



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.20) – MARCH 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 April 2012	TCS00512/09/600/R0456v2		
		Nicola Hon Environmental Consultant	T.W. Tam Environmental Team Leader

<b>Version</b>	<b>Date</b>	<b>Description</b>
1	11 April 2012	First Submission
2	13 April 2012	Amended against ICE's comments on 13 April 2012

# Scott Wilson CDM Joint Venture

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Chief Engineer/Harbour Area Treatment Scheme  
Drainage Services Department  
5/F Western Magistracy  
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Hong Kong

Your reference:

Our reference: 05117/6/16/387750

Date: 13 April 2012

Attention: Mr Kenley C K Kwok

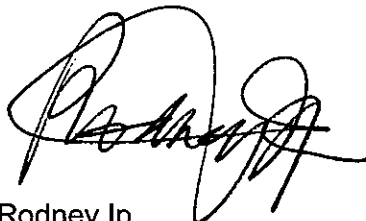
**BY FAX & EMAIL**

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. 20 (March 2012)**

We refer to the Monthly EM&A Monitoring Report No. 20 for March 2012 received under cover of the email from the Environmental Team, Action-United Environmental Services and Consulting (AUES), dated 13 April 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 Neil Wong)  
      CDM                            (Attn: Mr Mark Sin)

## EXECUTIVE SUMMARY

ES.01. This is the 20<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 **1 to 31 March 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	18
Construction Noise	Leq (30min) Daytime	16
Water Quality	Marine Water Sampling	13
Inspection / Audit	ET Regular Environmental Site Inspection	4

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 1-hour TSP and construction noise monitoring were recorded in this Reporting Period. However, one (1) Action Level exceedance of 24-hour TSP monitoring was recorded at Location AM3 on 31 March 2012. Notification of Exceedance (NOE) has been issued to relevant parties upon confirmation of the monitoring result.

ES.05. The investigation report for the cause of exceedance concluded that the exceedance was due to adjacent dusty public road. Since the condition of the public road is not under controlled by the Contract, the Contractor is reminded to control the speed limit of the engaged village vehicles of the Project. It is concluded that the exceedance was not related to the works under the Project. 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	1	0	1	Not Project related	N.A.
Construction Noise	L <sub>eq30min</sub> 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.06. No written or verbal environmental complaint, summons or successful prosecutions were recorded in this Reporting Period.

### REPORTING CHANGE

ES.07. The monitoring result of suspended solids of 29 and 31 March of marine water quality will be reported in next Reporting Period. This recommendation is brought up by the RE and agreed by the Contractor in order to meet on timely submission (within 2 weeks of each month) under the

relevant Environmental Permit (EP).

**SITE INSPECTION BY EXTERNAL PARTIES**

ES.08. 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.09. As wet season is approaching, muddy water and other water quality pollutants via site surface water runoff into the sea body within Fish culture zone 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.

ES.10. Moreover, special attention should be also paid on the dust mitigation measures to avoid fugitive dust emissions from loose soil surface or haul road. 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.

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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 **20<sup>th</sup>** monthly EM&A Report – Sok Kwu Wan Portion Area presenting the monitoring results and inspection findings for the Reporting Period from **1 to 31 March 2012**.

**REPORT STRUCTURE**

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

<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>
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<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 Pumping Station No. 1 & 2
  - Rock Slope Cutting Works
  - Construction of submarine outfall

### 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-RS0284-12 Valid from: 26 Mar 2012 Until: 25 Sep 2012

- 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 nearly 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.

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

- 3.28 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

- 3.29 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 **18** 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
2-Mar-12	12	5-Mar-12	8:00	78	81	79
8-Mar-12	14	9-Mar-12	8:00	77	79	76
14-Mar-12	28	15-Mar-12	11:30	111	113	109
20-Mar-12	17	21-Mar-12	9:30	161	167	165
26-Mar-12	26	27-Mar-12	8:00	190	194	186
31-Mar-12	109					
Average (Range)	<b>34</b> (12 – 109)	Average (Range)		<b>124</b> (76 – 194)		

**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
2-Mar-12	44	5-Mar-12	11:00	87	91	88
8-Mar-12	48	9-Mar-12	10:30	87	89	86
14-Mar-12	64	15-Mar-12	13:45	77	81	79
20-Mar-12	79	21-Mar-12	11:35	154	159	157
26-Mar-12	114	27-Mar-12	10:05	189	191	183
31-Mar-12	157					
Average (Range)	<b>84</b> (44 – 157)	Average (Range)		<b>120</b> (77 – 191)		

**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
2-Mar-12	56	5-Mar-12	13:10	99	102	100
8-Mar-12	37	9-Mar-12	11:00	111	115	113
14-Mar-12	109	15-Mar-12	13:45	79	82	80
20-Mar-12	177	21-Mar-12	14:00	202	227	216
26-Mar-12	119	27-Mar-12	12:30	185	195	190
31-Mar-12	<b>201</b>					
Average (Range)	<b>117</b> (37 – 201)	Average (Range)		<b>140</b> (79 – 227)		

*Remark: bold and italic indicated Action Level exceedance.*

4.03 As shown in *Tables 4-1, 4-2* and *4-3*, 1-hour TSP results fluctuated well below the Action Level during the Reporting Period. However, one (1) Action Level exceedance of 24-hour TSP monitoring was recorded at Location AM3 on 31 March 2012. Notification of Exceedance (NOE) has been issued to relevant parties upon confirmation of the monitoring result. The investigation report for the cause of exceedance has been conducted.

4.04 Location AM3 is adjacent to the proposed Pumping Station 2 (PS2) and a public road. As

informed by the Contractor, the construction work undertaken at PS2 during whole March was only dismantling of formworks. In environmental point of view, the continuation of construction of PS2 would not create excessive dust impact as shown by the TSP results before 31 March 2012. As an air mitigation measure, the Contractor has provided daily watering at the entrance/ exit of the site and adjacent road.

- 4.05 However, continues running of village vehicles was observed on the adjacent public road which emitted certain amount of exhausted gas. Although the road is hard paved, gravels and loose sand was found to be scattered along the road which induce fugitive dust when village vehicles running on. The dust impact due to the dusty road is severe during windy and dry weather condition and it was considered one of the sources attributable to the exceedance. Since the condition of the public road is not under controlled by the Contract, the Contractor is reminded to control the speed limit of the engaged village vehicles of the Project.
- 4.06 In conclusion, the Action level exceedance was not related to the works under the Project. As the next monitoring result is not yet released, no remedial actions are required. The ET will oversee the subsequent monitoring results and addition monitoring may be required if repeated exceedance occur.
- 4.07 The detailed investigation report for the exceedance is presented in [Appendix N](#).
- 4.08 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 **16** construction noise monitoring events were undertaken at designated location NM1, NM2, RNM3 and NM4. The results for  $L_{eq30min}$  at NM1, NM2, RNM3 and NM4 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
5-Mar-12	9:30	10:00	49.3	51.7	53.9	59.5	50.4	49.8	54.2
15-Mar-12	15:05	15:35	50.8	49.8	51.1	49.8	49.7	53.2	50.9
21-Mar-12	15:25	15:55	57.0	56.0	52.9	67.7	53.3	68.0	63.5
27-Mar-12	10:36	11:06	69.9	65.3	69.8	69.9	69.9	67.1	69.0
<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
5-Mar-12	10:10	10:40	64.9	62.8	60.8	63.0	64.9	65.0	63.8
15-Mar-12	14:30	15:00	65.1	67.6	57.8	66.4	59.1	70.0	66.2
21-Mar-12	16:00	16:30	59.7	58.5	57.5	64.9	59.8	61.0	61.0
27-Mar-12	11:10	11:40	65.0	63.6	65.6	63.5	63.6	63.6	64.2
<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
5-Mar-12	13:50	14:20	54.3	52.5	55.0	62.4	54.8	53.4	57.0	60.0
15-Mar-12	13:53	14:23	64.4	63.5	63.6	63.7	64.0	64.5	64.0	67.0
21-Mar-12	13:13	13:43	55.9	55.5	54.5	48.3	49.4	57.2	54.5	57.5
27-Mar-12	13:00	13:30	57.5	57.0	54.5	47.7	50.1	57.2	55.3	58.3
<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
5-Mar-12	14:25	14:55	73.1	69.0	74.1	75.2	74.7	74.0	73.7
15-Mar-12	13:20	13:50	65.0	61.2	66.1	61.6	53.8	50.6	62.4
21-Mar-12	13:48	14:18	60.3	62.5	61.2	58.6	58.1	57.3	60.1
27-Mar-12	13:45	14:15	54.5	57.2	57.5	57.2	58.0	55.0	56.8
<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, 13 events of water quality monitoring were carried out at the designated locations. The monitoring results including in-situ measurements and laboratory testing results are presented in [Appendix G](#). The graphical plots are shown in [Appendix H](#).
- 6.02 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 28.64 to 31.33 ppt, and pH value was within 7.74 to 8.85.
- 6.03 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
3-Mar-12	8.25	8.47	8.46	8.46	8.54	8.94	NA	8.33	8.19	8.23	8.00	8.49
5-Mar-12	8.66	8.14	8.77	8.31	8.48	8.52	NA	8.19	8.02	8.25	7.47	8.53
7-Mar-12	9.04	9.36	8.49	8.96	8.45	8.67	NA	8.56	8.36	8.63	7.85	8.67
9-Mar-12	8.64	8.29	7.90	8.57	7.80	8.06	NA	7.75	7.80	8.10	6.73	8.11
13-Mar-12	8.16	8.41	8.42	8.29	8.15	8.15	NA	7.94	7.99	8.23	8.10	8.10
15-Mar-12	8.52	8.16	8.24	7.98	8.07	8.07	NA	7.96	7.66	8.04	7.69	7.69
17-Mar-12	8.37	7.88	8.32	8.05	8.45	8.45	NA	6.55	7.75	7.62	8.19	8.19
19-Mar-12	8.74	8.37	8.25	8.57	8.25	8.25	NA	8.25	7.98	8.39	7.55	7.55
21-Mar-12	8.45	8.45	8.43	8.35	8.18	8.18	NA	8.18	8.17	8.32	8.09	8.09
23-Mar-12	8.00	8.28	8.02	8.07	8.27	8.27	NA	7.72	7.15	7.49	7.70	7.70
27-Mar-12	9.40	9.05	9.18	8.96	8.85	8.85	NA	9.22	9.14	8.34	9.02	9.02
29-Mar-12	9.58	9.55	9.04	8.42	9.08	9.08	NA	9.11	8.76	8.33	9.35	9.35
31-Mar-12	8.84	8.60	8.07	7.66	8.32	8.32	NA	7.20	7.51	7.24	8.46	8.46

**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
3-Mar-12	1.50	1.43	1.37	2.37	2.27	3.42	1.20	1.97	1.20	2.60	1.10	3.33
5-Mar-12	1.40	1.90	2.88	2.47	3.40	3.63	1.00	2.00	1.73	4.17	5.13	3.10
7-Mar-12	3.20	2.50	3.23	2.90	2.10	2.13	6.40	2.07	5.00	2.75	1.25	3.77
9-Mar-12	2.10	2.47	2.43	1.87	2.80	2.82	2.90	2.43	5.67	2.03	6.43	2.57
13-Mar-12	2.70	2.48	2.30	1.92	2.60	1.77	2.20	2.43	2.13	4.63	4.20	3.10
15-Mar-12	2.80	2.40	1.93	2.50	2.00	4.33	3.20	3.07	3.40	2.90	3.97	5.00
17-Mar-12	1.70	1.80	2.72	2.17	2.72	2.73	2.60	2.57	3.00	2.20	2.33	2.30
19-Mar-12	3.50	1.93	1.90	1.73	1.53	1.73	7.70	1.15	2.00	3.33	1.67	1.20
21-Mar-12	3.38	3.33	3.12	3.48	3.50	3.63	3.60	4.13	2.13	3.33	0.95	4.60
23-Mar-12	3.17	3.28	3.16	3.74	3.94	4.47	2.40	4.23	4.17	4.23	1.65	3.57
27-Mar-12	1.75	2.09	2.04	1.88	1.36	1.66	3.40	2.53	1.80	3.50	3.60	5.47
29-Mar-12	1.61	1.55	1.68	1.73	1.68	1.55	#	#	#	#	#	#
31-Mar-12	1.03	1.10	1.19	1.48	1.04	1.43	#	#	#	#	#	#

# the monitoring result of SS of 29 and 31 March will be reported in next Reporting Period. This recommendation is brought up by the RE and agreed by the Contractor in order to meet on timely submission (within 2 weeks of each month) under the relevant Environmental Permit (EP).

**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
3-Mar-12	8.47	8.31	8.44	8.39	8.40	8.30	NA	8.22	8.43	8.41	8.31	7.91
5-Mar-12	9.24	9.19	8.90	9.18	8.96	8.89	NA	8.61	8.40	8.33	7.99	8.22
7-Mar-12	8.35	8.57	8.62	8.61	8.56	8.39	NA	8.49	8.28	8.54	8.31	7.45
9-Mar-12	7.64	8.44	8.06	7.94	7.87	7.88	NA	8.04	7.95	7.48	7.91	7.06
13-Mar-12	8.45	8.26	7.86	8.21	8.07	8.16	NA	7.57	7.33	8.07	7.35	8.60
15-Mar-12	8.36	7.98	8.16	7.88	8.67	8.18	NA	7.89	7.88	8.67	7.79	8.57
17-Mar-12	9.52	8.50	8.24	8.69	8.30	8.28	NA	7.98	7.66	8.30	7.39	8.31
19-Mar-12	8.55	8.44	8.49	8.48	8.08	8.67	NA	8.14	8.32	8.08	7.67	8.64
21-Mar-12	8.67	8.29	8.66	8.57	8.88	8.90	NA	8.27	8.48	8.88	8.42	8.69
23-Mar-12	8.08	8.25	8.40	8.55	7.86	8.72	NA	7.55	7.79	7.86	7.70	8.31
27-Mar-12	8.96	9.43	9.39	9.48	8.52	9.46	NA	9.05	9.57	8.52	9.00	9.36
29-Mar-12	8.94	8.17	8.23	8.25	8.60	8.10	NA	8.36	8.74	8.60	8.19	8.36
31-Mar-12	8.13	7.98	7.63	8.41	8.20	8.28	NA	7.13	8.62	8.20	7.94	8.25

**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
3-Mar-12	1.90	2.83	1.87	2.33	2.37	3.27	1.30	3.60	2.53	2.37	2.27	3.13
5-Mar-12	2.50	3.20	4.33	2.80	3.90	3.40	5.30	4.13	4.00	1.30	3.33	1.63
7-Mar-12	2.80	2.27	2.73	2.97	2.53	3.50	6.60	3.43	5.77	2.07	4.43	6.93
9-Mar-12	1.80	2.00	1.95	2.73	2.23	2.42	1.80	2.00	1.63	3.27	4.77	5.33
13-Mar-12	1.60	2.53	3.53	3.68	3.40	2.60	2.20	3.37	5.43	3.53	2.93	2.90
15-Mar-12	3.80	2.93	2.83	3.00	2.40	2.47	4.30	3.60	2.83	2.77	2.17	2.47
17-Mar-12	2.70	2.23	1.87	2.10	2.60	2.18	3.70	2.93	2.67	7.53	4.60	2.57
19-Mar-12	3.40	1.60	1.53	1.37	1.87	2.00	6.20	4.10	1.50	1.80	1.70	4.73
21-Mar-12	3.46	3.47	3.04	3.43	3.26	3.50	7.10	2.53	2.63	2.53	2.33	3.63
23-Mar-12	3.61	3.19	3.03	4.87	3.54	5.04	4.30	2.13	2.80	2.47	2.27	4.40
27-Mar-12	1.95	2.33	2.29	2.02	1.40	1.72	5.90	7.73	5.00	5.03	2.87	6.27
29-Mar-12	1.71	1.57	1.71	1.76	1.55	1.64	#	#	#	#	#	#
31-Mar-12	1.24	1.14	1.23	1.43	1.11	1.42	#	#	#	#	#	#

# the monitoring result of SS of 29 and 31 March will be reported in next Reporting Period. This recommendation is brought up by the RE and agreed by the Contractor in order to meet on timely submission (within 2 weeks of each month) under the relevant Environmental Permit (EP).

**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

6.04 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 **15 and 31 March 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.
- 7.03 The tree inspection report 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> )	4.543	WENT Landfill Site

**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)	9.50	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 site inspection by ET was carried out on **6, 13, 20 and 27 March 2012** and a joint-site visit by IEC Representative, RE, the Contractor and ET was carried out on **6 March 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>
6 March 2012	<ul style="list-style-type: none"> <li>Desilting tank under concrete plant should be cleaned and the silt should be removed in order to restore its desilting ability.</li> </ul>	The deficiency has been followed during site inspection on 13 March 2012.
13 March 2012	<ul style="list-style-type: none"> <li>No environmental issue was observed during site inspection.</li> </ul>	N.A.
20 March 2012	<ul style="list-style-type: none"> <li>As a reminder, the geotextile for filtration purpose at the effluent point should be replaced regularly. (Portion L2, sedimentation tank)</li> </ul>	Not required for reminder.
27 March 2012	<ul style="list-style-type: none"> <li>No environmental issue was observed during site inspection.</li> <li>As a reminder, a sedimentation tank should be placed at Portion G near retaining wall to pretreat water quality prior discharging.</li> </ul>	Not required for reminder.

## 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 - February 2012	0	1 (Nov 2011)	NA
March 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 - February 2012	0	0	NA
March 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 - February 2012	0	0	NA
March 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 **20<sup>th</sup>** monthly EM&A Report covering the construction period from **1 to 31 March 2012**.
- 13.02 No 1-hour TSP results were found to be triggered the Action or Limit Level in this Reporting Period. However, one (1) Action Level exceedance of 24-hour TSP monitoring was recorded at Location AM3 on 30 March 2012. Notification of Exceedance (NOE) has been issued to relevant parties upon confirmation of the monitoring result.
- 13.03 The investigation report for the cause of exceedance concluded that the exceedance was due to adjacent dusty public road. Since the condition of the public road is not under controlled by the Contract, the Contractor is reminded to control the speed limit of the engaged village vehicles of the Project. It is concluded that the exceedance was not related to the works under the Project.
- 13.04 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.
- 13.05 The monitoring result demonstrated no exceedance of Action or Limit Level of marine water quality monitoring in this Reporting Period.
- 13.06 No documented complaint, notification of summons or successful prosecution was received.
- 13.07 In this Reporting Period, weekly site inspection by ET was carried out on **6, 13, 20 and 27 March 2012** and a joint-site visit by IEC Representative, RE, the Contractor and ET was carried out on **6 March 2012**. All the observation has been rectified during the next week site inspection. The environmental performance of the Project was therefore considered as satisfactory.
- 13.08 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.

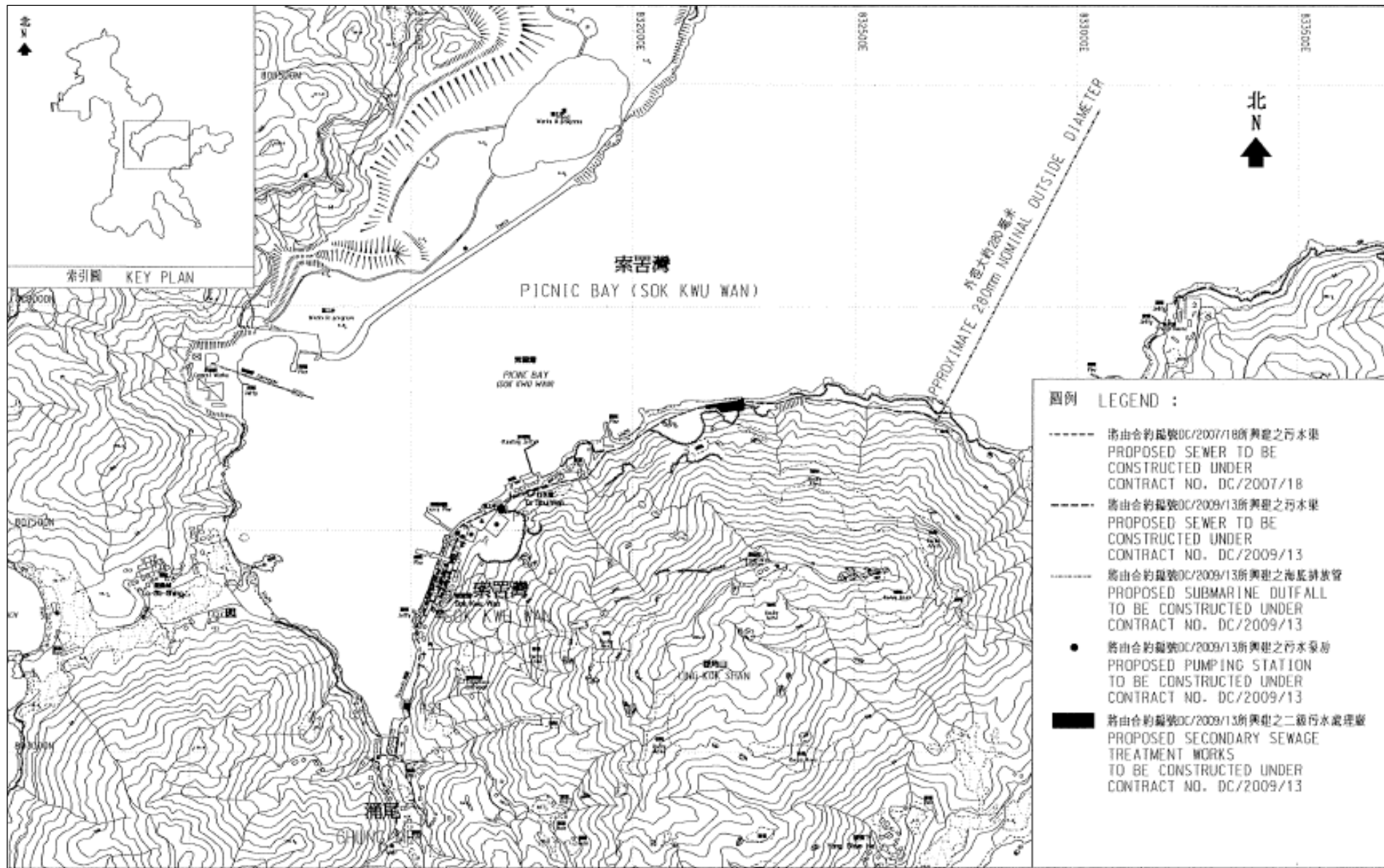
#### RECOMMENDATIONS

- 13.09 As wet season is approaching, muddy water and other water quality pollutants via site surface water runoff into the sea body within Fish culture zone 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.
- 13.10 Moreover, special attention should be also paid on the dust mitigation measures to avoid fugitive dust emissions from loose soil surface or haul road. 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.

## **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	Site Agent	Mr. Ron Hung	2982 1750	2982 1163
Leader	Environmental Officer	Mr. K.Y. So	2982 8652	2982 8650
Leader	Section Engineer	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	Assistance Environmental Consultant	Mr. Ray Cheung	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						
											2011 DEC	JAN	FEB	MAR	APR	MAY	JUN
<b>Rising Main</b>																	
SKW1481	Subm, Approval & Delivery of DI pipes	120	100	17/05/10 A	28/02/11 A	17/05/10 A	28/02/11 A		KD0020	SKW1501							
SKW1501	Concrete Trough (ChB0+00 - ChB1+20)	300	100	15/08/11 A	30/09/11 A	15/08/11 A	30/09/11 A		PRE0100, SKW1481	SKW1521							
SKW1521	Twin DN150 DI Rising Main (ChB0+00 - ChA4+55)	250	80	15/08/11 A	18/04/12	15/08/11 A	16/03/12	-33d	SKW1501	SKW1541							
SKW1541	DN250 DI Pipe (ChC0+00 - ChC0+35 Connection Pit)	208	0	19/04/12	12/11/12	17/03/12	10/10/12	-33d	SKW1521	SKW1561							
<b>Section W 8 - 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	77	17/05/10 A	04/09/12	17/05/10 A	15/08/12	-20d	KD0020	KD0100, SKW1631							
SKW1621	Transplantation at SKW	60	100	07/06/10 A	05/10/10 A	07/06/10 A	05/10/10 A		SKW1591								

Start date	05/05/10		Early bar
Finish date	06/04/15		Progress bar
Data date	29/02/12		Critical bar
Run date	19/03/12		Summary bar
Page number	7A		Progress point
			Critical point
			Summary point
			Start milestone point
			Finish milestone point

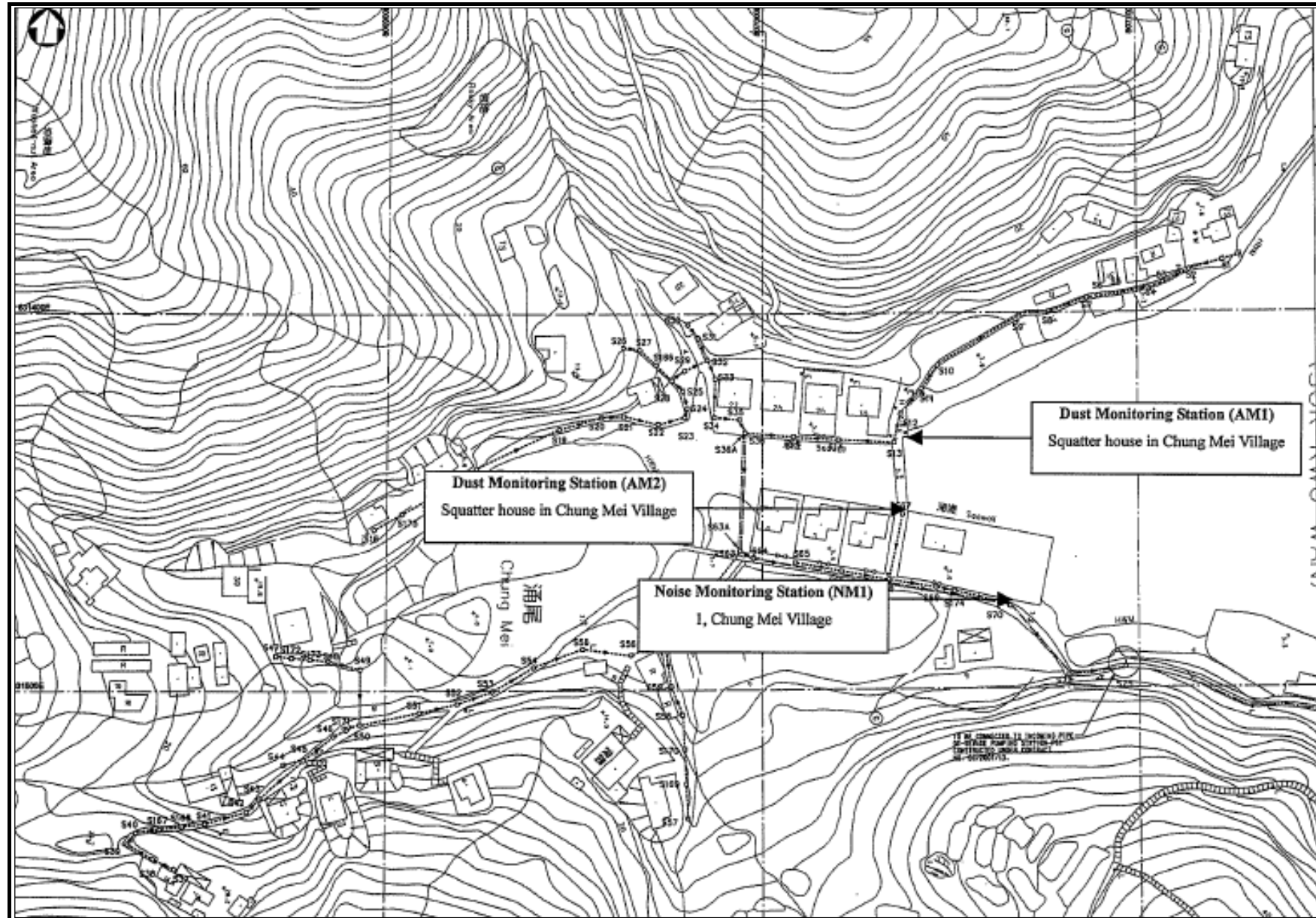
**Leader Civil Engineering Corp. Ltd.**  
**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works at YSW & SKW**  
**3-month Rolling Programme (Mar 2012 - May 2012)**

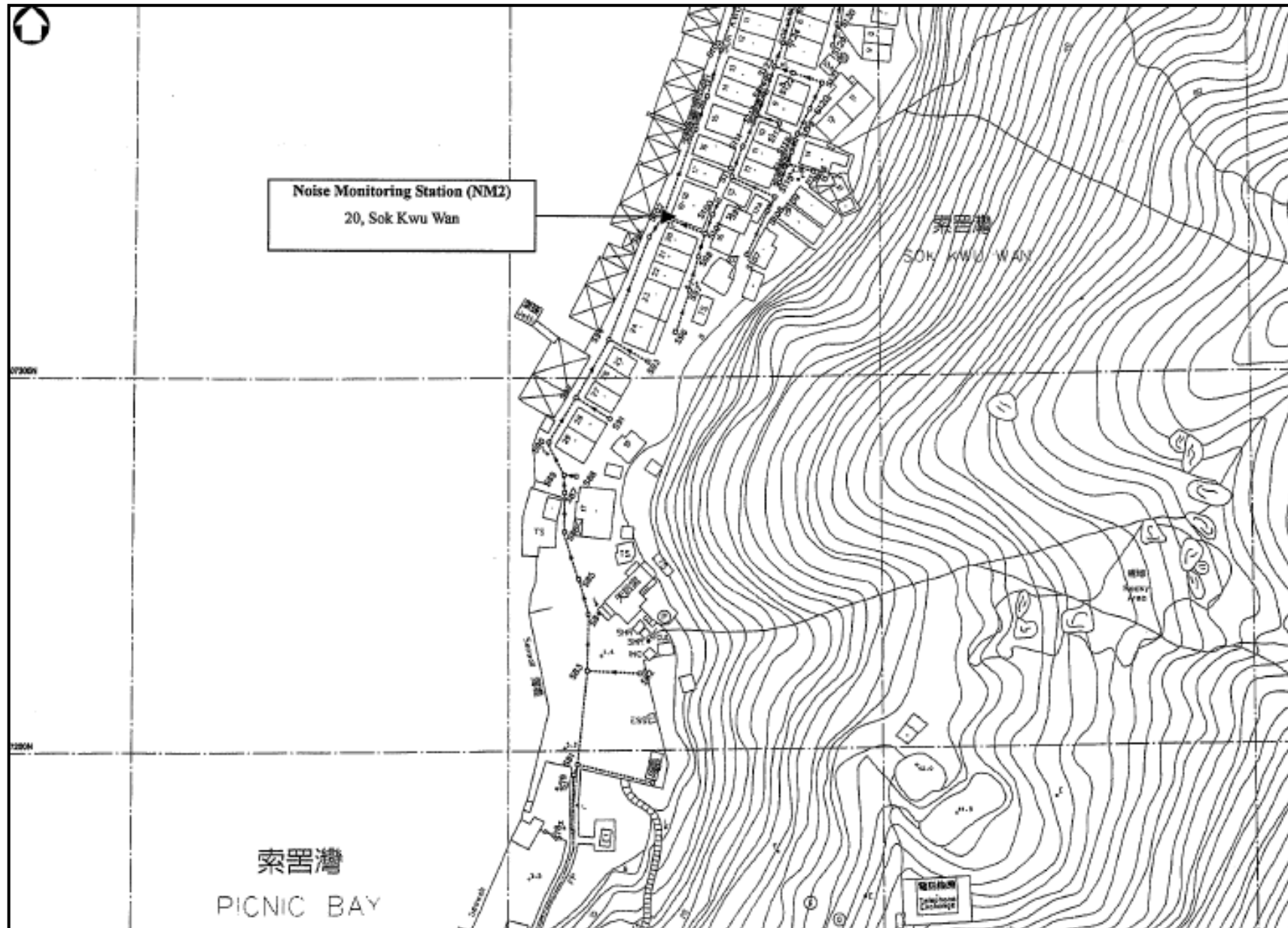
(Marked on 29 Feb 2012)

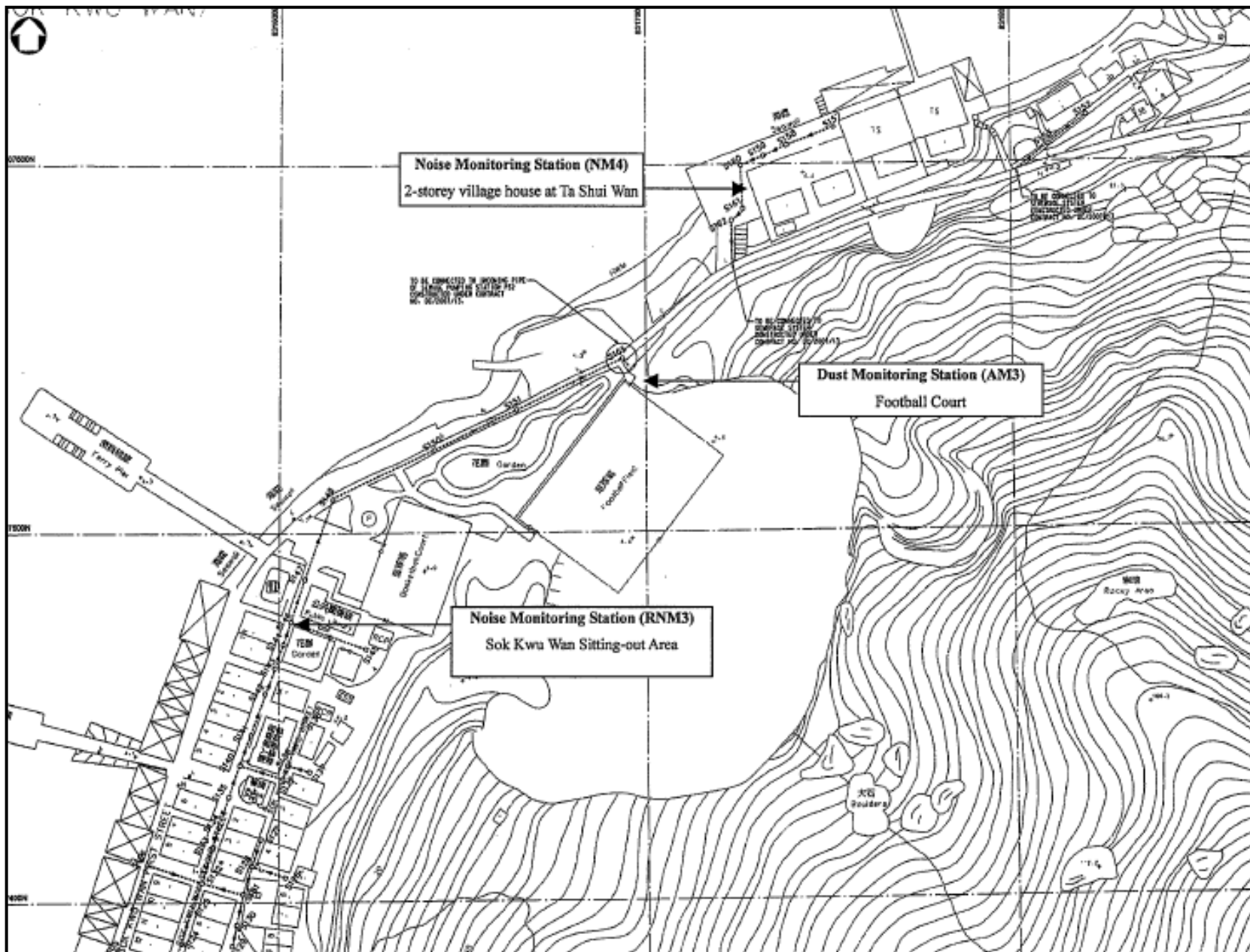
Date	Revision	Checked	Approved
29/02/12	Revision 0	RH	VC

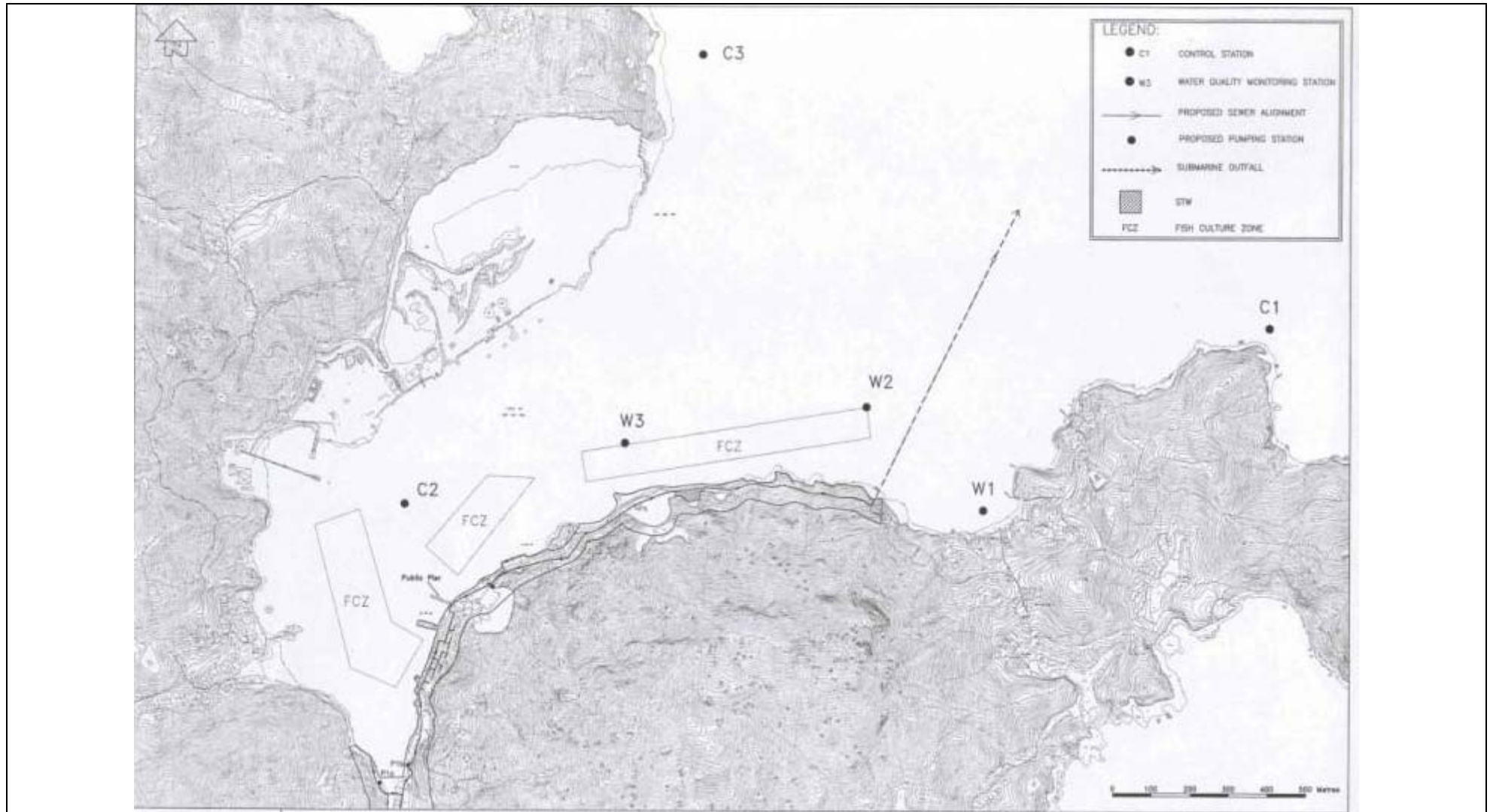
## **Appendix D**

### **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 - Jun 02, 2011 Roots-meter S/N 0438320 Ta (K) - 294  
 Operator Tisch Orifice I.D. - 1941 Pa (mm) - 754.38

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF. VOLUME (m3)	DIFF. TIME (min)	METER DIFF. Hg (mm)	ORIFICE DIFF. H2O (in.)
1	NA	NA	1.00	1.4660	3.3	2.00
2	NA	NA	1.00	1.0410	6.4	4.00
3	NA	NA	1.00	0.9310	8.1	5.00
4	NA	NA	1.00	0.8830	8.9	5.50
5	NA	NA	1.00	0.7310	13.0	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0017	0.6833	1.4185	0.9956	0.6791	0.8829
0.9975	0.9582	2.0061	0.9914	0.9524	1.2486
0.9952	1.0690	2.2429	0.9892	1.0625	1.3959
0.9942	1.1260	2.3524	0.9882	1.1191	1.4641
0.9887	1.3526	2.8371	0.9827	1.3444	1.7657
Qstd slope (m) = 2.11693			Qa slope (m) = 1.32558		
intercept (b) = -0.02568			intercept (b) = -0.01598		
coefficient (r) = 0.99993			coefficient (r) = 0.99993		
y axis = SQRT[H2O(Pa/760)(298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

$$Qstd = Vstd / \text{Time}$$

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

$$Qa = Va / \text{Time}$$

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 : Squatter house in Chung Mei Village	Date of Calibration: 1-Mar-12
Location ID : AM1	Next Calibration Date: 30-Apr-12
	Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)	1014.1	Corrected Pressure (mm Hg)	760.575
Temperature (°C)	16.7	Temperature (K)	290

### CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.11693
Model->	5025A	Qstd Intercept ->	-0.02568
Serial # ->	1941		

### 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	1.543	58	59.68	Slope = 32.0196 Intercept = 9.8964 Corr. coeff. = 0.9995
13	4	4	8	1.368	52	53.51	
10	3	3	6	1.186	46	47.34	
7	1.6	1.6	3.2	0.869	37	38.07	
5	0.9	0.9	1.8	0.655	30	30.87	

**Calculations :**

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

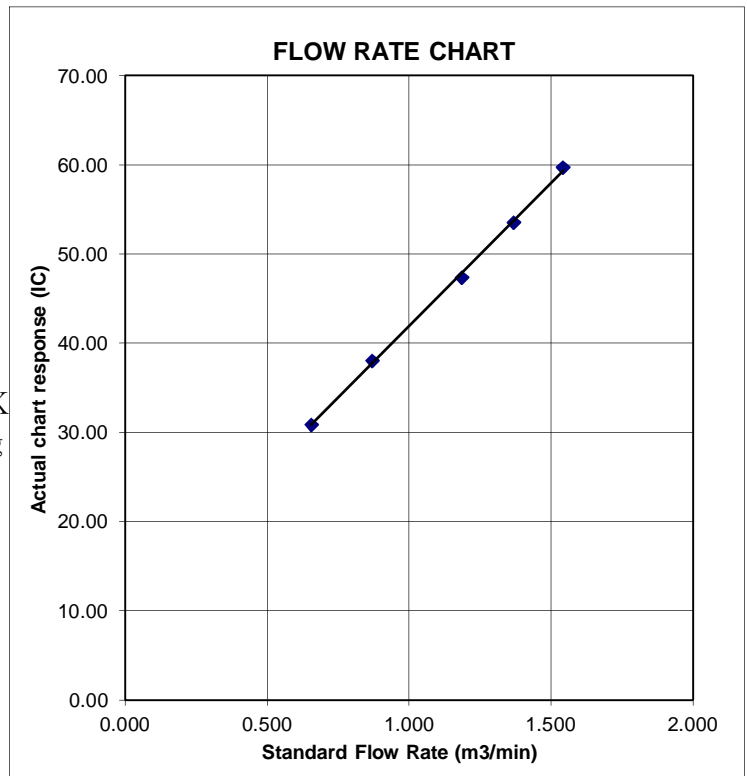
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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: 1-Mar-12  
 Next Calibration Date: 30-Apr-12  
 Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)	1014.1	Corrected Pressure (mm Hg)	760.575
Temperature (°C)	16.7	Temperature (K)	290

### CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.11693
Model->	5025A	Qstd Intercept ->	-0.02568
Serial # ->	1941		

### 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	1.645	58	59.68	Slope = 28.8551 Intercept = 12.1734 Corr. coeff. = 0.9998
13	4.2	4.2	8.4	1.401	51	52.48	
10	3	3	6	1.186	45	46.31	
7	1.8	1.8	3.6	0.922	38	39.10	
5	1.0	1.0	2	0.690	31	31.90	

**Calculations :**

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

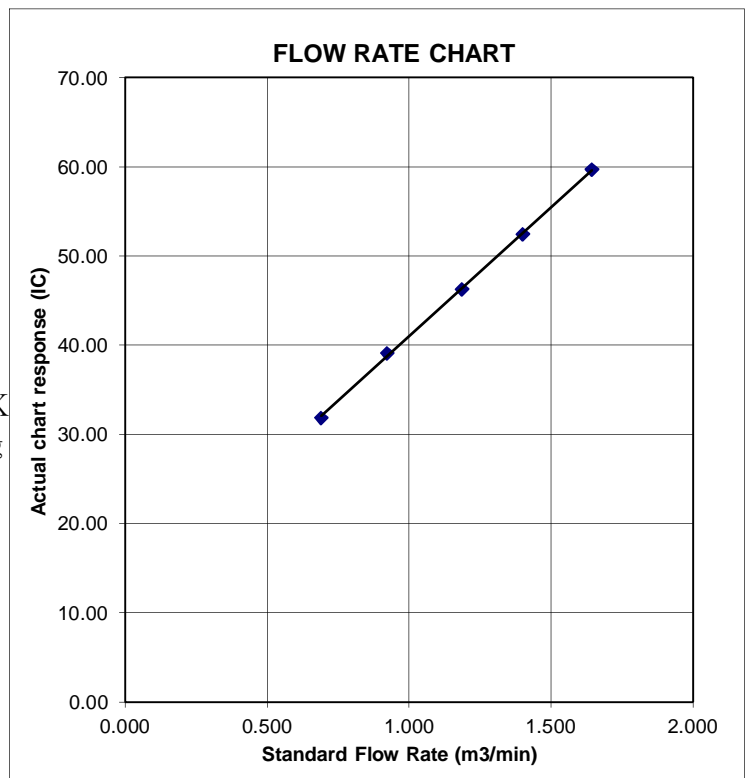
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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: 1-Mar-12  
 Next Calibration Date: 30-Apr-12  
 Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)	1014.1	Corrected Pressure (mm Hg)	760.575
Temperature (°C)	16.7	Temperature (K)	290

### CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.11693
Model->	5025A	Qstd Intercept ->	-0.02568
Serial # ->	1941		

### 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	1.587	47	48.36	Slope = 23.5114 Intercept = 11.1340 Corr. coeff. = 0.9999
13	4.2	4.2	8.4	1.401	43	44.25	
10	2.6	2.6	5.2	1.105	36	37.05	
7	1.5	1.5	3	0.842	30	30.87	
5	0.8	0.8	1.6	0.618	25	25.73	

**Calculations :**

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

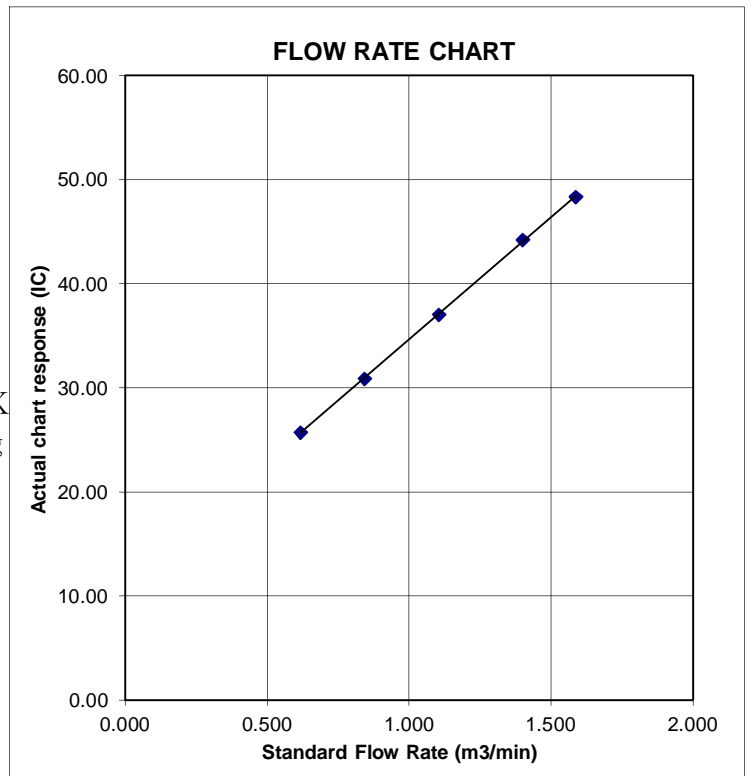
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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



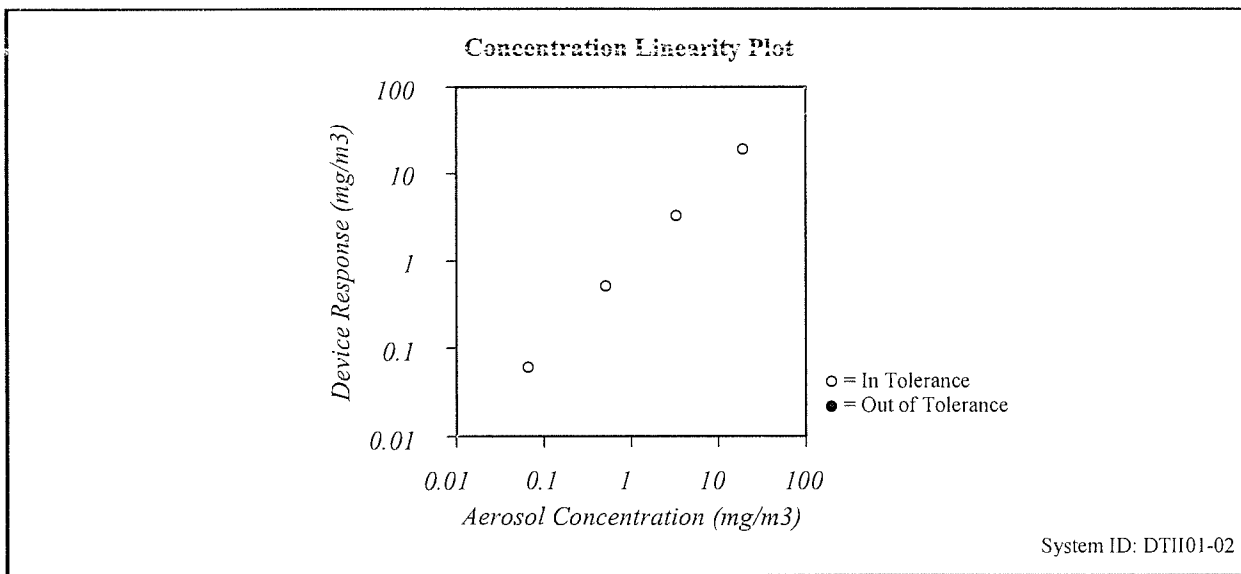


# CERTIFICATE OF CALIBRATION AND TESTING

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			Model <b>8520</b>
Temperature	68.7 (20.4)	°F (°C)	
Relative Humidity	41	%RH	
Barometric Pressure	28.98 (981.4)	inHg (hPa)	
			Serial Number <b>23079</b>

<input checked="" type="checkbox"/> As Left <input type="checkbox"/> As Found	<input checked="" type="checkbox"/> In Tolerance <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>	4:00 :hrs.

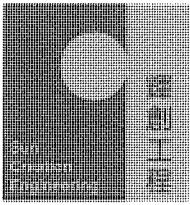
*TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required 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	01-15-11	02-15-12	Temperature	E002873	11-24-10	11-24-11
Humidity	E002873	11-24-10	11-24-11	DC Voltage	E003314	01-05-11	01-05-12
DC Voltage	E003315	01-05-11	01-05-12	Photometer	E003319	07-25-11	01-25-12
Microbalance	E001324	01-04-11	01-04-12	Pressure	E003511	11-12-10	11-12-11
Flowmeter	E003769	06-13-11	06-13-12				

T. Thao

 Final Function Check
 
September 13, 2011

Calibrated
Date



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C112202

## Calibration Report

### ITEM TESTED

DESCRIPTION : Integrating Sound Level Meter (EQ010)  
MANUFACTURER : Bruel & Kjaer  
MODEL NO. : 2238  
SERIAL NO. : 2285721

### TEST CONDITIONS

AMBIENT TEMPERATURE :  $(23 \pm 2)^{\circ}\text{C}$  RELATIVE HUMIDITY :  $(55 \pm 20)\%$   
LINE VOLTAGE : ---

### TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 18 April 2011

JOB NO. : IC11-0947

### TEST RESULTS

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
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested by :

  
L L Cheung

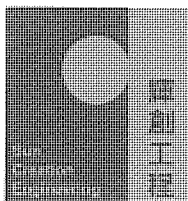
Date : 19 April 2011

The test equipment used for calibration are traceable to the National Standards as specified in this report.  
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration and Testing Laboratory of Sun Creation Engineering Limited

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong  
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

Page 1 of 4



# Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. Self-calibration using the B & K Acoustic Calibrator 4231, S/N : 2713428 was performed before the test.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL280	40 MHz Arbitrary Waveform Generator	C110018
CL281	Multifunction Acoustic Calibrator	C1006860

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L <sub>AFP</sub>	A	F	94.00	1	94.0	± 0.7

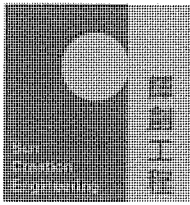
6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L <sub>AFP</sub>	A	F	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.

The test equipment used for calibration are traceable to the National Standards as specified in this report. This report shall not be reproduced except in full and with prior written approval from this laboratory.





# Calibration Report

## 6.2 Time Weighting

### 6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L <sub>AFP</sub>	A	F	94.00	1	94.0	Ref.
	L <sub>ASP</sub>		S			94.0	± 0.1
	L <sub>AIP</sub>		I			94.1	± 0.1

### 6.2.2 Tone Burst Signal (2 kHz)

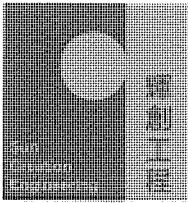
UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L <sub>AFP</sub>	A	F	106.0	Continuous	106.0	Ref.
	L <sub>AFMax</sub>				200 ms	105.0	-1.0 ± 1.0
	L <sub>ASP</sub>	S	Continuous		106.0	Ref.	
	L <sub>ASMax</sub>		500 ms		101.9	-4.1 ± 1.0	

## 6.3 Frequency Weighting

### 6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L <sub>AFP</sub>	A	F	94.00	31.5 Hz	54.6	-39.4 ± 1.5
					63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.7	-16.1 ± 1.0
					250 Hz	85.2	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	92.8	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.7	-4.3 (+3.0 ; -6.0)

The test equipment used for calibration are traceable to the National Standards as specified in this report. This report shall not be reproduced except in full and with prior written approval from this laboratory.



# Calibration Report

## 6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L <sub>CFP</sub>	C	F	94.00	31.5 Hz	91.1	-3.0 ± 1.5
					63 Hz	93.2	-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	93.8	-0.2 ± 1.0
					4 kHz	93.2	-0.8 ± 1.0
					8 kHz	90.9	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.8	-6.2 (+3.0 ; -6.0)

## 6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)	
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)			
30 - 110	L <sub>Aeq</sub>	A	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5	
								1/10 <sup>2</sup>	90	89.6	± 0.5
								1/10 <sup>3</sup>	80	79.3	± 1.0
								1/10 <sup>4</sup>	70	69.9	± 1.0
			60 sec.								
			5 min.								

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

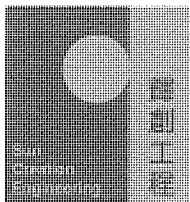
- Uncertainties of Applied Value :
  - 94 dB : 31.5 Hz - 125 Hz : ± 0.40 dB
  - 250 Hz - 500 Hz : ± 0.30 dB
  - 1 kHz : ± 0.20 dB
  - 2 kHz : ± 0.40 dB
  - 4 kHz : ± 0.50 dB
  - 8 kHz : ± 0.70 dB
  - 12.5 kHz : ± 1.20 dB
  - 104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
  - 114 dB : 1 kHz : ± 0.10 dB (Ref. 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 Calibration Report 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 National Standards as specified in this report. This report shall not be reproduced except in full and with prior written approval from this laboratory.



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C112201

## Certificate of Calibration

*This is to certify that the equipment*

*Description : Acoustical Calibrator (EQ082)*

*Manufacturer : Bruel & Kjaer*

*Model No. : 4231*

*Serial No. : 2713428*

*has been calibrated for the specific items and ranges.  
The results are shown in the Calibration Report No. C112201.*

*The equipment is supplied by*

*Co. Name : Action-United Environmental Services and Consulting*

*Address : Unit A, 20/F., Gold King Industrial Building,  
35-41 Tai Lin Pai Road, Kwai Chung, N.T.*

*Date of Issue : 19 April 2011*

*Certified by :*

*K C Lee*

The test equipment used for calibration are traceable to the National Standards as specified in this report.  
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration and Testing Laboratory of Sun Creation Engineering Limited

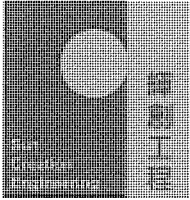
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C112201

## Calibration Report

### ITEM TESTED

DESCRIPTION : Acoustical Calibrator (EQ082)  
MANUFACTURER : Bruel & Kjaer  
MODEL NO. : 4231  
SERIAL NO. : 2713428

### TEST CONDITIONS

AMBIENT TEMPERATURE :  $(23 \pm 2)^{\circ}\text{C}$  RELATIVE HUMIDITY :  $(55 \pm 20)\%$   
LINE VOLTAGE : ---

### TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 18 April 2011

JOB NO. : IC11-0947

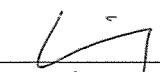
### TEST RESULTS

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
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested by :

  
L L Cheung

Date : 19 April 2011

The test equipment used for calibration are traceable to the National Standards as specified in this report.  
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration and Testing Laboratory of Sun Creation Engineering Limited

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

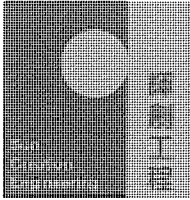
Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com

Page 1 of 2



## Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours before the commencement of the test.
2. The results presented are the mean of 3 measurements at each calibration point.
3. Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL130	Universal Counter	C103289
CL281	Multifunction Acoustic Calibrator	C1006860
TST150A	Measuring Amplifier	C101008

4. Test procedure : MA100N.

5. Results :

### 5.1 Sound Level Accuracy

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

### 5.2 Frequency Accuracy

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

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

#### Note :

The values given in this Calibration Report 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.



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
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>1. Repeat in-situ measurement on the next day of exceedance to confirm findings;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform ICE, Contractor, ER, EPD and AFCD; and</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET and Contractor's working methods</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of non-compliance in writing; and</li> <li>2. Notify Contractor</li> </ol>	<ol style="list-style-type: none"> <li>1. Information the ER and confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice; and</li> <li>3. Amend working methods if appropriate</li> </ol>
2. Exceedance for two or more consecutive sampling days	<ol style="list-style-type: none"> <li>1. Same as the above;</li> <li>2. Inform ICE, Contractor, ER, EPD and AFCD;</li> <li>3. Discuss mitigation measures with IC(E), RE and Contractor;</li> <li>4. Ensure well implementation of mitigation measures; and</li> <li>5. Increase the monitoring frequency to daily until no exceedance of Action Level</li> </ol>	<ol style="list-style-type: none"> <li>1. Same as the above;</li> <li>2. Discuss with ET and Contractor on possible remedial actions;</li> <li>3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly; and</li> <li>4. Supervise the implementation of mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with IC(E) on the proposed mitigation measures;</li> <li>2. Ensure well implementation of mitigation measures; and</li> <li>3. Assess the effectiveness of the implemented mitigation measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Same as the above;</li> <li>2. Check all plant and equipment and consider changes of working methods;</li> <li>3. 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>4. Implement the agreed mitigation measures</li> </ol>
<b>LIMIT LEVEL</b>				
1. Exceedance for one sampling day	<ol style="list-style-type: none"> <li>1. Repeat in-situ measurement on the next day of exceedance to confirm findings;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform ICE, Contractor, ER, EPD and AFCD;</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods; and</li> <li>5. Discuss mitigation measures with IC(E), RE and Contractor</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET and Contractor's working method</li> <li>2. Discuss with ER and Contractor on possible remedial actions; and</li> <li>3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification failure in writing; and</li> <li>2. Discuss with IC(E), ET and Contractor on the proposed mitigation measures; and</li> <li>4. Request Contractor to review the working methods</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the ER and confirm notification of the failure in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment and consider changes of working methods; and</li> <li>4. 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>1. Same as the above;</li> <li>2. Ensure mitigation measures are implemented; and</li> <li>3. 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>1. Same as the above; and</li> <li>2. Supervise the Implementation of mitigation measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Same as the above;</li> <li>2. Ensure well implementation of mitigation measures</li> <li>3. Make agreement on the mitigation measures to be implemented; and</li> <li>4. Consider and instruct, if necessary, the Contractor to stow 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>1. Same as the above;</li> <li>2. Take immediate action to avoid further exceedance;</li> <li>3. Implement the agreed mitigation measures;</li> <li>4. Resubmit proposals of mitigation measures if problem still not under control; and</li> <li>5. 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>															
2-Mar-12	24602	11689.25	11713.54	1457.40	32	34	33.0	20.9	1012.5	0.73	1061	2.7565	2.7693	0.0128	12
8-Mar-12	24612	11713.54	11737.63	1445.40	32	34	33.0	16.9	1010.7	0.73	1062	2.7859	2.8005	0.0146	14
14-Mar-12	24613	11737.63	11761.65	1441.20	32	34	33.0	16.1	1018.5	0.74	1066	2.7794	2.8088	0.0294	28
20-Mar-12	24620	11761.65	11785.81	1449.60	32	34	33.0	20.1	1014.1	0.73	1059	2.7877	2.8053	0.0176	17
26-Mar-12	24643	11785.81	11809.95	1448.40	34	36	35.0	19.6	1020.6	0.80	1156	2.792	2.8222	0.0302	26
31-Mar-12	24693	11809.95	11833.95	1440.00	34	36	35.0	22.3	1018.5	0.79	1140	2.7717	2.8961	0.1244	109
<b>24-hour TSP Monitoring Results - AM2</b>															
2-Mar-12	24582	10199.3	10223.23	1435.80	32	36	34.0	20.9	1012.5	0.76	1097	2.7619	2.8105	0.0486	44
8-Mar-12	24603	10223.23	10247.3	1444.20	32	36	34.0	16.9	1010.7	0.77	1114	2.7525	2.8064	0.0539	48
14-Mar-12	24615	10247.3	10271.25	1437.00	32	36	34.0	16.1	1018.5	0.78	1117	2.794	2.8654	0.0714	64
20-Mar-12	24621	10271.25	10295.45	1452.00	32	36	34.0	20.1	1014.1	0.77	1113	2.7846	2.8724	0.0878	79
26-Mar-12	24644	10295.45	10319.55	1446.00	36	38	37.0	19.6	1020.6	0.88	1268	2.8298	2.9745	0.1447	114
31-Mar-12	24685	10319.55	10344.05	1470.00	36	38	37.0	22.3	1018.5	0.87	1278	2.7733	2.9744	0.2011	157
<b>24-hour TSP Monitoring Results - AM3</b>															
2-Mar-12	24605	5755.33	5779.34	1440.6	36	38	37	20.9	1012.5	1.11	1600	2.7904	2.8796	0.0892	56
8-Mar-12	24596	5779.34	5803.25	1434.6	36	38	37	16.9	1010.7	1.12	1607	2.7549	2.815	0.0601	37
14-Mar-12	24614	5803.25	5827.36	1446.6	36	38	37	16.1	1018.5	1.13	1632	2.7973	2.9746	0.1773	109
20-Mar-12	24636	5827.36	5851.57	1452.6	36	38	37	20.1	1014.1	1.11	1618	2.8019	3.0877	0.2858	177
26-Mar-12	24645	5851.57	5875.88	1458.6	36	38	37	19.6	1020.6	1.12	1634	2.8274	3.0221	0.1947	119
31-Mar-12	24692	5875.88	5899.95	1444.2	36	38	37	22.3	1018.5	1.11	1605	2.7702	3.0923	0.3221	201

## 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 3-Mar-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									
2012/3/3 17:45	W1	ME	832959	807737	2.3	1.150	16.00	8.31	100.8	1.5	29.60	8.12	1.2
						1.150	16.00	8.19	99.4	1.5	29.60	8.10	
2012/3/3 17:30	W2	ME	832673	808011	13.3	1.000	16.20	8.75	106.6	1.2	29.61	8.12	2.0
						1.000	16.20	8.48	103.4	1.2	29.64	8.10	
						6.650	16.10	8.39	102.1	1.5	29.74	8.14	2.3
						6.650	16.10	8.25	100.4	1.5	29.74	8.11	
						12.300	15.90	8.36	101.2	1.6	29.72	8.11	1.6
						12.300	15.80	8.30	100.4	1.6	29.75	8.11	
2012/3/3 17:15	W3	ME	832655	807899	13.3	1.000	16.50	8.56	104.9	1.1	29.56	8.72	0.6
						1.000	16.50	8.50	104.0	1.1	29.59	8.54	
						6.650	16.30	8.40	102.7	1.5	29.71	8.36	1.5
						6.650	16.30	8.36	102.1	1.5	29.72	8.33	
						12.300	16.20	8.26	100.6	1.5	29.75	8.26	1.5
						12.300	16.10	8.12	98.8	1.5	29.78	8.23	
2012/3/3 18:05	C1	ME	833701	808201	15.1	1.000	16.00	8.69	105.4	2.0	29.58	8.10	2.1
						1.000	16.00	8.44	102.3	2.0	29.58	8.08	
						7.550	15.90	8.36	101.2	2.2	29.73	8.09	1.9
						7.550	15.90	8.33	100.9	2.2	29.73	8.10	
						14.100	15.90	8.26	100.1	2.9	29.76	8.09	3.8
						14.100	15.90	8.19	99.2	2.9	29.77	8.09	
2012/3/3 17:00	C2	ME	831451	807761	13.1	1.000	16.90	8.60	105.9	2.1	29.16	8.53	<0.5
						1.000	16.90	8.55	105.3	2.1	29.17	8.44	
						6.550	16.70	8.56	105.3	2.2	29.74	8.29	<0.5
						6.550	16.70	8.44	103.9	2.2	29.74	8.27	
						12.100	16.40	8.19	100.0	2.5	29.50	8.19	1.1
						12.100	16.30	7.80	95.2	2.5	29.47	8.16	
2012/3/3 18:25	C3	ME	832249	808861	15.5	1.000	16.00	9.39	114.0	3.1	29.65	8.37	7.6
						1.000	16.00	8.86	107.6	3.1	29.66	8.27	
						7.750	15.90	8.79	106.5	3.5	29.72	8.22	1.0
						7.750	15.90	8.73	105.7	3.5	29.73	8.18	
						14.500	15.80	8.49	102.6	3.6	29.74	8.15	1.4
						14.500	15.70	8.49	102.5	3.7	29.74	8.14	
2012/3/3 11:15	W1	MF	832988	807750	2.8	1.400	16.90	8.64	106.8	1.9	29.66	8.66	1.3
						1.400	16.90	8.29	102.4	1.9	29.71	8.51	
2012/3/3 11:00	W2	MF	832660	807897	15.2	1.000	16.40	8.33	102.1	2.5	29.76	8.42	0.8
						1.000	16.30	8.33	101.9	2.5	29.76	8.28	
						7.600	16.30	8.25	100.8	2.9	29.76	8.24	5.4
						7.600	16.30	8.31	101.4	2.9	29.75	8.26	
						14.200	16.30	8.21	100.2	3.1	29.77	8.19	4.6
						14.200	16.30	8.22	100.4	3.1	29.76	8.17	
2012/3/3 10:45	W3	MF	832065	807996	15.5	1.000	15.90	8.44	102.2	1.8	29.62	8.20	1.9
						1.000	15.90	8.46	102.4	1.8	29.61	8.15	
						7.750	15.80	8.44	102.0	1.8	29.65	8.08	4.8
						7.750	15.80	8.40	101.4	1.8	29.66	8.08	
						14.500	15.70	8.43	101.8	2.0	29.69	8.08	0.9
						14.500	15.70	8.42	101.7	2.0	29.69	8.07	
2012/3/3 11:35	C1	MF	833727	808170	17.4	1.000	16.40	8.36	102.1	2.2	29.47	8.29	4.6
						1.000	16.40	8.36	102.2	2.2	29.46	8.24	
						8.700	16.40	8.43	103.0	2.3	29.60	8.15	1.5
						8.700	16.40	8.42	102.9	2.3	29.61	8.14	
						16.400	16.20	8.45	103.0	2.5	29.70	8.06	1.0
						16.400	16.20	8.37	102.0	2.5	29.70	8.08	
2012/3/3 10:30	C2	MF	831440	807726	15.3	1.000	15.80	8.46	102.1	2.4	29.39	8.46	3.7
						1.000	15.80	8.45	102.0	2.4	29.40	8.36	
						7.650	15.80	8.37	101.0	2.2	29.49	8.15	2.2
						7.650	15.80	8.30	100.1	2.2	29.49	8.14	
						14.300	15.50	8.34	100.6	2.5	29.55	8.11	0.9
						14.300	15.50	8.28	99.9	2.5	29.55	8.12	
2012/3/3 12:00	C3	MF	832201	808847	17.7	1.000	16.80	8.34	102.9	3.1	29.73	8.17	2.5
						1.000	16.90	8.25	101.9	3.1	29.75	8.16	
						8.850	16.50	8.31	101.9	3.2	29.77	8.13	2.4
						8.850	16.50	8.29	101.6	3.2	29.78	8.13	
						16.700	16.00	8.06	97.8	3.5	29.66	8.08	4.5
						16.700	16.00	7.76	94.1	3.5	29.75	8.08	

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 5-Mar-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									
2012/3/5 10:35	W1	ME	832961	807712	2.1	1.050	16.60	8.76	107.6	1.4	29.57	8.64	1.0
						1.050	16.60	8.56	105.1	1.4	29.57	8.51	
2012/3/5 10:20	W2	ME	832677	807991	13.3	1.000	17.10	8.15	101.1	1.6	29.77	8.19	1.4
						1.000	17.10	8.11	100.6	1.6	29.77	8.18	
						6.650	16.60	8.14	100.8	2.0	29.77	8.15	1.8
						6.650	16.60	8.17	100.3	2.0	29.77	8.15	
						12.300	16.40	8.17	101.0	2.1	29.77	8.14	2.8
						12.300	16.30	8.21	100.2	2.1	29.81	8.14	
2012/3/5 10:05	W3	ME	832030	808901	13.1	1.000	16.60	8.89	110.5	2.8	29.67	8.63	2.1
						1.000	16.60	8.85	108.7	2.8	29.66	8.48	
						6.550	16.60	8.72	107.2	2.9	29.74	8.33	1.6
						6.550	16.60	8.62	105.9	2.9	29.75	8.29	
						12.100	16.40	8.07	98.7	2.9	29.78	8.27	1.5
12.100	16.40	7.97	97.6	3.0	29.78	8.25							
2012/3/5 10:55	C1	ME	833711	808186	15.1	1.000	17.20	8.22	102.0	1.9	29.60	8.39	1.9
						1.000	17.40	8.08	100.7	1.9	29.59	8.31	
						7.550	16.60	8.50	104.3	2.5	29.66	8.25	3.3
						7.550	16.60	8.43	103.5	2.5	29.66	8.23	
						14.100	16.30	8.40	102.7	3.0	29.77	8.18	7.3
						14.100	16.30	8.10	99.0	3.0	29.78	8.17	
2012/3/5 9:50	C2	ME	831456	807736	13.3	1.000	16.60	8.86	108.9	3.1	29.72	8.62	5.1
						1.000	16.60	8.66	106.4	3.1	29.74	8.46	
						6.650	16.20	8.35	101.8	3.5	29.85	8.30	5.2
						6.650	16.20	8.04	98.0	3.5	29.86	8.27	
						12.300	16.20	7.44	90.7	3.6	29.85	8.17	5.1
						12.300	16.20	7.50	91.4	3.6	29.85	8.16	
2012/3/5 11:15	C3	ME	832207	808853	15.1	1.000	17.00	8.49	104.8	3.6	29.71	8.65	4.0
						1.000	16.90	8.59	106.2	3.6	29.71	8.51	
						7.550	16.50	8.54	104.6	3.5	29.72	8.39	1.4
						7.550	16.40	8.46	103.4	3.5	29.77	8.33	
						14.100	15.90	8.54	103.6	3.8	29.88	8.27	3.9
						14.100	15.80	8.51	103.1	3.8	29.92	8.28	
2012/3/5 15:35	W1	MF	832972	807738	2.6	1.300	16.50	9.10	113.0	2.5	29.73	8.72	5.3
						1.300	16.50	9.38	115.1	2.5	29.73	8.59	
2012/3/5 15:20	W2	MF	832657	807993	15.5	1.000	16.60	9.56	117.4	2.5	29.74	8.59	2.0
						1.000	16.50	9.21	113.0	2.5	29.75	8.47	
						7.750	16.40	9.02	110.3	3.1	29.81	8.34	6.6
						7.750	16.40	8.97	109.7	3.1	29.81	8.31	
						14.500	16.00	8.76	106.1	4.0	29.20	8.34	3.8
						14.500	16.00	8.45	102.4	4.0	29.34	8.29	
2012/3/5 15:05	W3	MF	832019	807889	15.3	1.000	17.40	9.34	116.4	4.0	29.46	8.67	8.0
						1.000	17.30	8.72	108.5	4.0	29.51	8.50	
						7.650	16.40	8.80	107.7	4.5	29.75	8.34	1.2
						7.650	16.40	8.75	107.1	4.5	29.76	8.31	
						14.300	15.90	8.67	104.4	4.5	28.67	8.29	2.8
						14.300	15.90	8.13	98.5	4.5	29.62	8.24	
2012/3/5 15:55	C1	MF	833713	808163	17.2	1.000	16.30	9.78	119.3	2.6	29.61	8.68	1.5
						1.000	16.30	9.12	111.2	2.6	29.60	8.53	
						8.600	16.00	8.96	108.7	2.8	29.87	8.38	1.7
						8.600	16.00	8.84	107.3	2.8	29.88	8.33	
						16.200	15.90	8.32	100.9	3.0	29.77	8.30	0.7
						16.200	15.90	8.33	101.0	3.0	29.78	8.28	
2012/3/5 14:50	C2	MF	831465	807751	15.3	1.000	17.30	8.92	110.4	3.5	28.68	8.41	5.3
						1.000	17.30	8.92	110.4	3.5	28.68	8.41	
						7.650	16.30	8.96	109.1	4.2	29.40	8.34	1.9
						7.650	16.30	8.71	106.1	4.2	29.40	8.32	
						14.300	16.00	8.13	98.5	4.0	29.34	8.31	2.8
						14.300	16.00	7.85	95.0	4.0	29.35	8.29	
2012/3/5 16:15	C3	MF	832247	808859	17	1.000	16.30	8.86	108.1	3.1	29.47	8.15	1.2
						1.000	16.30	8.86	108.0	3.1	29.52	8.15	
						8.500	15.90	8.93	108.3	3.5	29.78	8.17	1.7
						8.500	15.90	8.90	107.9	3.5	29.80	8.13	
						16.000	15.90	8.24	100.0	3.6	29.83	8.19	2.0
						16.000	15.90	8.20	99.5	3.6	29.83	8.18	

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 7-Mar-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									
2012/3/7 11:35	W1	ME	832969	807744	2.2	1.100	16.60	9.33	114.5	3.2	29.60	8.55	6.4
						1.100	16.60	8.74	107.2	3.2	29.61	8.42	
2012/3/7 11:20	W2	ME	832682	808900	13.3	1.000	16.80	10.66	131.6	2.2	29.73	8.77	4.3
						1.000	16.80	9.48	117.0	2.2	29.77	8.55	
						6.650	16.70	8.64	106.4	2.5	29.89	8.32	1.1
						6.650	16.60	8.65	106.5	2.5	29.91	8.30	
						12.300	16.50	8.63	105.6	2.8	29.49	8.30	0.8
						12.300	16.50	8.48	103.4	2.8	28.78	8.25	
2012/3/7 11:05	W3	ME	832015	807899	13.3	1.000	17.00	9.05	112.0	3.5	29.65	8.60	7.6
						1.000	16.90	8.42	104.2	3.5	29.70	8.41	
						6.650	16.70	8.27	101.7	3.0	29.69	8.28	1.5
						6.650	16.60	8.22	100.9	3.0	29.78	8.25	
						12.300	16.30	8.36	102.1	3.2	29.87	8.18	5.9
12.300	16.30	8.35	102.0	3.2	29.87	8.19							
2012/3/7 11:55	C1	ME	833723	808176	15.1	1.000	16.80	9.52	117.2	2.6	29.67	8.56	2.2
						1.000	16.60	8.82	108.6	2.6	29.91	8.38	
						7.550	16.60	8.76	107.8	3.0	29.92	8.33	3.3
						7.550	16.40	8.73	107.1	3.0	29.97	8.25	
						14.100	16.40	8.62	105.7	3.1	29.97	8.25	<0.5
						14.100	16.40	8.64	104.8	3.1	29.93	8.11	
2012/3/7 10:05	C2	ME	831479	807751	13.1	1.000	17.20	8.77	109.0	2.0	29.74	8.49	0.8
						1.000	17.30	8.43	105.0	2.0	29.75	8.35	
						6.550	16.90	8.34	103.1	2.1	29.77	8.20	<0.5
						6.550	16.90	8.25	102.1	2.1	29.77	8.18	
						12.100	16.50	8.03	98.4	2.2	29.69	8.03	1.7
						12.100	16.40	7.66	92.5	2.2	27.38	8.01	
2012/3/7 12:15	C3	ME	832212	808642	15.5	1.000	16.70	8.67	106.9	1.8	29.90	8.12	1.9
						1.000	16.80	8.64	106.6	1.8	29.90	8.11	
						7.750	16.70	8.70	107.2	2.1	29.91	8.11	6.2
						7.750	16.70	8.65	106.6	2.1	29.91	8.11	
						14.500	16.50	8.70	106.9	2.5	29.90	8.16	3.2
						14.500	16.50	8.63	106.0	2.5	29.97	8.14	
2012/3/7 17:15	W1	MF	832962	807731	2.8	1.400	17.10	8.38	104.0	2.8	29.80	8.15	6.6
						1.400	17.10	8.31	103.1	2.8	29.80	8.09	
2012/3/7 17:00	W2	MF	832682	807979	15.3	1.000	17.00	9.00	111.4	2.3	29.79	8.66	1.2
						1.000	16.90	8.52	105.4	2.3	29.83	8.49	
						7.650	16.90	8.38	103.6	2.0	29.85	8.36	1.3
						7.650	16.90	8.38	103.6	2.0	29.84	8.29	
						14.300	16.50	8.49	104.3	2.5	29.93	8.20	7.8
						14.300	16.50	8.49	104.3	2.5	29.95	8.18	
2012/3/7 16:45	W3	MF	832063	808003	15.6	1.000	17.00	8.87	109.80	2.4	29.74	8.66	5.5
						1.000	16.90	8.58	106.00	2.4	29.86	8.38	
						7.800	16.90	8.45	104.50	2.7	29.86	8.33	4.3
						7.800	16.50	8.56	105.10	2.7	29.84	8.28	
						14.600	16.40	8.30	101.70	3.1	29.92	8.25	7.5
						14.600	16.40	8.25	100.50	3.1	29.93	8.25	
2012/3/7 17:35	C1	MF	833711	808186	17.3	1.000	17.10	8.87	105.50	2.9	22.70	8.50	1.2
						1.000	17.10	8.50	105.50	2.9	29.76	8.21	
						8.650	16.90	8.49	105.30	3.0	29.77	8.17	2.5
						8.650	16.90	8.57	105.90	3.0	29.84	8.19	
						16.300	16.60	8.50	105.00	3.0	29.84	8.16	2.5
						16.300	16.60	8.58	105.50	3.0	29.90	8.16	
2012/3/7 16:30	C2	MF	831463	807727	15.5	1.000	17.40	8.84	110.2	2.5	29.71	8.63	1.8
						1.000	17.40	8.54	106.5	2.5	29.76	8.47	
						7.750	17.20	8.53	106.0	2.5	29.68	8.39	7.2
						7.750	17.10	8.31	103.0	2.5	29.77	8.31	
						14.500	16.50	8.35	102.6	2.6	29.84	8.31	4.3
						14.500	16.40	8.26	101.2	2.6	29.90	8.26	
2012/3/7 17:55	C3	MF	832211	808869	17.1	1.000	17.10	8.37	103.9	3.2	29.81	8.07	7.5
						1.000	17.10	8.35	103.7	3.2	29.81	8.06	
						8.550	16.50	8.50	104.3	3.5	29.89	8.16	6.9
						8.550	16.40	8.33	102.1	3.5	29.94	8.14	
						16.100	16.30	7.80	95.3	3.8	29.92	8.11	6.4
						16.100	16.30	7.10	89.4	3.8	29.61	7.81	

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 9-Mar-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									
2012/3/9 13:45	W1	ME	832977	807731	2.2	1.100	16.80	8.95	110.4	2.1	29.95	8.55	2.9
						1.100	16.80	8.32	102.6	2.1	29.95	8.38	
2012/3/9 13:30	W2	ME	832063	808012	13.3	1.000	16.60	8.75	107.7	2.2	29.95	8.52	3.3
						1.000	16.70	8.15	100.4	2.2	29.93	8.37	
						6.650	16.40	8.16	100.1	2.6	30.19	8.27	1.9
						6.650	16.40	8.10	99.4	2.6	30.19	8.23	
						12.300	16.30	7.98	97.3	2.6	29.43	8.15	2.1
						12.300	16.30	7.52	91.7	2.6	29.44	8.10	
2012/3/9 13:15	W3	ME	832051	807899	13.3	1.000	16.80	7.94	98.1	1.9	29.94	8.34	1.7
						1.000	16.70	7.94	97.8	1.9	30.02	8.28	
						6.650	16.60	7.89	97.1	2.5	30.06	8.24	6.1
						6.650	16.60	7.81	96.1	2.5	30.08	8.23	
						12.300	16.50	8.02	98.0	2.9	29.36	8.23	9.2
						12.300	16.50	7.58	92.7	2.9	29.33	8.19	
2012/3/9 14:05	C1	ME	833723	808179	2.2	1.000	16.50	9.46	116.2	2.0	30.12	8.64	3.5
						1.000	16.50	8.46	103.9	2.0	30.12	8.44	
						1.100	16.40	8.19	100.5	1.8	30.18	8.25	1.7
						1.100	16.40	8.15	99.9	1.8	30.18	8.22	
						1.200	16.30	8.15	100.0	1.8	30.20	8.23	0.9
						1.200	16.30	8.05	98.7	1.8	30.21	8.20	
2012/3/9 13:00	C2	ME	831487	807747	13.1	1.000	17.00	8.08	100.1	2.6	29.84	8.49	3.7
						1.000	17.00	7.96	98.6	2.6	29.83	8.39	
						6.550	16.80	7.60	93.9	2.8	30.00	8.15	7.9
						6.550	16.80	7.57	93.5	2.8	30.00	8.13	
						12.100	16.70	6.83	84.3	3.0	29.98	8.12	7.7
						12.100	16.70	6.62	81.7	3.0	29.98	8.11	
2012/3/9 14:25	C3	ME	832241	808854	15.2	1.000	16.50	8.06	99.1	2.7	30.09	8.13	3.5
						1.000	16.50	7.99	98.2	2.7	30.09	8.15	
						7.600	16.50	8.12	99.7	2.7	30.12	8.15	2.8
						7.600	16.50	8.07	99.2	2.7	30.11	8.12	
						14.200	16.40	8.12	99.7	3.1	30.12	8.12	1.4
						14.200	16.40	8.10	99.5	3.0	30.12	8.11	
2012/3/9 8:45	W1	MF	832971	807746	2.7	1.350	16.70	7.64	94.0	1.8	29.67	8.10	1.8
						1.350	16.70	7.64	94.0	1.8	29.67	8.09	
2012/3/9 8:30	W2	MF	832673	807962	15.3	1.000	16.90	8.69	102.1	1.9	26.10	8.90	1.7
						1.000	16.70	8.90	109.4	1.9	29.31	8.52	
						7.650	16.50	8.09	99.7	2.0	29.96	8.27	1.4
						7.650	16.50	8.08	99.5	2.0	29.97	8.21	
						14.300	16.40	8.09	99.6	2.1	29.99	8.16	2.9
						14.300	16.30	7.98	98.3	2.1	29.99	8.14	
2012/3/9 8:15	W3	MF	832062	807871	15.5	1.000	16.80	8.52	105.1	2.0	29.78	8.48	0.7
						1.000	16.80	7.88	97.1	1.9	29.79	8.26	
						7.750	16.80	7.92	97.7	1.9	29.86	8.21	1.3
						7.750	16.80	7.90	97.4	1.8	29.87	8.16	
						14.500	16.60	7.94	97.9	2.0	29.92	8.15	2.9
						14.500	16.60	7.96	98.2	2.1	29.94	8.11	
2012/3/9 9:05	C1	MF	833709	808167	17.4	1.000	16.70	7.96	98.0	2.4	29.84	8.07	3.1
						1.000	16.70	7.90	97.4	2.4	29.85	8.07	
						8.700	16.70	7.98	98.3	2.6	29.95	8.10	2.6
						8.700	16.70	7.93	97.6	2.6	29.96	8.09	
						16.400	16.50	7.64	93.7	3.2	29.72	7.95	4.1
						16.400	16.50	7.31	89.6	3.2	29.72	7.92	
2012/3/9 8:00	C2	MF	831488	807746	15.3	1.000	16.90	7.86	96.9	1.9	29.34	8.15	1.8
						1.000	16.90	7.78	96.0	1.9	29.34	8.11	
						7.650	16.80	7.97	98.3	2.2	29.73	8.04	11.0
						7.650	16.90	7.86	97.1	2.2	29.73	8.02	
						14.300	16.70	7.91	97.4	2.6	29.98	7.98	1.5
						14.300	16.70	7.90	97.3	2.6	29.98	7.98	
2012/3/9 9:25	C3	MF	832225	808848	17.1	1.000	16.70	7.84	96.6	2.1	29.98	8.05	2.8
						1.000	16.70	7.80	96.2	2.1	29.98	8.04	
						8.550	16.50	7.99	98.2	2.6	30.12	8.07	6.2
						8.550	16.50	7.90	97.1	2.6	30.12	8.07	
						16.100	16.50	7.17	88.1	2.6	30.08	8.02	7.0
						16.100	16.50	6.95	85.3	2.5	30.11	8.03	

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 13-Mar-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									
2012/3/13 15:45	W1	ME	832972	807739	2.2	1.100	16.40	8.17	100.5	2.7	30.52	8.41	2.2
						1.100	16.40	8.14	100.1	2.7	30.53	8.35	
2012/3/13 15:30	W2	ME	832654	808002	13.1	1.000	16.50	9.21	113.3	2.4	30.50	8.46	2.1
						1.000	16.50	8.52	104.9	2.4	30.53	8.41	
						6.550	16.40	7.98	98.1	2.5	30.58	8.36	3.1
						6.550	16.40	7.91	97.3	2.4	30.58	8.34	
						12.100	16.30	7.97	97.9	2.6	30.59	8.46	2.1
						12.100	16.30	7.91	97.1	2.6	30.60	8.41	
2012/3/13 15:15	W3	ME	832043	807889	13.1	1.000	16.50	8.74	107.1	2.1	30.26	8.54	3.5
						1.000	16.50	8.93	109.8	2.1	30.47	8.64	
						6.550	16.40	8.02	98.7	2.3	30.57	8.33	1.5
						6.550	16.40	7.99	98.2	2.3	30.58	8.26	
						12.100	16.30	8.02	98.5	2.5	30.59	8.25	1.4
12.100	16.30	7.96	97.7	2.5	30.59	8.24							
2012/3/13 16:05	C1	ME	833707	808153	15.1	1.000	16.50	8.68	106.9	1.9	30.55	8.61	2.5
						1.000	16.40	8.43	103.7	1.9	30.55	8.60	
						7.550	16.30	8.07	99.1	1.9	30.60	8.43	3.0
						7.550	16.30	7.99	98.2	1.8	30.60	8.36	
						14.100	16.30	8.33	102.3	2.0	30.58	8.33	8.4
						14.100	16.30	8.13	99.9	2.0	30.58	8.34	
2012/3/13 15:00	C2	ME	831453	807752	13.2	1.000	16.40	8.37	103.0	2.7	30.48	8.40	5.0
						1.000	16.40	8.10	99.7	2.7	30.50	8.31	
						6.600	16.30	8.01	97.5	2.5	30.57	8.25	4.1
						6.600	16.30	8.10	97.1	2.5	30.58	8.31	
						12.200	16.20	8.14	99.9	2.6	30.59	8.30	3.5
						12.200	16.20	8.06	99.0	2.6	30.59	8.40	
2012/3/13 16:25	C3	ME	832223	808881	15.3	1.000	16.40	8.01	98.5	1.5	30.45	8.61	1.9
						1.000	16.40	7.98	98.2	1.5	30.45	8.52	
						7.650	16.40	8.02	98.7	1.9	30.51	8.35	4.7
						7.650	16.30	8.00	98.4	1.9	30.52	8.36	
						14.300	16.20	8.05	99.0	1.9	30.56	8.34	2.7
						14.300	16.20	8.02	98.6	1.9	30.56	8.29	
2012/3/13 9:05	W1	MF	832970	807739	2.7	1.350	16.50	8.69	107.0	1.6	30.43	8.68	2.2
						1.350	16.50	8.20	100.9	1.6	30.44	8.61	
2012/3/13 9:50	W2	MF	832677	808002	15.3	1.000	16.50	8.98	110.6	2.2	30.45	8.76	3.5
						1.000	16.50	8.29	102.0	2.2	30.47	8.65	
						7.650	16.40	7.91	97.3	2.6	30.50	8.42	2.6
						7.650	16.40	7.84	96.5	2.6	30.50	8.40	
						14.300	16.20	7.72	93.9	2.8	30.49	8.24	4.0
						14.300	16.20	7.41	90.2	2.8	30.59	8.22	
2012/3/13 8:35	W3	MF	832049	807897	15.3	1.000	16.30	8.07	98.9	3.1	30.38	8.07	5.7
						1.000	16.30	7.77	95.2	3.1	30.39	8.02	
						7.650	16.30	7.85	96.3	3.5	30.50	7.97	5.9
						7.650	16.20	7.74	95.1	3.5	30.50	7.95	
						14.300	16.20	7.39	91.0	4.0	30.47	7.93	4.7
						14.300	16.20	7.26	89.4	4.0	30.47	7.93	
2012/3/13 9:25	C1	MF	833709	808183	16.9	1.000	16.50	8.39	103.3	3.6	30.47	8.64	3.9
						1.000	16.50	8.20	100.9	3.6	30.48	8.56	
						8.450	16.40	8.10	99.8	3.6	30.52	8.88	3.2
						8.450	16.30	8.13	100.2	3.7	30.52	8.45	
						15.900	16.00	8.09	99.6	3.8	30.56	8.28	3.5
						15.900	16.10	8.04	99.0	3.8	30.56	8.26	
2012/3/13 8:20	C2	MF	831472	807759	15.1	1.000	16.30	8.12	99.4	3.1	30.29	8.75	3.1
						1.000	16.30	7.87	96.3	3.1	30.31	8.71	
						7.550	16.40	7.90	97.3	3.5	30.59	8.53	2.2
						7.550	16.40	7.86	96.9	3.5	30.59	8.49	
						14.100	16.30	7.46	91.9	3.6	30.55	8.37	3.5
						14.100	16.30	7.24	89.2	3.6	30.55	8.32	
2012/3/13 9:45	C3	MF	832231	808869	16.7	1.000	16.50	8.46	104.1	2.2	30.43	8.73	0.9
						1.000	16.50	8.44	103.9	2.2	30.46	8.63	
						8.350	16.30	7.91	97.3	2.6	30.54	8.79	5.6
						8.350	16.30	7.82	96.2	2.6	30.54	8.59	
						15.700	16.20	8.52	102.6	3.0	30.58	8.73	2.2
						15.700	16.20	8.68	106.7	3.0	30.58	8.51	

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 15-Mar-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									
2012/3/15 17:45	W1	ME	832966	807726	2.2	1.100	16.70	8.66	107.0	2.8	30.36	8.65	3.2
						1.100	16.70	8.38	103.5	2.8	30.37	8.57	
2012/3/15 17:30	W2	ME	832681	807897	13.3	1.000	16.80	8.45	104.6	2.7	30.37	8.63	3.9
						1.000	16.80	8.21	101.7	2.7	30.37	8.54	
						6.650	16.60	8.04	99.3	2.5	30.44	8.44	3.9
						6.650	16.60	7.95	98.2	2.5	30.44	8.41	
						12.300	16.50	8.02	98.7	2.0	30.48	8.37	1.4
						12.300	16.50	7.90	97.3	2.0	30.47	8.34	
2012/3/15 17:15	W3	ME	832047	807888	13.3	1.000	16.80	8.53	105.6	1.8	30.39	8.64	2.0
						1.000	16.80	8.19	101.3	1.8	30.40	8.55	
						6.650	16.60	8.15	100.6	2.0	30.44	8.48	4.2
						6.650	16.60	8.09	99.8	2.0	30.46	8.44	
						12.300	16.50	7.79	95.8	2.0	30.18	8.37	4.0
12.300	16.50	7.53	92.6	2.0	30.16	8.33							
2012/3/15 18:05	C1	ME	833705	808199	15.1	1.000	16.60	8.09	99.8	2.5	30.42	8.49	3.3
						1.000	16.70	7.93	98.0	2.5	30.43	8.44	
						7.550	16.50	7.94	97.8	2.6	30.46	8.36	2.4
						7.550	16.50	7.94	97.8	2.6	30.47	8.34	
						14.100	16.50	8.04	99.0	2.4	30.48	8.36	3.0
						14.100	16.50	8.03	98.9	2.4	30.48	8.30	
2012/3/15 17:00	C2	ME	831474	807752	13.2	1.000	16.90	7.98	98.9	2.0	30.37	8.54	2.9
						1.000	16.90	7.99	99.1	2.0	30.36	8.49	
						6.600	16.80	8.19	101.4	1.8	30.41	8.37	3.0
						6.600	16.80	8.10	100.3	1.8	30.43	8.37	
						12.200	16.60	7.85	96.6	2.2	29.91	8.33	6.0
						12.200	16.60	7.53	92.6	2.2	29.90	8.32	
2012/3/15 18:25	C3	ME	832199	808867	15.3	1.000	16.40	8.38	103.1	4.1	30.43	8.53	9.3
						1.000	16.40	8.25	101.4	4.1	30.42	8.48	
						7.650	16.40	8.10	99.5	4.5	30.45	8.39	3.9
						7.650	16.40	8.05	98.8	4.5	30.45	8.33	
						14.300	16.30	8.10	99.4	4.4	30.46	8.34	1.8
						14.300	16.30	8.03	98.5	4.4	30.47	8.30	
2012/3/15 10:35	W1	MF	832960	807727	2.8	1.400	16.50	8.50	104.70	3.8	30.44	8.61	4.3
						1.400	16.50	8.21	101.10	3.8	30.44	8.51	
2012/3/15 10:20	W2	MF	832673	807991	15.3	1.000	16.60	7.96	98.20	2.8	30.41	8.39	2.7
						1.000	16.60	7.95	98.10	2.8	30.41	8.35	
						7.650	16.50	8.01	98.50	3.0	30.46	8.30	4.6
						7.650	16.50	8.00	98.40	3.0	30.46	8.28	
						14.300	16.40	7.96	97.80	3.0	30.37	8.25	3.5
						14.300	16.40	7.82	96.20	3.0	30.44	8.24	
2012/3/15 10:05	W3	MF	832051	807899	15.1	1.000	16.70	8.38	102.10	2.7	30.36	8.69	3.9
						1.000	16.70	8.48	104.80	2.7	30.38	8.57	
						7.550	16.70	7.90	97.60	2.9	30.39	8.36	1.6
						7.550	16.70	7.87	97.20	2.9	30.39	8.33	
						14.100	16.50	7.90	97.50	2.9	30.42	8.26	3.0
14.100	16.50	7.86	97.00	2.9	30.41	8.24							
2012/3/15 10:55	C1	MF	833707	808181	16.9	1.000	16.60	7.95	98.00	3.1	30.43	8.44	2.8
						1.000	16.60	7.88	97.20	3.1	30.44	8.40	
						8.450	16.40	7.85	96.40	3.0	30.46	8.31	3.8
						8.450	16.40	7.83	96.20	3.0	30.46	8.29	
						15.900	16.40	8.79	107.90	2.9	30.45	8.35	1.7
						15.900	16.40	8.54	104.90	2.9	30.45	8.31	
2012/3/15 9:50	C2	MF	831477	807741	15.1	1.000	16.70	7.98	98.50	1.9	30.30	8.57	0.9
						1.000	16.70	7.97	98.40	1.9	30.32	8.48	
						7.550	16.70	7.96	98.30	2.5	30.34	8.29	2.9
						7.550	16.70	7.90	97.50	2.5	30.35	8.27	
						14.100	16.50	7.80	96.30	2.8	30.38	8.19	2.7
						14.100	16.50	7.77	95.90	2.8	30.38	8.16	
2012/3/15 11:15	C3	MF	832227	808858	16.9	1.000	16.50	8.37	103.10	2.2	30.44	8.56	2.8
						1.000	16.50	8.22	101.20	2.2	30.44	8.50	
						8.450	16.50	8.06	99.20	2.6	30.45	8.36	2.4
						8.450	16.50	8.06	99.30	2.6	30.45	8.33	
						15.900	16.40	8.67	106.80	2.6	30.46	8.31	2.2
						15.900	16.40	8.46	104.20	2.6	30.46	8.29	

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 17-Mar-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									
2012/3/17 9:00	W1	ME	832966	807739	2.7	1.350	17.10	8.49	105.6	1.7	30.34	8.73	2.6
						1.350	17.10	8.24	102.5	1.7	30.34	8.66	
2012/3/17 8:45	W2	ME	832671	807992	15.1	1.000	17.10	8.68	108.0	1.8	30.34	9.11	1.7
						1.000	17.00	7.97	99.1	1.8	30.35	8.99	
						7.550	16.70	7.62	94.2	1.6	30.41	8.82	2.8
						7.550	16.70	7.24	89.5	1.6	30.43	8.81	
						14.100	16.70	6.63	81.9	2.0	30.31	8.68	3.2
						14.100	16.70	6.46	79.8	2.0	30.30	8.71	
2012/3/17 8:30	W3	ME	832070	807899	14.9	1.000	17.20	8.68	108.3	2.7	30.26	8.12	3.0
						1.000	17.20	8.40	104.7	2.7	30.27	8.23	
						7.450	16.80	8.17	101.3	2.7	30.36	8.55	3.0
						7.450	16.80	8.02	99.3	2.7	30.37	8.15	
						13.900	16.60	7.87	97.1	2.7	30.29	8.23	<0.5
						13.900	16.60	7.62	94.0	2.8	30.36	8.23	
2012/3/17 9:20	C1	ME	831473	807767	17.1	1.000	17.20	8.57	106.9	2.5	30.30	8.73	3.0
						1.000	17.20	8.20	102.3	2.5	30.30	8.65	
						8.550	16.90	7.72	95.8	1.8	30.38	8.36	1.8
						8.550	16.90	7.70	95.5	1.8	30.38	8.37	
						16.100	16.70	7.72	95.2	2.2	30.15	8.40	1.8
						16.100	16.60	7.52	92.7	2.2	30.15	8.38	
2012/3/17 8:15	C2	ME	831472	807742	15.2	1.000	16.80	8.64	107.0	2.6	30.34	8.61	2.6
						1.000	16.80	8.48	105.1	2.6	30.34	8.54	
						7.600	16.60	8.38	103.4	2.5	30.36	8.35	1.8
						7.600	16.60	8.31	102.4	2.8	30.36	8.33	
						14.200	16.30	8.24	101.0	2.8	30.40	8.28	2.6
						14.200	16.30	8.14	99.8	3.0	30.40	8.27	
2012/3/17 9:45	C3	ME	832247	808863	16.9	1.000	17.00	8.46	105.0	2.7	30.21	8.69	2.8
						1.000	17.00	8.21	101.9	2.7	30.22	8.60	
						8.450	16.80	8.06	99.8	2.6	30.33	8.56	1.9
						8.450	16.80	7.97	98.8	2.6	30.34	8.49	
						15.900	16.70	7.96	97.6	2.9	29.04	8.44	2.2
						15.900	16.70	7.68	94.0	2.9	28.88	8.41	
2012/3/17 13:45	W1	MF	832969	807737	2.1	1.050	17.70	9.59	120.1	2.7	30.22	8.88	3.7
						1.050	17.50	9.45	118.5	2.7	30.33	8.67	
2012/3/17 13:30	W2	MF	832680	807981	13.1	1.000	16.80	8.85	109.1	2.0	30.37	8.69	2.3
						1.000	16.80	8.72	108.0	2.0	30.37	8.58	
						6.550	16.70	8.25	101.9	2.1	30.40	8.40	3.2
						6.550	16.70	8.19	101.1	2.1	30.40	8.37	
						12.100	16.70	8.02	99.1	2.6	30.31	8.29	3.3
						12.100	16.70	7.94	98.1	2.6	30.39	8.29	
2012/3/17 13:15	W3	MF	832645	807872	13.3	1.000	17.40	8.73	109.3	1.7	30.27	8.69	1.3
						1.000	17.40	8.32	104.2	1.7	30.27	8.57	
						6.650	16.80	7.94	98.3	1.9	30.38	8.37	3.6
						6.650	16.80	7.95	98.4	1.9	30.38	8.34	
						12.300	16.70	7.77	96.0	2.0	30.36	8.29	3.1
						12.300	16.70	7.54	93.1	2.0	30.40	8.27	
2012/3/17 14:05	C1	MF	833711	808168	15.7	1.000	17.90	9.14	115.4	1.9	30.15	8.73	2.8
						1.000	17.40	8.73	109.4	1.9	30.23	8.58	
						7.850	17.10	8.46	105.2	2.0	30.28	8.48	18.1
						7.850	17.00	8.42	104.7	2.0	30.31	8.44	
						14.700	16.80	8.32	102.9	2.4	30.33	8.39	1.7
						14.700	16.70	8.27	102.2	2.4	30.36	8.37	
2012/3/17 13:00	C2	MF	831459	807739	13.3	1.000	17.30	9.05	113.0	2.2	30.27	8.66	2.9
						1.000	17.30	8.77	109.5	2.2	30.28	8.56	
						6.650	17.00	8.59	106.7	2.6	30.32	8.45	5.2
						6.650	17.00	8.38	104.1	2.6	30.33	8.40	
						12.300	16.80	7.54	93.1	3.0	30.02	8.33	5.7
						12.300	16.80	7.24	89.5	3.0	30.03	8.31	
2012/3/17 14:24	C3	MF	832222	808891	15.3	1.000	17.10	8.31	103.4	2.1	30.36	8.22	2.1
						1.000	17.10	8.26	102.8	2.1	30.36	8.22	
						7.650	16.90	8.30	102.9	2.1	30.36	8.24	2.7
						7.650	16.90	8.26	102.4	2.2	30.37	8.24	
						14.300	16.60	8.35	103.1	2.3	30.38	8.24	2.9
						14.300	16.60	8.27	102.1	2.3	30.40	8.23	

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 19-Mar-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									
2012/3/19 10:51	W1	ME	832972	807723	2.2	1.100	17.50	8.88	111.4	3.5	30.22	8.61	7.7
						1.100	17.50	8.59	107.8	3.5	30.24	8.50	
2012/3/19 10:36	W2	ME	832667	807997	13.3	1.000	17.50	8.65	108.6	1.7	30.25	8.55	<0.5
						1.000	17.50	8.40	105.5	1.7	30.27	8.44	
						6.650	17.40	8.22	103.1	2.0	30.35	8.32	1.3
						6.650	17.40	8.21	102.9	2.0	30.36	8.29	
						12.300	17.30	8.25	103.4	2.1	30.40	8.24	1.0
						12.300	17.30	8.24	103.4	2.1	30.40	8.22	
2012/3/19 10:21	W3	ME	832056	807900	13.4	1.000	17.60	8.53	107.2	1.9	30.19	8.60	2.9
						1.000	17.60	8.19	102.9	1.9	30.20	8.46	
						6.700	17.50	8.18	102.6	1.8	30.38	8.32	1.6
						6.700	17.50	8.08	101.3	1.8	30.39	8.26	
						12.400	17.10	8.15	101.6	2.0	30.39	8.21	1.5
12.400	17.00	7.80	97.1	2.0	30.42	8.18							
2012/3/19 11:11	C1	ME	833717	808175	15.2	1.000	17.50	8.54	111.9	1.7	30.26	8.71	1.5
						1.000	17.50	8.83	110.8	1.7	30.36	8.55	
						7.600	17.30	8.47	106.4	1.6	30.44	8.37	0.9
						7.600	17.30	8.43	105.9	1.6	30.43	8.32	
						14.200	17.00	8.42	105.7	1.9	30.49	8.23	7.6
						14.200	17.00	8.36	104.9	1.9	30.49	8.23	
2012/3/19 10:06	C2	ME	831469	807727	13.2	1.000	17.60	8.44	105.9	1.4	30.10	8.41	1.1
						1.000	17.60	8.29	104.0	1.4	30.11	8.33	
						6.600	17.50	8.19	102.9	1.5	30.15	8.17	1.4
						6.600	17.40	8.06	101.2	1.5	30.14	8.14	
						12.200	17.20	7.71	97.0	1.7	30.29	8.11	2.5
						12.200	17.20	7.39	92.9	1.7	30.29	8.09	
2012/3/19 10:21	C3	ME	832216	808853	15.1	1.000	17.60	9.13	114.8	1.6	30.33	8.61	0.9
						1.000	17.60	8.82	110.8	1.6	30.33	8.52	
						7.550	17.50	8.37	105.3	1.8	30.37	8.34	0.7
						7.550	17.50	8.28	104.1	1.8	30.38	8.31	
						14.100	17.20	8.35	104.9	1.8	30.42	8.25	2.0
						14.100	17.20	8.27	103.9	1.8	30.43	8.25	
2012/3/19 16:15	W1	MF	832969	807725	2.7	1.350	17.50	8.68	109.0	3.4	30.49	8.61	6.2
						1.350	17.50	8.42	105.7	3.4	30.50	8.49	
2012/3/19 16:00	W2	MF	832674	808002	15.3	1.000	17.60	8.71	109.5	1.4	30.36	8.64	1.0
						1.000	17.60	8.53	107.2	1.4	30.40	8.52	
						7.650	17.40	8.30	104.3	1.5	30.58	8.34	2.3
						7.650	17.40	8.20	103.0	1.5	30.58	8.32	
						14.300	17.30	8.17	102.6	1.9	30.62	8.23	9.0
						14.300	17.30	8.10	101.8	1.9	30.62	8.26	
2012/3/19 15:45	W3	MF	832040	807886	15.3	1.000	17.80	8.73	110.1	1.2	30.25	8.58	1.4
						1.000	17.80	8.44	106.3	1.2	30.25	8.48	
						7.650	17.60	8.41	105.7	1.6	30.34	8.39	1.6
						7.650	17.60	8.38	105.3	1.6	30.34	8.35	
						14.300	17.50	8.35	104.7	1.8	30.42	8.30	<0.5
14.300	17.50	8.28	103.9	1.8	30.45	8.29							
2012/3/19 16:35	C1	MF	833709	808179	17.1	1.000	17.80	8.42	107.5	1.3	30.41	8.74	1.0
						1.000	17.80	8.82	111.2	1.3	30.44	8.58	
						8.550	17.60	8.45	106.5	1.3	30.50	8.50	0.7
						8.550	17.50	8.24	103.5	1.3	30.57	8.40	
						16.100	17.50	8.15	102.6	1.5	30.68	8.32	3.7
						16.100	17.50	8.01	100.8	1.5	30.69	8.31	
2012/3/19 15:30	C2	MF	831474	807741	15.1	1.000	17.90	8.36	105.7	1.7	30.22	8.53	1.5
						1.000	17.90	8.34	105.3	1.7	30.20	8.44	
						7.550	17.70	8.12	102.2	2.0	30.28	8.33	2.3
						7.550	17.70	7.85	98.7	2.0	30.29	8.30	
						14.100	17.20	7.80	97.1	1.9	29.96	8.29	1.3
						14.100	17.20	7.54	93.8	1.9	29.94	8.24	
2012/3/19 16:55	C3	MF	832225	808859	17.3	1.000	17.70	8.62	108.7	1.7	30.45	8.73	6.1
						1.000	17.70	8.66	109.2	1.7	30.46	8.55	
						8.650	17.50	8.71	109.9	2.1	30.46	8.38	5.2
						8.650	17.40	8.67	109.3	2.1	30.47	8.34	
						16.300	17.20	8.69	109.5	2.2	30.48	8.32	2.9
						16.300	17.20	8.59	108.2	2.2	30.50	8.30	

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 21-Mar-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									
2012/3/21 12:45	W1	ME	832965	807727	2.1	1.050	17.50	8.46	121.4	3.3	30.03	7.90	3.6
						1.050	17.50	8.43	122.5	3.5	30.00	7.90	
2012/3/21 12:30	W2	ME	832681	807974	13.2	1.000	17.50	8.59	120.7	3.0	29.85	8.20	4.0
						1.000	17.50	8.49	119.7	3.4	29.83	8.10	
						6.600	17.40	8.41	118.7	3.4	30.50	8.40	3.8
						6.600	17.40	8.31	117.2	3.5	30.00	8.25	
						12.200	17.00	8.22	119.0	3.3	30.85	8.25	4.6
						12.200	17.00	8.13	116.7	3.4	30.88	8.20	
2012/3/21 12:15	W3	ME	832046	807865	13.1	1.000	17.40	8.55	120.0	3.2	30.01	8.05	1.6
						1.000	17.40	8.46	121.6	3.2	29.99	8.00	
						6.550	17.30	8.45	117.3	3.1	30.58	8.10	1.6
						6.550	17.20	8.25	118.1	3.3	30.67	8.05	
						12.100	17.00	8.23	115.5	3.0	31.73	8.05	3.2
12.100	17.00	8.11	114.8	2.9	31.69	8.10							
2012/3/21 13:05	C1	ME	833723	808149	15.1	1.000	17.40	8.39	117.9	3.4	29.63	8.25	2.1
						1.000	17.40	8.34	116.9	3.4	29.48	8.25	
						7.550	17.30	8.39	116.3	3.7	30.31	8.20	3.7
						7.550	17.30	8.28	115.2	3.6	30.37	8.10	
						14.100	17.10	8.39	118.9	3.4	32.02	8.00	4.2
						14.100	17.10	8.25	118.3	3.5	32.05	8.10	
2012/3/21 12:00	C2	ME	831465	807751	13.3	1.000	17.70	8.20	113.1	3.8	30.19	8.00	<0.5
						1.000	17.70	8.17	113.9	4.0	30.31	8.05	
						6.650	17.50	8.23	115.1	3.2	31.05	8.10	0.9
						6.650	17.50	8.12	114.5	3.4	31.16	8.05	
						12.300	17.50	8.13	115.8	3.3	32.49	8.15	1.0
						12.300	17.40	8.05	114.1	3.2	32.60	8.05	
						2012/3/21 13:25	C3	ME	832243	808881	15.1	1.000	17.70
1.000	17.70	8.53	123.5	3.7	29.49							7.95	
7.550	17.50	8.63	121.1	3.5	30.66							8.00	4.8
7.550	17.50	8.52	120.4	3.7	30.73							8.00	
14.100	17.50	8.52	118.5	3.7	31.68							7.90	4.8
14.100	17.40	8.37	119.1	3.6	31.73							8.00	
2012/3/21 18:50	W1	MF	832973	807745	15.3	7.650	17.20	8.71	114.67	3.5	30.71	7.90	7.1
						7.650	17.20	8.63	109.47	3.5	30.38	7.95	
2012/3/21 18:35	W2	MF	832677	807995	15.3	1.000	17.40	8.25	115.93	3.2	29.33	8.00	2.0
						1.000	17.30	8.12	116.07	3.4	29.36	7.95	
						7.650	17.20	8.43	117.67	3.4	30.38	8.00	3.7
						7.650	17.20	8.35	117.13	3.7	30.36	8.00	
						14.300	17.00	8.30	115.67	3.7	31.60	7.95	1.9
						14.300	17.00	8.23	115.67	3.4	31.47	7.95	
2012/3/21 19:20	W3	MF	832073	807961	17.3	1.000	17.40	8.63	119.20	3.0	30.31	7.95	3.3
						1.000	17.30	8.61	119.27	3.0	30.31	8.05	
						8.650	17.00	8.88	115.33	3.0	30.57	8.00	3.0
						8.650	17.00	8.53	115.33	2.9	30.69	7.95	
						16.300	16.90	8.58	114.53	2.9	31.65	8.05	1.6
						16.300	16.90	8.38	112.93	3.4	31.17	7.95	
2012/3/21 19:10	C1	MF	833723	808157	15.2	1.000	17.40	8.68	120.93	3.4	29.46	7.85	2.2
						1.000	17.30	8.56	120.53	3.5	30.06	7.95	
						7.600	17.20	8.55	117.93	3.5	30.56	7.90	2.6
						7.600	17.20	8.48	117.13	3.1	30.86	7.95	
						14.200	17.00	8.81	116.67	3.4	31.26	8.00	2.8
						14.200	17.00	8.95	114.53	3.7	31.35	8.00	
2012/3/21 19:30	C2	MF	831476	807754	17.2	1.000	17.40	8.87	116.00	3.2	29.44	8.00	4.0
						1.000	17.30	8.84	116.33	3.6	29.58	8.10	
						8.600	17.00	8.93	116.27	3.3	30.08	8.00	1.2
						8.600	17.00	8.82	117.60	3.3	30.10	8.05	
						16.200	16.90	8.75	114.67	3.3	31.45	8.10	1.8
						16.200	16.90	8.09	114.47	2.9	31.28	8.00	
2012/3/21 18:15	C3	MF	832220	808890	15.1	1.000	17.50	9.02	121.00	3.5	30.16	8.05	2.4
						1.000	17.50	8.59	114.80	3.2	30.22	8.00	
						7.550	17.40	9.05	114.93	3.5	30.59	7.90	4.4
						7.550	17.30	8.93	113.80	3.6	30.66	8.00	
						14.100	17.00	8.74	114.27	3.5	31.14	8.15	4.1
						14.100	17.00	8.63	112.13	3.6	31.15	8.10	

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 23-Mar-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									
2012/3/23 14:00	W1	ME	832973	807752	2.7	1.350	18.10	7.99	104.3	3.3	30.05	7.75	2.4
						1.350	18.10	8.01	104.3	3.0	29.90	7.80	
2012/3/23 13:45	W2	ME	832691	807000	13.3	1.000	18.20	8.52	107.9	2.9	30.45	7.85	1.8
						1.000	18.20	8.61	107.3	3.1	30.75	7.85	
						6.650	18.20	8.03	100.1	3.3	31.80	7.90	6.2
						6.650	18.00	7.97	99.8	3.3	31.60	7.85	
						12.300	17.90	7.75	95.1	3.6	31.65	8.00	4.7
						12.300	17.90	7.69	94.8	3.4	31.65	7.95	
2012/3/23 13:30	W3	ME	832049	807883	12.7	1.000	18.00	8.30	106.2	3.3	29.50	7.80	6.0
						1.000	18.00	8.25	106.1	3.0	29.40	7.80	
						6.350	17.90	7.78	100.7	2.8	30.95	7.80	2.5
						6.350	17.90	7.74	100.1	3.2	30.85	7.85	
						11.700	17.80	7.19	97.1	3.4	31.35	7.80	4.0
11.700	17.80	7.12	97.0	3.4	31.70	7.75							
2012/3/23 14:20	C1	ME	833697	808168	14.7	1.000	18.20	8.43	106.3	2.9	30.40	7.85	6.2
						1.000	18.10	8.21	105.2	3.1	30.80	7.85	
						7.350	18.00	7.87	102.3	3.8	30.20	7.75	3.3
						7.350	18.00	7.77	101.7	3.9	30.25	7.80	
						13.700	18.00	7.53	93.7	4.4	32.05	7.80	3.2
13.700	17.80	7.45	93.5	4.4	31.70	7.80							
2012/3/23 13:15	C2	ME	831451	807754	13.2	1.000	18.10	8.57	109.7	3.5	29.85	7.85	<0.5
						1.000	18.10	8.55	109.5	3.5	29.85	7.90	
						6.600	17.90	8.01	105.0	3.9	30.80	7.80	1.9
						6.600	17.80	7.95	104.3	4.1	31.10	7.80	
						12.200	17.70	7.74	101.3	4.2	31.85	7.80	1.4
						12.200	17.70	7.67	100.1	4.5	30.90	7.80	
2012/3/23 14:45	C3	ME	832221	808849	14.6	1.000	18.20	8.20	105.6	4.1	29.10	7.70	4.5
						1.000	18.20	8.10	106.6	4.0	29.55	7.70	
						7.300	18.00	7.58	101.8	4.5	31.25	7.75	4.0
						7.300	18.00	7.51	100.4	4.5	31.35	7.80	
						13.600	18.00	7.34	96.8	4.9	31.50	7.75	2.2
						13.600	18.00	7.23	96.3	4.8	31.64	7.75	
2012/3/23 8:45	W1	MF	832951	807737	2.4	1.200	18.10	8.10	104.6	3.5	30.95	7.85	4.3
						1.200	18.10	8.07	103.1	3.7	31.40	7.85	
2012/3/23 8:30	W2	MF	832634	808006	15.4	1.000	18.00	8.62	107.3	3.1	31.55	7.85	1.3
						1.000	18.00	8.56	106.2	3.1	31.55	7.85	
						7.700	17.90	8.04	102.0	2.8	30.65	7.85	2.0
						7.700	17.90	7.77	99.7	2.8	30.75	7.85	
						14.400	17.80	7.56	96.8	3.6	31.70	7.85	3.1
14.400	17.60	7.53	95.7	3.7	31.80	7.80							
2012/3/23 8:15	W3	MF	832011	807911	15.6	1.000	17.90	8.63	107.7	3.2	30.20	7.80	2.6
						1.000	17.90	8.51	106.7	3.1	30.20	7.80	
						7.800	17.80	8.31	102.7	2.7	30.95	7.85	1.8
						7.800	17.70	8.16	102.7	2.9	30.95	7.80	
						14.600	17.50	7.82	99.5	3.3	31.10	7.90	4.0
14.600	17.50	7.76	98.6	3.1	31.60	7.80							
2012/3/23 9:05	C1	MF	833688	808170	16.6	1.000	18.00	8.81	109.4	4.5	30.55	7.90	2.5
						1.000	18.00	8.83	108.8	4.5	30.45	7.95	
						8.300	17.80	8.33	106.0	4.7	31.60	7.95	2.9
						8.300	17.70	8.24	105.2	4.7	31.35	7.95	
						15.600	17.50	7.87	100.0	5.3	31.65	7.90	2.0
						15.600	17.50	7.84	100.1	5.5	31.66	7.90	
2012/3/23 8:50	C2	MF	831481	807762	15.3	1.000	17.80	8.53	107.7	3.2	30.40	7.75	3.5
						1.000	17.80	8.51	107.4	3.2	30.10	7.80	
						7.650	17.60	8.12	104.0	3.4	31.30	7.85	1.5
						7.650	17.60	8.14	102.7	3.4	31.30	7.75	
						14.300	17.50	7.75	99.7	4.1	31.50	7.85	1.8
14.300	17.50	7.64	98.7	4.0	31.65	7.75							
2012/3/23 9:25	C3	MF	832217	808889	16.1	1.000	17.80	9.07	111.6	4.1	30.80	7.90	2.4
						1.000	17.80	8.87	110.1	4.2	30.75	7.85	
						8.050	17.60	8.46	105.1	5.4	31.70	7.80	4.4
						8.050	17.60	8.49	105.6	5.3	31.35	7.85	
						15.100	17.50	8.41	101.7	5.6	31.26	7.90	6.4
						15.100	17.50	8.21	99.9	5.6	31.64	7.95	

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 27-Mar-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									
2012/3/27 14:25	W1	ME	832963	807758	2.2	1.100	18.20	9.92	107.4	1.6	30.30	8.29	3.4
						1.100	18.20	8.88	113.2	1.9	30.57	8.37	
2012/3/27 14:20	W2	ME	832667	807973	13.5	1.000	18.20	9.02	114.8	2.4	30.62	8.48	2.8
						1.000	18.20	9.01	114.6	2.2	30.63	8.38	
						6.750	18.10	9.09	115.5	1.7	30.62	8.35	2.4
						6.750	18.00	9.08	115.2	1.7	30.67	8.36	
						12.500	18.00	9.21	117.0	2.2	30.29	8.36	2.4
						12.500	18.00	9.23	117.5	2.3	30.58	8.36	
2012/3/27 14:05	W3	ME	832047	807891	13.5	1.000	18.10	9.28	118.0	1.8	30.62	8.34	2.3
						1.000	18.10	9.20	117.0	1.9	30.62	8.34	
						6.750	18.00	9.20	116.7	1.7	30.67	8.33	1.6
						6.750	17.90	9.05	114.6	1.9	30.70	8.34	
						12.500	17.90	9.13	116.1	2.4	30.53	8.37	1.5
						12.500	17.90	9.14	116.4	2.6	30.61	8.36	
2012/3/27 14:45	C1	ME	833693	808194	15.6	1.000	18.00	9.24	117.2	1.3	30.64	8.33	2.6
						1.000	18.00	9.15	116.1	1.5	30.66	8.33	
						7.800	17.90	8.78	111.1	2.1	30.54	8.32	3.2
						7.800	17.90	8.67	109.7	2.3	30.47	8.30	
						14.600	17.90	8.35	105.8	2.0	30.61	8.89	4.7
						14.600	17.80	8.32	105.5	2.1	30.66	8.75	
2012/3/27 13:50	C2	ME	831451	807723	13.3	1.000	18.10	8.57	108.4	1.7	29.72	8.46	2.9
						1.000	18.20	8.73	111.0	1.8	30.54	8.47	
						6.650	18.10	9.03	114.9	1.0	30.65	8.44	3.0
						6.650	18.10	9.05	115.1	1.2	30.65	8.44	
						12.300	17.90	9.09	115.4	1.2	30.71	8.40	4.9
						12.300	17.90	8.94	113.5	1.3	30.71	8.41	
2012/3/27 15:10	C3	ME			15.7	1.000	18.10	8.72	111.0	1.5	30.66	8.55	4.6
						1.000	18.10	8.79	111.9	1.5	30.67	8.50	
						7.850	18.00	8.91	113.1	1.8	30.70	8.46	2.4
						7.850	18.00	8.89	112.8	1.8	30.69	8.45	
						14.700	17.90	8.91	113.0	1.6	30.77	8.48	9.4
						14.700	17.90	8.77	111.3	1.7	30.77	8.44	
2012/3/27 8:45	W1	MF	832947	807711	2.7	1.350	18.10	8.72	110.60	1.8	30.35	8.20	5.9
						1.350	18.10	9.19	116.70	2.1	30.37	8.46	
2012/3/27 8:40	W2	MF	832691	807981	15.7	1.000	18.10	9.01	114.40	2.6	30.39	8.40	3.5
						1.000	17.90	10.36	131.20	2.4	30.47	10.27	
						7.850	18.00	9.48	120.10	1.7	30.49	8.70	3.1
						7.850	17.90	8.85	111.80	1.8	30.45	8.37	
						14.700	17.80	9.11	115.10	2.7	30.41	8.41	16.6
						14.700	17.80	8.99	113.50	2.8	30.41	8.36	
2012/3/27 8:25	W3	MF	832052	807899	15.3	1.000	18.10	9.13	115.30	1.9	30.45	8.39	3.6
						1.000	18.10	9.50	120.00	2.1	30.43	8.50	
						7.650	18.00	9.50	119.90	1.9	29.19	8.34	4.2
						7.650	18.00	9.44	119.90	2.1	30.17	8.34	
						14.300	17.90	9.58	121.70	2.9	30.49	8.38	7.2
						14.300	17.80	9.55	121.30	2.8	30.50	8.36	
2012/3/27 9:05	C1	MF	833709	808191	17.7	1.000	18.10	9.60	121.70	1.5	30.49	8.33	2.1
						1.000	18.10	9.50	120.40	1.7	30.51	8.33	
						8.850	18.00	9.50	120.40	2.3	30.54	8.33	3.3
						8.850	17.90	9.31	117.90	2.4	30.63	8.30	
						16.700	17.80	8.50	108.00	2.1	30.49	8.81	9.7
						16.700	17.80	8.53	108.40	2.1	30.49	8.67	
2012/3/27 8:10	C2	MF	831477	807761	15.5	1.000	18.10	8.98	114.10	1.8	30.50	8.49	3.0
						1.000	18.10	9.03	114.70	1.9	30.50	8.48	
						7.750	17.90	9.15	115.80	1.0	30.56	8.43	2.6
						7.750	17.80	9.07	114.70	1.2	30.57	8.41	
						14.500	17.90	9.04	114.60	1.2	30.70	8.38	3.0
						14.500	17.90	8.95	113.50	1.4	30.70	8.38	
2012/3/27 9:30	C3	MF			17.5	1.000	18.10	9.39	119.30	1.6	30.43	8.43	2.9
						1.000	18.10	9.40	119.50	1.6	30.50	8.42	
						8.750	18.10	9.49	120.50	1.8	30.49	8.36	7.1
						8.750	18.00	9.55	121.20	1.9	30.50	8.38	
						16.500	17.90	9.45	119.60	1.7	30.54	8.35	8.8
						16.500	17.90	9.27	117.30	1.6	30.55	8.35	

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 29-Mar-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									
2012/3/29 15:35	W1	ME	832960	807750	2.3	1.150	19.20	9.52	123.3	1.6	30.32	8.74	
						1.150	19.20	9.63	124.9	1.6	30.41	8.66	
2012/3/29 15:30	W2	ME	832668	807980	13.5	1.000	19.00	9.98	128.9	1.6	30.35	8.58	
						1.000	18.90	9.88	127.4	1.5	30.41	8.55	
						6.750	18.40	9.43	120.4	1.5	30.44	8.43	
						6.750	18.30	8.91	113.4	1.5	30.17	8.42	
						12.500	19.00	9.26	119.5	1.7	30.36	8.91	
						12.500	19.00	8.95	115.5	1.6	30.39	8.76	
2012/3/29 15:15	W3	ME	832021	807993	13.2	1.000	18.30	9.50	120.1	1.6	30.52	8.86	
						1.000	18.30	9.15	116.6	1.6	30.51	8.61	
						6.600	18.20	8.96	114.1	1.8	30.65	8.57	
						6.600	18.20	8.53	108.7	1.8	30.65	8.45	
						12.200	18.70	8.92	114.6	1.6	30.46	8.84	
						12.200	18.70	8.60	110.6	1.6	30.48	8.69	
2012/3/29 15:55	C1	ME	833710	808161	15.7	1.000	18.40	8.50	108.7	1.5	30.63	8.53	
						1.000	18.30	8.47	108.1	1.4	30.66	8.49	
						7.850	18.30	8.36	106.6	1.7	30.68	8.44	
						7.850	18.20	8.35	106.5	1.7	30.68	8.41	
						14.700	18.20	8.36	106.7	2.0	30.40	8.83	
						14.700	18.00	8.30	106.1	2.1	30.51	8.68	
2012/3/29 15:00	C2	ME	831469	808741	13.3	1.000	18.60	9.67	124.1	1.6	30.41	8.90	
						1.000	18.60	9.23	118.5	1.7	30.50	8.77	
						6.650	18.40	8.80	112.5	1.5	30.61	8.56	
						6.650	18.30	8.61	110.0	1.7	30.66	8.51	
						12.300	18.30	9.84	125.5	1.8	30.72	8.83	
						12.300	18.30	8.86	113.0	1.8	30.72	8.54	
2012/3/29 16:15	C3	ME	832241	808847	15.7	1.000	18.40	8.46	108.1	1.6	30.65	8.37	
						1.000	18.40	8.46	108.1	1.6	30.64	8.36	
						7.850	18.30	8.73	111.4	1.5	30.74	8.27	
						7.850	18.30	8.44	107.7	1.6	30.72	8.32	
						14.700	18.30	8.08	103.0	1.4	30.51	8.30	
						14.700	18.30	7.83	99.8	1.5	30.54	8.31	
2012/3/29 8:50	W1	MF	832966	807751	2.6	1.300	18.50	8.90	113.90	1.7	30.38	8.50	
						1.300	18.50	8.97	114.80	1.7	30.38	8.46	
2012/3/29 8:45	W2	MF	832652	808903	15.5	1.000	18.20	8.76	111.60	1.6	30.52	8.45	
						1.000	18.20	8.38	106.70	1.5	30.56	8.38	
						7.750	18.20	7.90	100.50	1.5	30.44	8.33	
						7.750	18.20	7.62	96.90	1.6	30.44	8.30	
						14.500	18.40	8.22	106.10	1.5	30.36	8.83	
						14.500	18.40	8.50	108.60	1.8	30.39	8.62	
2012/3/29 8:30	W3	MF	832062	807877	15.1	1.000	18.30	8.40	107.00	1.6	30.46	8.48	
						1.000	18.20	8.28	105.50	1.6	30.49	8.45	
						7.550	18.20	8.25	105.00	1.9	30.61	8.37	
						7.550	18.20	7.97	101.50	1.8	30.58	8.35	
						14.100	18.00	8.98	114.30	1.6	30.45	8.73	
						14.100	18.00	8.49	108.00	1.7	30.46	8.62	
2012/3/29 9:10	C1	MF	833696	808198	16.9	1.000	18.20	8.36	106.50	1.5	30.63	8.44	
						1.000	18.20	8.24	105.00	1.5	30.63	8.43	
						8.450	18.30	8.24	105.20	2.0	30.72	8.40	
						8.450	18.30	8.16	104.10	2.1	30.72	8.38	
						15.900	18.00	8.81	112.20	1.8	30.47	8.74	
						15.900	18.00	8.39	106.90	1.7	30.46	8.63	
2012/3/29 8:15	C2	MF	831456	808761	15.3	1.000	18.20	8.02	102.10	1.6	30.44	8.53	
						1.000	18.20	8.11	103.30	1.5	30.46	8.48	
						7.650	18.30	8.14	103.80	1.6	30.70	8.41	
						7.650	18.30	8.12	103.50	1.6	30.70	8.40	
						14.300	18.00	8.20	104.70	1.5	30.74	8.34	
						14.300	18.00	8.18	104.40	1.5	30.74	8.36	
2012/3/29 9:30	C3	MF	832220	808851	17.2	1.000	18.30	7.99	101.80	1.7	30.49	8.55	
						1.000	18.30	8.06	102.70	1.7	30.48	8.49	
						8.600	18.30	8.17	104.20	1.7	30.66	8.44	
						8.600	18.30	8.18	104.40	1.7	30.67	8.43	
						16.200	18.00	8.30	106.00	1.5	30.75	8.36	
						16.200	18.00	8.42	107.40	1.5	30.73	8.41	

MF- Mid Flood Tide  
ME- Mid Ebb tide

# the monitoring result of SS of 29 and 31 March will be reported in next Reporting Period. This recommendation is brought up by the RE and agreed by the Contractor in order to meet on timely submission (within 2 weeks of each month) under the relevant Environmental Permit (EP).

**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works**  
**at Yung Shue Wan and Sok Kwu Wan**



**Sok Kwu Wan**

Date 31-Mar-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									
2012/3/31 17:35	W1	ME	832968	807704	2.3	1.150	19.60	8.89	116.0	1.0	30.22	8.68	
						1.150	19.60	8.79	114.7	1.1	30.52	8.58	
2012/3/31 17:30	W2	ME	832691	807961	13.5	1.000	18.90	8.74	112.7	1.1	30.55	8.46	
						1.000	18.80	8.52	109.8	1.0	30.59	8.44	
						6.750	18.70	8.47	123.7	1.1	28.96	8.39	
						6.750	18.70	8.65	112.7	1.1	28.96	8.37	
						12.500	19.60	7.29	92.9	1.2	30.40	8.86	
						12.500	19.50	7.10	90.5	1.1	30.42	8.70	
2012/3/31 17:15	W3	ME	832041	808902	13.3	1.000	18.90	8.26	106.4	1.1	30.58	8.50	
						1.000	18.80	8.17	105.3	1.1	30.58	8.47	
						6.650	18.70	8.03	103.3	1.2	30.66	8.41	
						6.650	18.70	7.80	100.4	1.2	30.68	8.40	
						12.300	19.20	7.49	96.9	1.3	30.32	8.62	
						12.300	19.20	7.52	97.4	1.2	30.35	8.52	
2012/3/31 17:55	C1	ME	833710	808151	15.2	1.000	18.90	7.78	100.5	1.5	30.52	8.44	
						1.000	18.90	7.81	100.8	1.7	30.53	8.41	
						7.600	18.70	7.56	97.2	1.1	30.69	8.36	
						7.600	18.60	7.50	96.4	1.3	30.70	8.33	
						14.200	19.30	7.20	93.4	1.7	30.29	8.60	
						14.200	19.30	7.27	94.3	1.5	30.30	8.50	
2012/3/31 17:00	C2	ME	831469	807775	13.3	1.000	19.10	7.77	100.7	1.0	30.40	8.59	
						1.000	19.10	8.70	112.6	1.1	30.45	8.60	
						6.650	19.00	8.40	108.5	1.0	30.50	8.42	
						6.650	19.00	8.39	108.4	0.9	30.51	8.39	
						12.300	18.90	8.45	109.0	1.2	30.52	8.36	
						12.300	18.90	8.46	109.1	1.1	30.52	8.35	
2012/3/31 18:15	C3	ME	832222	808847	15.5	1.000	19.10	8.51	110.2	1.4	30.50	8.31	
						1.000	19.10	8.53	110.5	1.4	30.50	8.31	
						7.750	18.90	8.59	110.8	1.5	30.57	8.26	
						7.750	18.90	8.50	109.7	1.4	30.58	8.29	
						14.500	18.80	8.48	109.3	1.4	30.67	8.30	
						14.500	18.80	8.47	109.2	1.5	30.68	8.30	
2012/3/31 11:40	W1	MF	832962	807715	2.7	1.350	19.20	8.14	105.6	1.3	30.41	8.38	
						1.350	19.20	8.12	105.3	1.2	30.42	8.35	
2012/3/31 11:35	W2	MF	832646	808001	15.5	1.000	18.80	8.37	107.9	1.2	30.60	8.35	
						1.000	18.80	8.00	103.0	1.2	30.64	8.33	
						7.750	18.70	7.86	101.0	1.0	30.57	8.30	
						7.750	18.70	7.69	98.8	1.1	30.64	8.28	
						14.500	19.10	7.03	96.1	1.2	30.21	8.91	
						14.500	19.10	7.22	96.9	1.2	30.22	8.59	
2012/3/31 11:20	W3	MF	832025	807883	15.1	1.000	18.70	8.09	104.1	1.2	30.64	8.48	
						1.000	18.70	8.08	103.9	1.1	30.65	8.45	
						7.550	18.60	7.49	96.1	1.1	30.55	8.41	
						7.550	18.60	6.84	87.7	1.2	30.48	8.36	
						14.100	18.50	8.77	113.4	1.3	30.26	8.67	
						14.100	18.50	8.46	109.3	1.4	30.26	8.56	
2012/3/31 12:00	C1	MF	8333691	808177	17.3	1.000	18.80	8.93	115.0	1.4	30.52	8.55	
						1.000	18.80	8.53	110.0	1.4	30.52	8.46	
						8.650	18.80	8.14	104.9	1.4	30.59	8.39	
						8.650	18.80	8.04	103.6	1.4	30.59	8.38	
						16.300	18.50	8.36	108.2	1.5	30.26	8.71	
						16.300	18.50	8.03	104.0	1.5	30.27	8.56	
2012/3/31 11:05	C2	MF	831451	807749	15.3	1.000	19.10	8.25	106.7	1.0	30.38	8.74	
						1.000	19.10	8.03	101.7	1.0	30.39	8.53	
						7.650	19.00	8.06	102.7	0.9	30.44	8.34	
						7.650	19.00	7.86	102.8	0.9	30.44	8.33	
						14.300	18.70	7.93	103.8	1.5	30.50	8.32	
						14.300	18.70	7.94	103.9	1.3	30.54	8.32	
2012/3/31 12:20	C3	MF	832197	808864	17.5	1.000	19.20	8.29	107.1	1.4	30.07	8.29	
						1.000	19.20	8.27	107.1	1.5	30.36	8.28	
						8.750	18.90	8.32	107.3	1.4	30.59	8.31	
						8.750	18.90	8.25	106.4	1.4	30.60	8.30	
						16.500	18.70	8.28	106.6	1.4	30.82	8.32	
						16.500	18.70	8.21	105.7	1.4	30.82	8.30	

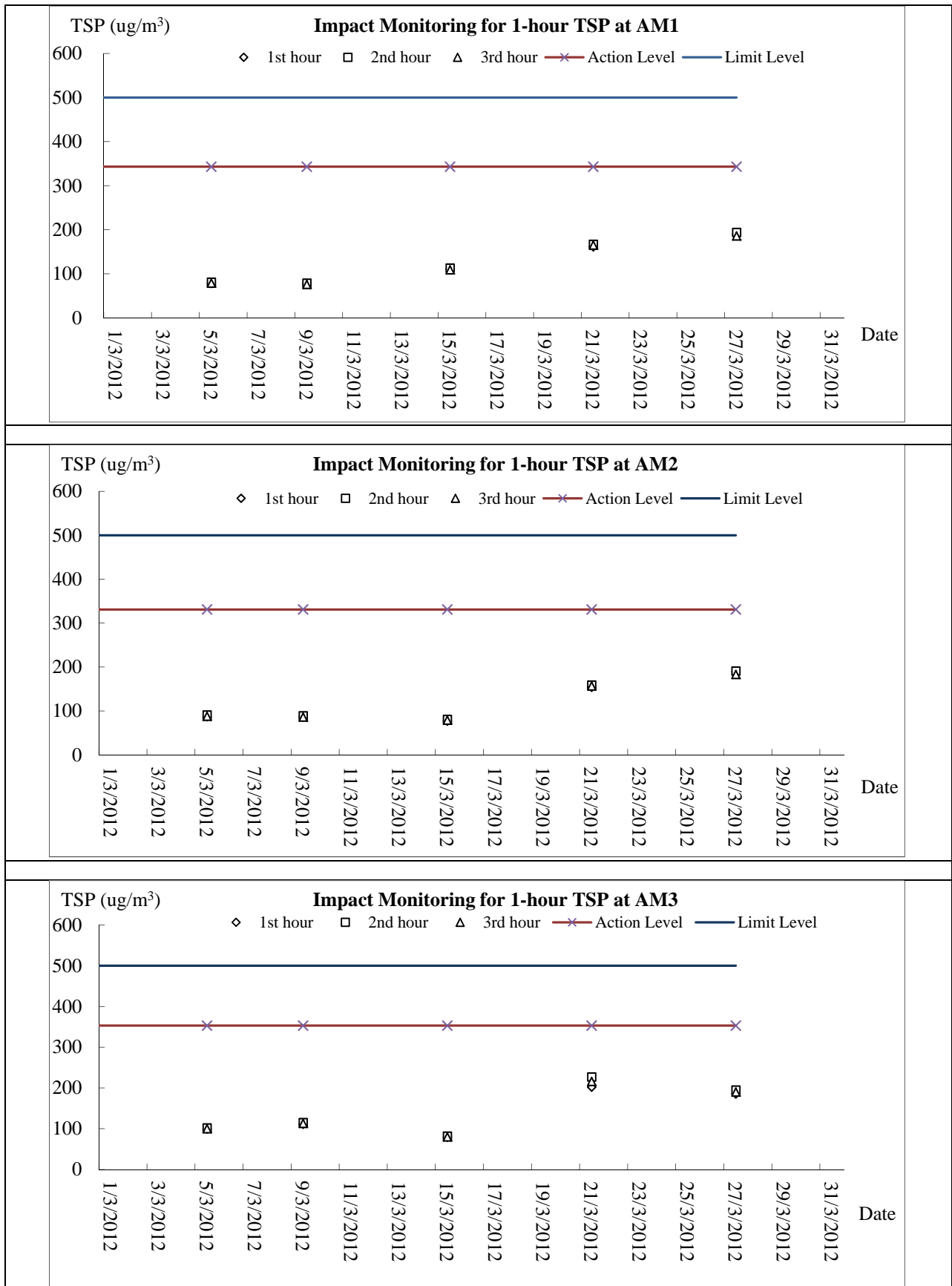
MF- Mid Flood Tide  
ME- Mid Ebb tide

# the monitoring result of SS of 29 and 31 March will be reported in next Reporting Period. This recommendation is brought up by the RE and agreed by the Contractor in order to meet on timely submission (within 2 weeks of each month) under the relevant Environmental Permit (EP).

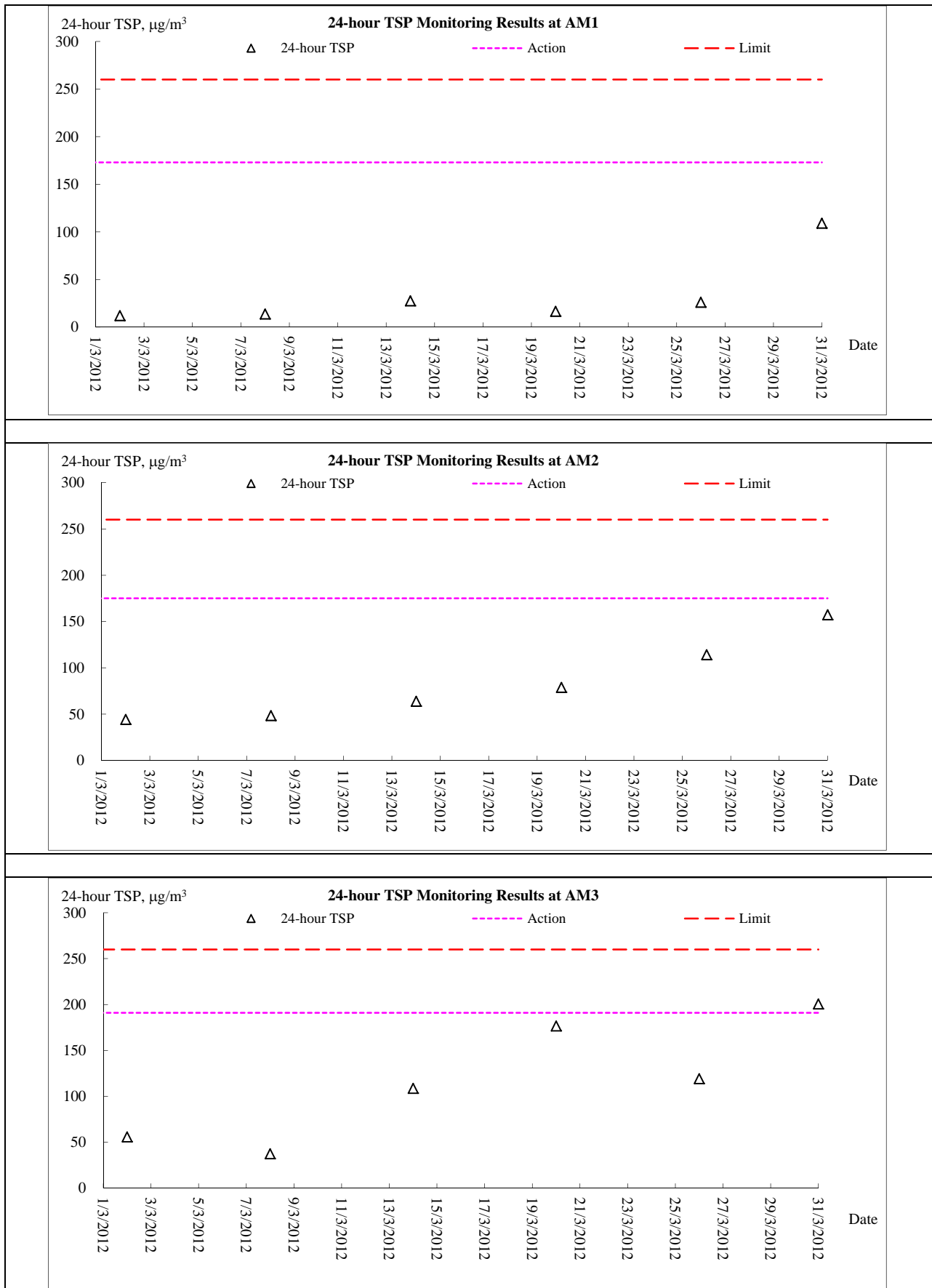
## **Appendix H**

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

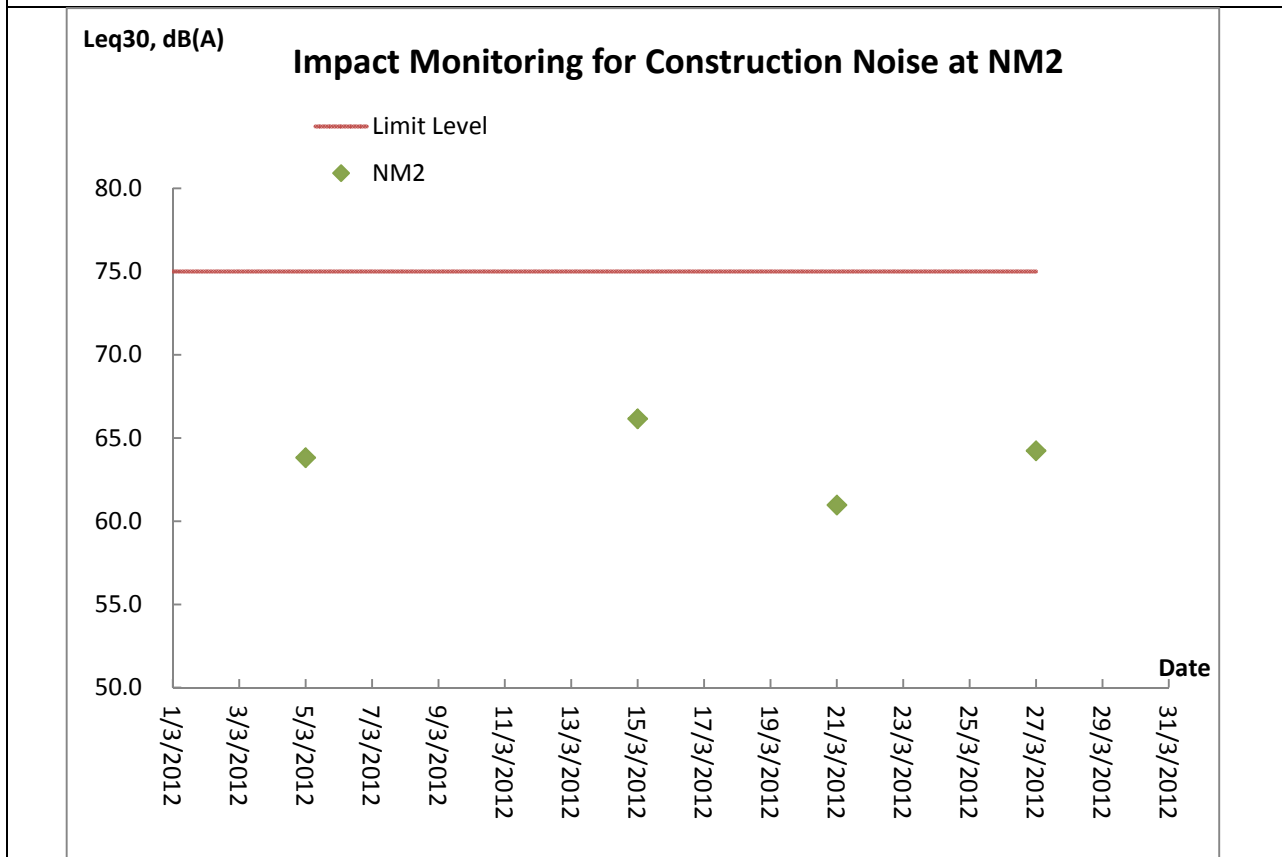
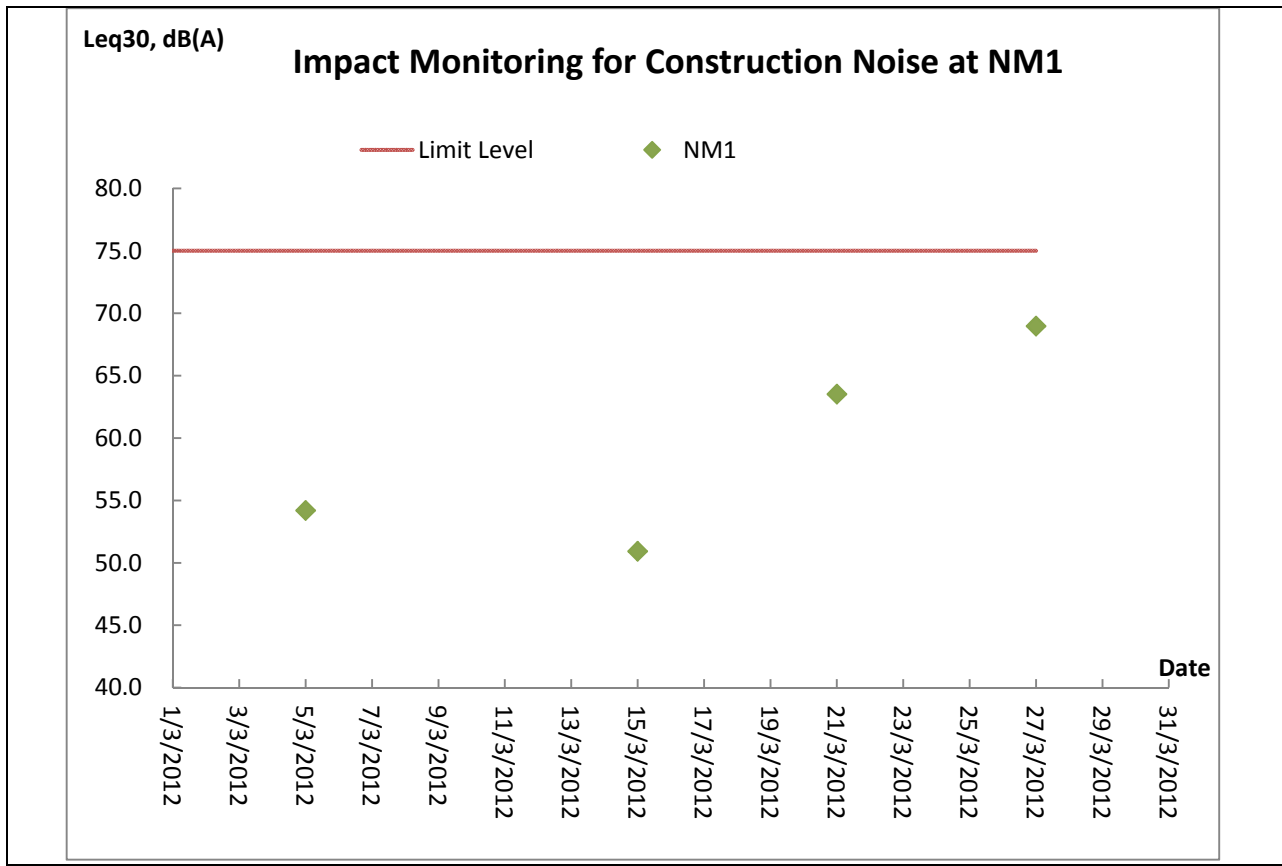
**Air Quality Monitoring – 1 hour TSP Monitoring**

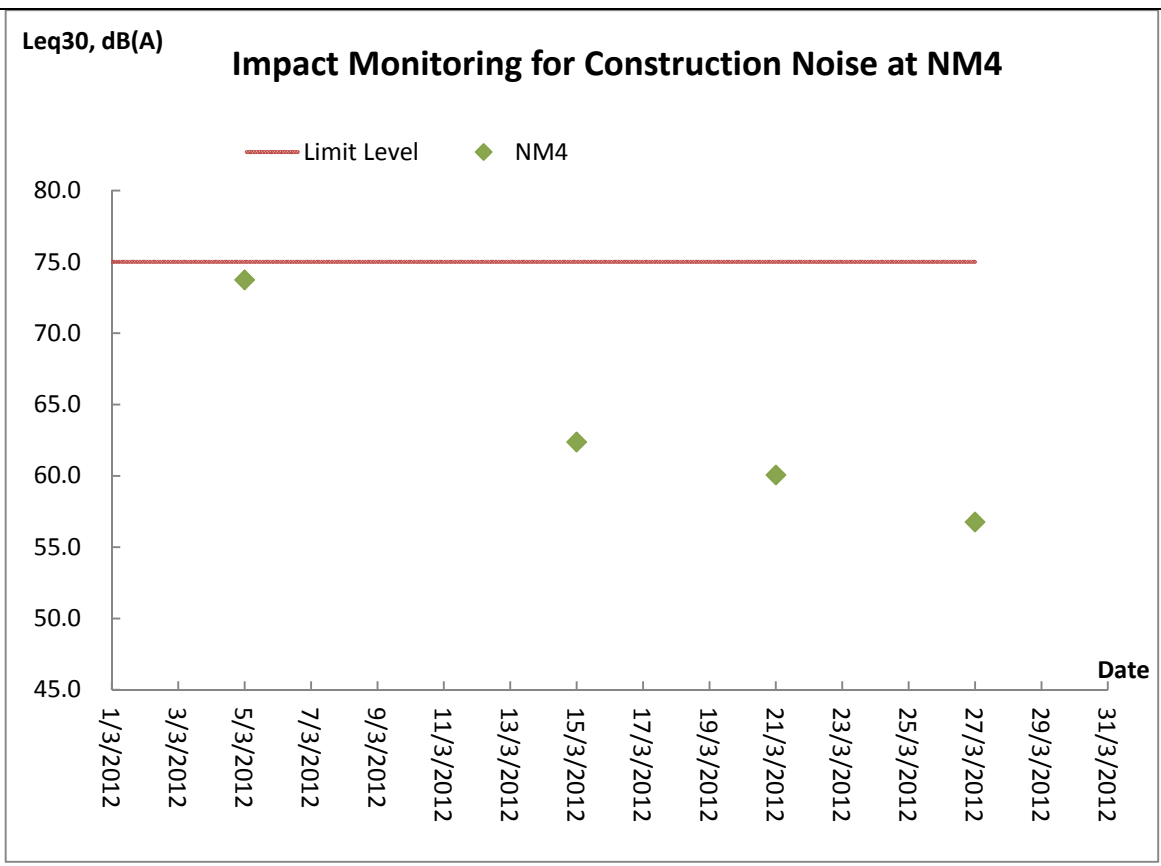
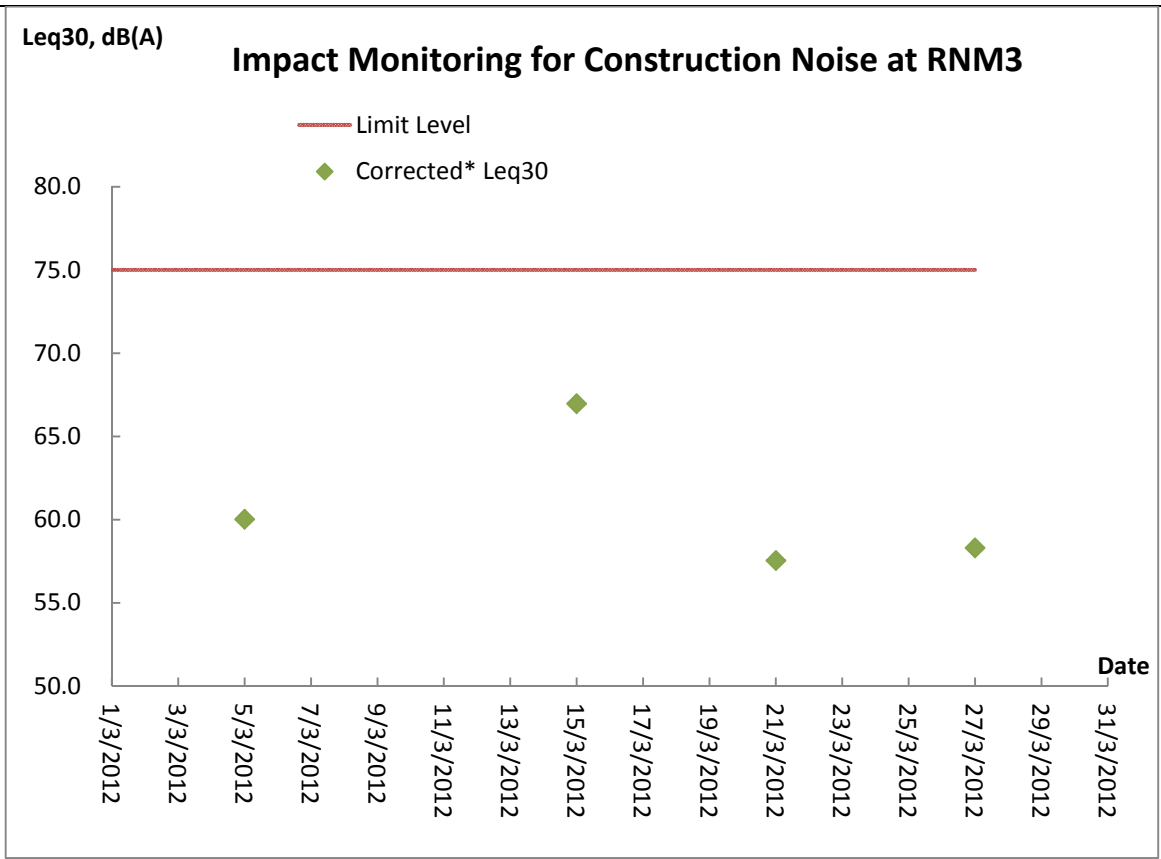


### Air Quality Monitoring – 24 hour TSP Monitoring



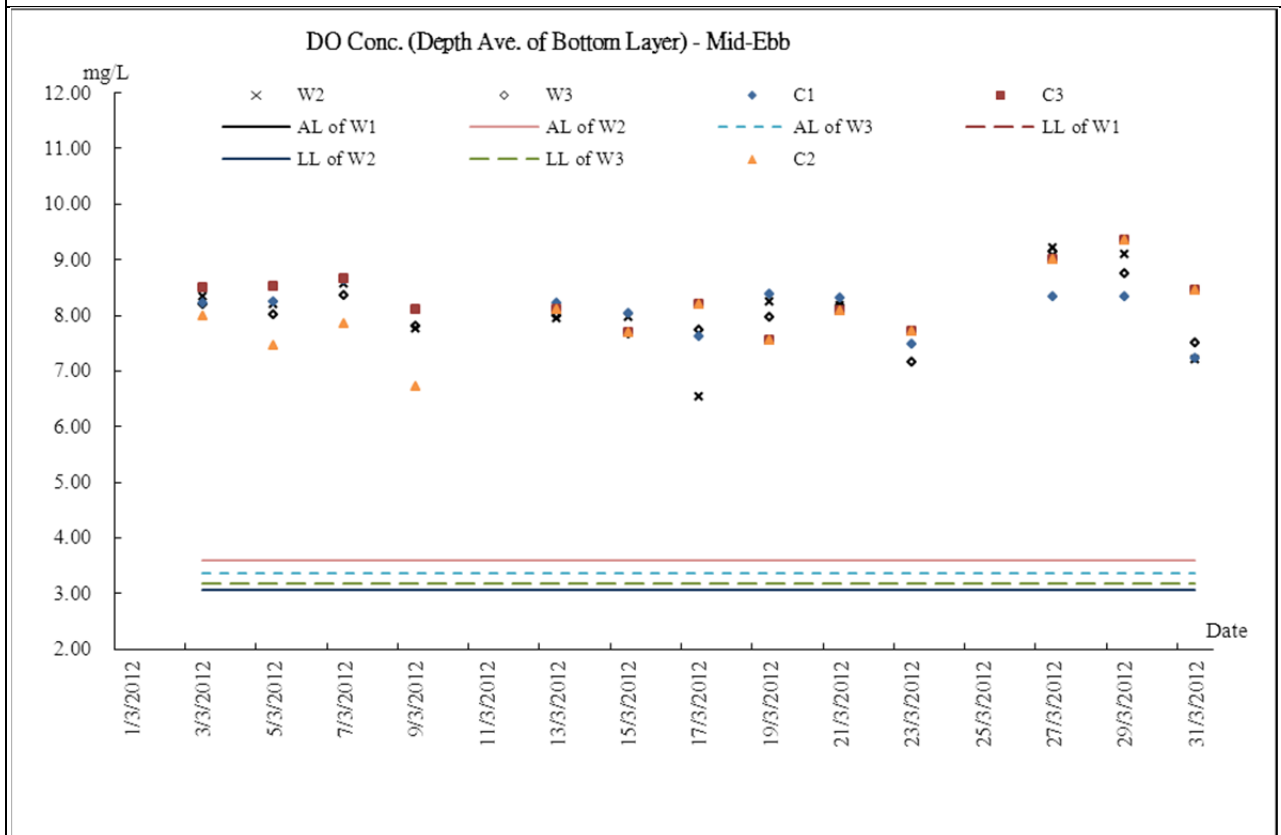
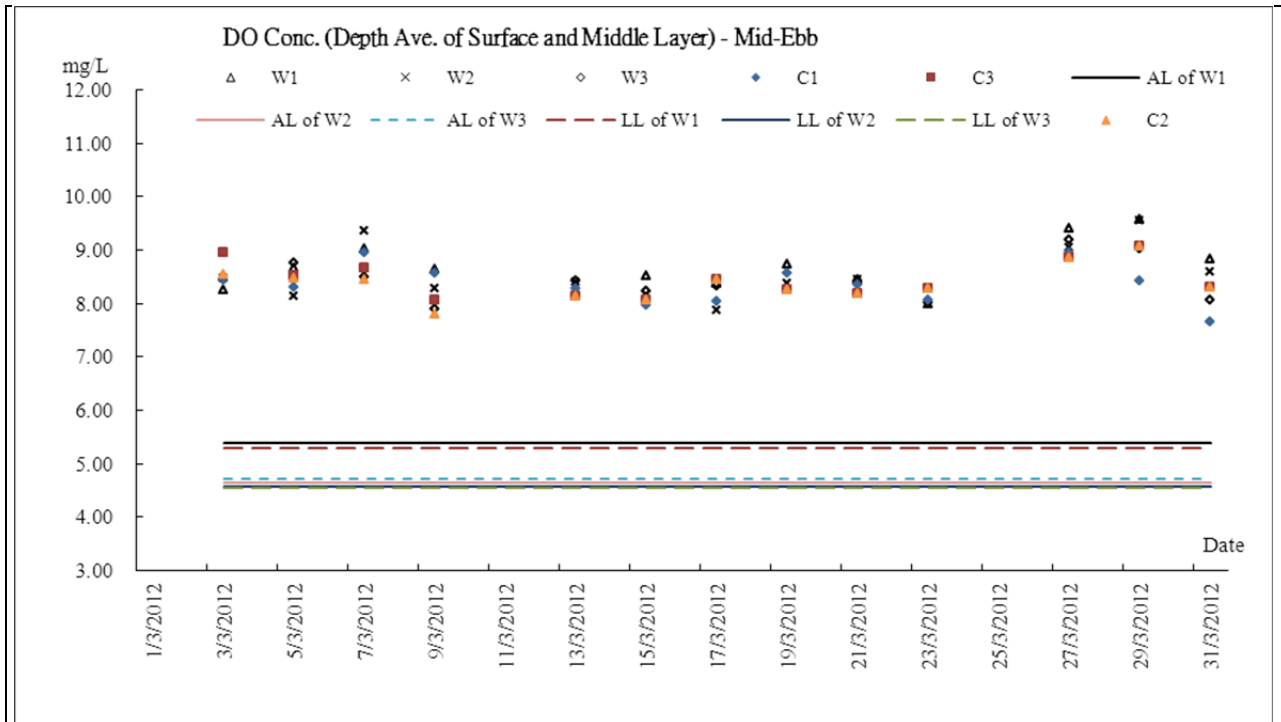
Construction Noise Monitoring

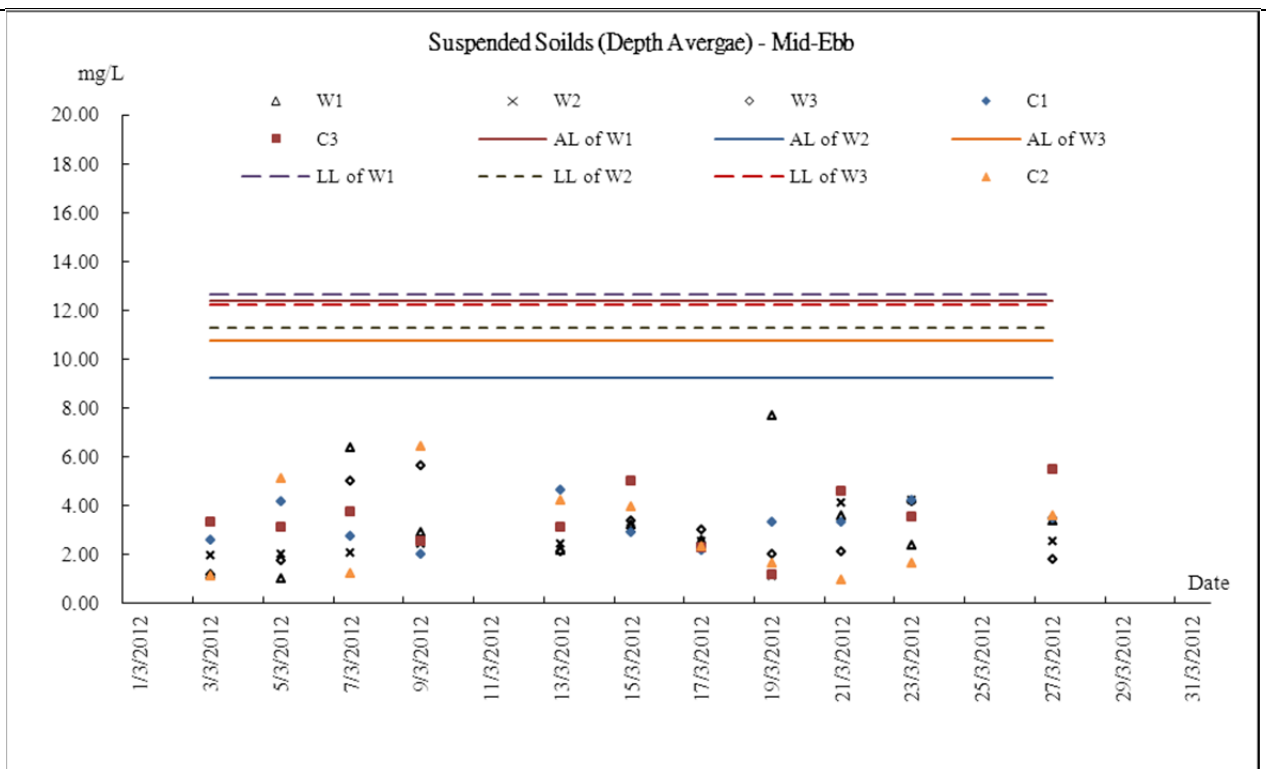
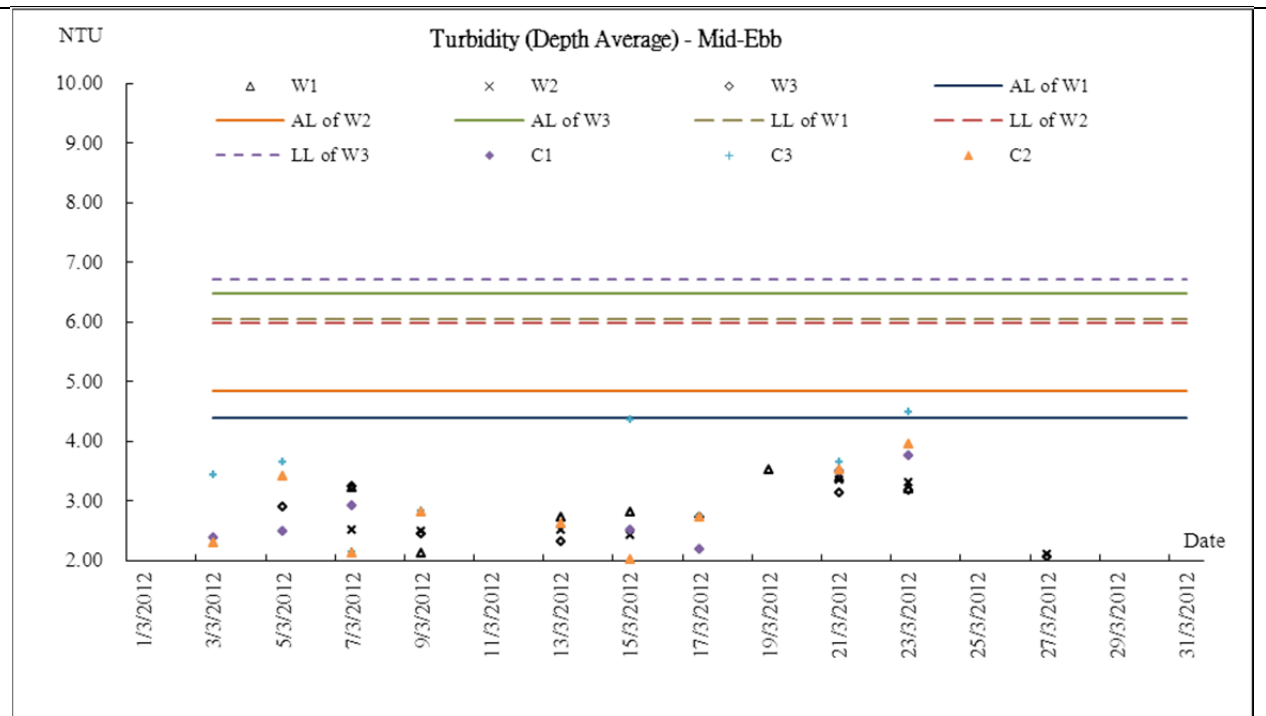




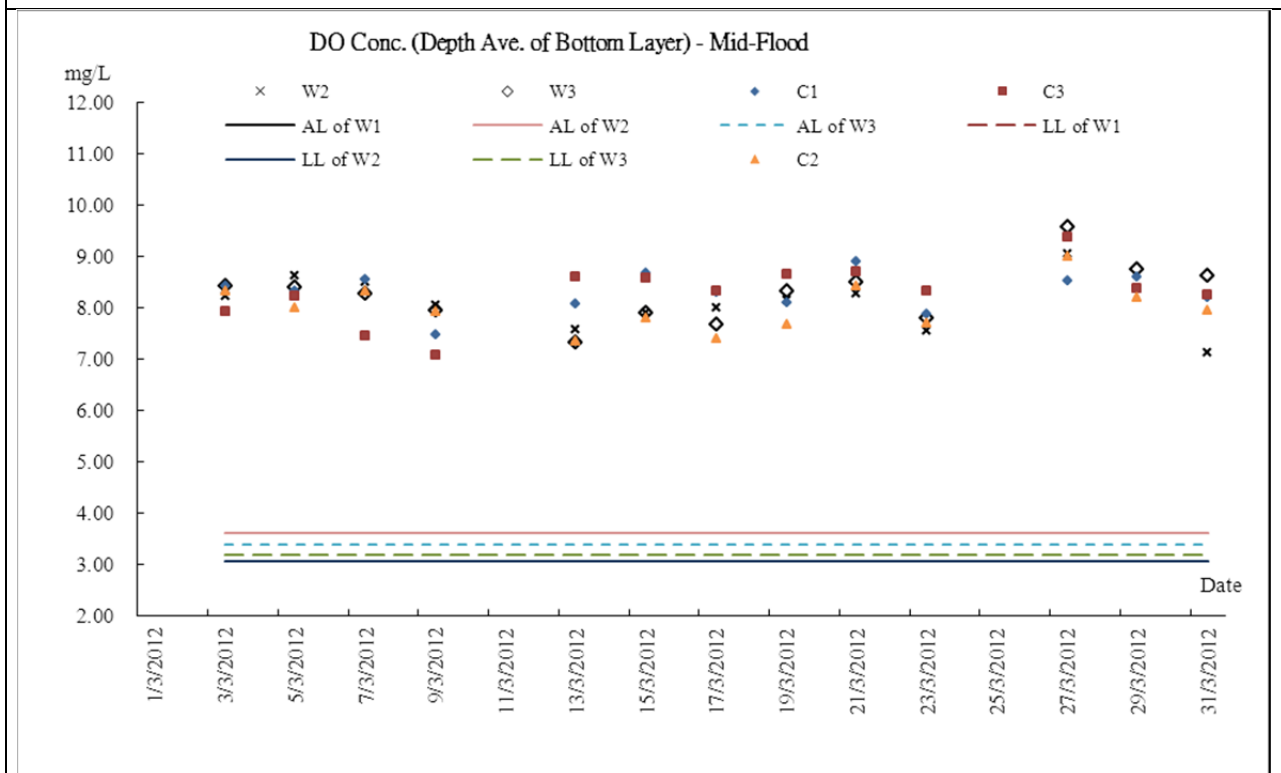
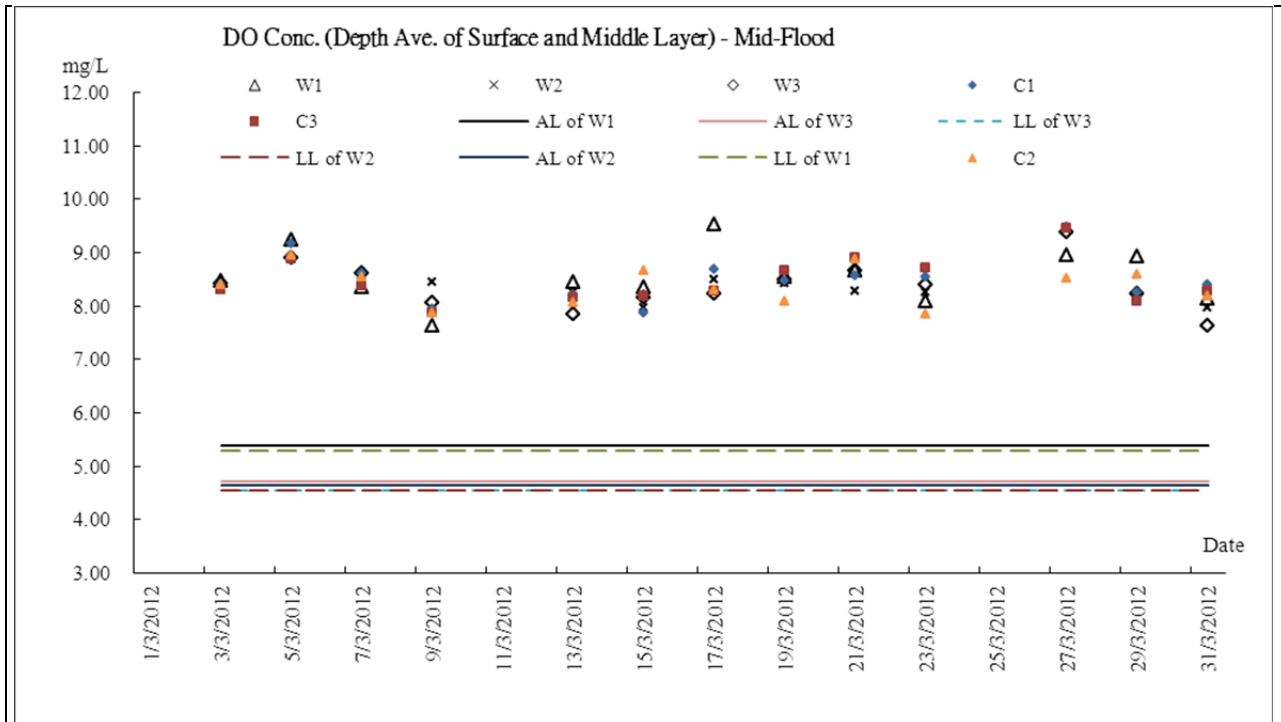


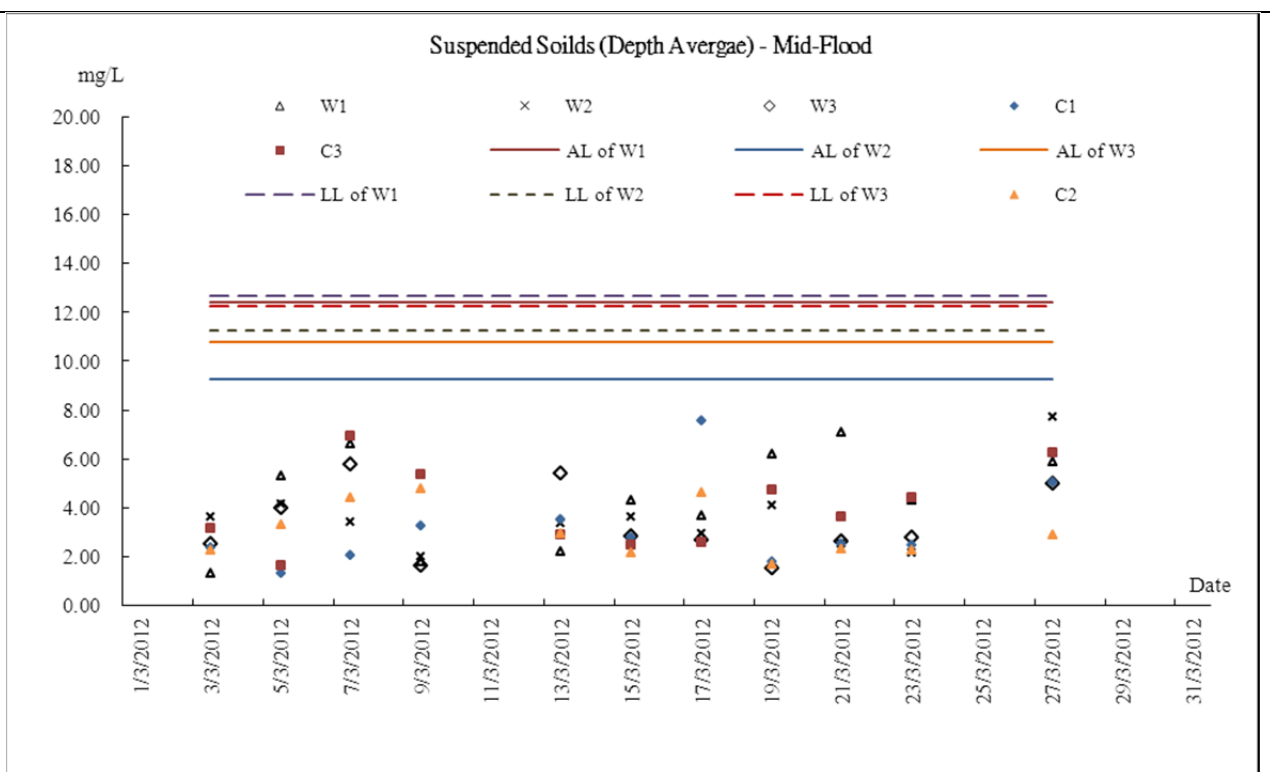
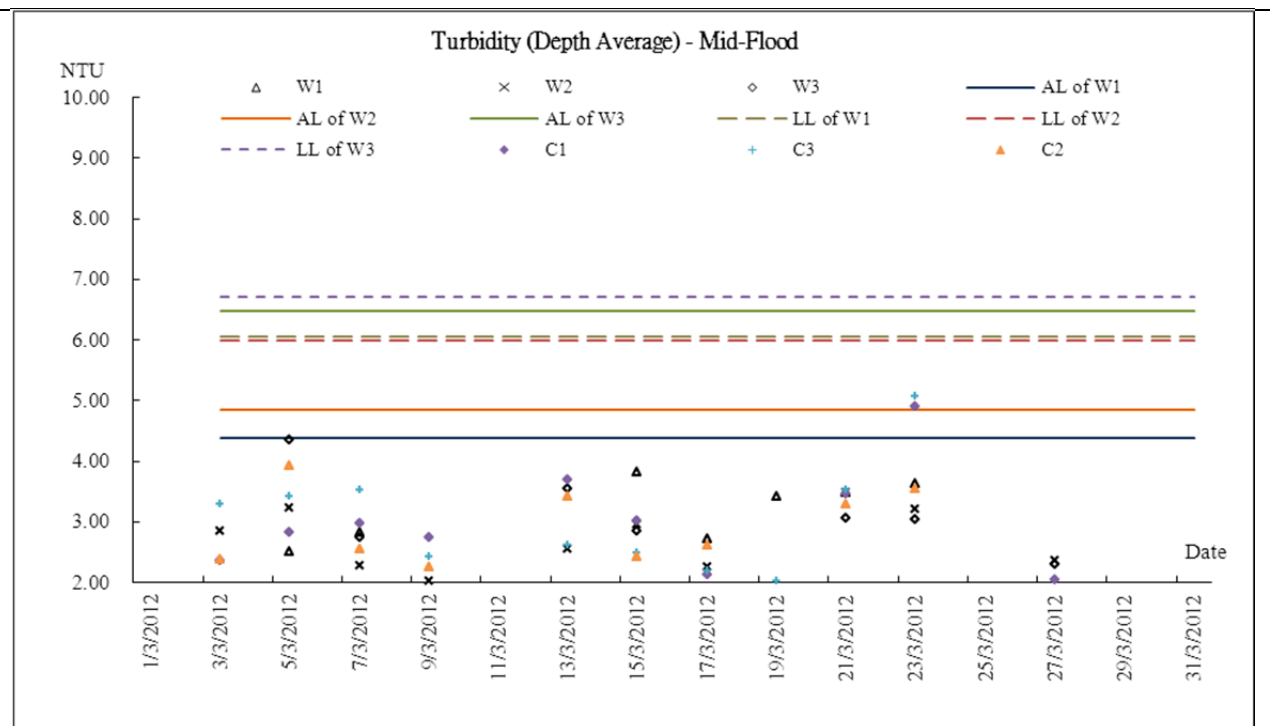
Marine Water Quality Monitoring - Mid-Ebb Tide





Marine Water Quality Monitoring - Mid-Flood Tide





## **Appendix I**

### **Meteorological Information**

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

Date		Weather
1-Mar-12	Thu	Cloudy.
2-Mar-12	Fri	Coastal fog and one or two light rain patches at first.
3-Mar-12	Sat	Moderate easterly winds.
4-Mar-12	Sun	Moderate east to southeasterly winds.
5-Mar-12	Mon	Mainly cloudy with coastal mist.
6-Mar-12	Tue	Moderate easterly winds.
7-Mar-12	Wed	Mainly cloudy with a few light rain patches.
8-Mar-12	Thu	Moderate to fresh easterly winds.
9-Mar-12	Fri	Mainly cloudy with coastal mist.
10-Mar-12	Sat	Mainly cloudy with a few light rain patches.
11-Mar-12	Sun	Moderate east to northeasterly winds, freshening gradually.
12-Mar-12	Mon	Moderate northeasterly winds
13-Mar-12	Tue	Cloudy with mist and a few light rain patches.
14-Mar-12	Wed	Cloudy with mist and a few light rain patches.
15-Mar-12	Thu	Fresh easterly winds
16-Mar-12	Fri	Cloudy with fog.
17-Mar-12	Sat	Light to moderate easterly winds.
18-Mar-12	Sun	Cloudy and misty.
19-Mar-12	Mon	Moderate easterly winds, occasionally fresh offshore.
20-Mar-12	Tue	Cloudy.
21-Mar-12	Wed	Mainly cloudy with a few mist patches.
22-Mar-12	Thu	Moderate to fresh easterly winds
23-Mar-12	Fri	Fresh easterly winds
24-Mar-12	Sat	Cloudy with fog.
25-Mar-12	Sun	Moderate to fresh easterly winds
26-Mar-12	Mon	Cloudy and misty.
27-Mar-12	Tue	Mainly cloudy with a few mist patches.
28-Mar-12	Wed	Mainly cloudy with relatively low visibility.
29-Mar-12	Thu	Sunny intervals
30-Mar-12	Fri	Moderate easterly winds
31-Mar-12	Sat	Mainly cloudy with relatively low visibility.

## **Appendix J**

### **Monthly Summary Waste Flow Table**

### Monthly Summary Waste Flow Table for March 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)  (in '000m <sup>3</sup> )		Hard Rock and Large Broken Concrete (b)  (in '000m <sup>3</sup> )		Reused in the Contract (c)  (in '000m <sup>3</sup> )		Reused in other Projects (d)  (in '000m <sup>3</sup> )		Disposed as Public Fill (e)  (in '000m <sup>3</sup> )		Imported Fill (f)  (in '000m <sup>3</sup> )		Metals  (in '000kg)		Paper/ cardboard packaging  (in '000kg)		Plastics  (in '000kg)		Chemical Waste  (in '000kg)		Others, e.g. rubbish  (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>2011</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																						
May																						
Jun																						
<b>Sub-total</b>	11.219	47.669	0.160	0.407	0.740	1.059	0.000	0.000	10.479	46.610	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	251.200	66.940
Jul																						
Aug																						
Sep																						
Oct																						
Nov																						
Dec																						
<b>Total</b>	11.219	47.669	0.160	0.407	0.740	1.059	0.000	0.000	10.479	46.610	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	251.200	66.940
	58.887		0.567		1.799		0.000		57.089		0.000		0.000		0.000		0.000		0.000		318.140	

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: \_\_\_\_\_  
 RE's Representative: \_\_\_\_\_  
 Contractor's Representative: \_\_\_\_\_  
 IEC's Representative: \_\_\_\_\_  
 Time: \_\_\_\_\_

Checklist No. TCS512B-  
Ray Cheung  
Joseph Ng ✓  
Edwin Leung ✓  
Selina Leung ✓  
9:30am ✓

Date: 6-5-2012

**PART A: GENERAL INFORMATION**

Weather:  Sunny  Fine  Cloudy  Rainy

Temperature: \_\_\_\_\_ °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**

<b>Note:</b> Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable	<b>Not Obs.</b>	<b>Yes</b>	<b>No</b>	<b>Follow Up</b>	<b>N/A</b>	<b>Photo/ Remarks</b>
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**Section 1: Water Quality**

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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Remark 1 "L2"
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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.16	Are toilets properly maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" 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 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 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 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 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 checked="" 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 checked="" 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 checked="" 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 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 checked="" 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 checked="" 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 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 checked="" 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 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 checked="" 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 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 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 checked="" 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 checked="" 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 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 type="checkbox"/>	<input checked="" 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 checked="" 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 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
<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 checked="" 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 checked="" 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 checked="" 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"/>	<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"/>	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(Sok Kwu Wan)

Remarks:

Findings of Site Inspection: ( 6-5-2012 ): Follow up:

① Desilting tank under concreting plant needed to be cleaned and removed the silt to ~~restore~~ its desilting ability. ✓  
at Portion "L2"

The tank has been cleaned. (13-1-2012)  
Rgn

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

Selma (Selina Leung)      Joseph (Joseph NG)      Rayner (Ray Cheung)      ( )      ( )

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

Inspected by \_\_\_\_\_  
 ETL/ ET's Representative: \_\_\_\_\_  
 RE's Representative: \_\_\_\_\_  
 Contractor's Representative: \_\_\_\_\_  
 IEC's Representative: \_\_\_\_\_

Checklist No. TCS512B-  
Ruby Cheung  
Joseph Ng  
Edwin Leung

Date: 13-3-2012

Time: 2pm

**PART A: GENERAL INFORMATION** Environmental Permit No.  EP- 281/2007A

Weather:  Sunny  Fine  Cloudy  Rainy

Temperature: \_\_\_\_\_ °C

Humidity:  High  Moderate  Low

Wind:  Strong  Breeze  Light  Calm

Area Inspected  
 1 Sok Kwu Wan

**PART B: SITE AUDIT**

Note:	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"/>	
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 checked="" 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 checked="" type="checkbox"/>	
1.15 Are there toilets provided on site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.16 Are toilets properly maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 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 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 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 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 checked="" 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 checked="" 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 checked="" 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 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 checked="" 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 checked="" 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 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 checked="" 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 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 checked="" 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 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.:	Yes	No	Follow Up	N/A	Photo/Remarks
	Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable					
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"/>	
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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"/>	
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"/>	
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 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 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"/>	
4.02	Are receptacles available for general refuse collection?	<input type="checkbox"/>	<input checked="" 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"/>	
4.04	Is general refuse disposed of properly and regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.05	Is the Contractor registered as a chemical waste producer?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.06	Are the chemical waste containers and storage area properly labelled?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.07	Are the chemical wastes stored in proper storage areas?	<input type="checkbox"/>	<input checked="" 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"/>	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.10	Are incompatible chemical wastes stored in different areas?	<input type="checkbox"/>	<input checked="" 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"/>	
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"/>	
4.13	Are chemical/fuel storage areas bounded?	<input type="checkbox"/>	<input checked="" 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"/>	
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"/>	
4.16	Are construction wastes reused?	<input type="checkbox"/>	<input checked="" 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"/>	
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"/>	
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"/>	
4.20	Are appropriate procedures followed if contaminated material exists?	<input type="checkbox"/>	<input checked="" 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"/>	
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"/>	
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 checked="" 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 checked="" 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 checked="" 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 checked="" 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"/>	<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"/>	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(Sok Kwu Wan)

Remarks:

Findings of Site Inspection: (13-3-2012): Follow up:

No environmental issue was observed during site inspection. ✓

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

Ray

Henry

(Joseph Li, B.I.O.W.)

(Ray Cheung)

(H.S. Lam)

Project: TCS/00512/09  
Construction of Sewage Treatment Works at  
Yung Shue Wan and Sok Kwu Wan  
 \_\_\_\_\_  
 \_\_\_\_\_  
 Date: 20 March 2012

Inspected by \_\_\_\_\_  
 ETL/ ET's Representative: Nicola Han  
 RE's Representative: Joseph Ng  
 Contractor's Representative: Edwin Lenny  
 IEC's Representative: \_\_\_\_\_  
 Time: 14:00 ✓

Environmental Permit No.  
 EP- 281/2007A

**PART A: GENERAL INFORMATION**

Weather:  Sunny  Fine  Cloudy  Rainy

Temperature: 22.7 °C

Humidity:  High  Moderate  Low

Wind:  Strong  Breeze  Light  Calm

Area Inspected  
 1 Sok Kwu Wan

**PART B: SITE AUDIT**

Note:	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
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**Section 1: Water Quality**

Note:	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.16 Are toilets properly maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 spill 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"/>	

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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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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<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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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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 checked="" 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 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"/>	

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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 checked="" 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 checked="" 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 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 checked="" 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 checked="" 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 checked="" 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 type="checkbox"/>	<input checked="" 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 checked="" 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Note:	Not Obs.:	Yes:	No:	Follow Up:	N/A:	Photo/Remarks:
	Not Observed;	Compliance;	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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	
5.03	Are surgery works carried out for the damaged trees?	<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 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

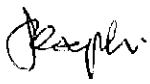
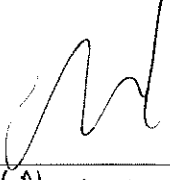
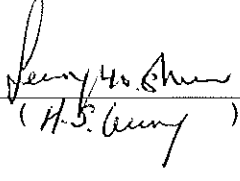
(Sok Kwu Wan)

Remarks:

Findings of Site Inspection: (20-3-2022): Follow up:

① Position L2 → sedimentation tank  
 For reminder, the geotextile for filtration purpose at the effluent point should be replaced regularly.

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 C. Kwok )	 ( Nicholas Hon )	 ( H.S. Kwok )	( )

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

Inspected by \_\_\_\_\_  
 ETL/ ET's Representative: \_\_\_\_\_  
 RE's Representative: \_\_\_\_\_  
 Contractor's Representative: \_\_\_\_\_  
 IEC's Representative: \_\_\_\_\_  
 Checklist No. TCS512B-  
Ray Chang  
Joseph Ng  
Edwin Leung  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Date: 27-3-2012

Time: 2pm

**PART A: GENERAL INFORMATION** Environmental Permit No.  EP- 281/2007A

Weather:  Sunny  Fine  Cloudy  Rainy

Temperature: \_\_\_\_\_ °C

Humidity:  High  Moderate  Low

Wind:  Strong  Breeze  Light  Calm

Area Inspected  
 1 Sok Kwu Wan

**PART B: SITE AUDIT**

Note:	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"/>	
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 checked="" type="checkbox"/>	
1.16 Are toilets properly maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	

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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 checked="" 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 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 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 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 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 checked="" 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 checked="" 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 checked="" 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 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 checked="" 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 checked="" 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 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 checked="" 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 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 checked="" 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 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"/>	

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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 checked="" 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 checked="" 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 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 checked="" 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 checked="" 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 checked="" 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 type="checkbox"/>	<input checked="" 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 checked="" 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Refer to Monthly EM&A report - Appendix M
5.02	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.03	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.04	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.05	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Section 6: Others</b>						
6.01	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(Sok Kwu Wan)

**Remarks:**

Findings of Site Inspection: (27-3-2012): Follow up:

No environmental issue was observed during inspection.

The sedimentation tank was reminded to be placed at portion G7 retaining wall ("Bay C") to protect water quality prior discharging.

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

Ray

Henry Ho Shun

( )      ( Joseph Ho )      ( Ray Cheung )      ( H.S. Ho )      ( )

## **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	<p>Implementation of following measures during the sewer construction:</p> <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

\* 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 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

\* 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 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		√		

\* 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 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><b>Construction and Demolition Material</b></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

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\*\* 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		√		

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

N/A Not applicable

**Appendix M**

**Tree Inspection Report**



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

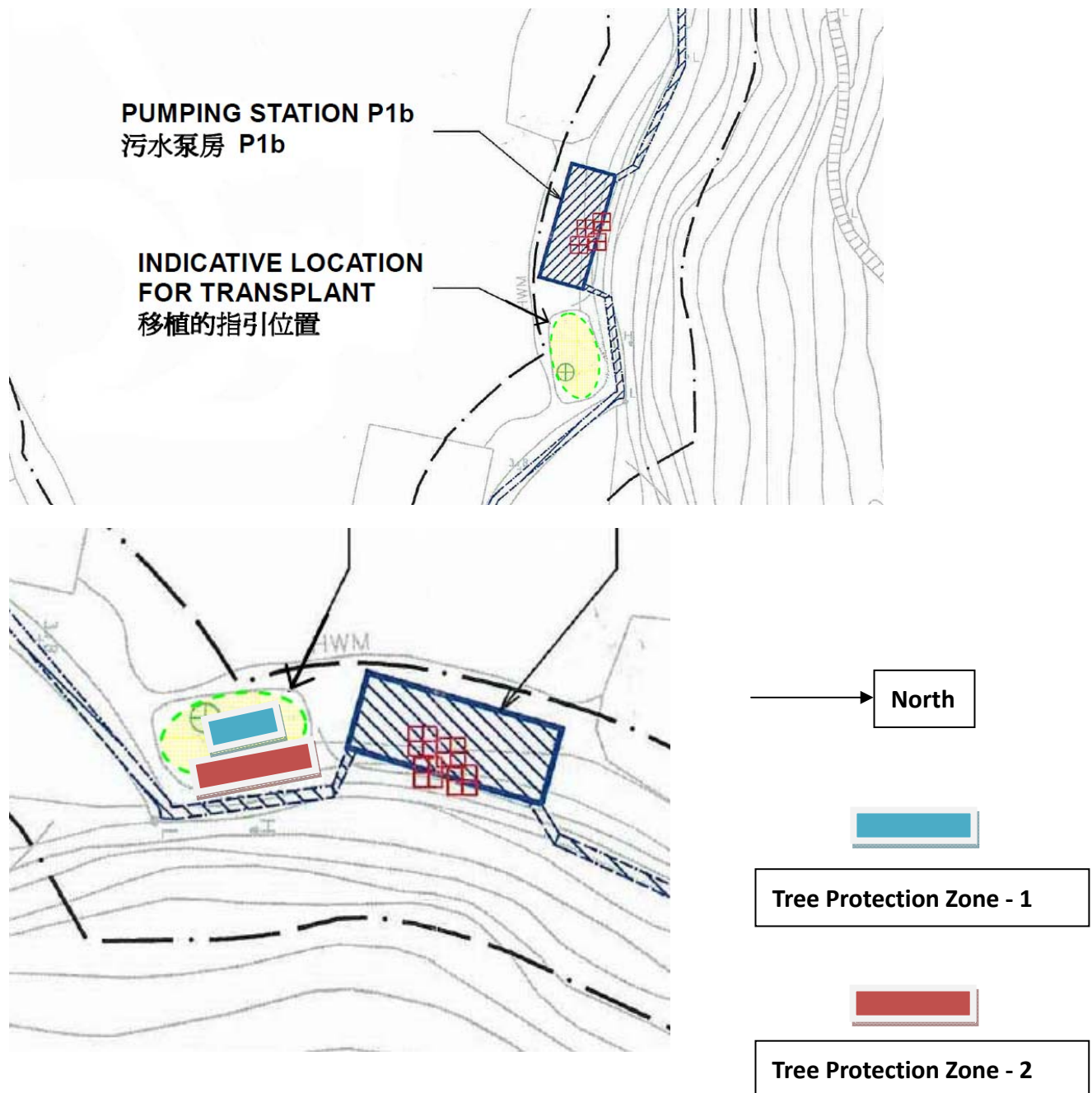
**Tree Inspection Report for *Celtis timorensis***

**Inspection Date : 15-03-2012**



## 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 March 2012, around 13:30
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_1A, CT_2A, CT_3A, CT_4A, CT_5A, CT_6A & CT_7A,

## 3. Proposed Inspection Schedule

Month	Actual / proposed Inspection Date
July, 2011	14 and 25 July 2011
August, 2011	9 and 26 August 2011
September, 2011	5 and 23 September 2011
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 March 2012

## 4. Summary of Inspection Result


Tree No	Speciation	Health Status
CT_1A	<i>Celtis timorensis</i>	Very Poor
CT_2A	<i>Celtis timorensis</i>	Very Poor
CT_3A	<i>Celtis timorensis</i>	Very Poor
CT_4A	<i>Celtis timorensis</i>	Fair
CT_5A	<i>Celtis timorensis</i>	Good
CT_6A	<i>Celtis timorensis</i>	Good
CT_7A	<i>Celtis timorensis</i>	Very Poor

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\_1A**

	<p><b>Current Status: Very 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\_2A**



**Current Status: Very Poor**

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

**Tree ID: CT\_3A**



**Current Status: Very Poor**

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

**Tree ID: CT\_4A**



**Current Status: Fair**

**Justification: New green leaves were found. Significant improvement in health. The plant was growing.**

**Tree ID: CT\_5A**



**Current Status: Good**

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

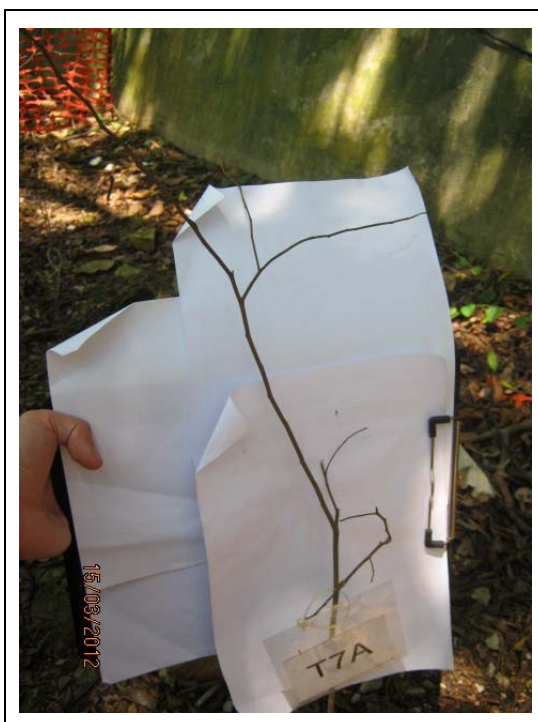
**Tree ID: CT\_6A**



**Current Status: Good**

**Justification: Green leaves were found. Significant improvement in health. The plant was healthy.**

**Tree ID: CT\_7A**



**Current Status: Very Poor**

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

### **Overall Condition**

In the Tree Protection Zone 2, the condition of CT\_1A-7A was generally poor. The health of CT4A ,CT5A and CT6A 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 CT1A to CT3A, CT\_7A were in very poor condition, compensatory of additional *Celtis timorensis* is proposed and will be carried out in the coming warm weather season for better growing.



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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

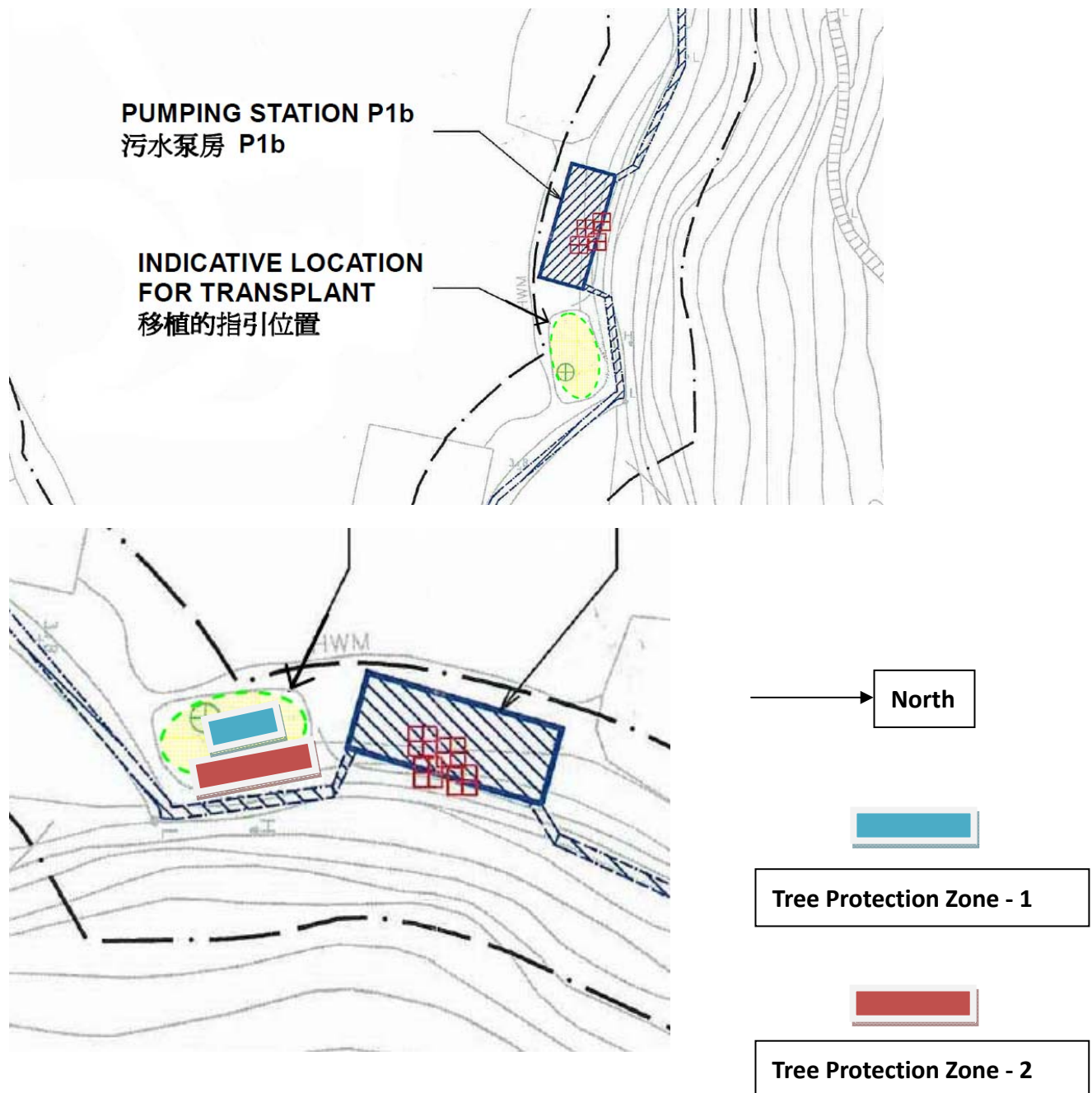
**Tree Inspection Report for *Celtis timorensis***

**Inspection Date : 31-03-2012**



## 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	31 March 2012, around 13:30
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_1A, CT_2A, CT_3A, CT_4A, CT_5A, CT_6A & CT_7A,

## 3. Proposed Inspection Schedule

Month	Actual / proposed Inspection Date
July, 2011	14 and 25 July 2011
August, 2011	9 and 26 August 2011
September, 2011	5 and 23 September 2011
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

## 4. Summary of Inspection Result

Tree No	Speciation	Health Status
CT_1A	<i>Celtis timorensis</i>	Very Poor
CT_2A	<i>Celtis timorensis</i>	Very Poor
CT_3A	<i>Celtis timorensis</i>	Very Poor
CT_4A	<i>Celtis timorensis</i>	Fair
CT_5A	<i>Celtis timorensis</i>	Good
CT_6A	<i>Celtis timorensis</i>	Good
CT_7A	<i>Celtis timorensis</i>	Very Poor

Inspection parameters or criteria

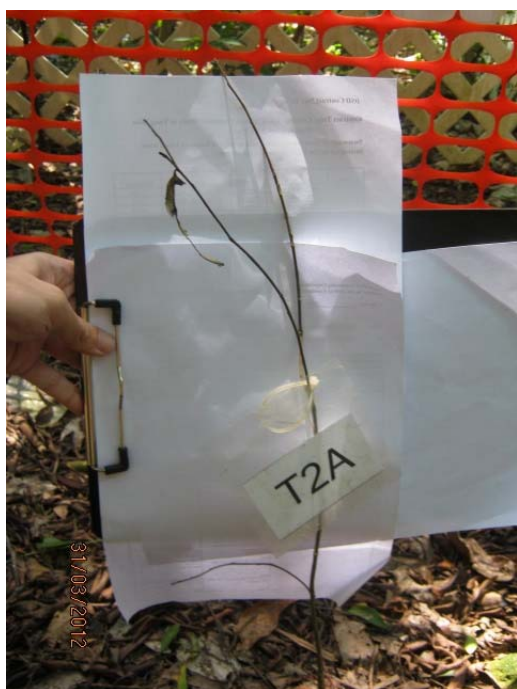
- Good      Leaves and stem grown very lush, additional or larger in size of leaves can be observed in each inspection
- Fair      Green leaves can be found. No major unhealthy condition of the plant is observed. The condition is stable.
- Poor      Fewer green leaves than usual are observed. No new 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\_1A**

	<p><b>Current Status: Very 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\_2A**



**Current Status: Very Poor**

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

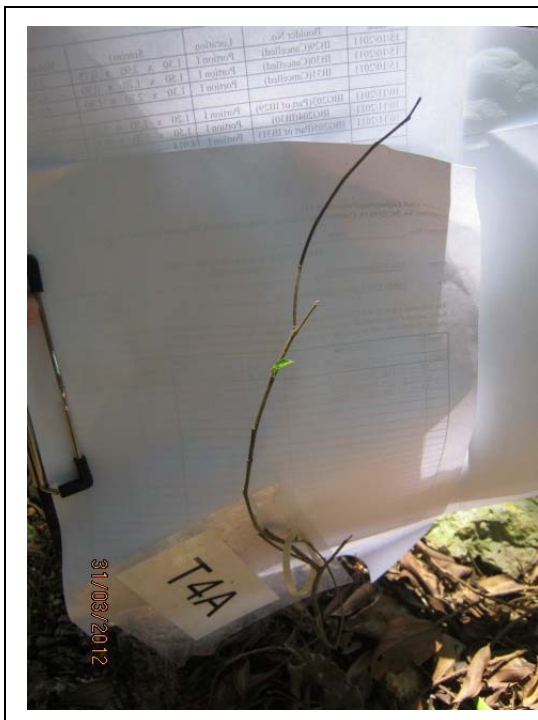
**Tree ID: CT\_3A**



**Current Status: Very Poor**

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

**Tree ID: CT\_4A**



**Current Status: Fair**

**Justification: New green leaves were found. Significant improvement in health. The plant was growing.**

**Tree ID: CT\_5A**



**Current Status: Good**

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

**Tree ID: CT\_6A**



**Current Status: Good**

**Justification: Green leaves were found. Significant improvement in health. The plant was healthy.**

**Tree ID: CT\_7A**



**Current Status: Very Poor**

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

### **Overall Condition**

In the Tree Protection Zone 2, the condition of CT\_1A-7A was generally poor. The health of CT4A ,CT5A and CT6A 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 CT1A to CT3A, CT\_7A were in very poor condition, compensatory of additional *Celtis timorensis* is proposed and will be carried out in the coming warm weather season for better growing.



**Appendix N**

**Investigation Report  
for the Air Quality Exceedance**

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**To** Mr. Vincent Chan **Fax No** 2982 1163

**Company** Leader Civil Engineering Corporation Ltd

**From** Nicola Hon **Date** 13 April 2012

**Our Ref** TCS00512/09/300/F0467 **No of Pages** 2 (Incl. cover sheet)

**RE** DSD Contract No. DC/2009/13 – Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan  
Sok Kwu Wan Portion Area –  
Investigation Report for Exceedance of 24-hour TSP Monitoring at Location AM3 on 31 March 2012

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I refer to the e-mail from your Mr. Tat Chan on 13 April 2011, enclosed with site information for the captioned exceedance. We would like to provide our investigation as following.

Location AM3 is adjacent to the proposed Pumping Station 2 (PS2) and a public road. As informed by the Contractor, the construction work undertaken at PS2 during whole March was only dismantling of formworks. In environmental point of view, the continuation of construction of PS2 would not create excessive dust impact as shown by the TSP results before 31 March 2012. As an air mitigation measure, the Contractor has provided daily watering at the entrance/ exit of the site and adjacent road.

However, continues running of village vehicles was observed on the adjacent public road which emitted certain amount of exhausted gas. Although the road is hard paved, gravels and loose sand was found to be scattered along the road which induce fugitive dust when village vehicles running on. The dust impact due to the dusty road is severe during windy and dry weather condition and it was considered one of the sources attributable to the exceedance. Since the condition of the public road is not under controlled by the Contract, the Contractor is reminded to control the speed limit of the engaged village vehicles of the Project.

In conclusion, the Action level exceedance was not related to the works under the Project. As the next monitoring result is not yet released, no remedial actions are required.

Nevertheless, full implementation of the recommended environmental mitigation measures, in particular construction dust suppression measures during dusty construction activities including vehicle and construction plant movement, is strongly recommended under dry and windy conditions.

Should you have any queries, please do not hesitate to contact the undersigned at Tel: 2959-6059 or via Fax: 2959-6079.

Yours Faithfully,  
For and on Behalf of  
**Action-United Environmental Services & Consulting**



Nicola Hon  
Environmental Consultant

c.c. SCJV (RE)                      Attn: Mr. Neil Wong (fax: 2982 4129)  
      Scott Wilson (IEC)            Attn: Mr. Rodney Ip (fax: 2428 9922)