26.91	5.11	77.2	1.6	33.42	7.46	
						8.000	27.02	4.45	67.9	1.8	34.81	7.50	5.3
						8.000	27.04	4.53	69.1	1.5	34.83	7.54	
						15.000	27.05	4.67	71.3	1.8	34.91	7.53	6.6
						15.000	27.03	4.61	70.0	1.9	33.78	7.51	

MF- Mid Flood Tide  
ME- Mid Ebb tide

Contract No. DC/2009/13

Construction of Sewage Treatment Works  
at Yung Shue Wan and Sok Kwu Wan



Sok Kwu Wan

Date 20-Dec-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/12/20 16:02	W1	ME	832977	832977	12.4	6.200	26.72	5.49	83.3	1.1	34.81	7.50	8.4
						6.200	26.72	5.43	82.5	1.2	34.82	7.50	
2012/12/20 15:49	W2	ME	832684	832684	12.3	1.000	26.71	4.82	73.2	1.4	34.73	7.52	5.4
						1.000	26.71	4.76	72.3		34.82	7.52	
						6.150	26.75	4.66	83.8	1.3	34.94	7.53	4.3
						6.150	26.75	4.67	84.1		34.96	7.52	
						11.300	26.62	3.74	56.8	1.2	35.18	7.53	7.2
						11.300	26.64	3.82	58.1		35.16	7.52	
2012/12/20 15:32	W3	ME	832047	832047	12.3	1.000	26.79	4.81	73.1	1.2	34.59	7.52	4.7
						1.000	26.78	4.88	74.2		34.59	7.48	
						6.150	26.57	4.65	82.2	1.3	34.92	7.46	5.9
						6.150	26.53	4.55	81.1		34.93	7.44	
						11.300	26.64	3.65	55.4	1.4	35.13	7.49	7.2
						11.300	26.61	3.69	56.0		35.16	7.48	
2012/12/20 16:18	C1	ME	833721	833721	13.9	1.000	26.73	4.88	74.0	1.2	34.72	7.62	8.9
						1.000	26.72	4.73	71.8	1.3	34.69	7.60	
						6.950	26.78	3.96	71.1	1.5	34.95	7.59	8.6
						6.950	26.77	3.93	70.5	1.4	34.95	7.59	
						12.900	26.66	3.51	53.4	1.6	35.14	7.58	13.3
						12.900	26.66	3.46	52.6	1.6	35.13	7.58	
2012/12/20 15:16	C2	ME	831449	831449	11.6	1.000	26.89	4.68	70.9	1.3	33.80	7.57	2.8
						1.000	26.92	4.58	69.6	1.5	34.42	7.55	
						5.800	26.82	3.76	67.5	1.4	34.14	7.50	4.2
						5.800	26.83	3.78	68.0	1.4	34.53	7.49	
						10.600	26.86	3.53	53.7	1.6	34.65	7.48	7.8
						10.600	26.83	3.39	51.5	1.6	34.67	7.47	
2012/12/20 16:43	C3	ME	832216	832216	15.6	1.000	26.70	4.42	67.1	1.3	34.68	7.54	3.7
						1.000	26.71	4.52	68.5	1.3	34.65	7.54	
						7.800	26.81	3.82	68.6	1.7	34.89	7.55	4.2
						7.800	26.82	3.81	68.5	1.5	34.91	7.55	
						14.600	26.65	3.48	52.9	1.6	35.12	7.55	4.3
						14.600	26.64	3.49	53.0	1.7	35.14	7.56	
2012/12/20 10:17	W1	MF	832953	807744	2.8	1.400	26.69	5.62	85.1	1.5	34.39	7.34	2.4
						1.400	26.67	5.48	82.9	1.5	34.41	7.31	
2012/12/20 10:17	W2	MF	832681	807964	13.6	1.000	26.70	5.45	82.4	1.5	34.23	7.30	0.8
						1.000	26.72	5.35	80.9	1.3	34.29	7.32	
						6.800	26.67	4.76	72.0	1.5	34.35	7.30	1.8
						6.800	26.67	4.71	71.3	1.6	34.35	7.31	
						12.600	26.54	3.82	57.7	1.5	34.49	7.29	2.0
						12.600	26.54	3.81	57.6	1.7	34.52	7.29	
2012/12/20 10:17	W3	MF	832058	807897	13.2	1.000	26.73	5.69	86.0	1.4	34.19	7.54	1.9
						1.000	26.73	5.48	82.9	1.4	34.20	7.52	
						6.600	26.68	4.75	71.8	1.3	34.25	7.45	2.1
						6.600	26.65	4.69	70.8	1.4	34.28	7.44	
						12.200	26.56	4.11	62.1	1.6	34.11	7.40	2.4
						12.200	26.54	4.14	62.5	1.5	34.17	7.38	
2012/12/20 10:17	C1	MF	833721	808186	15.4	1.000	26.69	5.15	78.1	1.6	34.54	7.17	1.5
						1.000	26.70	5.38	81.5	1.4	34.53	7.17	
						7.700	26.64	5.20	78.7	1.7	34.54	7.21	7.4
						7.700	26.63	5.25	79.6	1.5	34.91	7.21	
						14.400	26.63	4.20	75.5	1.7	34.87	7.20	10.1
						14.400	26.63	4.17	72.9	1.7	34.86	7.20	
2012/12/20 10:17	C2	MF	831459	807731	11.7	1.000	26.74	4.98	75.4	1.5	34.18	7.62	3.3
						1.000	26.75	4.50	68.1	1.6	34.19	7.58	
						5.850	26.64	4.26	64.5	1.6	34.35	7.51	13.4
						5.850	26.62	4.21	63.7	1.5	34.38	7.50	
						10.700	26.43	4.08	61.5	1.7	34.51	7.43	12.9
						10.700	26.41	4.06	61.2	1.5	34.51	7.42	
2012/12/20 10:17	C3	MF	832219	808890	16.3	1.000	26.68	6.08	91.9	1.5	34.25	7.21	9.4
						1.000	26.71	5.99	90.6	1.5	34.28	7.22	
						8.150	26.61	5.91	88.4	1.6	32.54	7.22	9.2
						8.150	26.62	5.75	87.1	1.6	34.76	7.20	
						15.300	26.61	5.69	85.2	1.6	32.70	7.20	9.8
						15.300	26.63	5.58	84.6	1.7	34.88	7.21	

MF- Mid Flood Tide  
ME- Mid Ebb tide

Contract No. DC/2009/13

Construction of Sewage Treatment Works  
at Yung Shue Wan and Sok Kwu Wan



Sok Kwu Wan

Date 22-Oct-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/10/22 17:47	W1	ME	832974	807746	12.3	6.150	26.88	5.51	83.5	1.1	34.14	7.40	5.4
						6.150	26.86	5.59	85.0	1.2	34.16	7.40	
2012/10/22 17:33	W2	ME	832675	807964	2.3	1.000	26.90	5.79	87.8	1.2	34.13	7.44	7.0
						1.000	26.90	5.66	85.7	1.3	34.12	7.43	
						1.150	26.59	4.97	75.0	1.3	34.44	7.38	5.7
						1.150	26.59	4.92	74.4	1.3	34.45	7.38	
						1.300	26.59	3.64	55.0	1.2	34.60	7.37	4.5
						1.300	26.59	3.61	54.6	1.3	34.59	7.36	
2012/10/22 17:16	W3	ME	832038	807782	13.8	1.000	26.89	5.99	90.9	1.1	34.20	7.38	8.0
						1.000	26.91	5.75	87.3	1.3	34.23	7.37	
						6.900	26.72	5.06	76.7	1.2	34.32	7.32	9.8
						6.900	26.70	4.94	74.7	1.3	34.33	7.32	
						12.800	26.59	3.71	56.2	1.4	34.68	7.31	5.3
						12.800	26.57	3.62	54.8	1.4	34.71	7.31	
2012/10/22 18:04	C1	ME	833695	808190	13.8	1.000	26.78	5.30	80.3	1.3	34.19	7.42	4.3
						1.000	26.80	5.24	79.2	1.3	34.19	7.44	
						6.900	26.68	4.83	73.1	1.4	34.49	7.46	6.1
						6.900	26.68	4.82	72.8	1.2	34.52	7.46	
						12.800	26.53	3.22	48.7	1.5	34.62	7.45	8.5
						12.800	26.54	3.21	48.5	1.7	34.60	7.44	
2012/10/22 17:03	C2	ME	831478	807729	14.2	1.000	27.19	5.64	86.1	1.3	34.20	7.51	3.8
						1.000	27.20	5.48	83.6	1.2	34.28	7.43	
						7.100	27.09	3.37	51.3	1.4	34.41	7.31	9.8
						7.100	27.06	3.24	49.3	1.5	34.42	7.28	
						13.200	26.74	3.12	47.3	1.4	34.59	7.23	8.2
						13.200	26.71	2.97	45.1	1.2	34.63	7.23	
2012/10/22 18:29	C3	ME	832204	808844	14.3	1.000	26.79	4.80	72.6	1.2	34.21	7.43	3.5
						1.000	26.79	4.82	72.9	1.2	34.22	7.43	
						7.150	26.69	3.19	48.3	1.3	34.49	7.44	4.9
						7.150	26.69	3.19	48.4	1.4	34.49	7.44	
						13.300	26.54	3.18	48.0	1.5	34.67	7.43	6.2
						13.300	26.53	3.15	47.6	1.6	34.68	7.43	
2012/10/22 13:04	W1	MF	832964	807741	2.8	1.400	26.82	5.66	85.56	0.98	33.78	7.35	6.2
						1.400	26.79	5.29	79.92	1.12	33.81	7.35	
2012/10/22 13:13	W2	MF	832680	807959	13.7	1.000	27.04	5.40	81.97	1.07	33.79	7.43	7.2
						1.000	26.97	5.24	79.46	1.13	33.76	7.39	
						6.850	26.62	4.22	63.72	1.12	34.17	7.37	8.0
						6.850	26.62	4.16	62.88	1.15	34.16	7.37	
						12.700	26.50	3.67	55.44	1.19	34.46	7.35	8.6
						12.700	26.49	3.64	55.00	1.27	34.47	7.35	
2012/10/22 13:29	W3	MF	832058	807897	13.5	1.000	26.93	5.87	89.21	1.14	34.02	7.45	5.2
						1.000	26.92	5.17	78.43	1.26	34.03	7.44	
						6.750	26.66	4.69	70.92	1.23	34.11	7.35	5.1
						6.750	26.68	4.45	67.20	1.38	34.13	7.34	
						12.500	26.54	3.69	55.66	1.27	34.50	7.29	4.5
						12.500	26.55	3.62	54.67	1.31	34.49	7.29	
2012/10/22 12:48	C1	MF	833712	808186	15.3	1.000	26.81	4.93	74.64	1.21	33.74	7.13	3.4
						1.000	26.89	4.92	74.52	1.27	33.72	7.13	
						7.650	26.58	4.01	60.50	1.30	33.96	7.10	7.7
						7.650	26.58	3.97	59.80	1.42	33.98	7.12	
						14.300	26.51	3.72	56.10	1.46	34.18	7.12	7.5
						14.300	26.52	3.72	56.10	1.48	34.18	7.11	
2012/10/22 13:46	C2	MF	831452	807736	11.8	1.000	27.06	4.98	75.60	1.19	34.02	7.17	6.1
						1.000	27.03	4.69	71.28	1.22	34.04	7.14	
						5.900	26.80	3.60	54.60	1.26	34.12	7.08	4.8
						5.900	26.80	3.57	54.00	1.24	34.11	7.06	
						10.800	26.64	3.43	51.90	1.25	34.51	7.02	7.5
						10.800	26.58	3.31	50.10	1.36	34.56	7.00	
2012/10/22 12:24	C3	MF	832236	808841	15.8	1.000	26.84	4.92	74.30	1.36	33.59	7.22	4.9
						1.000	26.78	4.72	71.30	1.28	33.65	7.18	
						7.900	26.57	4.46	67.30	1.47	33.91	7.11	6.0
						7.900	26.59	4.40	66.30	1.33	33.89	7.13	
						14.800	26.51	4.15	62.60	1.44	34.13	7.12	6.5
						14.800	26.52	4.11	61.90	1.52	34.13	7.12	

MF- Mid Flood Tide

ME- Mid Ebb tide

Contract No. DC/2009/13

Construction of Sewage Treatment Works  
at Yung Shue Wan and Sok Kwu Wan



Sok Kwu Wan

Date 24-Oct-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/10/24 8:46	W1	ME	832952	807741	2.4	1.200	26.63	5.60	84.8	1.1	34.75	7.65	5.7
						1.200	26.63	5.22	79.1	1.0	34.74	7.62	
2012/10/24 8:31	W2	ME	832676	808906	12.6	1.000	26.56	5.37	81.2	1.1	34.65	7.60	2.7
						1.000	26.56	5.03	76.1	1.1	34.64	7.58	
						6.300	26.46	4.39	66.4	1.2	34.72	7.53	1.8
						6.300	26.47	4.36	66.1	1.2	34.71	7.52	
						11.600	26.45	3.84	58.1	1.3	34.92	7.51	2.4
						11.600	26.46	3.84	58.2	1.2	34.93	7.51	
2012/10/24 8:19	W3	ME	832051	807907	12.4	1.000	26.67	5.10	77.3	1.2	34.30	7.46	1.6
						1.000	26.67	5.15	78.1	1.3	34.33	7.45	
						6.200	26.58	4.42	64.1	1.2	34.73	7.46	6.7
						6.200	26.57	4.22	63.9	1.3	34.73	7.44	
						11.400	26.47	3.48	52.7	1.3	34.88	7.46	2.8
						11.400	26.47	3.49	52.8	1.3	34.88	7.45	
2012/10/24 9:06	C1	ME	833723	808181	13.9	1.000	26.47	5.03	75.9	1.3	34.73	7.58	4.9
						1.000	26.48	4.85	73.4	1.4	34.75	7.58	
						6.950	26.48	3.66	55.4	1.5	34.83	7.56	4.5
						6.950	26.49	3.62	54.8	1.5	34.82	7.55	
						12.900	26.47	3.58	54.0	1.5	34.94	7.55	5.4
						12.900	26.46	3.54	53.5	1.5	34.96	7.55	
2012/10/24 8:07	C2	ME	831479	807738	10.6	1.000	26.67	6.54	98.9	1.2	34.23	7.29	2.8
						1.000	26.67	5.96	90.2	1.2	34.23	7.28	
						5.300	26.67	4.31	65.2	1.2	34.37	7.32	3.0
						5.300	26.65	4.21	63.7	1.3	34.39	7.32	
						9.600	26.66	3.73	56.5	1.2	34.64	7.34	3.9
						9.600	26.66	3.62	55.0	1.3	34.65	7.35	
2012/10/24 9:29	C3	ME	832208	808849	14.5	1.000	26.49	4.35	65.9	1.3	34.79	7.53	2.8
						1.000	26.49	4.31	65.3	1.3	34.79	7.53	
						7.250	26.49	3.42	51.7	1.4	34.82	7.52	3.5
						7.250	26.51	3.42	51.7	1.3	34.79	7.51	
						13.500	26.47	3.37	51.0	1.4	34.94	7.51	4.2
						13.500	26.46	3.35	50.6	1.4	34.96	7.51	
2012/10/24 15:04	W1	MF	832952	807738	2.7	1.350	26.69	5.98	90.72	1.0	34.95	7.38	4.6
						1.350	26.75	6.03	91.58	1.1	34.86	7.38	
2012/10/24 14:49	W2	MF	832657	807993	13.3	1.000	26.72	6.05	91.80	1.2	34.77	7.48	2.3
						1.000	26.68	5.80	87.84	1.1	34.80	7.45	
						6.650	26.50	3.60	54.48	1.2	34.95	7.41	3.1
						6.650	26.49	3.55	53.64	1.3	34.89	7.39	
						12.300	26.49	3.78	57.16	1.2	34.96	7.37	2.5
						12.300	26.47	3.71	56.10	1.3	34.98	7.37	
2012/10/24 14:39	W3	MF	832036	807886	13.1	1.000	26.95	5.74	87.30	1.1	34.44	7.28	2.4
						1.000	26.95	5.45	82.98	1.3	34.46	7.26	
						6.550	26.64	4.00	60.62	1.2	34.80	7.21	3.0
						6.550	26.64	3.97	60.19	1.2	34.81	7.20	
						12.100	26.48	3.59	54.25	1.3	34.65	7.18	3.6
						12.100	26.48	3.62	54.65	1.3	34.88	7.14	
2012/10/24 15:20	C1	MF	833694	808853	14.7	1.000	26.58	5.71	86.40	1.3	34.79	7.46	4.1
						1.000	26.58	5.53	83.88	1.3	34.80	7.46	
						7.350	26.53	3.48	52.80	1.4	34.88	7.44	3.9
						7.350	26.55	3.48	52.68	1.3	34.86	7.44	
						13.700	26.52	3.26	49.44	1.4	35.05	7.43	4.5
						13.700	26.52	3.31	50.16	1.4	35.00	7.43	
2012/10/24 14:23	C2	MF	831459	807756	11.8	1.000	26.88	5.45	82.50	1.2	34.21	7.18	2.0
						1.000	26.88	5.10	77.40	1.3	34.27	7.08	
						5.900	26.72	3.49	53.04	1.2	34.58	6.89	2.0
						5.900	26.71	3.36	50.88	1.2	34.67	6.88	
						10.800	26.50	3.23	48.72	1.3	34.90	6.82	2.7
						10.800	26.50	3.24	49.08	1.2	34.84	6.79	
2012/10/24 15:46	C3	MF	832241	808853	15.8	1.000	26.59	5.00	75.96	1.2	34.87	7.43	3.6
						1.000	26.59	4.97	75.42	1.4	34.93	7.43	
						7.900	26.54	3.31	50.16	1.4	34.97	7.42	3.4
						7.900	26.54	3.28	49.68	1.4	34.92	7.42	
						14.800	26.50	3.24	49.20	1.4	35.06	7.41	3.3
						14.800	26.49	3.19	48.48	1.5	35.13	7.41	

MF- Mid Flood Tide

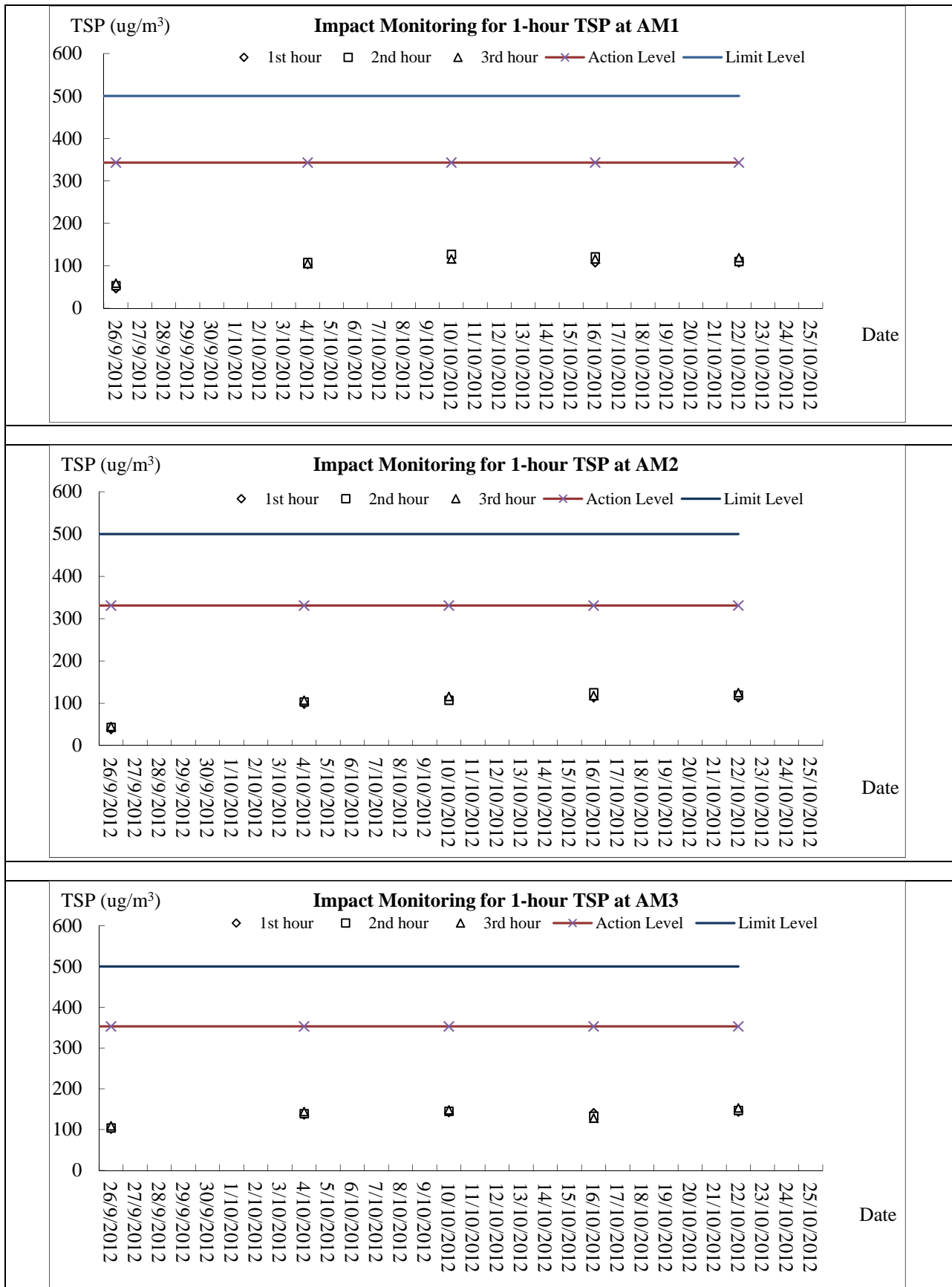
ME- Mid Ebb tide

## **Appendix H**

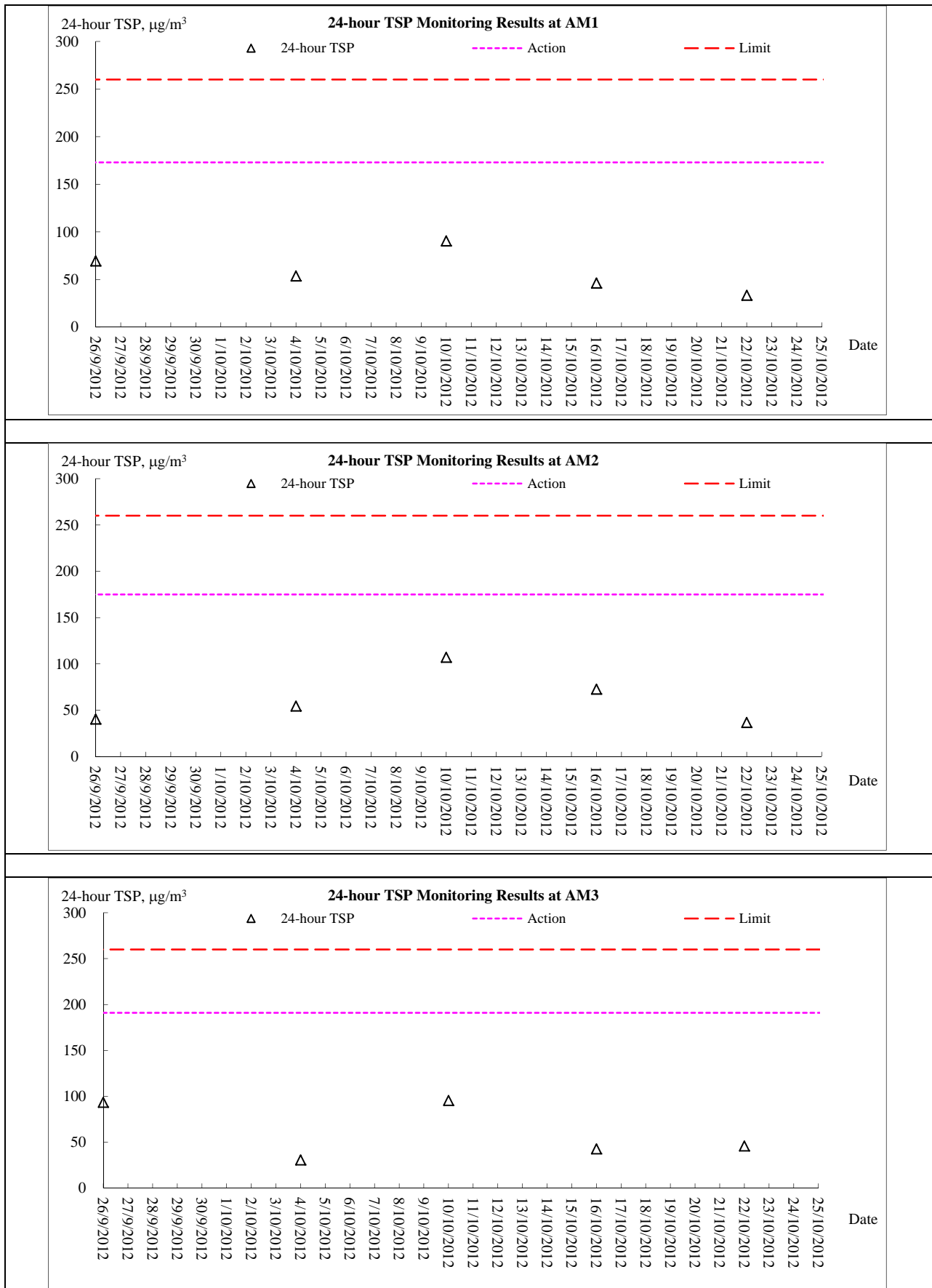
### **Graphical Plots of Monitoring Results**



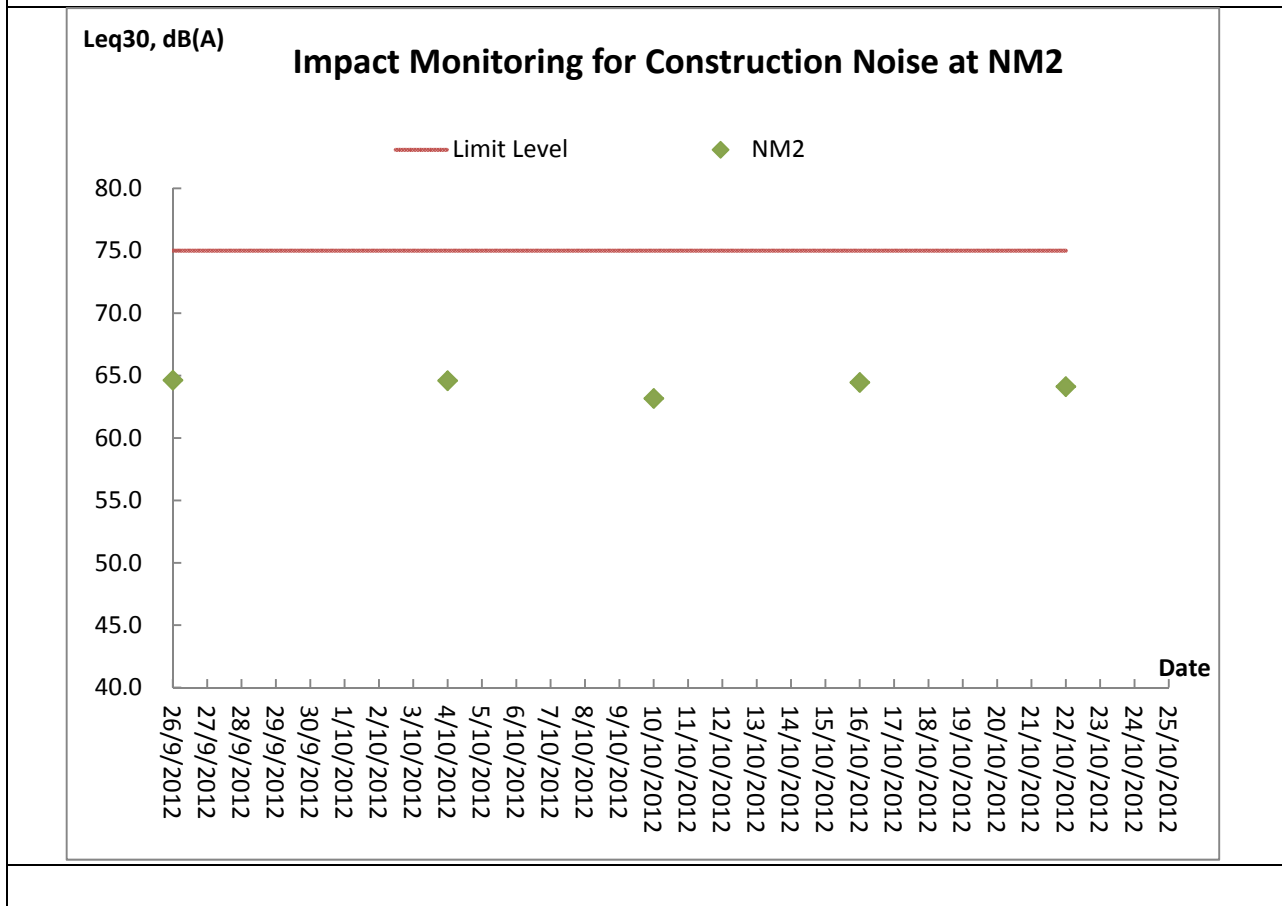
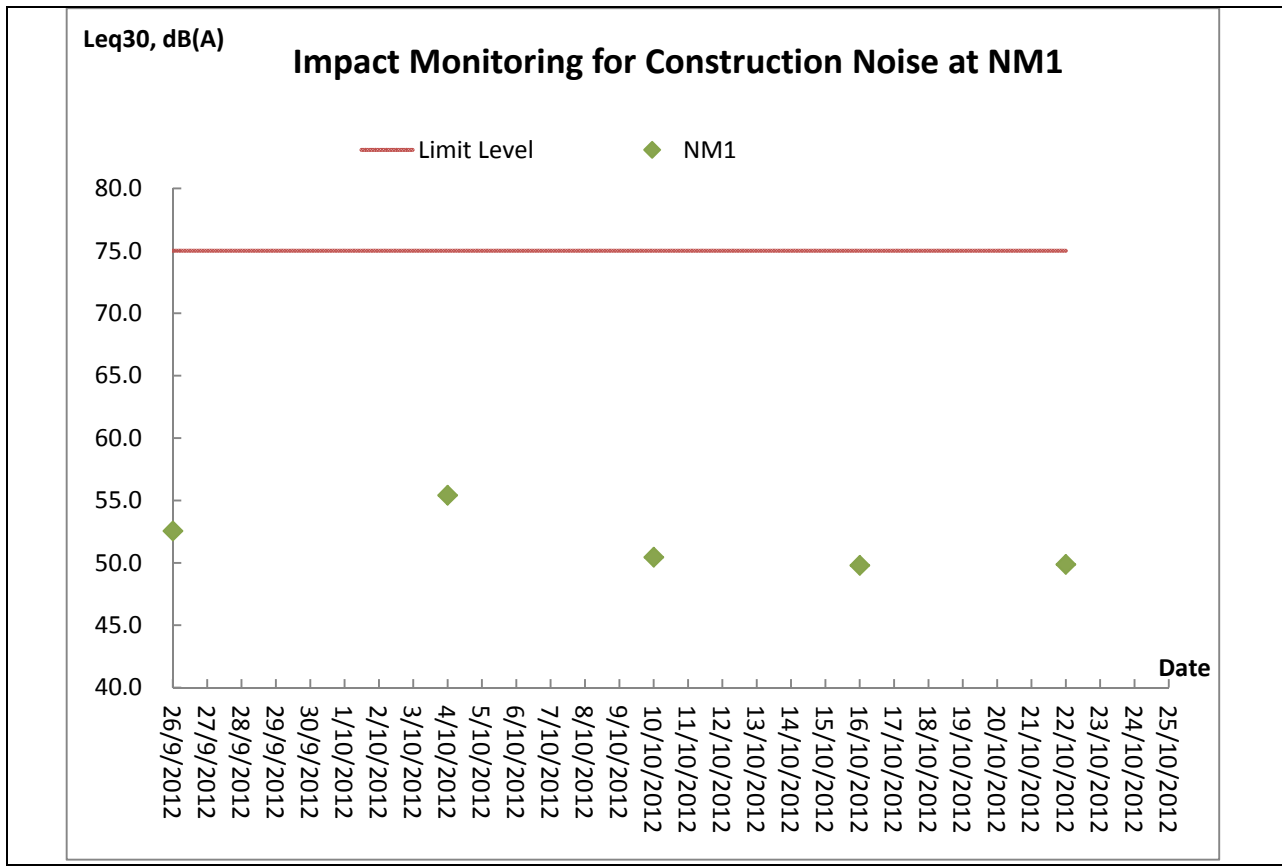
**Air Quality Monitoring – 1 hour TSP Monitoring**

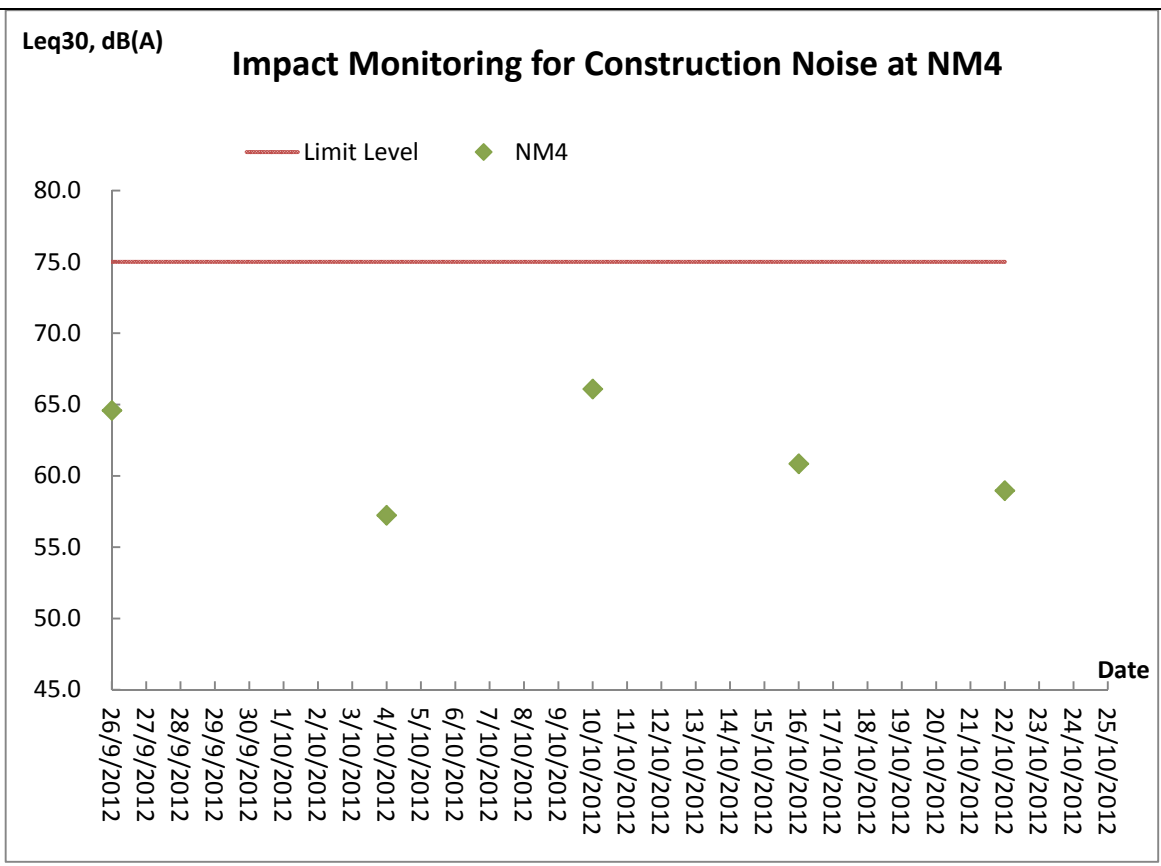
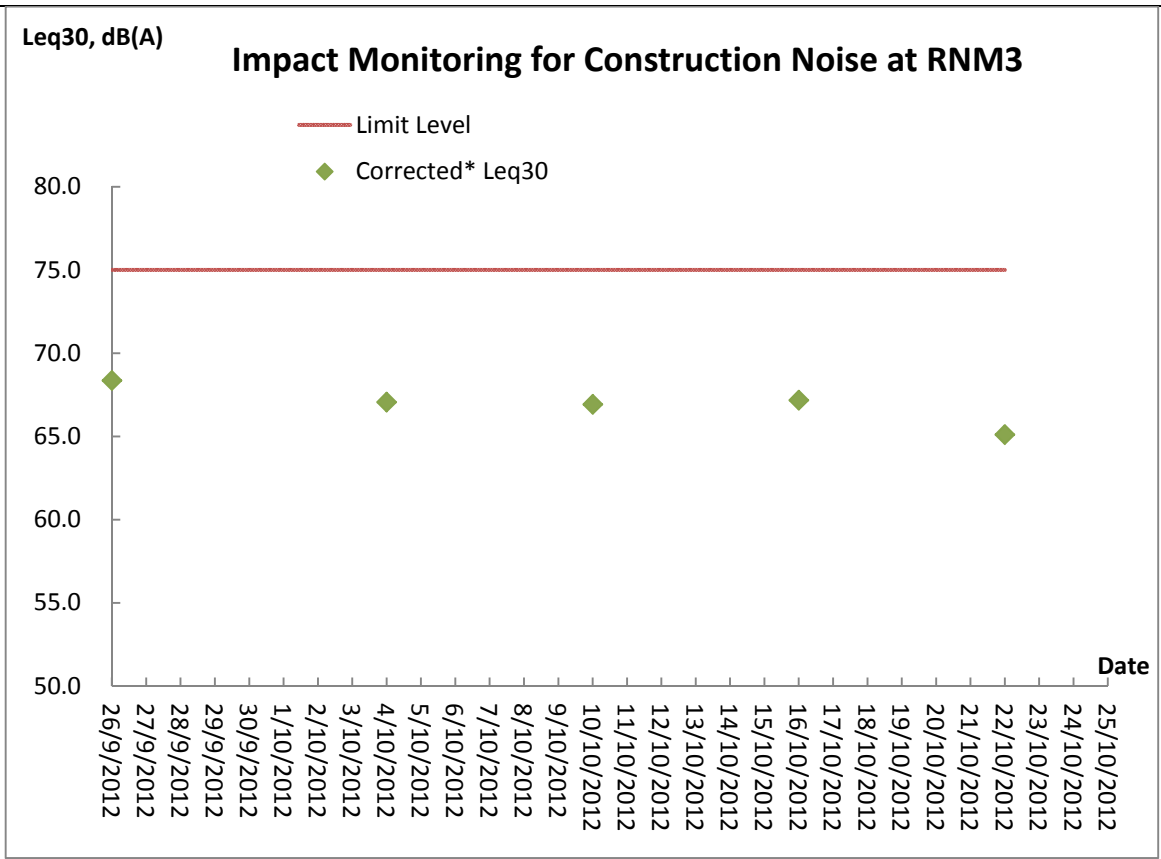


**Air Quality Monitoring – 24 hour TSP Monitoring**

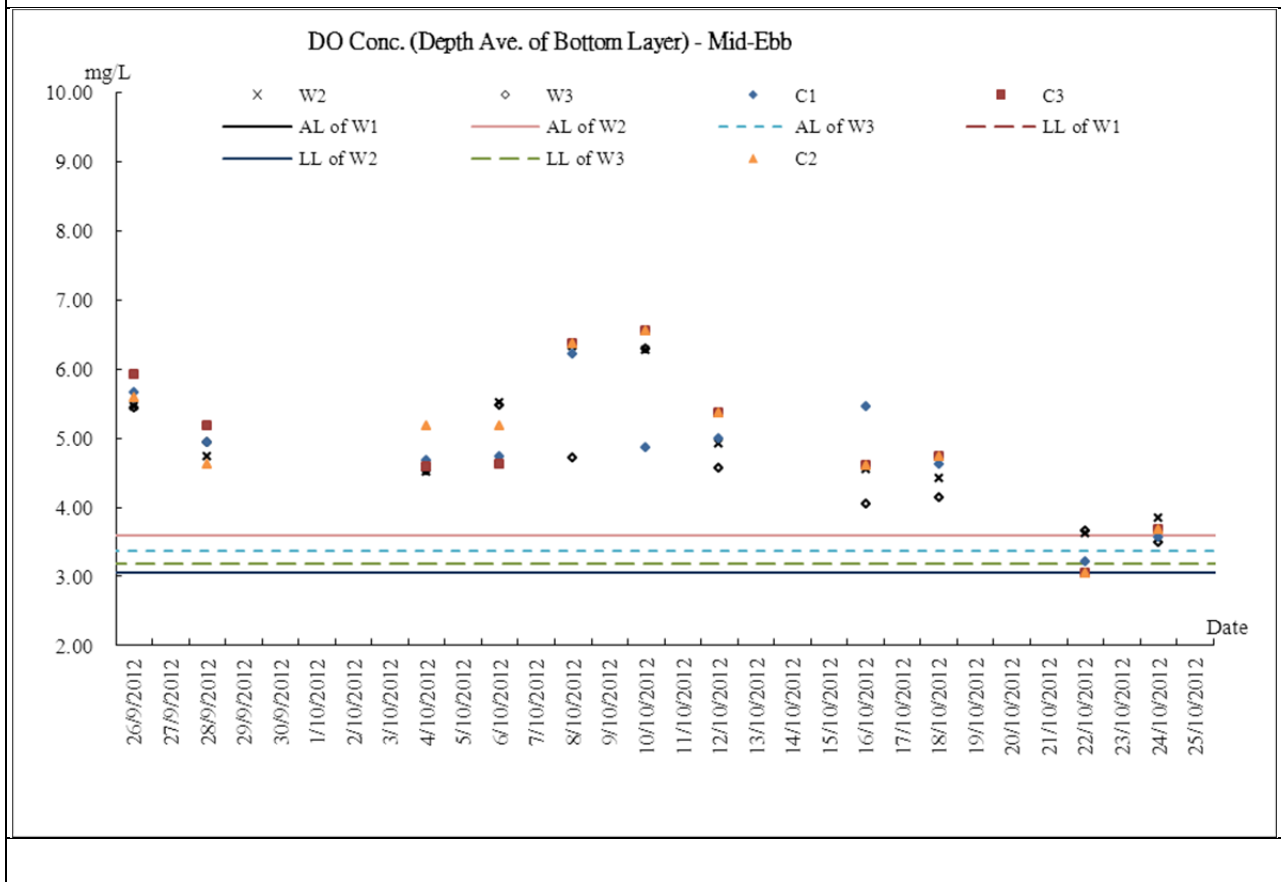
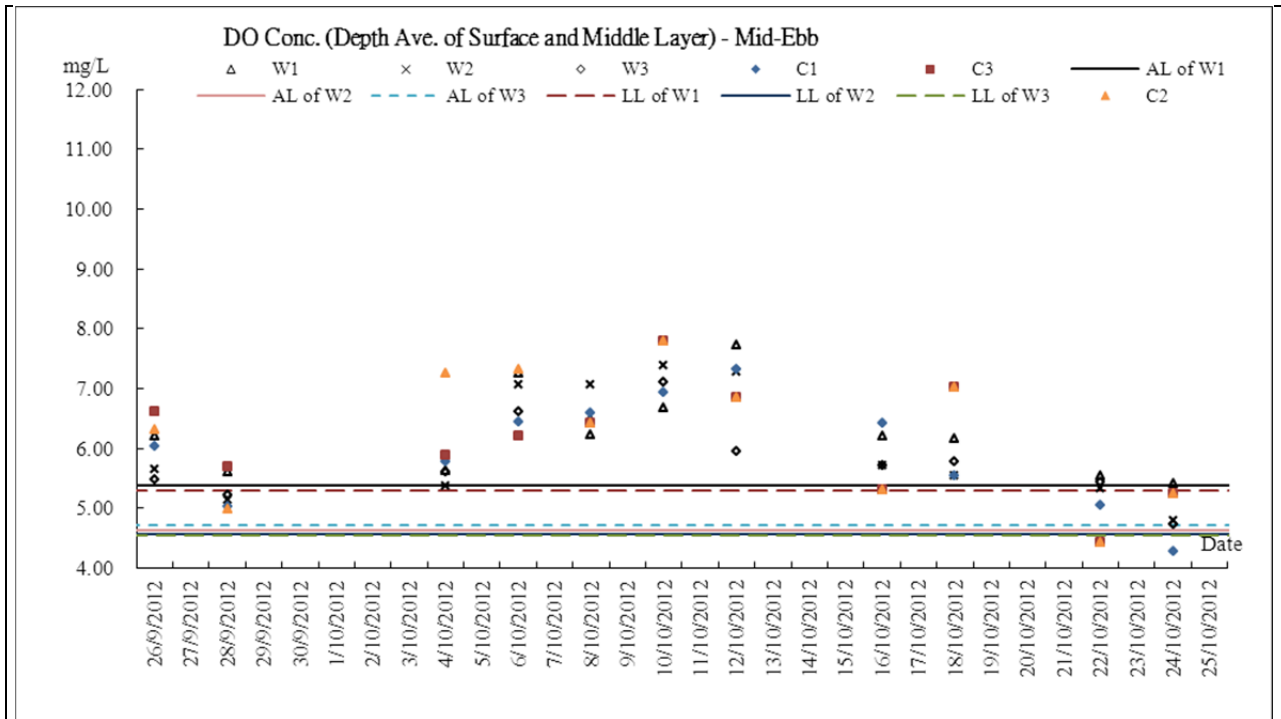


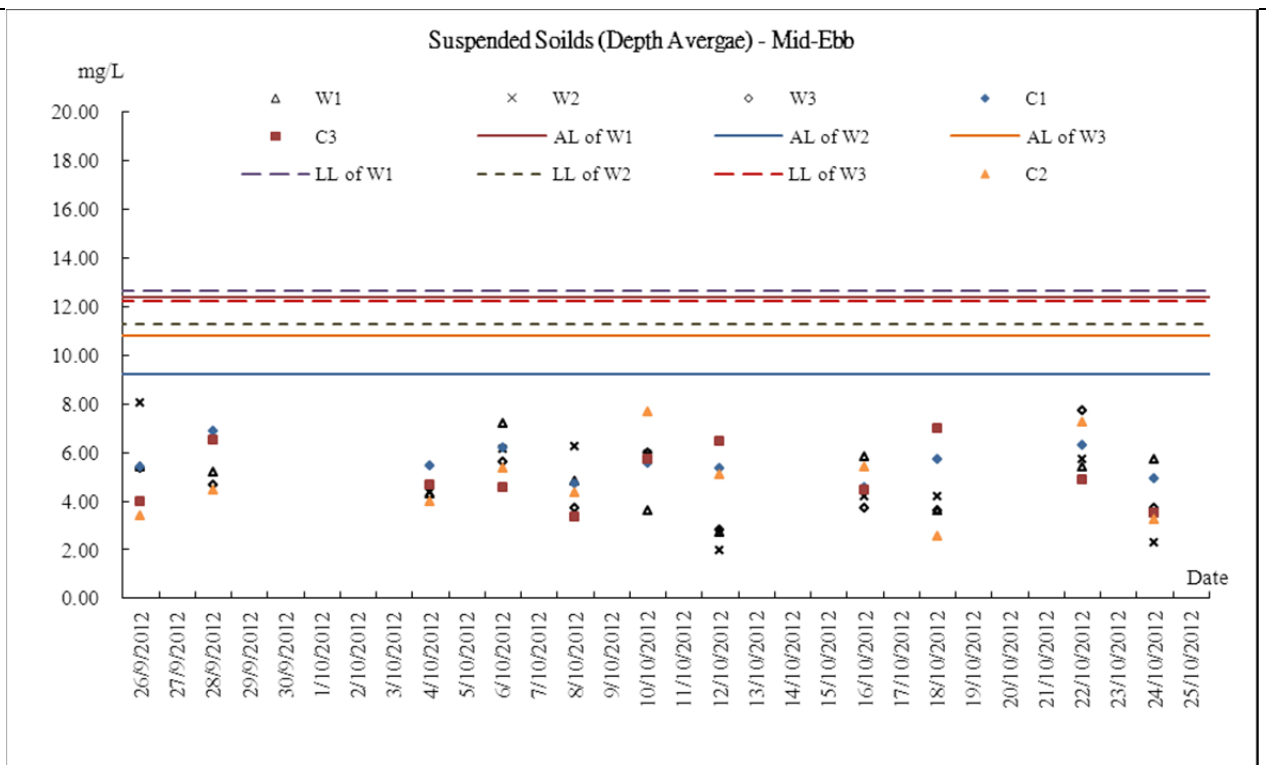
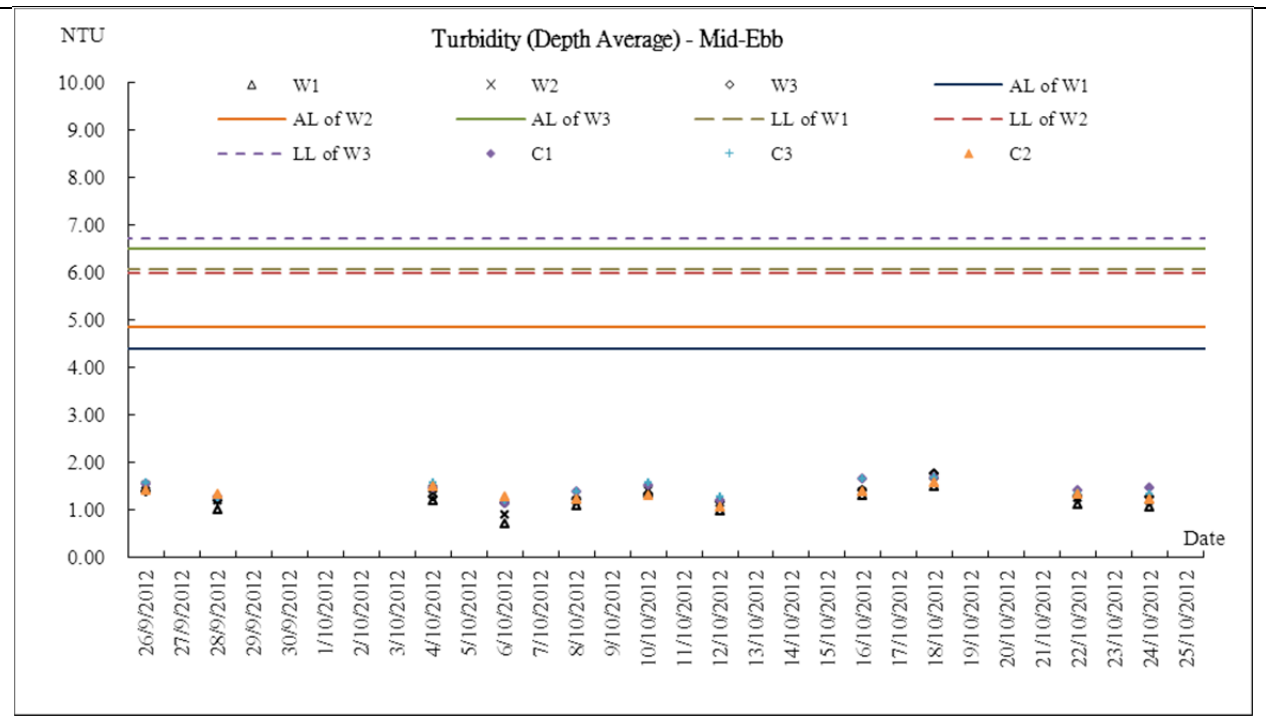
Construction Noise Monitoring



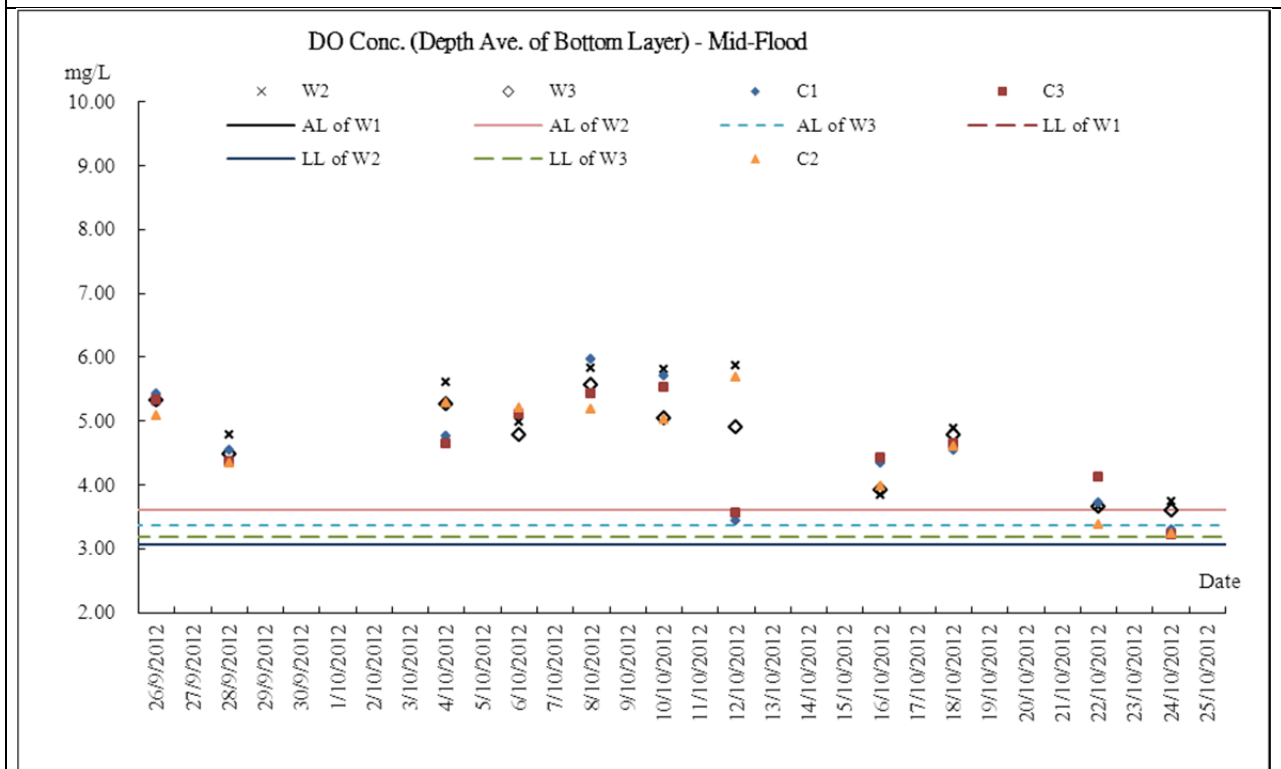
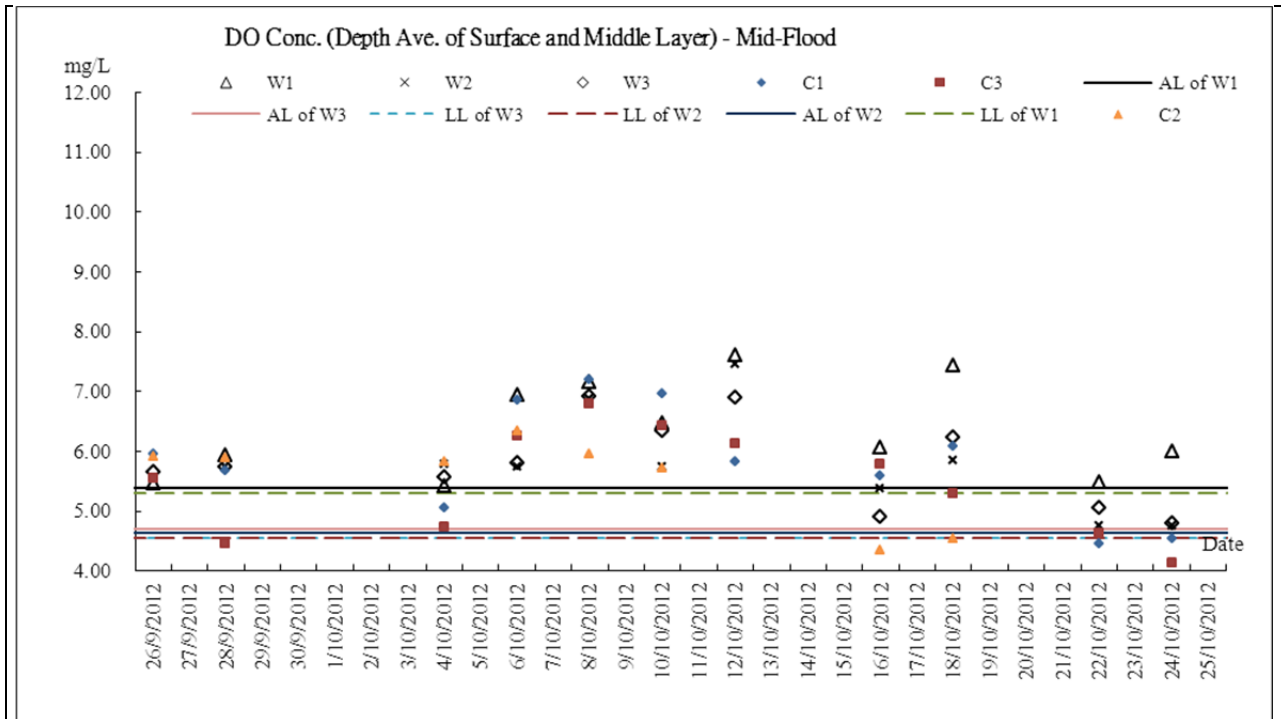


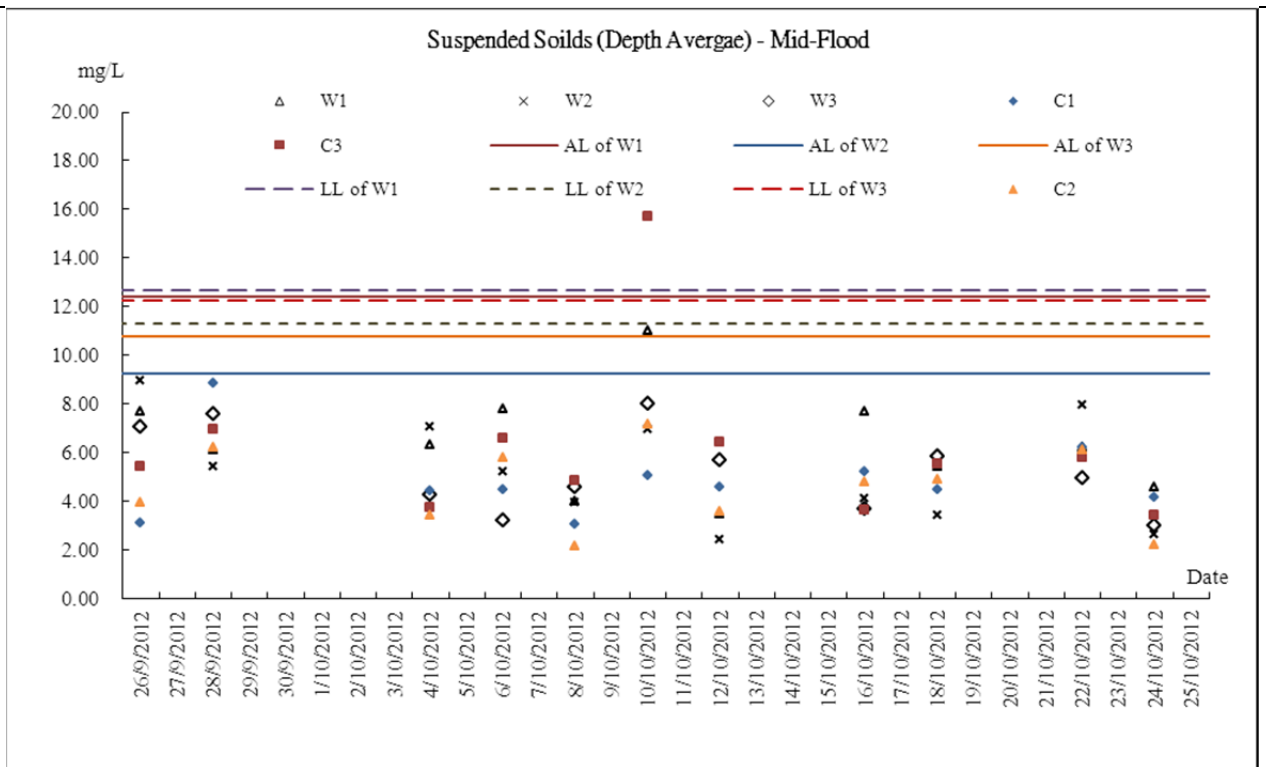
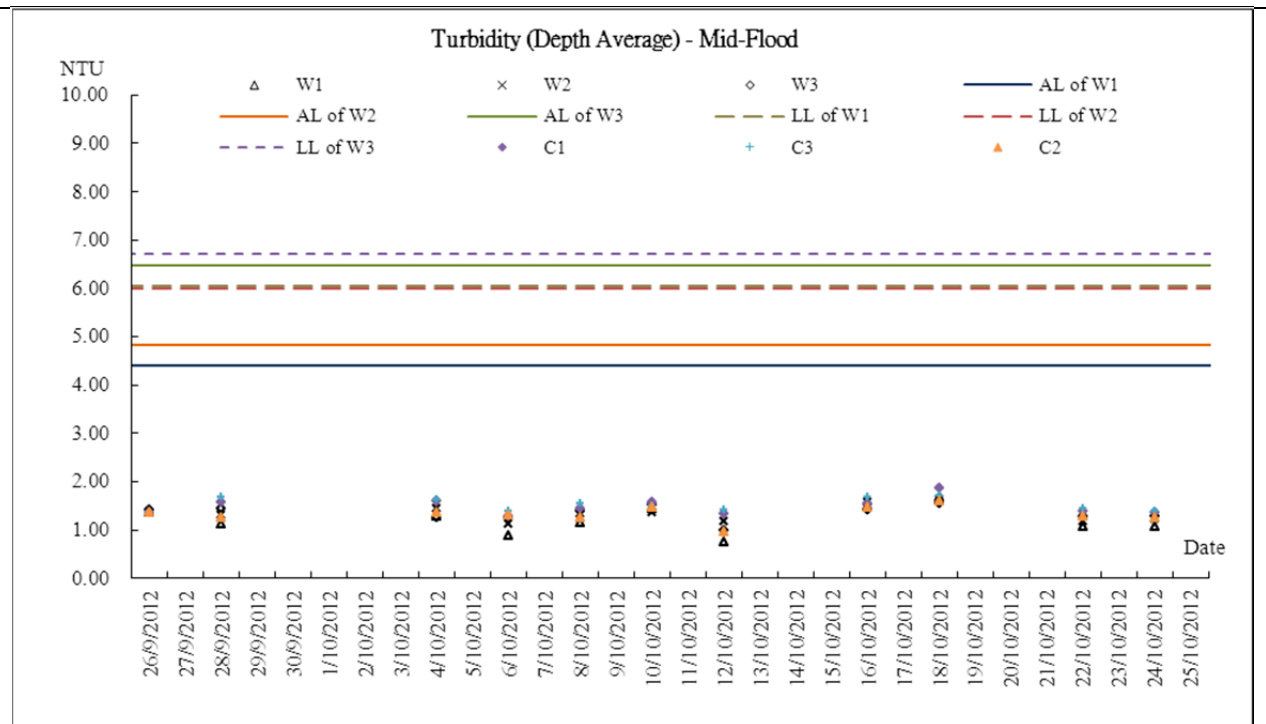
Marine Water Quality Monitoring - Mid-Ebb Tide





Marine Water Quality Monitoring - Mid-Flood Tide







# **Appendix I**

## **Meteorological Information**

**Meteorological Data Extracted from HKO during the Reporting Period**

Date		Weather
26-Sep-12	Wed	Dry, Cloudy, Moderate to fresh northerly winds.
27-Sep-12	Thu	cloudy, a few showers, moderate to fresh easterly winds
28-Sep-12	Fri	Dry, Cloudy, Moderate to fresh northerly winds.
29-Sep-12	Sat	Sunny periods. Light to moderate easterly winds.
30-Sep-12	Sun	HOLIDAY
1-Oct-12	Mon	holiday
2-Oct-12	Tue	holiday
3-Oct-12	Wed	Mainly cloudy, sunny periods, moderate to fresh easterly winds
4-Oct-12	Thu	Mainly cloudy, sunny periods, fresh easterly winds
5-Oct-12	Fri	Sunny periods, cloudy, moderate easterly winds
6-Oct-12	Sat	Sunny periods, cloudy, moderate easterly winds
7-Oct-12	Sun	Cloudy, fine, dry, light winds
8-Oct-12	Mon	Cloudy, fine, haze, moderate easterly winds
9-Oct-12	Tue	Fine, haze, light to moderate easterly winds
10-Oct-12	Wed	Fine, haze, very dry, moderate east to northeasterly winds
11-Oct-12	Thu	Fine, haze, dry, light to moderate easterly winds.
12-Oct-12	Fri	Fine, haze, dry, light to moderate easterly winds.
13-Oct-12	Sat	Cloudy, dry, sunny periods, moderate to fresh north to northeasterly winds.
14-Oct-12	Sun	Fine, haze, dry, light to moderate easterly winds.
15-Oct-12	Mon	Cloudy, fine, haze, moderate easterly winds
16-Oct-12	Tue	Cloudy, sunny periods, dry, moderate to fresh easterly winds.
17-Oct-12	Wed	Cloudy, fine, dry, moderate to fresh easterly winds.
18-Oct-12	Thu	Mainly fine, light to moderate easterly winds.
19-Oct-12	Fri	Sunny periods, dry, light winds, moderate to fresh easterlies
20-Oct-12	Sat	Cloudy, fine, dry, light winds
21-Oct-12	Sun	Cloudy, fine, haze, moderate easterly winds
22-Oct-12	Mon	Fine, haze, dry, light to moderate easterly winds.
23-Oct-12	Tue	Mainly cloudy, sunny periods, moderate to fresh easterly winds
24-Oct-12	Wed	Fine, haze, dry, light to moderate easterly winds.
25-Oct-12	Thu	Cloudy, fine, dry, light winds

**Appendix J**  
**Monthly Summary Waste Flow Table**

## Monthly Summary Waste Flow Table for October 2012

Month	Actual Quantities of Inert C&D Materials Generated Monthly												Actual Quantities of C&D Wastes Generated Monthly									
	Total Quantity Generated (a) = (c)+(d)+(e)		Hard Rock and Large Broken Concrete (b)		Reused in the Contract (c)		Reused in other Projects (d)		Disposed as Public Fill (e)		Imported Fill (f)		Metals		Paper/ cardboard packaging		Plastics		Chemical Waste		Others, e.g. rubbish	
	(in '000m <sup>3</sup> )		(in '000m <sup>3</sup> )		(in '000m <sup>3</sup> )		(in '000m <sup>3</sup> )		(in '000m <sup>3</sup> )		(in '000m <sup>3</sup> )		(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in tonne)	
	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW
<b>2012</b>	10.430	33.543	0.160	0.407	0.740	1.059	0.000	0.000	9.690	32.484	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	206.870	46.690
Jan	0.000	3.311	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.311	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.530	5.090
Feb	0.170	6.271	0.000	0.000	0.000	0.000	0.000	0.000	0.170	6.271	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.860	5.660
Mar	0.619	4.543	0.000	0.000	0.000	0.000	0.000	0.000	0.619	4.543	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.940	9.500
Apr	0.157	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.157	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.520	1.700
May	0.353	0.916	0.000	0.000	0.000	0.000	0.000	0.000	0.353	0.916	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.750	5.090
Jun	0.091	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	26.710	6.400
<b>Sub-total</b>	11.820	48.585	0.160	0.410	0.740	1.059	0.000	0.000	11.080	47.526	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	294.180	80.130
Jul	0.248	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.248	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.610	2.960
Aug	0.144	0.999	0.000	0.000	0.000	0.999	0.000	0.000	0.144	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	19.730	3.750
Sep	0.686	0.744	0.000	0.000	0.000	0.744	0.000	0.000	0.686	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	26.820	3.800
Oct	0.160	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.160	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.970	3.470
Nov																						
Dec																						
<b>Total</b>	13.058	50.328	0.160	0.410	0.740	2.802	0.000	0.000	12.318	47.526	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	365.310	94.110
	63.385		0.569		3.542		0.000		59.844		0.000		0.000		0.000		0.000		0.000		459.420	

Remark: Assume 1.0 m<sup>3</sup> vehicle dump load = 1.6 tonnes C&D materials

YSW: Yung Shue Wan

SKW: Sok Kwu Wan

## **Appendix K**

### **Weekly Site Inspection Checklist**

Project: TCS/00512/09  
Construction of Sewage Treatment Works at  
Yung Shue Wan and Sok Kwu Wan

Inspected by \_\_\_\_\_  
 ETL/ ET's Representative: FN Wong  
 RE's Representative: Joseph Ng  
 Contractor's Representative: Edwin Leung  
 IEC's Representative: \_\_\_\_\_

Checklist No. TCS512B-05/10/2012

Date: 05 October 2012

Time: 14:00

**PART A: GENERAL INFORMATION**

Weather:  Sunny  Fine  Cloudy  Rainy

Temperature: 28.0 °C

Humidity:  High  Moderate  Low

Wind:  Strong  Breeze  Light  Calm

Environmental Permit No.

EP- 281/2007A

Area Inspected  
 1 Sok Kwu Wan

**PART B: SITE AUDIT**

Note:	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable						
<b>Section 1: Water Quality</b>						
1.01 Is an effluent discharge license obtained for the Project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.02 Is the effluent discharged in accordance with the discharge licence?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.03 Is the discharge of turbid water avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.04 Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.05 Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.06 Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.07 Is drainage system well maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.08 As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.09 Are temporary exposed slopes properly covered?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.10 Are earthworks final surfaces well compacted or protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.11 Are manholes adequately covered or temporarily sealed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.12 Are there any procedures and equipment for rainstorm protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.13 Are wheel washing facilities well maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.14 Is runoff from wheel washing facilities avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.15 Are there toilets provided on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.16 Are toilets properly maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.17 Are the vehicle and plant servicing areas paved and located within roofed areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.18 Is the oil leakage or spillage avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.19 Are there any measures to prevent leaked oil from entering the drainage system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.20 Are there any measures to collect spilt cement and concrete washings during concreting works?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.21 Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.22 Are the oil interceptors/grease traps maintained properly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
1.23	Is used bentonite recycled where appropriate?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.24	Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m <sup>3</sup> capacities for sedimentation.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.25	No excavation is undertaken in the settlement area.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.26	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.27	Mobile toilets should provide on site and located away the stream course.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.28	License collector should be employed for handling the sewage of mobile toilet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.29	Is ponding /stand water avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.30	Is open stockpiles well covered by impermeable sheet?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Section 2: Air Quality</b>							
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.03	Are the excavated materials sprayed with water during handling?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.05	Is the exposed earth properly treated within six months after the last construction activities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.11	Is dark smoke emission from plant/equipment avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.13	Are site vehicles travelling within the speed limit not more than 15km/hour?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.15	Is open burning avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.16	Excavated materials from the stream must remove form site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>Section 3: Noise</b>							
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.02	Is silenced equipment adopted?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.03	Is idle equipment turned off or throttled down?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.04	Are all plant and equipment well maintained and in good condition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.07	Are air compressors fitted with valid noise emission labels during operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
3.08	Are flaps and panels of mechanical equipment closed during operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>Section 4: Waste/Chemical Management</b>							
4.01	Waste Management Plan had been submit to Engineer for approval.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.02	Are receptacles available for general refuse collection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.03	Is general refuse sorting or recycling implemented?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.04	Is general refuse disposed of properly and regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.05	Is the Contractor registered as a chemical waste producer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.06	Are the chemical waste containers and storage area properly labelled?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.07	Are the chemical wastes stored in proper storage areas?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.08	Is the chemical container or equipment provided with drip tray?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.10	Are incompatible chemical wastes stored in different areas?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.11	Are the chemical wastes disposed of by licensed collectors?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.13	Are chemical/fuel storage areas bounded?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.14	Are designated areas identified for storage and sorting of construction wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.15	Are construction wastes sorted (inert and non-inert) on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.16	Are construction wastes reused?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.17	Are construction wastes disposed of properly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.20	Are appropriate procedures followed if contaminated material exists?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.23	Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



Note:	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable						
<b>Section 5: Landscape &amp; Visual</b>						
5.01	Are retained and transplanted trees in health condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Refer to Monthly EM&A report - Appendix M
5.02	Are retained and transplanted trees properly protected?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.03	Are surgery works carried out for the damaged trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Section 6: Others</b>						
6.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(Sok Kwu Wan)

Remarks:

Findings of Site Inspection: (05 Oct 2012):

Follow up: (05 Oct 2012)

No adverse environmental impacts were observed during site inspection. However, full implementation of the required environmental mitigation measures is reminded.

Not required for general reminders.

The transplanted and retained uncommon tree species trees were found to be labeled, fenced and protected.

IEC's representative      RE's representative      ET's representative      EO's representative      Contractor's representative

Joseph  
Joseph NG

*[Signature]*  
Ear Wang

Ky Ho Shun  
Kelley Ho Shun

Project: TCS/00512/09  
**Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan**

Inspected by \_\_\_\_\_  
 ETL/ ET's Representative Wong Fu nam ✓  
 RE's Representative Joseph Ng ✓  
 Contractor's Representative Edwin Leung ✓  
 IEC's Representative \_\_\_\_\_

Date: 9-Oct-2012

Time: 3:20 pm

**PART A: GENERAL INFORMATION**

Environmental Permit No.

Weather:  Sunny  Fine  Cloudy  Rainy  
 Temperature: \_\_\_\_\_ °C  
 Humidity:  High  Moderate  Low  
 Wind:  Strong  Breeze  Light  Calm

EP- 281/2007A

**Area Inspected**

1 Sok Kwu Wan

**PART B: SITE AUDIT**

Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
<b>Section 1: Water Quality</b>							
1.01	Is an effluent discharge license obtained for the Project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.02	Is the effluent discharged in accordance with the discharge licence?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.03	Is the discharge of turbid water avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.07	Is drainage system well maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.09	Are temporary exposed slopes properly covered?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.10	Are earthworks final surfaces well compacted or protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.11	Are manholes adequately covered or temporarily sealed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.12	Are there any procedures and equipment for rainstorm protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.13	Are wheel washing facilities well maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.14	Is runoff from wheel washing facilities avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.15	Are there toilets provided on site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.16	Are toilets properly maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.18	Is the oil leakage or spillage avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.19	Are there any measures to prevent leaked oil from entering the drainage system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.22	Are the oil interceptors/grease traps maintained properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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1.23	Is used bentonite recycled where appropriate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.24	Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m <sup>3</sup> capacities for sedimentation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.25	No excavation is undertaken in the settlement area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.26	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.27	Mobile toilets should provide on site and located away the stream course.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.28	License collector should be employed for handling the sewage of mobile toilet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.29	Is ponding /stand water avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.30	Is open stockpiles well covered by impermeable sheet?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Section 2: Air Quality</b>							
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.03	Are the excavated materials sprayed with water during handling?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.05	Is the exposed earth properly treated within six months after the last construction activities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.11	Is dark smoke emission from plant/equipment avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.13	Are site vehicles travelling within the speed limit not more than 15km/hour?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.15	Is open burning avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.16	Excavated materials from the stream must remove form site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Section 3: Noise</b>							
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.02	Is silenced equipment adopted?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.03	Is idle equipment turned off or throttled down?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.04	Are all plant and equipment well maintained and in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.07	Are air compressors fitted with valid noise emission labels during operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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3.08	Are flaps and panels of mechanical equipment closed during operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Section 4: Waste/Chemical Management</b>							
4.01	Waste Management Plan had been submit to Engineer for approval.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.02	Are receptacles available for general refuse collection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.03	Is general refuse sorting or recycling implemented?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.04	Is general refuse disposed of properly and regularly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.05	Is the Contractor registered as a chemical waste producer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.06	Are the chemical waste containers and storage area properly labelled?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.07	Are the chemical wastes stored in proper storage areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.08	Is the chemical container or equipment provided with drip tray?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.10	Are incompatible chemical wastes stored in different areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.11	Are the chemical wastes disposed of by licensed collectors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.13	Are chemical/fuel storage areas bounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.14	Are designated areas identified for storage and sorting of construction wastes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.15	Are construction wastes sorted (inert and non-inert) on site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.16	Are construction wastes reused?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.17	Are construction wastes disposed of properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.20	Are appropriate procedures followed if contaminated material exists?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.23	Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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<b>Section 5: Landscape &amp; Visual</b>							
5.01	Are retained and transplanted trees in health condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Refer to Monthly EM&A report - Appendix M
5.02	Are retained and transplanted trees properly protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.03	Are surgery works carried out for the damaged trees?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Section 6: Others</b>							
6.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(Sok Kwu Wan)

Remarks:

Findings of Site Inspection: (09 Oct 2012):      Follow up: (09 Oct 2012)

No adverse environmental impacts were observed during site inspection. However, full implementation of the required mitigation measures, particularly construction dust suppression measures during dusty activities under dry and windy conditions, is reminded.

Not required for general reminders.

The transplanted and retained uncommon tree species trees were found to be labeled, fenced and protected.

IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's representative
( )	 (Joseph Ng)	 (Wong Fu Nam)	 (Edwin Leung)	( )
	09th October	09 Oct 2012		

Project: TCS/00512/09  
Construction of Sewage Treatment Works at  
Yung Shue Wan and Sok Kwu Wan  
 \_\_\_\_\_  
 \_\_\_\_\_

Inspected by \_\_\_\_\_  
 ETL/ ET's Representative Wong Fu nam  
 RE's Representative Joseph Ng  
 Contractor's Representative Edwin Leung  
 IEC's Representative \_\_\_\_\_  
 Time: 14:30

Date: 16-Oct-2012

**PART A: GENERAL INFORMATION**

Weather:  Sunny  Fine  Cloudy  Rainy

Temperature: 29 °C

Humidity:  High  Moderate  Low

Wind:  Strong  Breeze  Light  Calm

Environmental Permit No.  
 EP- 281/2007A

Area Inspected  
 1 Sok Kwu Wan

**PART B: SITE AUDIT**

Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
<b>Section 1: Water Quality</b>							
1.01	Is an effluent discharge license obtained for the Project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.02	Is the effluent discharged in accordance with the discharge licence?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.03	Is the discharge of turbid water avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.07	Is drainage system well maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.09	Are temporary exposed slopes properly covered?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.10	Are earthworks final surfaces well compacted or protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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1.12	Are there any procedures and equipment for rainstorm protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.13	Are wheel washing facilities well maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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1.16	Are toilets properly maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.18	Is the oil leakage or spillage avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.19	Are there any measures to prevent leaked oil from entering the drainage system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.22	Are the oil interceptors/grease traps maintained properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

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1.24	Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m <sup>3</sup> capacities for sedimentation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.25	No excavation is undertaken in the settlement area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.26	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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1.30	Is open stockpiles well covered by impermeable sheet?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Section 2: Air Quality</b>							
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.03	Are the excavated materials sprayed with water during handling?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.05	Is the exposed earth properly treated within six months after the last construction activities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.11	Is dark smoke emission from plant/equipment avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.13	Are site vehicles travelling within the speed limit not more than 15km/hour?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.15	Is open burning avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.16	Excavated materials from the stream must remove form site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>Section 3: Noise</b>							
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.02	Is silenced equipment adopted?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.03	Is idle equipment turned off or throttled down?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.04	Are all plant and equipment well maintained and in good condition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.07	Are air compressors fitted with valid noise emission labels during operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
3.08	Are flaps and panels of mechanical equipment closed during operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>Section 4: Waste/Chemical Management</b>							
4.01	Waste Management Plan had been submit to Engineer for approval.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.02	Are receptacles available for general refuse collection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.03	Is general refuse sorting or recycling implemented?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.04	Is general refuse disposed of properly and regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.05	Is the Contractor registered as a chemical waste producer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.06	Are the chemical waste containers and storage area properly labelled?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.07	Are the chemical wastes stored in proper storage areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.08	Is the chemical container or equipment provided with drip tray?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.10	Are incompatible chemical wastes stored in different areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.11	Are the chemical wastes disposed of by licensed collectors?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.13	Are chemical/fuel storage areas bounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.14	Are designated areas identified for storage and sorting of construction wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.15	Are construction wastes sorted (inert and non-inert) on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.16	Are construction wastes reused?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.17	Are construction wastes disposed of properly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.20	Are appropriate procedures followed if contaminated material exists?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.23	Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	



Item	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
<b>Section 5: Landscape &amp; Visual</b>							
5.01	Are retained and transplanted trees in health condition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Refer to Monthly EM&A report - Appendix M
5.02	Are retained and transplanted trees properly protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.03	Are surgery works carried out for the damaged trees?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>Section 6: Others</b>							
6.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

(Sok Kwu Wan)

Remarks:

Findings of Site Inspection: ( 16 Oct 2012 )

Follow up: ( 16 Oct 2012 )

No adverse environmental impacts were observed during site inspection. However, full implementation of the required environmental mitigation measures, in particular construction dust suppression measures during dusty activities under dry and windy conditions, is reminded.

Not required for general reminders.

The transplanted and retained uncommon tree species trees were found to be labeled, fenced and protected.

IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's representative
( )	Joseph Ng 16 Oct 2012	Wong Fu Nam 16 Oct 2012	Edwin Leung	( )

## **Appendix L**

### **Implementation Schedule of Mitigation Measures**

### Implementation Schedule of Air Quality Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines
					D	C	O	
<b>Construction Phase</b>								
3.32	2.34	Installation of 2m high solid fences around the construction site of Pumping Station P2.	Work site / during construction	Contractor		√		
3.34	2.34	Adopting the following good site practices and follow the dust control requirements of the Air Pollution Control (Construction Dust) Regulation: <ul style="list-style-type: none"> <li>• Stockpiles of imported material kept on site should be contained within hoardings, dampened and / or covered during dry and windy weather;</li> <li>• Material stockpiled alongside trenches should be covered with tarpaulins whenever works are close to village houses;</li> <li>• Water sprays should be used during the delivery and handling of cement, sands, aggregates and the like.</li> <li>• Any vehicle used for moving sands, aggregates and construction waste should have properly fitting side and tail boards. Materials should not be loaded to a level higher than the side and tail boards, and should be covered by a clean tarpaulin.</li> </ul>	Work site / during construction	All contractors		√		EIAO-TM, APCO, Air Pollution Control (Construction Dust) Regulation
3.36	Section 2	1 hour and 24 hour dust monitoring and site audit	Designated air monitoring locations / throughout construction period	Contractor/ Environmental Team		√		EM&A Manual

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

\*\* D=Design, C=Construction, O=Operation

N/A Not applicable

### Implementation Schedule of Noise Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location/Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
<b>Construction Phase</b>								
4.41-4.43	3.19	<ul style="list-style-type: none"> <li>• Use of quiet PME for the construction of the pumping stations</li> <li>• Use of temporary noise barrier during the construction of Pumping Station P1a</li> </ul>	Work site /during the construction of Pumping Stations	Contractor		√		EIAO-TM, NCO
4.44 – 4.49	3.19	Implementation of following measures during the sewer construction: <ul style="list-style-type: none"> <li>• Use of quiet PME or method;</li> <li>• Restriction on the number plant (1 item for each type of plant); and</li> <li>• Good Site Practices               <ul style="list-style-type: none"> <li>➤ Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.</li> <li>➤ Mobile plant, if any, should be sited as far away from NSRs as possible.</li> <li>➤ Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.</li> <li>➤ Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.</li> <li>➤ Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.</li> </ul> </li> </ul>	Work site /during the construction of Sewer.	Contractor		√		

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location/Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
4.50 – 4.53	3.19	<ul style="list-style-type: none"> <li>Use of noise screening structures such as acoustic shed and barrier wherever practicable and feasible in areas with sufficient clearance and headroom.</li> <li>Adoption of manual working method wherever practicable and feasible in areas where the worksites of the proposed sewer alignment are located less than 20 m from the residential NSRs and less than 30 m from the temple (THT) and the public library.</li> <li>Use of PME for the construction of the section of sewer between the NSR and the Pumping Station P1a should not be allowed during the excavation work of Pumping Station P1a.</li> </ul>	Work site /during the construction of Sewer.	Contractor		√		
4.60	Section 35	Noise monitoring	Designated noise monitoring locations / throughout construction period	Contractor/ Environmental Team		√		EM&A Manual

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

**Implementation Schedule of Water Quality Control Measures**

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location (duration /completion of measures)	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines
					D	C	O	
<b>Construction Phase</b>								
5.77	4.35	No-dig method using Horizontal Directional Drilling (HDD) would be used for the installation of outfall pipe of about 480 m from shore to minimize the potential water quality impacts arising from the dredging works required for the submarine outfall construction.  Silt curtains will be installed around the exit area of the pilot drill.	Marine works site / During construction of submarine outfall	Contractor		√		
5.73 – 5.78	4.36	Dredging Works  Implementation of following measures during the dredging works: <ul style="list-style-type: none"> <li>• dredging should be undertaken using closed grab dredgers with a maximum total production rate of 55m<sup>3</sup>/hr;</li> <li>• deployment of 2-layer silt curtains with the first layer enclosing the grab and the second layer at around 50m from the dredging area while dredging works are in progress;</li> <li>• dredging operation should be undertaken during ebb tide only;</li> <li>• all vessels should be sized such that adequate clearance (i.e. minimum clearance of 0.6m) is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;</li> <li>• all pipe leakages should be repaired promptly and plant should not be operated with leaking pipes;</li> <li>• excess material should be cleaned from the decks and exposed fittings of barges before the vessel is moved;</li> <li>• adequate freeboard (i.e. minimum of 200mm) should be maintained on barges to ensure that decks are not washed by wave action;</li> <li>• all barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material;</li> <li>• loading of barges should be controlled to prevent splashing of dredged material to the surrounding water, and barges should not be filled to a level which will cause the overflow of materials or polluted water during loading or transportation; and</li> </ul>	Marine works site and at the identified water sensitive receivers/ During construction	Contractor		√		

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location (duration /completion of measures)	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines
					D	C	O	
		<ul style="list-style-type: none"> <li>the decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard.</li> </ul>						
5.79	4.37	<p><u>Construction Run-off and Drainage</u></p> <p>Implementation of the following site practices outlined in ProPECC PN 1/94 for “Construction Site Drainage”</p> <ul style="list-style-type: none"> <li>Provision of perimeter channels to intercept storm-runoff from outside the site. These should be constructed in advance of site formation works and earthworks.</li> <li>Works programmes should be designed to minimize works areas at any one time, thus minimizing exposed soil areas and reducing the potential for increased siltation and runoff.</li> <li>Sand / silt removal facilities such as sand traps, silt traps and sediment basins should be provided to remove the sand / silt particles from run-off. These facilities should be properly and regularly maintained. These facilities should be carefully planned to ensure that they would be installed at appropriate locations to capture all surface water generated on site.</li> <li>Careful programming of the works to minimise soil excavation works during rainy seasons.</li> <li>Exposed soil surface should be protected by paving or hydroseeding as soon as possible to reduce the potential of soil erosion.</li> <li>Trench excavation should be avoided in the wet season, and if necessary, these should be excavated and backfilled in short sections.</li> <li>Open stockpiles of construction materials on site should be covered with tarpaulin or similar fabric</li> </ul>	Construction works sites	Contractor		√		ProPECC PN 1/94
5.80	4.38	<p><u>General Construction Activities</u></p> <p>Debris and rubbish generated on-site should be collected, handled and disposed of properly to avoid entering the nearby coastal waters and stormwater drains. All fuel tanks and storage areas should be provided</p>	Construction works sites	Contractor		√		

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location (duration /completion of measures)	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines
					D	C	O	
		with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. Open drainage channels and culverts near the works areas should be covered to block the entrance of large debris and refuse.						
5.81	4.39	<u>Wastewater Arising from Workforce</u> Portable toilets should be provided by the Contractors, where necessary, to handle sewage from the workforce. The Contractor should also be responsible for waste disposal and maintenance practices.	Construction works sites	Contractor		√		
5.96	Section 4	Water quality monitoring	Designated water monitoring locations/ throughout construction period	Contractor		√		EM&A Manual

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\*\* D=Design, C=Construction, O=Operation

N/A Not applicable



**Implementation Schedule of Sediment Contamination Mitigation Measures**

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines
					D	C	O	
6.17	5.3	Follow the requirement and procedures for dredged mud disposal specified under the WBTC No. 34/2002.	Marine works site / during dredging works	Contractor		√		WBTC No. 34/2002
6.18	5.4	Implement appropriate dredging methods which have been incorporated into the recommended water quality mitigation measures.	Marine works site, during dredging works	Contractor		√		
6.19	5.5	During the transportation and disposal of the dredged sediment, the following measures should be taken: <ul style="list-style-type: none"> <li>• Bottom opening of barges should be fitted with tight fitting seals to prevent leakage of material. Excess material should be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved.</li> <li>• Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels should be equipped with automatic self monitoring devices as specified by the DEP.</li> </ul>	Marine works site and at the identified sensitive receivers	Contractor		√		

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\*\* D=Design, C=Construction, O=Operation

N/A Not applicable

**Implementation Schedule of Solid Waste Management Measures**

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
<b>Construction Phase</b>								
7.14	6.4	<u>Good site practices</u> <ul style="list-style-type: none"> <li>Nomination of an approved person, such as a site manager, to be responsible for implementation of good site practices, arranging for collection and effective disposal to an appropriate facility, of all wastes generated at the site</li> <li>Training (proper waste management and chemical handling procedure) should be provided for site staffs</li> <li>Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.</li> <li>Provision of sufficient waste disposal points and regular collection for disposal.</li> <li>Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility.</li> <li>Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.</li> <li>Maintain records of the quantities of wastes generated, recycled and disposed.</li> </ul>	Work sites/During construction	Contractor		√		Waste Disposal Ordinance (Cap.54)
7.15	6.5	To monitor the disposal of C&D waste at landfills and to control fly tipping, a trip-ticket system should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.	Work sites/During construction	Contractor		√		WBTC No. 21/2002
7.16	6.6	Recommendations to achieve waste reduction include: <ul style="list-style-type: none"> <li>segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;</li> <li>to encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to segregate this waste from other general refuse generated</li> </ul>	Work sites/During construction	Contractor		√		WBTC No. 4/98, 5/98

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
		by the work force; <ul style="list-style-type: none"> <li>any unused chemicals or those with remaining functional capacity should be recycled;</li> <li>use of reusable non-timber formwork to reduce the amount of C&amp;D material;</li> <li>prior to disposal of C&amp;D waste, it is recommended that wood, steel and other metals should be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill;</li> <li>proper storage and site practices to minimise the potential for damage or contamination of construction materials; and</li> <li>plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.</li> </ul>						
7.18	6.7	<u>General Site Wastes</u> <ul style="list-style-type: none"> <li>A collection area for construction site waste should be provided where waste can be stored prior to removal from site</li> <li>An enclosed and covered area for the collection of the waste is recommended to reduce 'wind blow' of light material</li> </ul>	Work sites/During construction	Contractor		√		Public Health and Municipal Services Ordinance (Cap. 132)
7.19-7.20	6.8 – 6.9	<u>Chemical Wastes</u> <ul style="list-style-type: none"> <li>After use, chemical waste should be handled according to the Code of Practice on the Package, Labelling and Storage of Chemical Wastes</li> <li>Any unused chemicals or those with remaining functional capacity should be recycled</li> <li>Waste should be properly stored on site within suitably designed containers and should be collected by an approved licensed waste collectors for disposal at the Chemical Waste Treatment Facility or other licenced facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation under the Waste Disposal Ordance.</li> </ul>	Work sites/During construction	Contractor		√		Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Wastes

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
		<ul style="list-style-type: none"> <li>Any service shop and minor maintenance facilities should be located on hard standing within a bunded area, and sumps and oil interceptors should be provided.</li> <li>Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should be undertaken within the designated areas equipped control these discharges</li> </ul>						
7.21-7.22	6.10 – 6.11	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> <li>The C&amp;D waste should be separated on-site into three categories: <ul style="list-style-type: none"> <li>➤ public fill, the inert portion of the C&amp;D material (e.g. concrete and rubble), which should be re-used on-site or disposed of at a public filling area;</li> <li>➤ C&amp;D waste for re-use and / or recycling, the non-inert portion of the C&amp;D material, (e.g. steel and other metals, woods, glass and plastic);</li> <li>➤ C&amp;D waste which cannot be re-used and / or recycled (e.g. wood, glass and plastic)</li> </ul> </li> <li>Where possible, inert material should be re-used on-site</li> <li>Where practicable, steel and other metals should be separated for re-use and/or recycling prior to disposal of C&amp;D material</li> </ul>	During all construction phases	Contractors		√		WBTC No. 4/98, 5/98, 21/2002, 25/99, 12/2000

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

\*\* D=Design, C=Construction, O=Operation

N/A Not applicable

### Implementation Schedule of Ecological Impact Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages			Relevant Legislation & Guidelines
					D	C	O	
<b>Construction Phase</b>								
8.157	7.2	<u>Terrestrial Ecology</u> <ul style="list-style-type: none"> <li>Labeling and fencing of the uncommon tree species</li> <li>Avoidance of use of woodland habitats as Works Area, in particular where trees are located</li> </ul>	Work sites / during construction phase	Contractor		√		
8.159 – 8.160	7.3	<u>Subtidal Ecology</u> Use of HDD technique  Dredging <ul style="list-style-type: none"> <li>Use of closed-grab dredger</li> <li>Deploy silt curtains during dredging.</li> </ul>	Marine works site / during dredging works	Contractor		√		
8.161	7.4	Site runoff <ul style="list-style-type: none"> <li>Construction and maintenance of sand / silt removal facilities</li> <li>Silt curtains</li> <li>Timing of earthworks</li> <li>Coverage of sand / fill piles during storms.</li> <li>Barriers along the landward side of Pumping Station P2 site boundary (to prevent site runoff from entering area with Romer's Tree Frog)</li> </ul>	All work sites / during construction phase	Contractor		√		

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

\*\* D=Design, C=Construction, O=Operation

N/A Not applicable

### Implementation Schedule of Fisheries Impact Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines
					D	C	O	
9.29	8.3	Use of closed grab dredging and silt curtains around the immediate dredging area and low dredging rates as recommended in Water Quality of the EIA report	Marine works site, during dredging works	Contractor		√		TM on EIA Process
9.32	Section 8	Water quality monitoring (see Implementation Schedule for Water Quality Control Measures)	Designated monitoring locations / throughout construction period and 1 year following operation of the STW	Contractor and Environmental Team		√	√	EM&A Manual

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

\*\* D=Design, C=Construction, O=Operation

N/A Not applicable

**Implementation Schedule of Landscape and Visual Impact Measures**

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
<b>Construction Phase</b>								
10.74	9.10	Retaining existing trees and minimizing damage to vegetation by close coordination and on site alignment adjusted of rising main and gravity sewer pipelines.	All sites	Contractor		√		WBTC No. 14/2002
		Careful and efficient transplanting of affected trees to temporary or final transplant location (the proposed tree to be transplanted is a semi-mature <i>Macaranga tanarius</i> and is located at the proposed Pumping Station P2 location).	All sites	Contractor		√		WBTC No. 14/2002
		Short excavation and immediate backfilling sections upon completion of works to reduce active site area.	All sites	Contractor		√		
		Screening of site construction works by use of hoarding that is appropriate to its site.	All sites	Contractor		√		WBTC No. 19/2001
		Conservation of topsoil for reuse.	All sites	Contractor		√		
		Night-time light source from marine fleets should be directed away from the residential units.	Outfall area.	Contractor		√		

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

\*\* D=Design, C=Construction, O=Operation

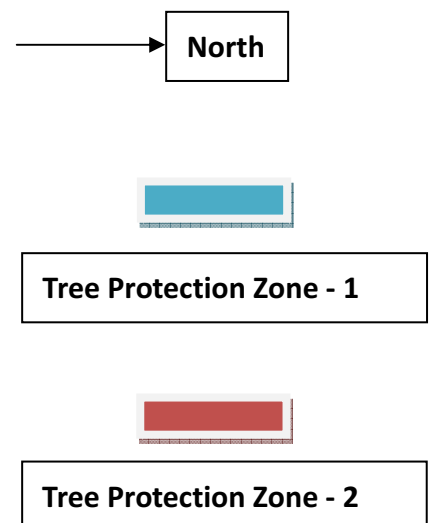
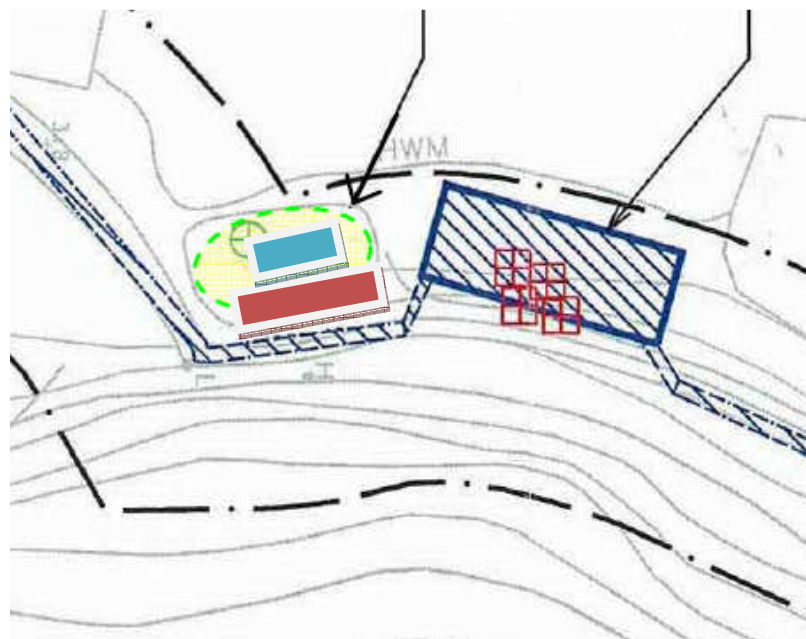
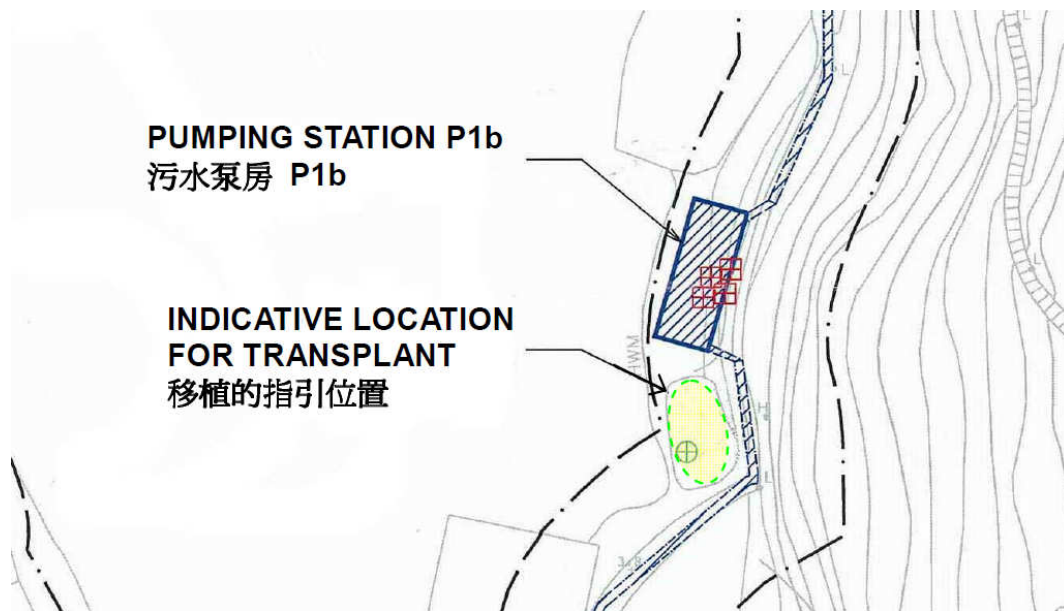
N/A Not applicable

**Appendix M**  
**Tree Inspection Report**



## 1. Introduction

According to the requirement in the Environmental Permit EP-281/2007/A, the uncommon tree species, *Celtis timorensis*, found in the pumping station P1b area as shown in figure below shall be properly transplanted to the area immediately south of the Pumping Station P1b before commencement of construction of the Pumping Station P1b



This Tree Inspection Report describes the bi weekly monitoring result of the *Celtis timorensis*, which were additionally planted as the compensation of previously transplanted *Celtis timorensis* CT7, CT8, CT9 & CT10.

## 2. Summary of Inspection

Date of Inspection	29 September 2012, around 15:30
Location	A soil ground adjacent to the Pumping Station P1b Chung Mei, at Sok Kwu Wan, Lamma Island.
Weather	Cloudy, the vegetations are located under the shade of existing tall trees.
The labeled <i>Celtis timorensis</i> under Tree Protection Zone 2	CT_2A, CT_3A, CT_5A & CT_6A

## 3. Proposed Inspection Schedule

Month	Actual / proposed Inspection Date
October, 2011	10 and 24 October 2011
November, 2011	8 November 2011
December, 2011	14 and 30 December 2011
January 2012	31 January 2012
February 2012	15 and 29 February 2012
March 2012	15 and 31 March 2012
April 2012	16 and 30 April 2012
May 2012	15 and 31 May 2012
June 2012	15 and 30 June 2012
July 2012	16 and 30 July 2012
August 2012	15 and 31 August 2012
September 2012	15 and 29 September 2012

## 4. Summary of Inspection Result


Tree No	Speciation	Health Status
CT_2A	<i>Celtis timorensis</i>	Poor
CT_3A	<i>Celtis timorensis</i>	Poor
CT_5A	<i>Celtis timorensis</i>	Good
CT_6A	<i>Celtis timorensis</i>	Good

Inspection parameters or criteria

- Good      Leaves and stem grown very lush, additional or larger in size of leaves can be observed in each inspection
- Fair      Green leaves can be found. No major unhealthy condition of the plant is observed. The condition is stable.
- Poor      Fewer green leaves than usual are observed. No new leaf is grown and the condition keep stable. The bark is dry. The plant is weak.
- Very Poor      No new green leaf or bud can be observed. The bark is dry. The plant is weak.

**5. Description of Inspection Results:**

**Tree ID:CT\_2A**

	<p><b>Current Status: Poor</b></p> <p><b>Justification: Leaves were dry. The bark was also dry. No significant improvement in health. The plant was very weak.</b></p>
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**Tree ID: CT\_3A**



**Current Status: Poor**

**Justification: Leaves were dry. The bark was also dry. No significant improvement in health. The plant was very weak.**


**Tree ID: CT\_5A**



**Current Status: Good**

**Justification: Significant improvement in health. The plant was healthy. Some leaves were damaged by insect.**

**Tree ID: CT\_6A**

 A photograph of a young Celtis timorensis sapling. The plant has several green, ovate leaves on a thin stem. A hand is visible on the left side, holding a white card behind the plant. At the bottom of the plant, there is a small white label with the text 'T6A'. In the bottom left corner of the photo, there is a vertical date stamp '29/09/2012'. The background shows a ground covered with dry leaves and twigs.	<p><b>Current Status: Good</b></p> <p><b>Justification: Significant improvement in health. The plant was healthy.</b></p>
--	---

**Overall Condition**

In the Tree Protection Zone 2, The health of CT\_5A and CT\_6A were found satisfactory. Regular watering and weeding will be carried out during dry weather. They may better recover under this warm and rainy weather. Some newly grown green leaves were found eaten by insects. Remove any insect found on the plant physically to prevent the bud attacked by leaf-feeding insect. No pesticide should be used when the plants are weak.

Considering the condition of CT2A, CT3A were in poor condition, compensatory of additional *Celtis timorensis* is proposed and will be carried out in the coming warm weather season for better growing.

經緯園藝有限公司

Melofield Nursery & Landscape Contractor Ltd

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Contract No. DC/2009/13

Project Name: Construction of Sewage Treatment  
Works at Yung Shue Wan and Sok Kwu Wan

## Sok Kwu Wan

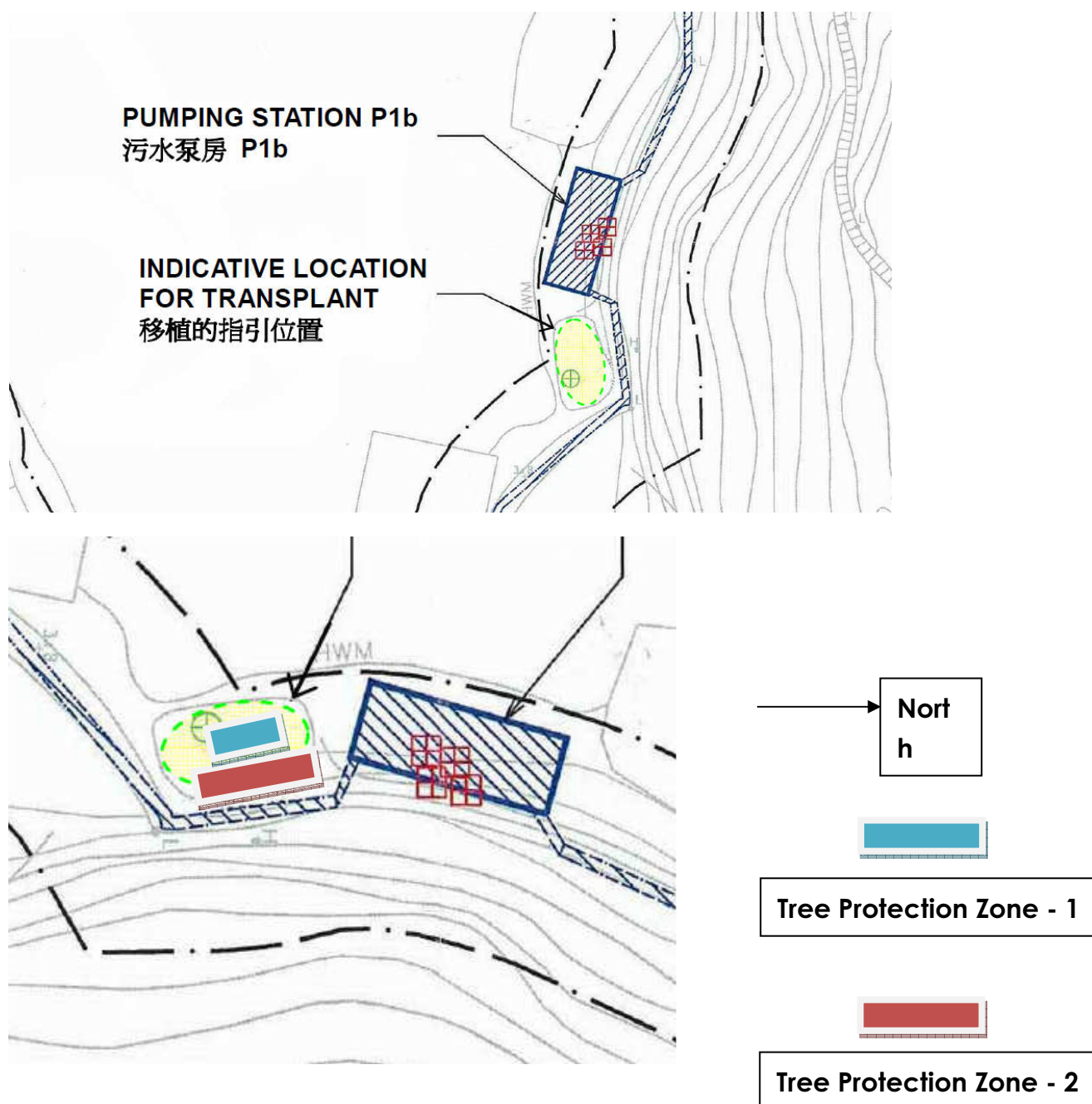
**Tree Inspection Report for *Celtis timorensis***

**Inspection Date : 15-10-2012**



## 1. Introduction

According to the requirement in the Environmental Permit EP-281/2007/A, the uncommon tree species, *Celtis timorensis*, found in the pumping station P1b area as shown in figure below shall be properly transplanted to the area immediately south of the Pumping Station P1b before commencement of construction of the Pumping Station P1b



This Tree Inspection Report describes the bi weekly monitoring result of the *Celtis timorensis*, which were additionally planted as the compensation of previously transplanted *Celtis timorensis* CT7, CT8, CT9 & CT10.

## 2. Summary of Inspection

Date of Inspection	15 October 2012, around 15:30
Location	A soil ground adjacent to the Pumping Station P1b Chung Mei, at Sok Kwu Wan, Lamma Island.
Weather	Cloudy, the vegetations are located under the shade of existing tall trees.
The labeled <i>Celtis timorensis</i> under Tree Protection Zone 2	CT_2A, CT_3A, CT_5A & CT_6A

## 3. Proposed Inspection Schedule

Month	Actual / proposed Inspection Date
October, 2011	10 and 24 October 2011
November, 2011	8 November 2011
December, 2011	14 and 30 December 2011
January 2012	31 January 2012
February 2012	15 and 29 February 2012
March 2012	15 and 31 March 2012
April 2012	16 and 30 April 2012
May 2012	15 and 31 May 2012
June 2012	15 and 30 June 2012
July 2012	16 and 30 July 2012
August 2012	15 and 31 August 2012
September 2012	15 and 29 September 2012
October 2012	15 October 2012

## 4. Summary of Inspection Result

Tree No	Speciation	Health Status
CT_2A	<i>Celtis timorensis</i>	Poor
CT_3A	<i>Celtis timorensis</i>	Poor
CT_5A	<i>Celtis timorensis</i>	Good
CT_6A	<i>Celtis timorensis</i>	Good




Inspection parameters or criteria

- Good      Leaves and stem grown very lush, additional or larger in size of leaves can be observed in each inspection
- Fair      Green leaves can be found. No major unhealthy condition of the plant is observed. The condition is stable.
- Poor      Fewer green leaves than usual are observed. No new leaf is grown and the condition keep stable. The bark is dry. The plant is weak.
- Very Poor      No new green leaf or bud can be observed. The bark is dry. The plant is weak.

**5. Description of Inspection Results:**

**Tree ID:CT\_2A**

	<p><b>Current Status: Poor</b></p> <p><b>Justification: Leaves were dry. The bark was also dry. No significant improvement in health. The plant was very weak.</b></p>
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**Tree ID: CT\_3A**




**Current Status: Poor**

**Justification: Leaves were dry. The bark was also dry. No significant improvement in health. The plant was very weak.**

**Tree ID: CT\_5A**

	<p><b>Current Status: Good</b></p> <p><b>Justification: Significant improvement in health. The plant was healthy. Some leaves were damaged by insect.</b></p>
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**Tree ID: CT\_6A**

	<p><b>Current Status: Good</b></p> <p><b>Justification: Significant improvement in health. The plant was healthy.</b></p>
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**Overall Condition**

In the Tree Protection Zone 2, The health of CT\_5A and CT\_6A were found satisfactory. Regular watering and weeding will be carried out during dry weather. They may better recover under this warm and rainy weather. Some newly grown green leaves were found eaten by insects. Remove any insect found on the plant physically to prevent the bud attacked by leaf-feeding insect. No pesticide should be used when the plants are weak.

Considering the condition of CT2A, CT3A were in poor condition, compensatory of additional *Celtis timorensis* is proposed and will be carried out in the coming warm weather season for better growing.