



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.21) – APRIL 2012**

PREPARED FOR
LEADER CIVIL ENGINEERING CORPORATION LIMITED

Quality Index

Date	Reference No.	Prepared By	Approved By
14 May 2012	TCS00512/09/600/R0482v2		
		Nicola Hon Environmental Consultant	T.W. Tam Environmental Team Leader

Version	Date	Description
1	7 May 2012	First Submission
2	14 May 2012	Amended against IEC's comments on 10 May 2012

Scott Wilson CDM Joint Venture

Chief Engineer/Harbour Area Treatment Scheme
Drainage Services Department
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Your reference:

Our reference: 05117/6/16/388539

Date: 14 May 2012

Attention: Mr Kenley C K Kwok

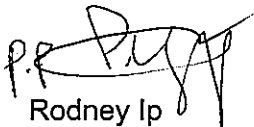
BY FAX AND EMAIL

Dear Sir,

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. 21 (April 2012)

We refer to the Monthly EM&A Monitoring Report No. 21 for April 2012 received under cover of the email from the Environmental Team, Action-United Environmental Services and Consulting (AUES), dated 11 May 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 **21st** 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 25 April 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	12
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 air quality and construction noise monitoring were recorded in this Reporting Period. The statistics of environmental exceedance, NOE issued and investigation of exceedance are summarized in the following table.

Environmental Issues	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation	Corrective Actions
Air Quality	1-hour TSP	0	0	0	--	--
	24-hour TSP	0	0	0	--	--
Construction Noise	L _{eq30min} Daytime	0	0	0	--	--
Water Quality	DO	0	0	0	--	--
	Turbidity	0	0	0	--	--
	SS	0	0	0	--	--

Note: NOE – Notification of Exceedance

ENVIRONMENTAL COMPLAINT, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

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

REPORTING CHANGE

ES.06. It was agreed among the ER, IEC, Contractor and ET that, in order to streamline the EM&A report submission and to cater for the occasional delay in obtaining laboratory analysis results, the cutoff day for each month is the 25th i.e. the first day of each report is the 26th of the last month and the end day, the 25th of that month.

SITE INSPECTION BY EXTERNAL PARTIES

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

FUTURE KEY ISSUES

ES.08. During wet season, 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.09. 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 1,430m³/day and 2,850m³/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 **21st** monthly EM&A Report – Sok Kwu Wan Portion Area presenting the monitoring results and inspection findings for the Reporting Period from **1 to 25 April 2012**.

REPORT STRUCTURE

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

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

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
6	Marine Dumping Permit (no. EP/MD/12-133)	Issued on 28 March 2012 Valid from 29 March 2012 Until 31 May 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"> • 1-hour TSP Monitoring by Real-Time Portable Dust Meter; and • 24-hour TSP Monitoring by High Volume Air Sampler.
Noise	<ul style="list-style-type: none"> • Leq (30min) during normal working hours; and • Leq (15min) during Restricted Hours.
Marine Water Quality	<p><i>In-situ Measurements</i></p> <ul style="list-style-type: none"> • Dissolved Oxygen Concentration (DO) (mg/L); • Dissolved Oxygen Saturation (%); • Turbidity (NTU); • pH unit; • Salinity (ppt); • Water depth (m); and • Temperature (°C). <p><i>Laboratory Analysis</i></p> <ul style="list-style-type: none"> • Suspended Solids (SS) (mg/L)

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⁻¹ 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.

REPORTING

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

day, the 25th of that month.

DETERMINATION OF ACTION/LIMIT (A/L) LEVELS

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

Table 3-5 Action and Limit Levels for Air Quality

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

Table 3-6 Action and Limit Levels for Construction Noise

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

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

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

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

4 IMPACT MONITORING RESULTS - AIR QUALITY

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

Results of Air Quality Monitoring

4.02 In this Reporting Period, **45** and **12** 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 st hour measured	2 nd hour measured	3 rd hour measured
5-Apr-12	121	2-Apr-12	9:00	67	73	65
11-Apr-12	53	10-Apr-12	13:15	77	79	75
17-Apr-12	16	16-Apr-12	9:00	57	63	59
23-Apr-12	65	20-Apr-12	11:00	51	57	55
		25-Apr-12	8:00	76	79	78
Average (Range)	64 (16 – 121)	Average (Range)		67 (51 – 79)		

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 st hour measured	2 nd hour measured	3 rd hour measured
5-Apr-12	57	2-Apr-12	11:15	71	77	73
11-Apr-12	69	10-Apr-12	11:15	82	87	85
17-Apr-12	15	16-Apr-12	11:15	55	58	52
23-Apr-12	58	20-Apr-12	13:05	48	51	49
		25-Apr-12	10:05	69	73	70
Average (Range)	50 (15 – 69)	Average (Range)		67 (48 – 87)		

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 st hour measured	2 nd hour measured	3 rd hour measured
5-Apr-12	160	2-Apr-12	8:00	231	238	236
11-Apr-12	127	10-Apr-12	9:00	267	274	272
17-Apr-12	26	16-Apr-12	14:00	135	138	137
23-Apr-12	68	20-Apr-12	15:10	178	183	180
		25-Apr-12	12:15	238	244	241
Average (Range)	95 (26 – 160)	Average (Range)		213 (135 – 274)		

Remark: bold and italic indicated Action Level exceedance.

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

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

5 IMPACT MONITORING RESULTS – CONSTRUCTION NOISE

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

Results of Construction Noise Monitoring

5.02 In this Reporting Period, a total of **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 st Leq5	2 nd Leq5	3 rd Leq5	4 th Leq5	5 th Leq5	6 th Leq5	Leq30
2-Apr-12	14:45	15:15	58.9	59.5	53.7	51.3	55.4	63.7	59.0
10-Apr-12	11:00	11:30	52.7	60.1	61.0	53.6	52.2	54.3	57.2
16-Apr-12	11:00	11:30	56.0	55.8	58.5	57.7	57.8	57.3	57.3
25-Apr-12	9:51	10:21	55.8	69.9	52.8	48.6	49.2	68.0	64.5
Limit Level in dB(A)									75

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

Date	Start Time	End time	1 st Leq5	2 nd Leq5	3 rd Leq5	4 th Leq5	5 th Leq5	6 th Leq5	Leq30
2-Apr-12	14:00	14:30	67.2	66.8	68.6	78.1	67.9	67.7	71.9
10-Apr-12	13:00	13:30	64.8	64.4	64.0	65.1	66.3	64.1	64.9
16-Apr-12	11:40	12:10	67.5	64.0	64.1	65.0	63.5	63.8	64.9
25-Apr-12	10:30	11:00	64.6	66.6	66.0	61.1	60.7	60.4	64.0
Limit Level in dB(A)									75

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

Date	Start Time	End time	1 st Leq5	2 nd Leq5	3 rd Leq5	4 th Leq5	5 th Leq5	6 th Leq5	Leq30	Corrected* Leq30
2-Apr-12	13:18	13:48	63.9	64.0	63.9	63.6	63.7	64.2	63.9	66.9
10-Apr-12	13:45	14:15	63.8	63.8	63.7	65.4	67.5	64.3	65.0	68.0
16-Apr-12	13:00	13:30	63.9	63.4	64.2	76.2	66.2	63.7	69.7	72.7
25-Apr-12	11:05	11:35	64.5	66.2	63.6	63.6	63.9	64.3	64.4	67.4
Limit Level in dB(A)									75	

* 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 st Leq5	2 nd Leq5	3 rd Leq5	4 th Leq5	5 th Leq5	6 th Leq5	Leq30
2-Apr-12	11:30	12:00	62.0	66.7	61.8	62.7	62.9	60.6	63.3
10-Apr-12	14:30	15:00	64.2	63.8	64.2	63.9	64.0	63.5	63.9
16-Apr-12	13:45	14:15	63.9	64.9	63.7	63.9	64.1	65.3	64.3
25-Apr-12	13:00	13:30	64.8	66.5	60.3	59.6	54.5	64.4	63.2
Limit Level in dB(A)									75

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, 10 events of water quality monitoring were carried out at the designated locations. However, 2 monitoring events in which one mid-flood on 5 April and one mid-ebb on 20 April were cancelled due to inclement weather. According to the meteorological data from HKO, the total rainfall in Hong Kong on 5 and 20 April was 48.5mm and 66.2mm respectively.
- 6.02 The monitoring results including in-situ measurements and laboratory testing results are presented in [Appendix G](#). The graphical plots are shown in [Appendix H](#).
- 6.03 During the Reporting Period, field measurements of both control and impact stations showed that marine water of the depth average of the salinity concentration was within **28.53 to 31.14** ppt, and pH value was within **8.06 to 9.00**.
- 6.04 Monitoring results of 3 key parameters: dissolved oxygen (DO), turbidity and suspended solids (SS) in this Reporting Period, are summarized in [Tables 6-1, 6-2, 6-3 and 6-4](#). A summary of exceedances for the 3 parameters are shown in [Table 6-5](#).

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

Sampling date	Dissolved Oxygen conc. of Depth Ave. of Surf. and Mid Layer (mg/L)						Dissolved Oxygen conc. of Depth Ave. of Bottom Layer (mg/L)					
	W1	W2	W3	C1	C2	C3	W1	W2	W3	C1	C2	C3
2-Apr-12	7.87	7.00	7.69	7.16	7.63	7.19	NA	7.17	7.06	7.44	7.05	7.44
5-Apr-12	7.47	7.04	7.45	7.53	7.76	7.42	NA	8.00	8.44	10.20	7.19	7.42
10-Apr-12	6.31	6.73	7.02	6.18	6.53	5.49	NA	6.24	6.57	5.85	6.31	5.46
12-Apr-12	7.86	7.81	6.93	7.55	8.16	7.41	NA	7.37	6.36	6.77	7.43	6.96
14-Apr-12	6.82	7.48	7.81	7.59	7.92	7.92	NA	7.48	7.59	7.70	7.70	7.70
16-Apr-12	7.20	7.05	7.14	6.86	6.45	6.45	NA	6.05	6.44	6.53	5.76	5.76
18-Apr-12	6.77	7.55	6.89	6.83	6.84	6.84	NA	7.16	6.18	6.66	6.84	6.84
20-Apr-12	Cancelled due to inclement weather											
23-Apr-12	6.23	6.34	6.14	6.23	5.85	5.85	NA	6.27	6.05	5.90	6.23	6.23
25-Apr-12	7.45	7.48	7.63	7.42	7.70	7.70	NA	7.06	6.85	6.84	7.21	7.21

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
29-Mar-12#	*						2.20	6.03	5.40	3.23	5.33	3.83
31-Mar-12#	*						1.40	1.40	2.53	3.77	0.75	1.10
2-Apr-12	1.81	1.94	1.64	1.62	1.89	1.57	2.40	2.53	0.90	2.23	0.85	1.17
5-Apr-12	1.49	1.51	1.53	1.78	1.62	1.91	1.20	2.27	1.33	1.07	0.85	2.07
10-Apr-12	1.07	1.21	1.75	2.36	1.69	2.09	2.80	4.50	5.17	5.10	4.00	6.37
12-Apr-12	1.45	1.29	1.44	1.56	1.48	1.47	1.60	2.00	2.17	2.67	2.87	2.57
14-Apr-12	1.25	1.49	1.43	1.60	1.45	1.51	4.80	3.83	3.00	2.70	2.73	1.73
16-Apr-12	1.71	1.57	1.71	1.73	1.62	1.66	1.30	1.93	0.95	1.10	1.70	0.75
18-Apr-12	1.28	1.62	1.62	1.82	1.72	1.59	3.40	3.90	3.47	2.93	3.50	3.67
20-Apr-12	Cancelled due to inclement weather											
23-Apr-12	1.89	1.67	1.96	1.35	1.38	1.79	4.30	3.63	2.93	5.57	3.33	4.57
25-Apr-12	1.50	1.59	1.50	1.76	1.71	1.77	2.70	3.23	2.90	3.67	4.03	4.27

The monitoring result of SS of 29 & 31 March was missed in last Reporting Period.

* Monitoring result of turbidity of 29 & 31 March could be referred to Monthly EM&A Report – March 2012.

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
2-Apr-12	7.86	7.90	7.61	6.93	7.75	7.65	NA	7.47	7.51	7.06	7.41	7.71
5-Apr-12	Cancelled due to inclement weather											
10-Apr-12	6.76	6.73	7.44	7.51	7.96	6.05	NA	6.24	6.89	6.44	7.28	5.72
12-Apr-12	6.37	6.83	7.59	6.38	7.70	6.30	NA	6.44	7.14	6.45	7.32	6.23
14-Apr-12	7.04	7.15	7.04	6.93	6.82	6.60	NA	7.04	7.04	6.82	7.26	6.71
16-Apr-12	7.28	7.66	7.71	7.77	7.28	6.70	NA	6.49	7.14	7.28	6.56	5.78
18-Apr-12	6.68	6.98	6.21	6.39	6.05	6.21	NA	5.57	5.22	6.05	5.94	5.88
20-Apr-12	7.15	7.23	6.75	6.63	6.33	6.24	NA	6.93	6.79	6.33	6.93	6.05
23-Apr-12	6.86	7.04	7.00	6.69	6.30	6.48	NA	6.79	6.79	6.30	6.72	6.72
25-Apr-12	7.60	7.48	7.51	7.52	7.16	7.57	NA	7.15	6.66	7.16	6.84	7.16

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
29-Mar-12#	*						3.60	4.47	2.57	2.67	2.13	5.27
31-Mar-12#	*						2.20	1.45	0.90	0.80	0.97	1.03
2-Apr-12	1.69	1.92	1.59	1.55	1.77	1.55	2.50	2.43	1.40	2.23	0.83	0.80
5-Apr-12	Cancelled due to inclement weather											
10-Apr-12	0.82	1.40	1.92	2.60	1.93	1.85	3.20	3.63	3.07	2.50	2.60	2.40
12-Apr-12	1.02	1.36	1.22	1.41	1.46	1.27	2.50	5.27	4.90	8.07	4.07	2.80
14-Apr-12	0.95	1.67	1.96	1.83	2.02	1.79	0.60	2.93	1.20	1.97	1.13	2.50
16-Apr-12	1.87	1.43	1.63	2.06	1.73	1.81	0.70	0.83	0.90	0.87	1.30	1.68
18-Apr-12	1.60	1.62	1.74	1.80	1.64	1.70	5.00	4.67	2.60	2.43	2.87	4.40
20-Apr-12	1.00	1.45	1.40	1.52	1.40	1.52	3.20	3.20	4.63	3.70	4.07	5.00
23-Apr-12	1.71	1.57	1.73	1.72	1.41	1.57	5.20	3.17	3.70	2.07	2.30	8.03
25-Apr-12	1.65	1.51	1.49	1.84	1.78	1.75	1.90	4.23	2.43	2.27	3.10	4.37

The monitoring result of SS of 29 and 31 March was missed in last Reporting Period.

* Monitoring result of turbidity of 29 & 31 March could be referred to Monthly EM&A Report – March 2012.

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
Mid-Ebb										
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
Mid-Flood										
W1	0	0	0	0	0	0	0	0	0	0
W2	0	0	0	0	0	0	0	0	0	0
W3	0	0	0	0	0	0	0	0	0	0
No of Exceedance	0	0	0	0	0	0	0	0	0	0

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

7 ECOLOGY

- 7.01 According to Clause 3.7 and Figure 4 in the Environmental Permit No. EP-281/2007/A, a total of 12 numbers *Celtis Timorensis* (uncommon species) in Chung Mei at Sok Kwu Wan, are identified to require labeling, fencing and protection. Out of these, four numbers located in the Pumping Station No.1 area are required to be transplanted in advance of pumping station construction and the transplantation proposal has been submitted to EPD previously.
- 7.02 Regular inspection of the transplanted tree was carried out by the landscaping sub-Contractor (Melofield Nursery and Landscape Contractor Limited) on **16 April 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. The tree inspection report is presented in [Appendix M](#).
- 7.03 During the site inspection amongst the parties of the RE, Contractor and Environmental Team on **24 April 2012**, it was observed that the Tree Protection Zone (TPZ) for the uncommon tree species, *Celtis Timorensis*, near Pumping Station P1b was damaged by several unknown tree trunks. Our observations for this incident includes:-
- Several tree trunks were found inside the Tree Protection Zone and the presence of the trunks is unknown;
 - The protective fence of the Tree Protection Zone was damaged by the trunks;
 - Compensatory uncommon tree species *Celtis Timorensis*, namely CT_1A, CT_4A and CT_7A were found to be damaged by the trunks.
- 7.04 As advised by the Contractor, the landscaping sub-Contractor has carried out a visit on 4 May 2012 to evaluate the severity of damage and propose corrective action as appropriate. The investigation report for the incident is now undergoing by landscaping sub-Contractor and the investigation result will be submitted to all relevant parties once received.

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 ³)	0	-
Reused in the Contract (Inert) ('000m ³)	0	-
Reused in other Projects (Inert) ('000m ³)	0	-
Disposal as Public Fill (Inert) ('000m ³)	0	-

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

Type of Waste	Quantity	Disposal Location
Metal (kg)	0	-
Paper / Cardboard Packing (kg)	0	-
Plastic (kg)	0	-
Chemical Wastes (kg)	0	-
General Refuses (tonne)	1.70	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 50m³ 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 **3, 10, 17 and 24 April 2012** and a joint-site visit by IEC Representative, RE, the Contractor and ET was carried out on **10 April 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

Date	Findings / Deficiencies	Follow-Up Status
3 April 2012	<ul style="list-style-type: none"> No environmental issue was observed during site inspection. General reminder that sedimentation tank would be set up at Bay O before any water discharging. 	Not required for reminder.
10 April 2012	<ul style="list-style-type: none"> No environmental issue was observed during site inspection. General reminder that sedimentation tank would be set up at Bay O before any water discharging. 	Not required for reminder.
17 April 2012	<ul style="list-style-type: none"> No environmental issue was observed during site inspection. It was reminded to carry out preventive measures for rainstorm water run-off. Also, sedimentation tank is reminded to provide before any discharging at Bay O of R/W. 	Not required for reminder.
24 April 2012	<ul style="list-style-type: none"> No environmental issue was observed during site inspection. General reminder that sedimentation tank would be set up at Bay O before any water discharging. 	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 - March 2012	0	1 (Nov 2011)	NA
April 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 - March 2012	0	0	NA
April 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 - March 2012	0	0	NA
April 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 55m³/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"> • Drainage channels were provided to convey run-off into the treatment facilities; and • Drainage systems were regularly and adequately maintained.
Air Quality	<ul style="list-style-type: none"> • Cover all excavated or stockpile of dusty material by impervious sheeting or sprayed with water to maintain the entire surface wet; • Public roads around the site entrance/exit had been kept clean and free from dust; and • Tarpaulin covering of any dusty materials on a vehicle leaving the site.

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

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

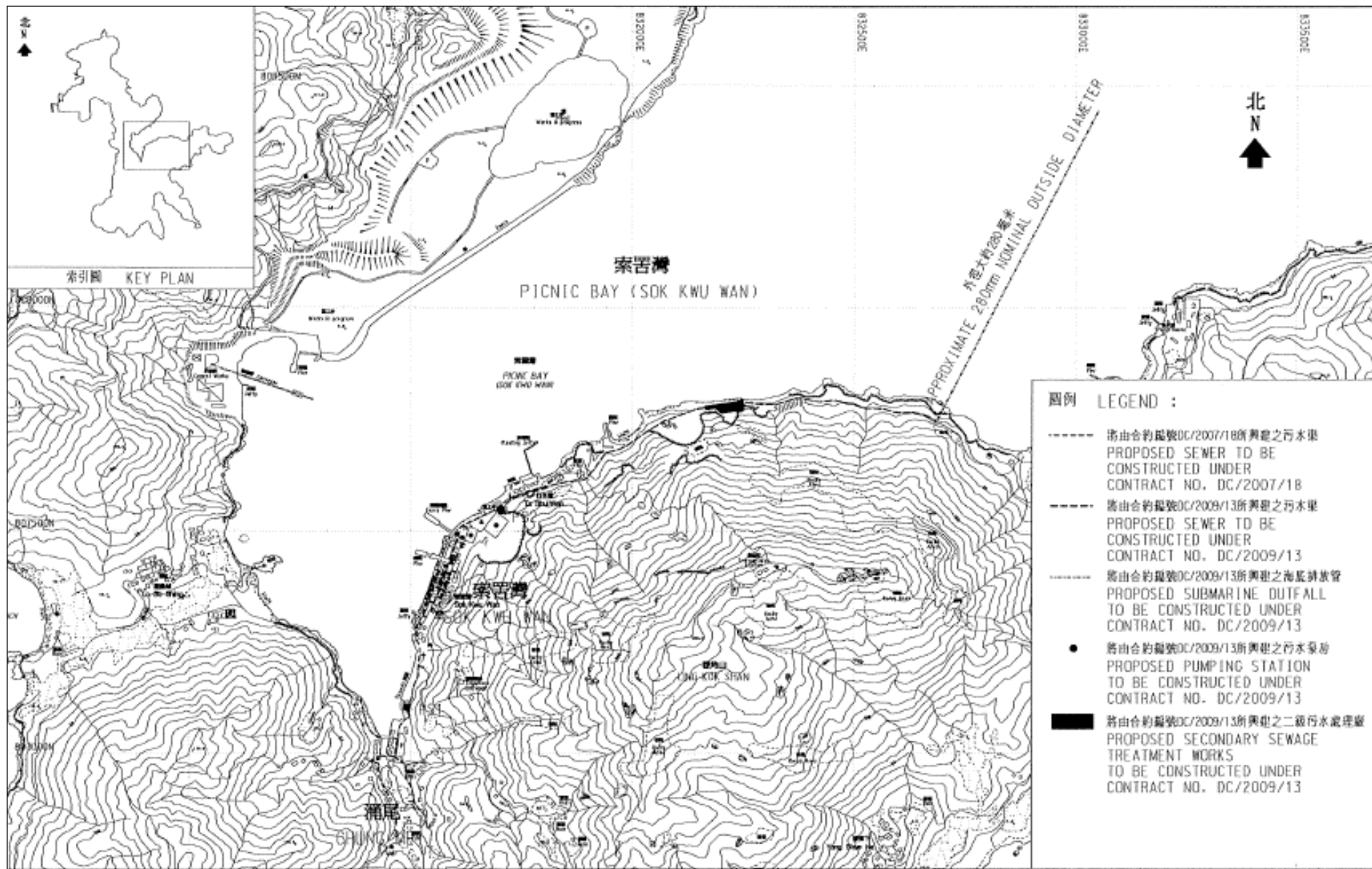
- 13.01 This is the **21st** monthly EM&A Report covering the construction period from **1 to 25 April 2012**.
- 13.02 No 1-hour and 24-hour TSP results were found to be triggered the Action or Limit Level in this Reporting Period.
- 13.03 No noise complaint (an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in this Reporting Period.
- 13.04 The monitoring result demonstrated no exceedance of Action or Limit Level of marine water quality monitoring in this Reporting Period.
- 13.05 No documented complaint, notification of summons or successful prosecution was received.
- 13.06 In this Reporting Period, weekly site inspection by ET was carried out on **3, 10, 17 and 24 April 2012** and a joint-site visit by IEC Representative, RE, the Contractor and ET was carried out on **10 April 2012**. All the observation has been rectified during the next week site inspection. The environmental performance of the Project was therefore considered as satisfactory.
- 13.07 No site inspection was undertaken by external parties i.e. Environmental Protection Department (EPD) or Agriculture, Fisheries and Conservation Department (AFCD) within the Reporting Period.

RECOMMENDATIONS

- 13.08 During wet season, 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.
- 13.09 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							
											DEC	JAN	FEB	MAR	APR	MAY	JUN	U
Project Key Date																		
KD0010	Receive Letter of Acceptance	0	100		05/05/10 A		05/05/10 A			KD0125								
KD0020	Project Commencement Date	0	100		17/05/10 A		17/05/10 A			E&M0010, E&M0070, E&M1001,								
KD0030	Section W1 - Slope Works in Portion A & C (456d)	0	100		14/10/11 A		14/10/11 A		YSW0150	KD0125								
KD0050	Section W3 - Footpath Diversion in Ptn G (273d)	0	100		24/03/11 A		24/03/11 A		SKW0551	KD0125								
KD0115	Start Operate Temp Sewage Treatment in Port. A&H	0	0		01/07/12		30/06/11 *	-367d *	E&M0510	KD0125								
Preliminary (Civil)																		
PRE0020	Pre-condition Survey	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A		KD0020									
PRE0040	Erection of Engineer's Site Accommodation at YSW	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A		KD0020									
PRE0050	Taking over the Secondary Engineer's Site Accom	75	100	17/05/10 A	30/07/10 A	17/05/10 A	30/07/10 A		KD0020									
PRE0060	Application of Consent from Marine Department	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A		KD0020									
PRE0090	Working Group Meeting for Outfall Construction	120	100	17/05/10 A	23/11/10 A	17/05/10 A	23/11/10 A		KD0020	SKW1151								
PRE0100	Application & Consent of XP from HyD (Mo Tat Rd)	120	100	17/05/10 A	13/10/10 A	17/05/10 A	13/10/10 A		KD0020	SKW1491, SKW1501								
PRE0130	Setup Web-site for EM&A Reporting	90	100	17/05/10 A	31/08/10 A	17/05/10 A	31/08/10 A		KD0020									
Preliminary (E&M)																		
Technical Submission																		
Process Design of SKWSTW & YSWSTW																		
E&M0010	Submission	38	100	17/05/10 A	23/06/10 A	17/05/10 A	23/06/10 A		KD0020	E&M0020, E&M0040, E&M0235								
E&M0020	Vetting and Comment by ER	21	100	24/06/10 A	14/07/10 A	24/06/10 A	14/07/10 A		E&M0010	E&M0030, E&M0040								
E&M0030	Revision and Resubmission	125	100	17/05/10 A	30/11/11 A	17/05/10 A	30/11/11 A		E&M0020	E&M0080								
E&M0080	Approval from the Engineer	14	100	02/11/11 A	30/11/11 A	02/11/11 A	30/11/11 A		E&M0030	E&M0295								
Hydraulic Design																		
E&M0040	Submission	21	100	17/05/10 A	16/09/10 A	17/05/10 A	16/09/10 A		E&M0010, E&M0020	E&M0050, E&M0101, E&M0240,								
E&M0050	Vetting and Comment by ER	14	100	17/09/10 A	09/11/10 A	17/09/10 A	09/11/10 A		E&M0040	E&M0060								
E&M0060	Revision and Resubmission	97	100	19/08/10 A	30/11/11 A	19/08/10 A	30/11/11 A		E&M0050	E&M0430								
E&M0430	Approval from the Engineer	7	100	29/03/11 A	30/11/11 A	29/03/11 A	30/11/11 A		E&M0060	E&M0295								
Equipment Submission & Approval																		
E&M0070	Submission of Membrane Module	50	100	17/05/10 A	05/07/10 A	17/05/10 A	05/07/10 A		KD0020	E&M0090								
E&M0090	Vetting and Comment by ER	14	100	06/07/10 A	19/07/10 A	06/07/10 A	19/07/10 A		E&M0070	E&M0100								
E&M0100	Revision and Resubmission	14	100	20/07/10 A	24/02/11 A	20/07/10 A	24/02/11 A		E&M0090	E&M0160								
E&M0101	Submission of Equipment	90	100	04/08/10 A	30/11/11 A	04/08/10 A	30/11/11 A		E&M0040	E&M0102								
E&M0102	Vetting and Comment by ER	60	100	18/11/10 A	30/11/11 A	18/11/10 A	30/11/11 A		E&M0101	E&M0103								
E&M0103	Revision and Resubmission	60	100	01/02/11 A	30/11/11 A	01/02/11 A	30/11/11 A		E&M0102	E&M0110, E&M0120, E&M0130,								
E&M0110	Approval on Coarse Screens	30	100	25/05/11 A	25/05/11 A	25/05/11 A	25/05/11 A		E&M0103	E&M0390								
E&M0120	Approval on Fine Screens	30	100	12/09/11 A	12/09/11 A	12/09/11 A	12/09/11 A		E&M0103	E&M0400, E&M3060								
E&M0130	Approval on Pumps	30	100	23/06/11 A	23/06/11 A	23/06/11 A	23/06/11 A		E&M0103	E&M0410, E&M3070								
E&M0140	Approval on Submersible Mixers	30	100	23/03/11 A	23/03/11 A	23/03/11 A	23/03/11 A		E&M0103	E&M0420, E&M3080								
E&M0150	Approval on Grit Removal Equipment	30	100	10/10/11 A	10/10/11 A	10/10/11 A	10/10/11 A		E&M0103	E&M0380, E&M3030								
E&M0160	Approval on MBR Membrane Modules (M.M.)	105	100	02/08/10 A	24/02/11 A	02/08/10 A	24/02/11 A		E&M0100	E&M0360, E&M0370, E&M3010								
E&M0170	Approval on Sludge Dewatering Equipment	30	100	01/09/11 A	01/09/11 A	01/09/11 A	01/09/11 A		E&M0103	E&M0440, E&M3090								
E&M0180	Approval on Valves, Pipes & Fittings	30	100	19/11/11 A	29/02/12 A	19/11/11 A	29/02/12 A		E&M0103	E&M0450, E&M3100								
E&M0190	Approval on Penstocks	30	100	15/11/11 A	15/11/11 A	15/11/11 A	15/11/11 A		E&M0103	E&M0460, E&M3110								
E&M0200	Approval on Instrumentation	30	70	21/06/11 A	08/03/12	21/06/11 A	05/05/12	58d	E&M0103	E&M0470, E&M3130								
E&M0210	Approval on MCC & LVSB	30	90	19/11/11 A	02/03/12	19/11/11 A	01/04/11	-336d	E&M0103	E&M0480, E&M3140								
E&M0220	Approval on BS Equipment	30	50	30/11/11 A	20/03/12	30/11/11 A	04/10/11	-168d	E&M0103, E&M0280	E&M0490, E&M3150								
E&M0230	Approval on FS Equipment	30	70	30/11/11 A	14/03/12	30/11/11 A	01/11/11	-134d	E&M0103, E&M0290	E&M0295, E&M0320, E&M0500,								
Drawings Submission & Approval																		
E&M0235	Sub. P&ID Drawings	100	100	24/06/10 A	22/08/10 A	24/06/10 A	22/08/10 A		E&M0010									
E&M0240	Sub. Plant GA Drawings	45	100	04/08/10 A	29/02/12 A	04/08/10 A	29/02/12 A		E&M0040	E&M0250, E&M0280, E&M0290								
E&M0250	Sub. Builder's Works Requirements Drawings	15	95	04/08/10 A	03/03/12	04/08/10 A	13/11/11	-111d	E&M0240, E&M0260, E&M0270	E&M0280, E&M0290								
E&M0260	Sub. Mechanical Installation Drawings	60	95	27/09/10 A	02/03/12	27/09/10 A	13/11/11	-111d	E&M0040	E&M0250								
E&M0270	Sub. Electrical Installation Drawings	60	95	27/09/10 A	02/03/12	27/09/10 A	13/11/11	-111d	E&M0040	E&M0250, E&M0280								
E&M0280	Sub. BS Installation Drawings	120	95	27/09/10 A	05/03/12	27/09/10 A	19/09/11	-168d	E&M0240, E&M0250, E&M0270	E&M0220								
E&M0290	Sub. FS Installation Drawings	120	95	13/11/10 A	05/03/12	13/11/10 A	23/10/11	-134d	E&M0240, E&M0250	E&M0230								
Statutory Submission																		

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	1A		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

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012								
											DEC	JAN	FEB	MAR	APR	MAY	JUN	U	
E&M0295	Preparation of Submission to HEC	39	100	01/11/11 A	30/11/11 A	01/11/11 A	30/11/11 A		E&M0080, E&M0230, E&M0430	E&M0300									
E&M0300	Application & Approval from HEC	150	90	01/11/11 A	29/03/12	01/11/11 A	05/01/12	-84d	E&M0295	E&M0305									
E&M0305	Provision of Cables to the STWs	180	0	30/03/12	25/09/12	06/01/12	03/07/12	-84d	E&M0300	E&M0680									
E&M0320	Form 314 Submission to FSD	14	0	15/03/12	28/03/12	29/04/12	12/05/12	45d	E&M0230	E&M0325, E&M0670									
E&M0325	Submission to WSD	14	100	01/11/11 A	29/02/12 A	01/11/11 A	29/02/12 A		E&M0320	E&M0670, E&M0680									
E&M0350	Form 501 Submission to FSD (PS1 & PS2)	28	0	05/06/12	03/07/12	26/02/15	06/04/15	927d	E&M2016										
Yung Shue Wan																			
Preliminary																			
YSW0020	Approval of Environmental Team	16	100	17/05/10 A	01/06/10 A	17/05/10 A	01/06/10 A		KD0020	YSW0030, YSW0040									
YSW0030	Baseline monitoring (Air & Noise)	14	100	31/07/10 A	22/08/10 A	31/07/10 A	22/08/10 A		YSW0020	YSW0035									
YSW0035	Baseline Monitoring Report Submission (A & N)	14	100	23/08/10 A	07/09/10 A	23/08/10 A	07/09/10 A		YSW0030	YSW0120, YSW0152, YSW0500,									
YSW0040	Baseline monitoring (Water)	213	100	30/07/10 A	31/12/10 A	30/07/10 A	31/12/10 A		YSW0020	YSW0350									
YSW0050	Erect Hoarding and Fencing	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A												
+Section W 1 - Slope Works in Portion A & C																			
		686	96	17/05/10 A	01/04/12	17/05/10 A	14/02/14	684d											
Section W 2 - YSW STW & Submarine Outfall																			
Civil & Structural Work																			
YSW0412	Mobilization	30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020	YSW0422									
YSW0422	Site Clearance	30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020, YSW0412	YSW0432, YSW0500, YSW0610,									
YSW0432	Initial Survey	14	100	02/06/10 A	15/06/10 A	02/06/10 A	15/06/10 A		YSW0422	YSW0510									
YSW STP - GLH - T																			
YSW0500	ELS & Excavation for Inlet Pumping Station	62	100	17/09/10 A	16/12/10 A	17/09/10 A	16/12/10 A		YSW0035, YSW0422	YSW0510									
YSW0510	Sub-structure construction (Inlet Pumping Stn)	30	100	17/12/10 A	04/04/11 A	17/12/10 A	04/04/11 A		YSW0432, YSW0500	YSW0520									
YSW0520	Backfill & Remove ELS (Inlet Pumping Stn)	30	100	03/01/11 A	05/05/11 A	03/01/11 A	05/05/11 A		YSW0510	YSW0530, YSW0610									
YSW0530	ELS & Excavation for Equalization Tank	40	100	11/01/11 A	08/06/11 A	11/01/11 A	08/06/11 A		YSW0520	YSW0540									
YSW0540	Sub-structure construction (Equalization Tank)	40	100	13/06/11 A	28/09/11 A	13/06/11 A	28/09/11 A		YSW0530	YSW0550									
YSW0550	Backfilling & Remove ELS (Equalization Tank)	40	100	15/08/11 A	18/10/11 A	15/08/11 A	18/10/11 A		YSW0540	YSW0570									
YSW0570	Excavate to formation by open cut	30	100	02/07/11 A	31/01/12 A	02/07/11 A	31/01/12 A		YSW0550	YSW0580									
YSW0580	Base slab construction	30	98	06/07/11 A	29/02/12	06/07/11 A	19/07/11	-225d	YSW0570	YSW0590									
YSW0590	G/F to 1/F construction	50	90	29/09/11 A	05/03/12	29/09/11 A	24/07/11	-225d	YSW0580	YSW0600									
YSW0600	1/F to Roof construction	50	75	01/11/11 A	18/03/12	01/11/11 A	05/08/11	-225d	YSW0590	YSW0720, YSW0800									
YSW0720	Water Test	36	8	22/02/12 A	20/04/12	22/02/12 A	10/09/11	-222d	YSW0600	E&M0530, E&M0540, E&M0550,									
YSW0800	ABWF installation	36	0	21/03/12 A	23/04/12	21/03/12 A	10/09/11	-225d	YSW0600	E&M0530, E&M0540, E&M0550,									
YSW STP - GLT - X																			
YSW0610	Excavate to formation	50	100	08/09/10 A	17/09/10 A	08/09/10 A	17/09/10 A		YSW0035, YSW0422, YSW0520	YSW0620									
YSW0620	Base slab construction	60	100	18/09/10 A	23/05/11 A	18/09/10 A	23/05/11 A		YSW0610	YSW0630									
YSW0630	G/F to 1/F construction	95	100	27/12/10 A	19/07/11 A	27/12/10 A	19/07/11 A		YSW0620	YSW0640									
YSW0640	1/F to Roof Construction	91	98	20/07/11 A	01/03/12	20/07/11 A	30/08/11	-184d	YSW0630	YSW0810, YSW0840									
YSW0810	ABWF installation	86	10	02/01/12 A	16/05/12	02/01/12 A	25/09/11	-233d	YSW0640	E&M0610, E&M0620, E&M0630,									
YSW STP - GLF - H & DN Tanks																			
YSW0650	ELS & Excavation for DN Tanks	70	100	21/08/10 A	14/10/10 A	21/08/10 A	14/10/10 A		YSW0035, YSW0422	YSW0660									
YSW0660	Sub-structure construction (DN Tanks)	40	100	15/10/10 A	31/12/10 A	15/10/10 A	31/12/10 A		YSW0650	YSW0670									
YSW0670	Backfill & Remove ELS (DN Tanks)	32	100	08/01/11 A	15/03/11 A	08/01/11 A	15/03/11 A		YSW0660	YSW0680									
YSW0680	Base slab construction	30	100	16/03/11 A	28/03/11 A	16/03/11 A	28/03/11 A		YSW0670	YSW0690									
YSW0690	Superstructure construction upto +10.5mPD	60	100	30/03/11 A	18/06/11 A	30/03/11 A	18/06/11 A		YSW0680	YSW0700, YSW0820									
YSW0700	Apply protective paint	20	0	29/02/12	19/03/12	27/02/11	18/03/11	-367d	YSW0690	YSW0710									
YSW0710	Water test	14	0	20/03/12	02/04/12	19/03/11	01/04/11	-367d	YSW0700	E&M0510, E&M0630, E&M0640									
YSW0820	ABWF installation	34	0	29/02/12	02/04/12	27/02/11	01/04/11	-367d	YSW0690	E&M0510, E&M0630, E&M0640									
YSW STP - GLA - F																			
YSW0730	Completion of HDD	0	100	06/01/12 A		06/01/12 A			YSW0360	YSW0740									
YSW0740	ELS & excavate for Outfall Shaft	22	1	29/02/12 A	21/03/12	29/02/12 A	07/08/11	-228d	YSW0730	YSW0750									
YSW0750	Sub-structure construction (outfall shaft)	22	0	21/03/12	12/04/12	07/08/11	29/08/11	-228d	YSW0740	YSW0760									
YSW0760	Backfill & remove ELS (outfall shaft)	24	0	12/04/12	06/05/12	29/08/11	22/09/11	-228d	YSW0750	YSW0770, YSW1470									
YSW0770	Excavate to formation by open cut	22	50	30/01/12 A	17/05/12	30/01/12 A	03/10/11	-228d	YSW0760	YSW0780									
YSW0780	Base slab construction	21	20	20/02/12 A	03/06/12	20/02/12 A	19/10/11	-228d	YSW0770	YSW0790									
YSW0790	Superstructure construction upto +10.5mPD	30	0	01/03/12 A	03/07/12	01/03/12 A	18/11/11	-228d	YSW0780	YSW0795, YSW0870									

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	2A	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)

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

(Marked on 29 Feb 2012)

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2011												
											DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	
YSW0795	Apply protective paint	30	0	03/07/12	02/08/12	19/11/11	18/12/11	-228d	YSW0790	YSW0830													
YSW0870	ABWF installation	60	0	03/07/12	01/09/12	28/12/11	25/02/12	-189d	YSW0790	E&M0520, E&M0605, E&M0630,													
Fire Hose Reel / Sprinkler Pump Rm																							
YSW0840	ELS & excavate to formation (+0 mPD approx.)	30	0	01/03/12	31/03/12	01/09/11	30/09/11	-183d	YSW0035, YSW0422, YSW0640	YSW0860													
YSW0860	Sub-structure construction	30	0	31/03/12	30/04/12	01/10/11	30/10/11	-183d	YSW0840	YSW0880													
YSW0880	Backfill & remove ELS	30	0	30/04/12	30/05/12	31/10/11	29/11/11	-183d	YSW0860	YSW0890													
YSW0890	Construction Ground Slab at +5.2mPD	30	0	30/05/12	29/06/12	30/11/11	29/12/11	-183d	YSW0880	YSW0900, YSW0930													
YSW0900	Superstructure construction upto +8.2mPD	35	0	29/06/12	03/08/12	30/12/11	02/02/12	-183d	YSW0890	YSW0910, YSW0925													
YSW0930	Construction of Gurad House	60	0	29/06/12	28/08/12	06/05/12	04/07/12	-55d	YSW0890	E&M0690, KD0040													
Emergency Storage Tank																							
YSW1470	ELS & excavate to formation (-1.5mPD Approx.)	30	0	06/05/12	05/06/12	07/11/11	06/12/11	-182d	YSW0035, YSW0760	YSW1480													
YSW1480	Sub-structure construction	40	0	05/06/12	15/07/12	07/12/11	15/01/12	-182d	YSW1470	YSW1490													
YSW1490	Backfill & extract sheetpile	30	0	15/07/12	14/08/12	16/01/12	14/02/12	-182d	YSW1480	YSW1500													
Road, Drain, Cable Draw Pits & Ducting																							
YSW0152	Temporary Diversion of Drainage	92	100	02/12/10 A	09/05/11 A	02/12/10 A	09/05/11 A		YSW0035	YSW0153													
YSW0153	Removal of Ex U-Channel where clash with B. Wall	50	100	20/11/10 A	20/04/11 A	20/11/10 A	20/04/11 A		YSW0152	YSW0154													
YSW0154	Construction of Subsoil Drain	90	30	24/08/11 A	20/05/12	24/08/11 A	26/04/12	-24d	YSW0153, YSW0165	YSW0155													
YSW0155	RC Concrete Barrier (above Ground Level)	120	93	01/06/11 A	28/05/12	01/06/11 A	04/05/12	-24d	YSW0154, YSW0165	YSW1640, YSW1660													
Submarine Outfall																							
YSW0180	Coordination of HEC	53	100	17/05/10 A	08/07/10 A	17/05/10 A	08/07/10 A			YSW0350													
YSW0200	Submission and Approval of Ecologist	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A			YSW0210													
YSW0210	Ecology Survey	90	100	16/07/10 A	11/02/11 A	16/07/10 A	11/02/11 A		YSW0200	YSW0350													
YSW0220	Submission and Approval of In. Hydro Survey	90	100	17/05/10 A	27/08/10 A	17/05/10 A	27/08/10 A			YSW0230													
YSW0230	Hydrographical Survey (YSW)	45	100	31/08/10 A	31/01/11 A	31/08/10 A	31/01/11 A		YSW0220	YSW0350													
YSW0240	Material Submission, Approval of HDPE pipe	93	100	17/05/10 A	31/03/11 A	17/05/10 A	31/03/11 A			YSW0250													
YSW0250	Submit and Approval of Method Statement for HDD	120	100	24/09/10 A	25/03/11 A	24/09/10 A	25/03/11 A		YSW0240	YSW0260, YSW0270, YSW0340													
YSW0260	Submission of HDD Method Statement to HEC	14	100	26/01/11 A	24/03/11 A	26/01/11 A	24/03/11 A		YSW0250	YSW0320, YSW0340													
YSW0270	Additional G.I. Boreholes (YSW)	62	100	06/11/10 A	19/01/11 A	06/11/10 A	19/01/11 A		YSW0250	YSW0280, YSW0320													
YSW0280	Submission of propose alignment to the Eng	14	100	02/02/11 A	04/03/11 A	02/02/11 A	04/03/11 A		YSW0270	YSW0290, YSW0310, YSW0340													
YSW0290	Submission of Marine Notice	60	100	31/01/11 A	29/03/11 A	31/01/11 A	29/03/11 A		YSW0280	YSW0350													
YSW0310	Construction of Entry Pit and Preparation Work	39	100	15/03/11 A	31/03/11 A	15/03/11 A	31/03/11 A		YSW0280	YSW0320, YSW0330													
YSW0320	Prepare of HDD Drill Rig Set-up (YSW)	39	100	02/04/11 A	28/04/11 A	02/04/11 A	28/04/11 A		YSW0260, YSW0270, YSW0310	YSW0330, YSW0350													
YSW0330	Establishment of HDD plant & equipment	14	100	09/04/11 A	14/04/11 A	09/04/11 A	14/04/11 A		YSW0310, YSW0320	YSW0340													
YSW0340	Setting up at drillhole location	7	100	19/04/11 A	28/04/11 A	19/04/11 A	28/04/11 A		YSW0250, YSW0260, YSW0280,	YSW0350													
YSW0350	Drill pilot hole and reaming hole - NS400 - 530m	123	100	29/04/11 A	08/12/11 A	29/04/11 A	08/12/11 A		YSW0040, YSW0180, YSW0210,	YSW0360													
YSW0360	Installation of NS400 HDPE 530m	14	100	14/12/11 A	30/12/11 A	14/12/11 A	30/12/11 A		YSW0350	SKW1181, YSW0365, YSW0370,													
YSW0365	Set up of Silt Curtain as per EP	30	0	29/02/12	29/03/12	20/07/13	18/08/13	507d	YSW0360	YSW0370													
YSW0370	Dredging of Marine Deposit for Diffuser (YSW)	60	0	30/03/12	28/05/12	19/08/13	17/10/13	507d	YSW0360, YSW0365	YSW0380													
YSW0380	Diffuser Construction (YSW)	60	0	29/05/12	27/07/12	18/10/13	16/12/13	507d	YSW0370	YSW0390													
E&M Works - YSW STP																							
E&M0360	Delivery of MBR Memb. Mod. (MBR Tk 4)	137	100	24/02/11 A	21/06/11 A	24/02/11 A	21/06/11 A		E&M0160	E&M0510													
E&M0370	Delivery of MBR Membrane Modules - 2nd Shipment	150	100	24/02/11 A	17/10/11 A	24/02/11 A	17/10/11 A		E&M0160	E&M0520													
E&M0380	Delivery of Grit Removal Equipment	180	100	10/10/11 A	29/12/11 A	10/10/11 A	29/12/11 A		E&M0150	E&M0530													
E&M0390	Delivery of Coarse Screens	162	100	06/09/11 A	12/01/12 A	06/09/11 A	12/01/12 A		E&M0110	E&M0540													
E&M0400	Delivery of Fine Screens	180	100	12/09/11 A	30/11/11 A	12/09/11 A	30/11/11 A		E&M0120	E&M0550													
E&M0410	Delivery of Pumps	162	100	23/06/11 A	05/09/11 A	23/06/11 A	05/09/11 A		E&M0130	E&M0560													
E&M0420	Delivery of Submersible Mixers	162	100	26/02/11 A	17/11/11 A	26/02/11 A	17/11/11 A		E&M0140	E&M0570													
E&M0440	Delivery of Sludge Dewatering Equipment	180	50	01/09/11 A	28/05/12	01/09/11 A	28/09/11	-243d	E&M0170	E&M0580													
E&M0450	Delivery of Valves, Pipes & Fittings	180	70	30/08/11 A	22/04/12	30/08/11 A	23/01/12	-90d	E&M0180	E&M0590, E&M0605													
E&M0460	Delivery of Penstocks	180	100	12/08/11 A	24/12/11 A	12/08/11 A	24/12/11 A		E&M0190	E&M0600													
E&M0470	Delivery of Instruments	180	100	03/11/11 A	21/06/11 A	03/11/11 A	21/06/11 A		E&M0200	E&M0610													
E&M0480	Delivery of MCC LVSB	177	0	03/03/12	26/08/12	02/04/11	25/09/11	-336d	E&M0210	E&M0620													
E&M0490	Delivery of BS Equipment	180	20	11/12/11 A	11/08/12	11/12/11 A	25/02/12	-168d	E&M0220	E&M0630													
E&M0500	Delivery FS Equipment	180	20	11/12/11 A	05/08/12	11/12/11 A	24/03/12	-134d	E&M0230	E&M0640													
E&M0510	Install Membrane Modules in MBR Tank no. 4	90	0	03/04/12	01/07/12	02/04/11	30/06/11	-367d	E&M0360, YSW0710, YSW0820	KD0115													
E&M0530	Install Grit Removal Equipment	60	0	07/07/12	05/09/12	25/11/11	23/01/12	-225d	E&M0380, E&M0540, YSW0720,	E&M0590, E&M0660													

Start date	05/05/10	Early bar
Finish date	06/04/15	Progress bar
Data date	29/02/12	Critical bar
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Leader Civil Engineering Corp. Ltd.
Contract No. DC/2009/13
Construction of Sewage Treatment Works at YSW & SKW
3-month Rolling Programme (Mar 2012 - May 2012)

(Marked on 29 Feb 2012)

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

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2011												
											DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	
E&M0540	Install Coarse Screens	75	0	23/04/12	07/07/12	11/09/11	24/11/11	-225d	E&M0390, YSW0720, YSW0800	E&M0530, E&M0550, E&M0570,													
E&M0550	Install Fine Screens	60	0	07/07/12	05/09/12	25/11/11	23/01/12	-225d	E&M0400, E&M0540, YSW0720,	E&M0590, E&M0660													
E&M0560	Install Pumps	90	0	23/04/12	22/07/12	11/09/11	09/12/11	-225d	E&M0410, YSW0720, YSW0800	E&M0570, E&M0590, E&M0660													
E&M0580	Install Sludge Dewatering Equipment	280	0	29/05/12	04/03/13	29/09/11	04/07/12	-243d	E&M0440, YSW0720, YSW0800	E&M0690													
E&M0600	Install Penstocks (Batch 1, GL H - T)	180	0	23/04/12	20/10/12	07/01/12	04/07/12	-107d	E&M0460, YSW0720, YSW0800	E&M0690													
Sok Kwu Wan																							
Preliminary																							
SKW0250	Approval of Environmental Team	16	100	17/05/10 A	01/06/10 A	17/05/10 A	01/06/10 A		KD0020	SKW0260													
SKW0260	Baseline monitoring (Air & Noise)	14	100	02/06/10 A	15/06/10 A	02/06/10 A	15/06/10 A		SKW0250	SKW0242, SKW0265, SKW0592,													
SKW0265	Baseline Monitoring Submission (A & N)	14	100	16/06/10 A	08/07/10 A	16/06/10 A	08/07/10 A		SKW0260	SKW0242, SKW0592, SKW0681,													
+Section W3 - Footpath Diversion in Portion G																							
		660	98	17/05/10 A	06/03/12	17/05/10 A	30/07/11	-272d															
Section W4 - Slope Works in Portions H & I																							
Geotechnical Works																							
SKW0588	Construct scaffolding access	30	100	15/06/10 A	14/07/10 A	15/06/10 A	14/07/10 A		KD0020	SKW0590													
SKW0590	Site Clearance for Slope	100	100	15/07/10 A	22/10/10 A	15/07/10 A	22/10/10 A		SKW0588	SKW0591													
SKW0591	Initial Survey for Slope	28	100	21/09/10 A	18/10/10 A	21/09/10 A	18/10/10 A		SKW0590	SKW0592													
SKW0592	Temporary Rockfall fence at ex. Footpath	43	100	19/10/10 A	06/01/11 A	19/10/10 A	06/01/11 A		SKW0260, SKW0265, SKW0591	SKW05931													
SKW05931	Construction of Haul Road (To +21mPD)	50	100	28/11/10 A	30/12/10 A	28/11/10 A	30/12/10 A		SKW0592	SKW05932													
SKW05932	Construction of Haul Road (To +42mPD)	60	100	15/12/10 A	31/01/11 A	15/12/10 A	31/01/11 A		SKW05931	SKW05933, SKW05940, SKW0595													
SKW05933	Excavation of Rock Berm (+50mPD to +42.5mPD)	30	100	01/03/11 A	03/05/11 A	01/03/11 A	03/05/11 A		SKW05932	SKW05934													
SKW05934	Excavation of Rock Berm (+42.5mPD to +35mPD)	30	100	04/05/11 A	31/05/11 A	04/05/11 A	31/05/11 A		SKW05933	SKW05935, SKW05941													
SKW05935	Excavation of Rock Berm (+35mPD to +27.5mPD)	30	100	02/07/11 A	30/09/11 A	02/07/11 A	30/09/11 A		SKW05934	SKW05936													
SKW05936	Excavation of Rock Berm (+27.5mPD to +20mPD)	30	100	15/09/11 A	31/12/11 A	15/09/11 A	31/12/11 A		SKW05935	SKW05937, SKW05942													
SKW05937	Excavation of Rock Berm (+20mPD to +12.5mPD)	30	100	01/12/11 A	31/01/12 A	01/12/11 A	31/01/12 A		SKW05936	SKW05938													
SKW05938	Excavation of Rock Berm (+12.5mPD to +5mPD)	28	66	02/01/12 A	09/03/12	02/01/12 A	17/06/11	-266d	SKW05937	SKW05943, SKW1371													
SKW05940	Slope Drainage & Misc. at 50mPD	60	100	01/04/11 A	03/05/11 A	01/04/11 A	03/05/11 A		SKW05932	SKW05941													
SKW05941	Slope Drainage & Misc. (+50 to +35mPD)	60	50	04/05/11 A	29/03/12	04/05/11 A	19/05/11	-315d	SKW05934, SKW05940	SKW05942													
SKW05942	Slope Drainage & Misc. (+35 to +20mPD)	58	50	01/11/11 A	27/04/12	01/11/11 A	17/06/11	-315d	SKW05936, SKW05941	SKW05943													
SKW05943	Slope Drainage & Misc. (+20 to +5mPD)	59	0	28/04/12	25/06/12	18/06/11	15/08/11	-315d	SKW05938, SKW05942	KD0060													
SKW0595	Rock Meshing & Rockfall Fence	260	0	29/02/12	14/11/12	29/11/10	15/08/11	-457d	SKW05932	KD0060													
Section W5 - P.S. No. 1 in Portion D																							
Civil & Geotechnical Works																							
SKW0651	Site Clearance	7	100	17/05/10 A	23/05/10 A	17/05/10 A	23/05/10 A		KD0020	SKW0652													
SKW0652	Initial Survey	7	100	24/05/10 A	30/05/10 A	24/05/10 A	30/05/10 A		SKW0651	SKW0661, SKW0681													
SKW0661	Transplantation for uncommon vegetation	30	100	31/05/10 A	29/06/10 A	31/05/10 A	29/06/10 A		SKW0652	SKW0681													
SKW0681	Excavate to lower the working platform to +3mPD	49	100	30/06/10 A	17/08/10 A	30/06/10 A	17/08/10 A		SKW0260, SKW0265, SKW0652,	SKW0691													
SKW0691	ELS to +2.2mPD	40	100	18/08/10 A	26/09/10 A	18/08/10 A	26/09/10 A		SKW0681	SKW0721													
SKW0721	Excavate to formation	92	100	17/09/10 A	31/03/11 A	17/09/10 A	31/03/11 A		SKW0691	SKW0741													
Structural Works																							
SKW0741	Base Slab (BSD2 & BSD3)	15	100	20/04/11 A	28/07/11 A	20/04/11 A	28/07/11 A		SKW0721	SKW0751													
SKW0751	Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) Approx.	14	100	01/09/11 A	30/09/11 A	01/09/11 A	30/09/11 A		SKW0741	SKW0761													
SKW0761	Base Slab (BSD1) to +3.98	14	100	01/09/11 A	30/09/11 A	01/09/11 A	30/09/11 A		SKW0751	SKW0771													
SKW0771	Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) to +6.3	14	100	01/10/11 A	31/10/11 A	01/10/11 A	31/10/11 A		SKW0761	SKW0781													
SKW0781	Base Slab (GSB1-3, GSC1-5, GSD1-2)	14	100	15/10/11 A	15/11/11 A	15/10/11 A	15/11/11 A		SKW0771	SKW0791													
SKW0791	Base Slab (GSE1 & GSF1)	14	100	01/11/11 A	30/11/11 A	01/11/11 A	30/11/11 A		SKW0781	SKW0801													
SKW0801	Wall & Column (CE1-3, CF1-3)	14	100	01/11/11 A	30/11/11 A	01/11/11 A	30/11/11 A		SKW0791	SKW0811													
SKW0811	Ground Beam (GB1-1,2 GB2-1,2 GB3-1, GBA-1, GBB1-4)	14	100	30/11/11 A	31/12/11 A	30/11/11 A	31/12/11 A		SKW0801	SKW0821													
SKW0821	Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) to +10.	14	100	19/12/11 A	31/01/12 A	19/12/11 A	31/01/12 A		SKW0811	SKW0831													
SKW0831	Roof Beams & Parapet	14	100	02/01/12 A	18/01/12 A	02/01/12 A	18/01/12 A		SKW0821	E&M1101, E&M1102, E&M1103,													
SKW0841	ABWF installation	45	60	18/01/12 A	17/03/12	18/01/12 A	01/06/11	-290d	SKW0831	E&M1101, E&M1102, E&M1103,													
SKW0861	300mm U-channel & 675mm Step Channel	168	0	29/02/12	14/08/12	01/06/11	15/11/11	-273d	SKW0831, SKW0841	KD0070													
E&M Works (PS1)																							
Submission & Delivery																							
E&M1001	Submission of Pumps	198	100	17/05/10 A	24/02/11 A	17/05/10 A	24/02/11 A		KD0020	E&M1011													

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	4A	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)

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

(Marked on 29 Feb 2012)

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012							
											DEC	JAN	FEB	MAR	APR	MAY	JUN	
E&M2011	Delivery of Pumps	150	100	24/02/11 A	21/07/11 A	24/02/11 A	21/07/11 A		E&M2001	E&M2101								
E&M2012	Delivery of Gen-Set	150	100	24/02/11 A	23/09/11 A	24/02/11 A	23/09/11 A		E&M2002	E&M2102								
E&M2013	Delivery of DeO System	150	100	11/07/11 A	28/10/11 A	11/07/11 A	28/10/11 A		E&M2003	E&M2103								
E&M2014	Delivery of LV SB & MCC	150	0	29/02/12	27/07/12	03/12/10	01/05/11	-453d	E&M2004	E&M2104								
E&M2015	Delivery of Instrumentation	90	100	21/06/11 A	03/11/11 A	21/06/11 A	03/11/11 A		E&M2005	E&M2105								
E&M2016	Delivery of FS Equipment	107	20	01/12/11 A	05/06/12	01/12/11 A	01/05/11	-401d	E&M2006	E&M0350, E&M2106								
E&M2017	Delivery of BS Equipment	107	30	15/01/11 A	25/05/12	15/01/11 A	01/05/11	-390d	E&M2007	E&M2107								
Installation, T&C																		
E&M2101	Install Pumps	55	0	28/03/12	21/05/12	03/07/11	26/08/11	-269d	E&M2011, SKW1051, SKW1061	E&M2110								
E&M2102	Install Gen Set	55	0	28/03/12	21/05/12	03/07/11	26/08/11	-269d	E&M2012, SKW1051, SKW1061	E&M2110								
E&M2103	Install DeO System	55	0	28/03/12	21/05/12	03/07/11	26/08/11	-269d	E&M2013, SKW1051, SKW1061	E&M2110								
E&M2105	Install Instrumentation	55	0	28/03/12	21/05/12	02/05/11	25/06/11	-331d	E&M2015, SKW1051, SKW1061	E&M2140								
E&M2106	Install FS Equipment	55	0	05/06/12	30/07/12	02/05/11	25/06/11	-401d	E&M2016, SKW1051, SKW1061	E&M2140								
E&M2107	Install BS Equipment	55	0	26/05/12	19/07/12	02/05/11	25/06/11	-390d	E&M2017, SKW1051, SKW1061	E&M2110, E&M2140								
Section W7 - SKW STW, Sewer and Submarine Outfall																		
Submarine Outfall																		
SKW1130	Approval of IHS Consultant	180	100	17/05/10 A	27/08/10 A	17/05/10 A	27/08/10 A			SKW1131								
SKW1131	Hydrographical Survey (SKW)	300	100	01/02/11 A	28/02/11 A	01/02/11 A	28/02/11 A		KD0020, SKW1130	SKW1231								
SKW1141	Baseline Monitoring (Water)	213	100	27/07/10 A	31/12/10 A	27/07/10 A	31/12/10 A		SKW0260, SKW0265	SKW1151								
SKW1151	Set up Temporary Working Platform	185	100	15/06/11 A	30/09/11 A	15/06/11 A	30/09/11 A		PRE0090, SKW1141	SKW1171								
SKW1171	ELS for HDD Set-up (SKW)	120	100	01/09/11 A	30/09/11 A	01/09/11 A	30/09/11 A		SKW1151	SKW1181								
SKW1181	Mobilization of HDD plant & equipment to SKW	60	100	06/01/12 A	07/01/12 A	06/01/12 A	07/01/12 A		SKW1171, YSW0360	SKW1191								
SKW1191	Setting up at drillhole location	30	100	09/01/12 A	14/01/12 A	09/01/12 A	14/01/12 A		SKW1181	SKW1201								
SKW1201	Drill pilot hole and reaming hole - NS280 - 750m	196	50	16/01/12 A	05/06/12	16/01/12 A	23/04/13	322d	SKW1191	SKW1211								
SKW1211	Receiving Pit for HDD (SKW)	180	100	16/01/12 A	29/02/12 A	16/01/12 A	29/02/12 A		SKW1201	SKW1221								
SKW1221	Installation of NS280 HDPE 450mm dia. pipe	57	0	06/06/12	01/08/12	24/04/13	19/06/13	322d	SKW1211	KD0090, SKW1231, SKW1441								
SKW STW																		
Submission & Delivery (E&M)																		
E&M3010	Delivery of MBR M.M. - 1st shipment for Temp STP	150	100	24/02/11 A	17/10/11 A	24/02/11 A	17/10/11 A		E&M0160	E&M3170								
E&M3030	Delivery of Grit Removal Equipment	180	100	10/10/11 A	29/12/11 A	10/10/11 A	29/12/11 A		E&M0150	E&M3190								
E&M3060	Delivery of Fine Screens	136	100	12/09/11 A	30/11/11 A	12/09/11 A	30/11/11 A		E&M0120	E&M3210								
E&M3070	Delivery of Pumps	136	100	23/06/11 A	05/09/11 A	23/06/11 A	05/09/11 A		E&M0130	E&M3220								
E&M3080	Delivery of Submersible Mixers	180	100	26/07/11 A	17/11/11 A	26/07/11 A	17/11/11 A		E&M0140	E&M3230								
E&M3090	Delivery of Sludge Dewatering Equipment	210	50	01/09/11 A	12/06/12	01/09/11 A	12/02/12	-121d	E&M0170	E&M3240								
E&M3100	Delivery of Valves, Pipes & Fittings	180	70	30/08/11 A	22/04/12	30/08/11 A	07/07/14	804d	E&M0180	E&M3250								
E&M3110	Delivery of Penstocks	180	100	12/08/11 A	24/12/11 A	12/08/11 A	24/12/11 A		E&M0190	E&M3260								
E&M3130	Delivery of instruments	180	100	21/06/11 A	03/11/11 A	21/06/11 A	03/11/11 A		E&M0200	E&M3270								
E&M3140	Delivery of MCC LVSB	180	0	03/03/12	29/08/12	09/05/11	04/11/11	-299d	E&M0210	E&M3261								
E&M3150	Delivery of BS Equipment	180	0	21/03/12	16/09/12	22/01/14	28/07/14	672d	E&M0220	E&M3291								
E&M3160	Delivery of FS Equipment	180	0	15/03/12	10/09/12	14/01/12	11/07/12	-61d	E&M0230	E&M0340, E&M3300								
Construction of Grid A-G																		
SKW1261	Excavate for SKW STW Structure (Grid A-G)	164	70	30/07/11 A	25/04/12	30/07/11 A	27/07/11	-272d	SKW0551	SKW1271, SKW1371								
SKW1271	55 M3 Fire Sprinkle Water Tank (FL +0.9 mPD)	25	0	25/04/12	20/05/12	28/07/11	21/08/11	-272d	SKW1261	SKW1281								
SKW1281	Ground Floor Slab (Grid A-G)	25	0	20/05/12	14/06/12	22/08/11	15/09/11	-272d	SKW1271	SKW1291								
Construction of Grid G-N																		
SKW1321	Equalization Tank no.1 & 2 with base slabs (-2.1	35	0	29/02/12	03/04/12	04/08/11	07/09/11	-209d		SKW1331								
SKW1331	Columns & Walls from B/S to G/F Slab (Grid G-N)	35	0	04/04/12	08/05/12	08/09/11	12/10/11	-209d	SKW1321	SKW1341								
SKW1341	Ground Floor Slab (Grid G-N)	35	0	09/05/12	12/06/12	13/10/11	16/11/11	-209d	SKW1331	SKW1351								
SKW1351	Columns & Walls to 1/F & 1/F Slab (Grid G-N)	18	0	13/06/12	30/06/12	17/11/11	04/12/11	-209d	SKW1341	SKW1361								
SKW1361	Columns & Walls to R/F & R/F Slab (Grid G-N)	24	0	01/07/12	24/07/12	05/12/11	28/12/11	-209d	SKW1351	E&M3170, E&M3190, E&M3210,								
Construction of Grid N-T																		
SKW1371	Excavate for SKW STW Structure (Grid N-T)	80	0	25/04/12	14/07/12	28/07/11	15/10/11	-272d	SKW05938, SKW1261	SKW1381								
SKW STP - E&M Works																		
E&M3220	Install Pumps	75	0	29/02/12	13/05/12	29/12/11	12/03/12	-62d	E&M3070	E&M3230, E&M3250, E&M3260,								
E&M3230	Install Submersible Mixers	45	0	14/05/12	27/06/12	13/03/12	26/04/12	-62d	E&M3080, E&M3220	E&M3250, E&M3260, E&M3311,								










Start date	05/05/10		Early bar
Finish date	06/04/15		Progress bar
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Run date	19/03/12		Summary bar
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			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

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
Rising Main																	
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							
Section W 8 - Landscape Softworks in All Portions																	
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

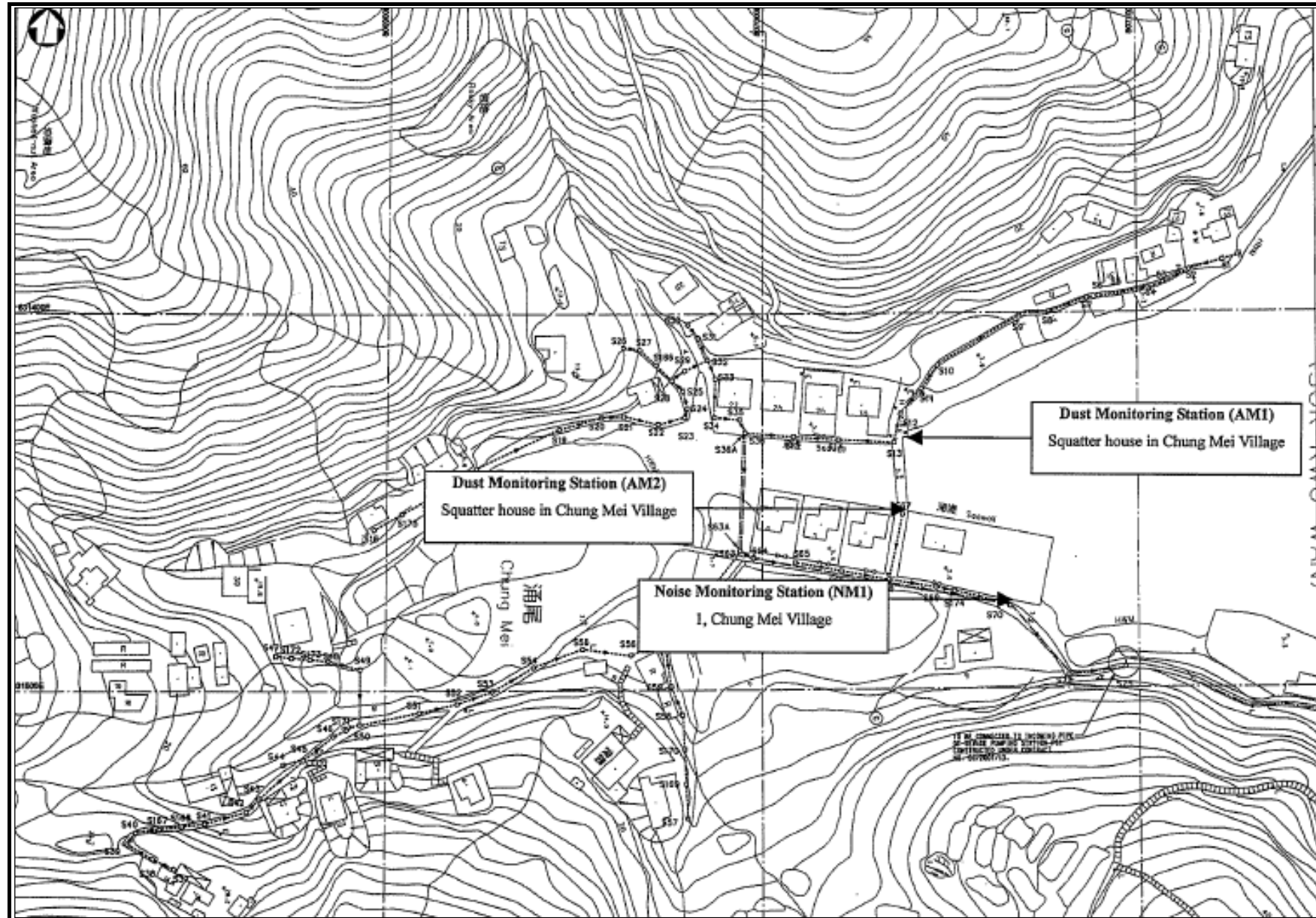
Leader Civil Engineering Corp. Ltd.
 Contract No. DC/2009/13
Construction of Sewage Treatment Works at YSW & SKW
3-month Rolling Programme (Mar 2012 - May 2012)

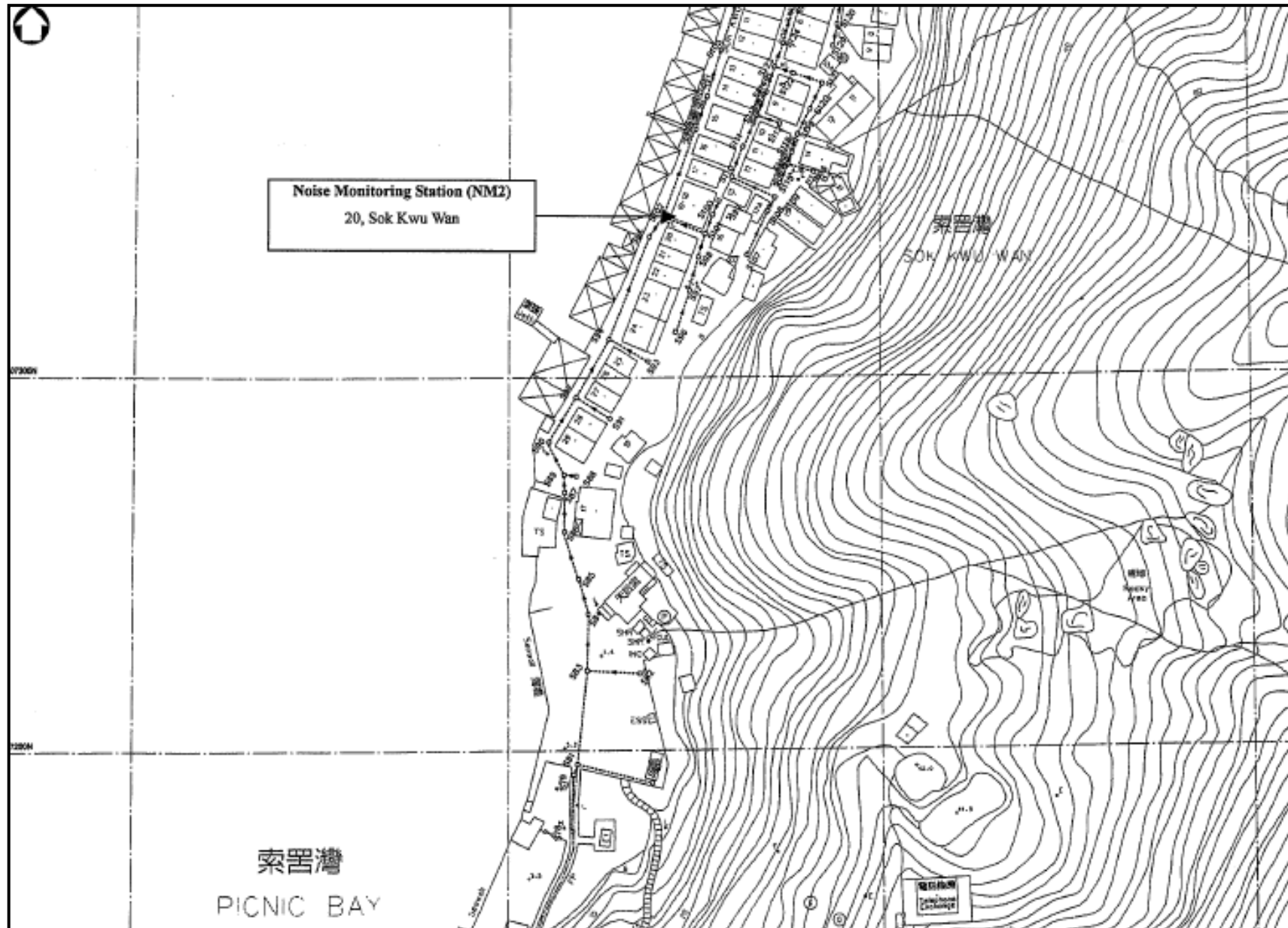
(Marked on 29 Feb 2012)

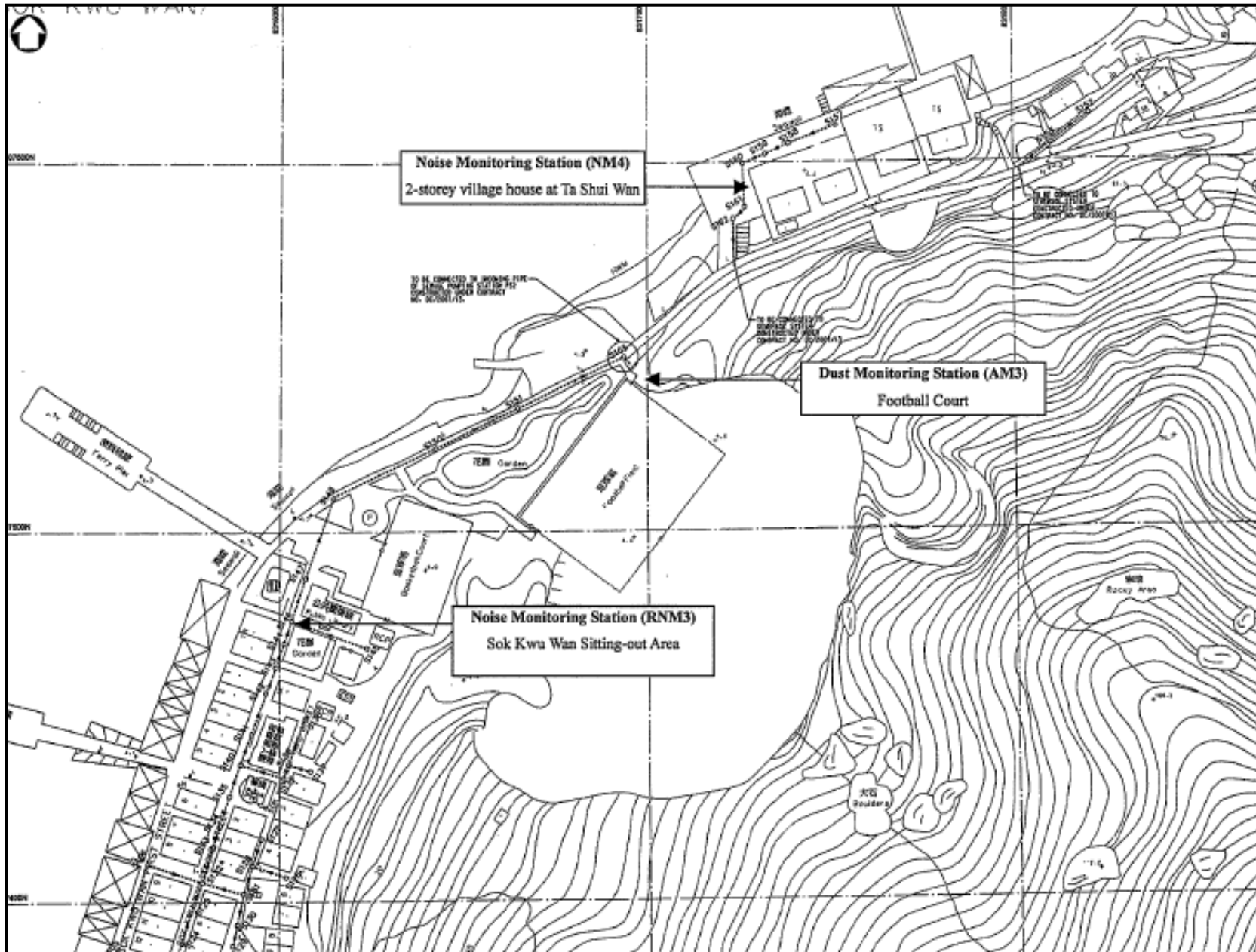
Date	Revision	Checked	Approved
29/02/12	Revision 0	RH	VC

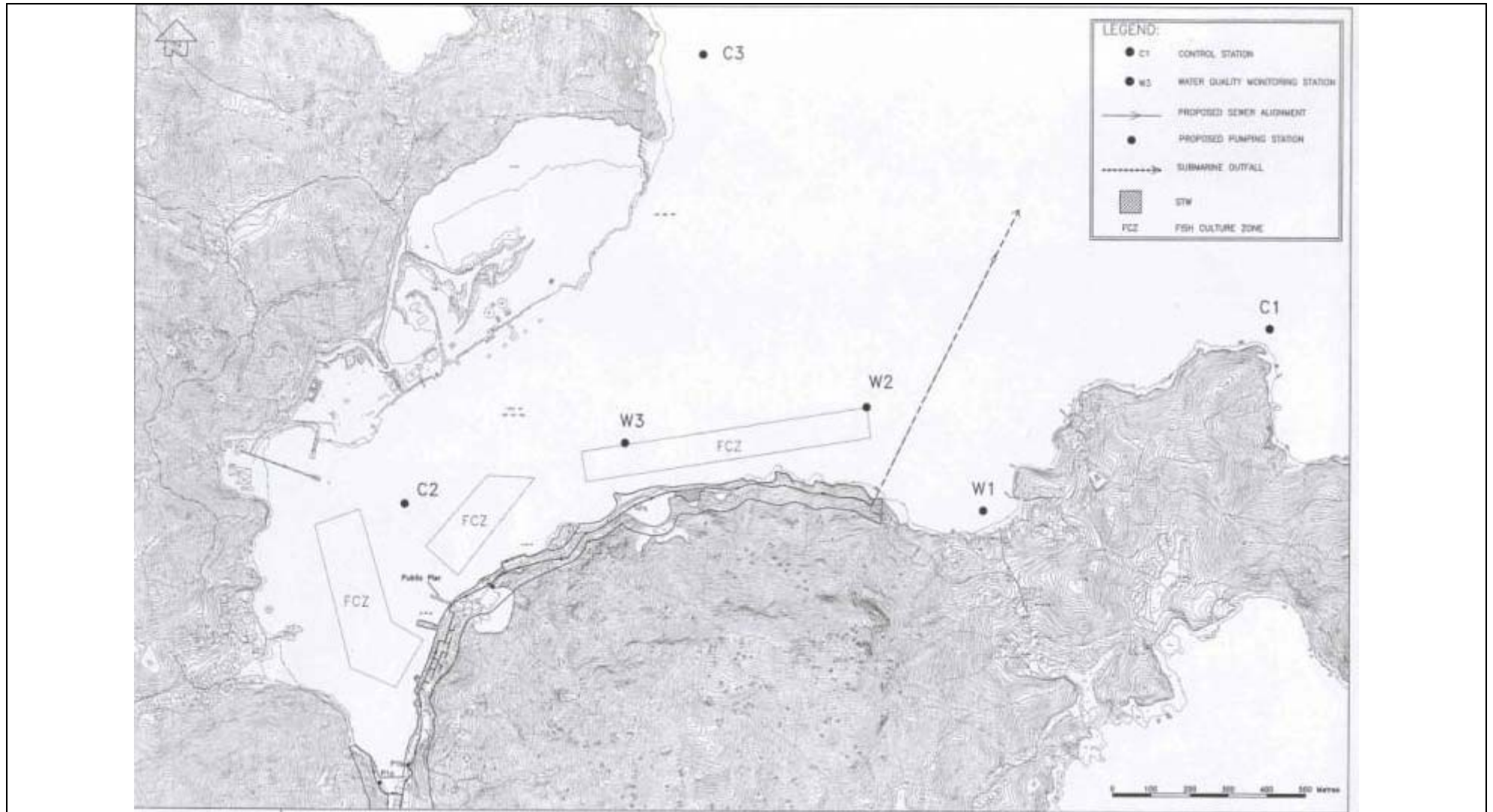
Appendix D

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

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

For subsequent flow rate calculations:

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

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Squatter house in Chung Mei Village
 Location ID : AM1

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	5.1	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 :

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

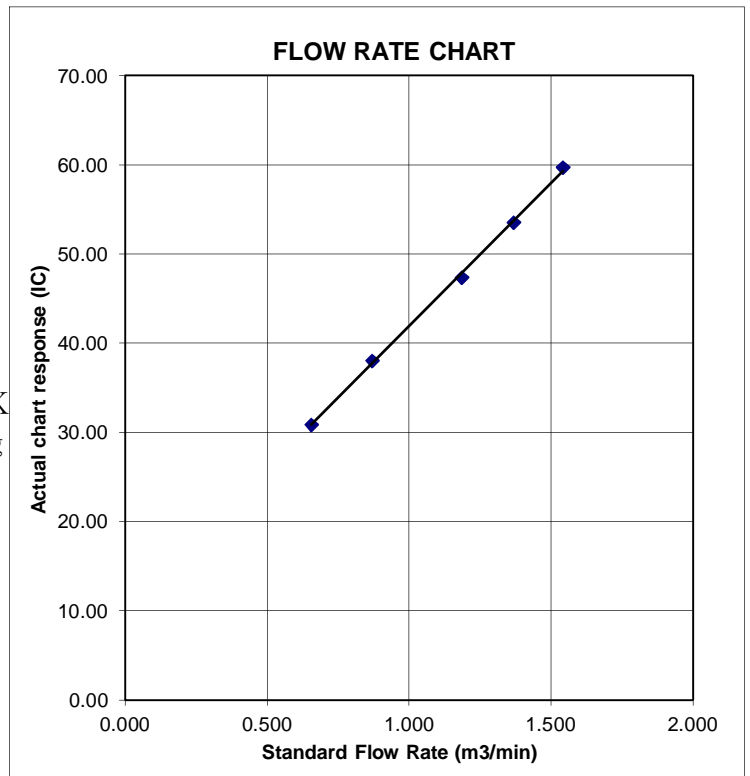
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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 :

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

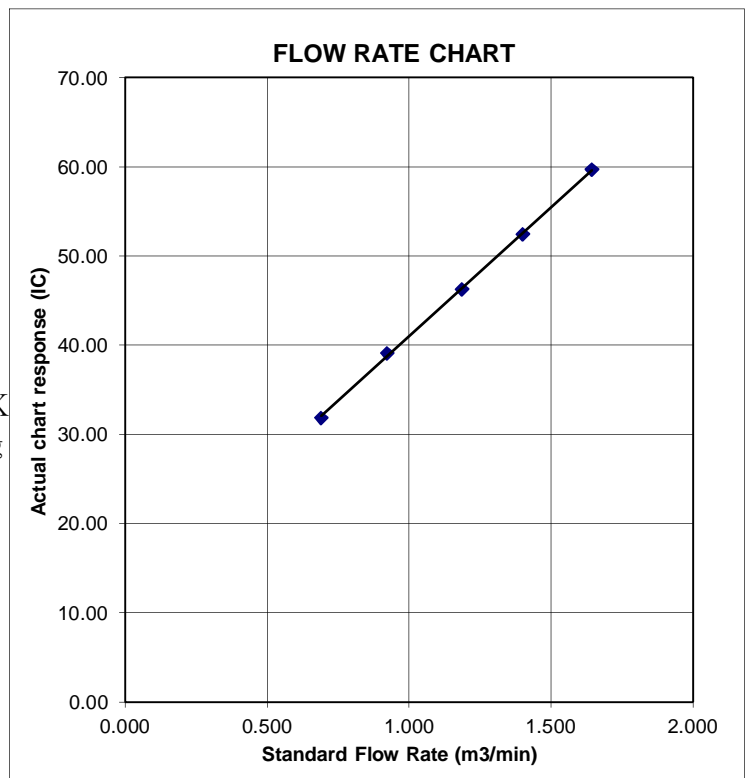
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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 :

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

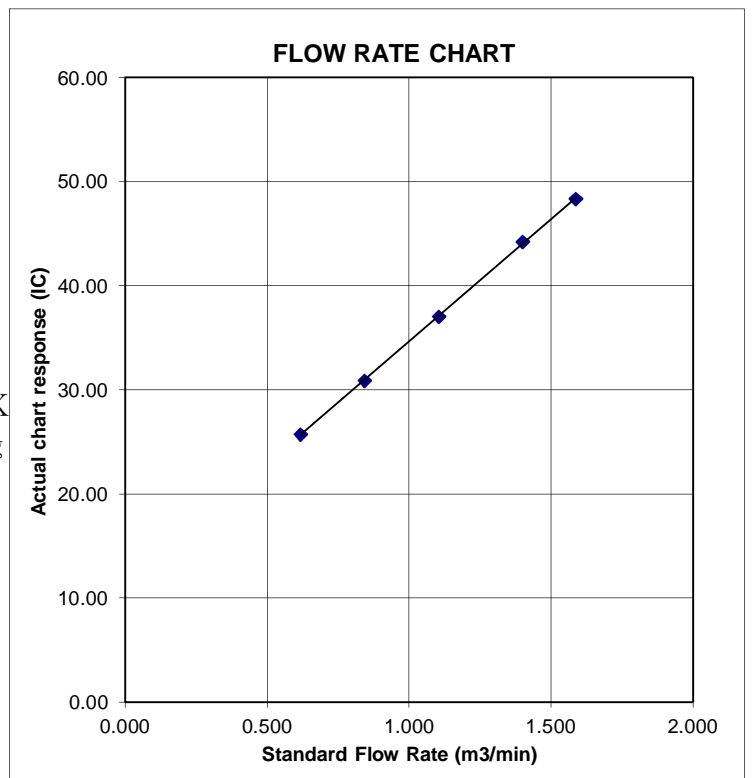
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

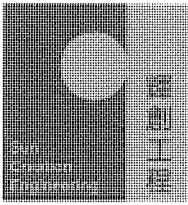
Qstd = standard flow rate
 IC = corrected chart responses
 I = actual chart response
 m = calibrator Qstd slope
 b = calibrator Qstd intercept
 Ta = actual temperature during calibration (deg K)
 Pstd = actual pressure during calibration (mm Hg)

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





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

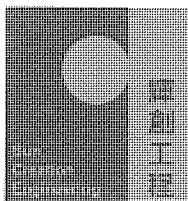
Date : 19 April 2011

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

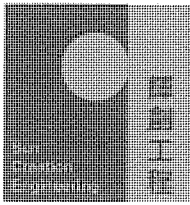
UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L _{AFP}	A	F	94.00	1	94.0	± 0.7

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 _{AFP}	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 _{AFP}	A	F	94.00	1	94.0	Ref.
	L _{ASP}		S			94.0	± 0.1
	L _{AIP}		I			94.1	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

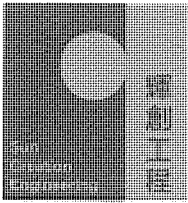
UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L _{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L _{AFMax}				200 ms	105.0	-1.0 ± 1.0
	L _{ASP}	S	Continuous		106.0	Ref.	
	L _{ASMax}		500 ms		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 _{AFP}	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 _{CFP}	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 _{Aeq}	A	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5
			60 sec.					90	89.6	± 0.5
			5 min.					80	79.3	± 1.0
								70	69.9	± 1.0

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

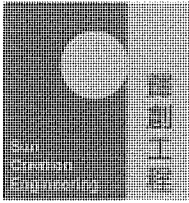
- Uncertainties of Applied Value :
 - 94 dB : 31.5 Hz - 125 Hz : ± 0.40 dB
 - 250 Hz - 500 Hz : ± 0.30 dB
 - 1 kHz : ± 0.20 dB
 - 2 kHz : ± 0.40 dB
 - 4 kHz : ± 0.50 dB
 - 8 kHz : ± 0.70 dB
 - 12.5 kHz : ± 1.20 dB
 - 104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
 - 114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
 - 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

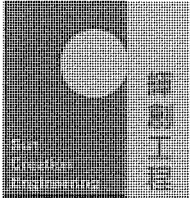
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

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

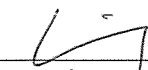
TEST RESULTS

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

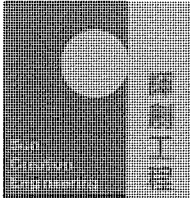
Tel: 2927 2606

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.



Certificate of Calibration 校正證書

Certificate No. : C122418
證書編號

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

Description / 儀器名稱 : Sound Level Meter (EQ068)
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-31
Serial No. / 編號 : 00410247
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 20 April 2012

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Precision Measurement Ltd., UK
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By : 
測試 : L K Yeung

Certified By : 
核證 : K C Lee

Date of Issue : 23 April 2012
簽發日期

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

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

Certificate of Calibration

校正證書

Certificate No. : C122418
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration using the internal standard (After Adjustment) was performed before the test form 6.1.1.2 to 6.4.
- The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C120016
CL281	Multifunction Acoustic Calibrator	DC110233

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Adjustment

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

* Out of Mfr's Spec.

6.1.1.2 After Adjustment

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

6.1.2 Linearity

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

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

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

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Certificate of Calibration

校正證書

Certificate No. : C122418

證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L _A	A	Fast	94.00	1	94.0	Ref.
			Slow			94.0	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
20 -110	L _A	A	Fast	106.00	Continuous	106.0	Ref.
	L _{Amax}				200 ms	105.1	-1.0 ± 1.0
	L _A	Slow	Continuous		106.0	Ref.	
	L _{Amax}		500 ms		102.0	-4.1 ± 1.0	

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L _A	A	Fast	94.00	31.5 Hz	54.3	-39.4 ± 1.5
					63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.3	+1.2 ± 1.0
					4 kHz	95.1	+1.0 ± 1.0
					8 kHz	93.0	-1.1 (+1.5; -3.0)
12.5 kHz	90.1	-4.3 (+3.0; -6.0)					

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

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Certificate of Calibration

校正證書

Certificate No. : C122418
證書編號

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L _C	C	Fast	94.00	31.5 Hz	90.7	-3.0 ± 1.5
					63 Hz	93.1	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	94.0	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.4	-0.8 ± 1.0
					8 kHz	91.1	-3.0 (+1.5; -3.0)
					12.5 kHz	88.2	-6.2 (+3.0; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)	
Range (dB)	Mode	Frequency Weighting	Integrating Time	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)			
20 - 110	L _{Aeq}	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5	
								1/10 ²	90	90.0	± 0.5
								1/10 ³	80	80.0	± 1.0
								1/10 ⁴	70	70.0	± 1.0
								60 sec.			
			5 min.								

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

- Uncertainties of Applied Value : 94 dB : 63 Hz - 125 Hz : ± 0.35 dB
 250 Hz - 500 Hz : ± 0.30 dB
 1 kHz : ± 0.20 dB
 2 kHz - 4 kHz : ± 0.35 dB
 8 kHz : ± 0.45 dB
 12.5 kHz : ± 0.70 dB
 104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
 114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
 Burst equivalent level : ± 0.2 dB (Ref. 110 dB continuous sound level)

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

Note :

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

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

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



輝創工程有限公司

Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration

校正證書

Certificate No. : C122426
證書編號

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

Description / 儀器名稱 : Acoustical Calibrator (EQ082)
Manufacturer / 製造商 : Bruel & Kjaer
Model No. / 型號 : 4231
Serial No. / 編號 : 2713428
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$
Line Voltage / 電壓 : ---

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

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 20 April 2012

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By : 
測試 : L K Yeung

Certified By : 
核證 : K C Lee

Date of Issue : 23 April 2012
簽發日期

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

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

Sun Creation Engineering Limited – Calibration & Testing Laboratory

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

輝創工程有限公司 – 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel/電話: 2927 2606

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E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com

Certificate of Calibration

校正證書

Certificate No. : C122426
證書編號

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

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

- Test procedure : MA100N.

- Results :

5.1 Sound Level Accuracy

5.1.1 Before Adjustment

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

5.1.2 After Adjustment

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

5.2 Frequency Accuracy

5.2.1 Before Adjustment

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

5.2.2 After Adjustment

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

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

Certificate of Calibration 校正證書

Certificate No. : C122426
證書編號

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

Note :

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

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

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Website/網址: www.suncreation.com



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
	ET			
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IC(E) and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IC(E) and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IC(E) and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IC(E) and ER; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial to ER within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
LIMIT LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IC(E) within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	1. Notify IC(E), ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IC(E), agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IC(E) within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Construction Noise

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

Water Quality

EVENT	ACTION			
	ET	IC(E)	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sampling day	<ol style="list-style-type: none"> 1. Repeat in-situ measurement on the next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform ICE, Contractor, ER, EPD and AFCD; and 4. Check monitoring data, all plant, equipment and Contractor's working methods. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor's working methods 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of non-compliance in writing; and 2. Notify Contractor 	<ol style="list-style-type: none"> 1. Information the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; and 3. Amend working methods if appropriate
2. Exceedance for two or more consecutive sampling days	<ol style="list-style-type: none"> 1. Same as the above; 2. Inform ICE, Contractor, ER, EPD and AFCD; 3. Discuss mitigation measures with IC(E), RE and Contractor; 4. Ensure well implementation of mitigation measures; and 5. Increase the monitoring frequency to daily until no exceedance of Action Level 	<ol style="list-style-type: none"> 1. Same as the above; 2. Discuss with ET and Contractor on possible remedial actions; 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly; and 4. Supervise the implementation of mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with IC(E) on the proposed mitigation measures; 2. Ensure well implementation of mitigation measures; and 3. Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> 1. Same as the above; 2. Check all plant and equipment and consider changes of working methods; 3. Submit proposal of additional mitigation measures to ER within 3 working days of notification and discuss with ET, IC(E), and ER; and 4. Implement the agreed mitigation measures
LIMIT LEVEL				
1. Exceedance for one sampling day	<ol style="list-style-type: none"> 1. Repeat in-situ measurement on the next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform ICE, Contractor, ER, EPD and AFCD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; and 5. Discuss mitigation measures with IC(E), RE and Contractor 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor's working method 2. Discuss with ER and Contractor on possible remedial actions; and 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly 	<ol style="list-style-type: none"> 1. Confirm receipt of notification failure in writing; and 2. Discuss with IC(E), ET and Contractor on the proposed mitigation measures; and 4. Request Contractor to review the working methods 	<ol style="list-style-type: none"> 1. Inform the ER and confirm notification of the failure in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment and consider changes of working methods; and 4. Submit proposal of mitigation measures to ER within 3 working days of notification and discuss with ET and ER
2. Exceedance for two or more consecutive sampling days	<ol style="list-style-type: none"> 1. Same as the above; 2. Ensure mitigation measures are implemented; and 3. Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days 	<ol style="list-style-type: none"> 1. Same as the above; and 2. Supervise the Implementation of mitigation measures 	<ol style="list-style-type: none"> 1. Same as the above; 2. Ensure well implementation of mitigation measures 3. Make agreement on the mitigation measures to be implemented; and 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 	<ol style="list-style-type: none"> 1. Same as the above; 2. Take immediate action to avoid further exceedance; 3. Implement the agreed mitigation measures; 4. Resubmit proposals of mitigation measures if problem still not under control; and 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.

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 ³)
		INITIAL	FINAL	ACTUAL (min)	MIN	MAX	AVG		AVG PRESS (hPa)	FLOW RATE (m3/min)	AIR VOLUME (std m3)				
24-hour TSP Monitoring Results - AM1															
5-Apr-12	24687	11833.95	11857.94	1439.40	33	35	34.0	21.3	1013.7	0.76	1093	2.7739	2.9063	0.1324	121
11-Apr-12	24701	11857.94	11881.93	1439.40	33	35	34.0	25	1011.3	0.75	1082	2.7679	2.8257	0.0578	53
17-Apr-12	24706	11881.93	11905.92	1439.40	32	34	33.0	21.3	1009.6	0.73	1045	2.7466	2.7632	0.0166	16
23-Apr-12	24709	11905.92	11929.91	1439.40	32	34	33.0	25.4	1008.7	0.72	1034	2.7417	2.809	0.0673	65
24-hour TSP Monitoring Results - AM2															
5-Apr-12	24694	10334.05	10358.04	1439.40	33	35	34.0	21.3	1013.7	0.76	1100	2.7774	2.8401	0.0627	57
11-Apr-12	24703	10358.04	10382.03	1439.40	32	34	33.0	25	1011.3	0.72	1037	2.7828	2.8547	0.0719	69
17-Apr-12	24705	10382.03	10406.02	1439.40	32	34	33.0	21.3	1009.6	0.73	1046	2.7414	2.7575	0.0161	15
23-Apr-12	24708	10406.02	10430.01	1439.40	32	34	33.0	25.4	1008.7	0.72	1034	2.735	2.7947	0.0597	58
24-hour TSP Monitoring Results - AM3															
5-Apr-12	24686	5899.95	5923.94	1439.4	36	38	37	21.3	1013.7	1.11	1598	2.7621	3.0181	0.2560	160
11-Apr-12	24704	5923.94	5947.93	1439.4	36	38	37	25	1011.3	1.10	1581	2.7692	2.9696	0.2004	127
17-Apr-12	24707	5947.93	5971.92	1439.4	35	37	36	21.3	1009.6	1.06	1532	2.7498	2.7893	0.0395	26
23-Apr-12	24710	5971.92	5995.91	1439.4	35	37	36	25.4	1008.7	1.05	1516	2.7327	2.8354	0.1027	68

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 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	2.2
						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	8.66	2.5
						6.750	18.90	9.88	127.4	1.5	30.41	8.66	7.2
						6.750	18.40	9.43	120.4	1.5	30.44	8.66	
						6.750	18.30	8.91	113.4	1.5	30.17	8.66	
						12.500	19.00	9.26	119.5	1.7	30.36	8.66	8.4
2012/3/29 15:15	W3	ME	832021	807993	13.2	1.000	18.30	9.50	120.1	1.6	30.52	8.66	7.3
						1.000	18.30	9.15	116.6	1.6	30.51	8.66	
						6.600	18.20	8.96	114.1	1.8	30.65	8.66	
						6.600	18.20	8.53	108.7	1.8	30.65	8.66	6.0
						12.200	18.70	8.92	114.6	1.6	30.46	8.66	
						12.200	18.70	8.60	110.6	1.6	30.48	8.66	2.9
2012/3/29 15:55	C1	ME	833710	808161	15.7	1.000	18.40	8.50	108.7	1.5	30.63	8.66	2.1
						1.000	18.30	8.47	108.1	1.4	30.66	8.66	
						7.850	18.30	8.36	106.6	1.7	30.68	8.66	2.0
						7.850	18.20	8.35	106.5	1.7	30.68	8.66	
						14.700	18.20	8.36	106.7	2.0	30.40	8.66	5.6
2012/3/29 15:00	C2	ME	831469	808741	13.3	1.000	18.60	9.67	124.1	1.6	30.41	8.66	5.5
						1.000	18.60	9.23	118.5	1.7	30.50	8.66	
						6.650	18.40	8.80	112.5	1.5	30.61	8.66	5.3
						6.650	18.30	8.61	110.0	1.7	30.66	8.66	
						12.300	18.30	9.84	125.5	1.8	30.72	8.66	5.2
2012/3/29 16:15	C3	ME	832241	808847	15.7	1.000	18.40	8.46	108.1	1.6	30.65	8.66	3.2
						1.000	18.40	8.46	108.1	1.6	30.64	8.66	
						7.850	18.30	8.73	111.4	1.5	30.74	8.66	3.2
						7.850	18.30	8.44	107.7	1.6	30.72	8.66	
						14.700	18.30	8.08	103.0	1.4	30.51	8.66	
						14.700	18.30	7.83	99.8	1.5	30.54	8.66	5.1
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	3.6
						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	4.7
						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	6.3
						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	2.4
2012/3/29 8:30	W3	MF	832062	807877	15.1	1.000	18.40	8.40	107.00	1.6	30.46	8.48	2.7
						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	2.1
						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	2.9
						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	2.3
						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	3.5
						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	2.2
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	2.5
						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	3.3
						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	0.6
						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	0.9
						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	8.3
						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	6.6

MF- Mid Flood Tide

ME- Mid Ebb tide

the monitoring result of SS of 29 was missed in last reporting period.

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	1.4
						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	1.8
						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	0.8
						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	1.6
						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	2.4
						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	2.4
						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	2.8
						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	2.7
						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	3.9
						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	4.7
						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	0.6
						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	<0.5
						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	0.9
						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	1.2
						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	1.0
						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	<0.5
						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	2.2
						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	2.2
						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	0.7
						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	<0.5
						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	0.8
						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	1.0
						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	<0.5
						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	1.0
						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	0.6
						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	<0.5
						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	1.6
						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	0.5
						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	0.8
						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	0.8
						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	0.6
						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	1.7
						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 31 March was missed in last reporting period.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 2-Apr-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									
2012/4/2 10:19	W1	ME	832968	807735	2.2	1.100	19.50	8.53	108.9	1.8	26.81	8.86	2.4
						1.100	19.30	7.20	93.4	1.8	30.24	8.57	
2012/4/2 10:02	W2	ME	832691	807988	13.2	1.000	19.20	7.06	91.8	1.9	30.73	8.51	2.2
						6.600	19.20	6.93	90.0	1.9	30.73	8.43	
						6.600	19.20	7.01	91.0	2.0	30.74	8.35	2.2
						6.600	19.20	6.99	90.8	2.0	30.75	8.34	
						12.200	19.10	7.15	92.8	1.9	30.80	8.31	3.2
						12.200	19.10	7.19	93.3	1.9	30.80	8.31	
2012/4/2 9:43	W3	ME	832059	807867	13.3	1.000	19.30	8.42	109.6	1.6	30.60	8.71	0.7
						1.000	19.30	7.56	98.4	1.7	30.66	8.53	
						6.650	19.20	7.38	95.9	1.7	30.71	8.39	1.2
						6.650	19.20	7.38	95.8	1.7	30.74	8.37	
						12.300	19.00	7.34	95.0	1.6	30.65	8.33	0.8
						12.300	19.00	6.77	87.5	1.6	30.44	8.27	
2012/4/2 10:39	C1	ME	833712	808156	15.1	1.000	19.20	7.03	91.3	1.7	30.75	8.36	0.6
						1.000	19.20	7.08	92.0	1.7	30.75	8.33	
						7.550	19.20	7.23	93.9	1.5	30.75	8.31	2.5
						7.550	19.20	7.28	94.5	1.5	30.76	8.30	
						14.100	19.20	7.42	96.3	1.7	30.79	8.29	3.6
						14.100	19.20	7.46	96.8	1.7	30.79	8.30	
2012/4/2 9:27	C2	ME	831459	807753	13.2	1.000	19.40	7.61	99.1	2.0	30.61	8.55	<0.5
						1.000	19.30	7.62	99.1	2.0	30.64	8.45	
						6.600	19.20	7.67	99.5	1.9	30.73	8.38	1.2
						6.600	19.20	7.61	98.8	1.9	30.73	8.34	
						12.200	19.00	7.38	94.5	1.8	29.03	8.32	0.5
						12.200	19.00	6.71	86.0	1.8	29.03	8.30	
2012/4/2 10:59	C3	ME	832227	808883	15.3	1.000	19.20	7.22	93.9	1.6	30.74	8.55	1.4
						1.000	19.20	7.06	91.8	1.6	30.80	8.45	
						7.650	19.20	7.20	93.6	1.6	30.86	8.41	1.2
						7.650	19.20	7.26	94.3	1.6	30.87	8.37	
						14.300	19.20	7.41	96.3	1.5	30.94	8.34	0.9
						14.300	19.20	7.46	96.9	1.6	30.94	8.33	
2012/4/2 14:40	W1	MF	831467	807751	2.7	1.350	19.30	8.27	107.9	1.7	30.89	8.90	2.5
						1.350	19.30	7.44	97.0	1.7	30.88	8.64	
2012/4/2 14:30	W2	MF	832674	808000	15.3	1.000	19.30	8.63	112.3	1.9	30.81	8.83	2.4
						1.000	19.20	7.87	102.4	1.9	30.86	8.65	
						7.650	19.20	7.58	98.5	1.9	30.93	8.56	2.4
						7.650	19.20	7.50	97.5	1.8	30.95	8.49	
						14.300	19.20	7.49	97.4	2.0	30.97	8.42	2.5
						14.300	19.20	7.45	96.8	2.0	30.98	8.40	
2012/4/2 14:15	W3	MF	832035	807890	15.1	1.000	19.30	7.66	99.6	1.6	30.73	8.62	<0.5
						1.000	19.30	7.57	98.5	1.6	30.81	8.47	
						7.550	19.20	7.60	98.7	1.6	30.86	8.45	1.4
						7.550	19.20	7.60	98.8	1.6	30.86	8.43	
						14.100	19.20	7.56	98.3	1.6	30.91	8.41	<0.5
						14.100	19.20	7.46	96.9	1.6	30.93	8.39	
2012/4/2 15:00	C1	MF	833713	808164	16.7	1.000	19.50	6.94	90.8	1.5	30.93	8.61	1.8
						1.000	19.50	6.88	90.0	1.6	30.93	8.53	
						8.350	19.20	6.96	90.5	1.5	30.96	8.45	2.9
						8.350	19.20	6.94	90.3	1.5	30.96	8.42	
						15.700	19.20	7.05	91.8	1.6	30.96	8.40	2.0
						15.700	19.20	7.07	92.0	1.6	30.96	8.38	
2012/4/2 14:00	C2	MF	831466	807752	15.3	1.000	19.90	7.83	102.9	1.8	30.63	8.50	0.8
						1.000	19.80	7.83	102.7	1.8	30.66	8.47	
						7.650	19.30	7.90	102.6	1.8	30.67	8.44	0.7
						7.650	19.10	7.44	96.5	1.8	30.74	8.41	
						14.300	19.10	7.63	99.0	1.7	30.77	8.46	1.0
						14.300	19.10	7.18	93.2	1.7	30.84	8.40	
2012/4/2 15:20	C3	MF	832241	808869	17.1	1.000	19.50	7.74	101.1	1.6	30.92	8.52	0.8
						1.000	19.30	7.60	99.0	1.6	30.92	8.34	
						8.550	19.30	7.56	98.5	1.5	30.95	8.34	<0.5
						8.550	19.20	7.68	100.0	1.5	30.96	8.39	
						16.100	19.20	7.70	100.2	1.5	30.96	8.35	0.8
						16.100	19.20	7.72	100.5	1.6	30.96	8.34	

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-Apr-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									
2012/4/5 11:40	W1	ME	832990	807735	2.2	1.100	19.80	7.51	98.7	1.5	30.75	8.08	1.2
						1.100	19.80	7.43	97.7	1.5	30.79	8.04	
2012/4/5 11:30	W2	ME	832690	807964	13.5	1.000	19.70	7.27	95.3	1.5	30.88	8.51	1.3
						1.000	19.70	7.20	94.4	1.5	30.89	8.31	
						6.750	19.60	6.95	91.1	1.6	30.80	8.64	3.3
						6.750	19.60	6.75	88.5	1.5	30.83	8.64	
						12.500	19.80	8.25	108.4	1.5	30.78	8.46	2.2
						12.500	19.80	7.74	101.7	1.5	30.81	8.45	
2012/4/5 11:15	W3	ME	832070	807875	13.5	1.000	19.60	7.52	98.5	1.6	30.86	8.64	1.2
						1.000	19.60	7.50	98.2	1.6	30.87	8.56	
						6.750	19.60	7.50	98.1	1.6	30.62	8.24	1.0
						6.750	19.60	7.29	95.3	1.6	30.60	8.10	
						12.500	19.70	8.70	114.0	1.3	30.86	8.55	1.8
12.500	19.60	8.17	107.0	1.5	30.87	8.50							
2012/4/5 12:00	C1	ME	833731	808154	15.7	1.000	19.60	7.60	99.5	1.8	30.90	8.36	1.8
						1.000	19.60	7.47	97.7	1.7	30.91	8.28	
						7.850	19.50	7.54	98.6	1.7	30.91	8.15	0.8
						7.850	19.50	7.49	98.1	1.7	30.91	8.11	
						14.700	19.70	11.01	144.3	1.9	30.76	8.12	0.6
14.700	19.70	9.39	123.1	1.9	30.85	8.56							
2012/4/5 11:00	C2	ME	831471	807732	13.3	1.000	19.70	8.08	105.9	1.6	30.70	8.16	<0.5
						1.000	19.70	7.81	102.4	1.7	30.80	8.15	
						6.650	19.70	7.60	99.7	1.6	30.82	8.55	0.8
						6.650	19.70	7.53	98.7	1.7	30.82	8.60	
						12.300	19.60	7.24	94.9	1.6	30.86	8.64	0.9
						12.300	19.60	7.14	93.5	1.6	30.86	8.54	
2012/4/5 12:20	C3	ME	832194	808871	15.5	1.000	19.70	7.37	96.6	2.1	30.80	8.64	0.7
						1.000	19.70	7.36	96.6	2.2	30.85	8.59	
						7.750	19.70	7.48	98.1	1.9	30.86	8.46	2.4
						7.750	19.70	7.47	98.0	1.7	30.86	8.43	
						14.500	19.60	7.43	97.4	1.7	30.88	8.38	3.1
						14.500	19.60	7.40	97.0	1.8	30.88	8.38	
	W1	MF											
	W2	MF											
	W3	MF											
	C1	MF											
	C2	MF											
	C3	MF											

MF- Mid Flood Tide
ME- Mid Ebb tide

Contract No. DC/2009/13

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



Sok Kwu Wan

Date 10-Apr-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									
2012/4/10 14:45	W1	ME	832967	807746	2.3	1.150	20.70	6.37	85.8	1.1	30.77	8.62	2.8
						1.150	20.70	6.24	83.2	1.0	30.76	8.55	
2012/4/10 14:35	W2	ME	832677	808000	13.3	1.000	20.50	6.89	91.0	0.9	30.75	8.50	4.5
						1.000	20.50	6.89	91.0	1.1	30.76	8.47	
						6.650	20.20	6.63	87.1	1.5	30.89	8.41	3.5
						6.650	20.20	6.50	87.1	1.2	30.90	8.40	
						12.300	20.20	6.24	81.9	1.1	30.96	8.37	
12.300	20.20	6.24	81.9	1.5	30.95	8.36	5.5						
2012/4/10 14:20	W3	ME	832046	807900	13.5	1.000	20.70	7.28	97.5	1.9	30.49	8.60	6.0
						1.000	20.90	7.15	96.2	2.0	30.49	8.53	
						6.750	20.50	6.89	91.0	1.5	30.80	8.44	4.4
						6.750	20.40	6.76	89.7	1.7	30.74	8.42	
						12.500	20.20	6.63	87.1	1.7	30.80	8.39	
12.500	20.20	6.50	85.8	1.7	30.80	8.39	5.1						
2012/4/10 15:05	C1	ME	833709	808184	17.4	1.000	20.90	6.50	85.8	2.5	30.42	8.65	5.3
						1.000	20.90	6.24	84.5	2.8	30.46	8.57	
						8.700	20.80	5.98	80.6	2.9	30.65	8.48	6.8
						8.700	20.60	5.98	80.6	2.4	30.73	8.46	
						16.400	20.30	5.85	78.0	1.7	30.83	8.41	
16.400	20.20	5.85	78.0	1.9	30.84	8.41	3.2						
2012/4/10 14:05	C2	ME	831470	807739	13.1	1.000	21.30	6.50	87.1	1.7	30.15	8.48	4.2
						1.000	21.30	6.50	87.1	1.9	30.17	8.45	
						6.550	20.10	6.63	87.1	1.8	30.74	8.40	4.7
						6.550	20.10	6.50	85.8	1.7	30.75	8.39	
						12.100	20.10	6.37	84.5	1.4	30.91	8.80	
12.100	20.10	6.24	81.9	1.7	30.89	8.57	3.1						
2012/4/10 15:30	C3	ME	832225	808867	17.1	1.000	21.00	5.59	74.1	1.9	30.63	8.30	4.0
						1.000	21.00	5.46	74.1	2.1	30.65	8.30	
						8.550	20.50	5.46	72.8	2.4	30.78	8.30	6.6
						8.550	20.40	5.46	72.8	2.8	30.81	8.30	
						16.100	20.20	5.46	72.8	1.5	30.86	8.32	
16.100	20.20	5.46	72.8	1.7	30.88	8.31	8.5						
2012/4/10 8:45	W1	MF	832979	807712	2.63	1.315	20.10	6.89	89.7	0.8	30.56	9.02	3.2
						1.315	20.10	6.63	87.1	0.9	30.59	8.97	
2012/4/10 8:35	W2	MF	832666	807981	1.51	1.000	20.20	7.02	93.6	1.0	30.52	8.99	2.5
						1.000	20.10	6.89	89.7	1.2	30.60	8.92	
						0.755	20.10	6.50	85.8	1.7	30.93	8.91	5.4
						0.755	20.10	6.50	85.8	1.8	30.95	8.91	
						0.510	20.10	6.24	81.9	1.3	31.07	8.89	
0.510	20.10	6.24	81.9	1.5	31.07	8.88	3.0						
2012/4/10 8:20	W3	MF	832045	807890	1.53	1.000	20.30	7.80	102.70	1.9	30.36	8.95	4.4
						1.000	20.30	7.54	100.10	2.1	30.37	8.91	
						0.765	20.10	7.28	96.20	1.8	30.58	8.82	1.3
						0.765	20.10	7.15	93.60	1.9	30.59	8.82	
						0.530	20.00	6.89	91.00	1.9	30.81	8.79	
0.530	20.00	6.89	91.00	1.9	30.84	8.78	3.5						
2012/4/10 9:05	C1	MF	833697	808175	16.7	1.000	20.20	7.93	104.00	3.1	30.66	8.96	3.0
						1.000	20.10	7.80	102.70	3.1	30.67	8.91	
						8.350	20.10	7.28	96.20	2.4	30.86	8.93	3.0
						8.350	20.20	7.02	93.60	2.6	30.87	8.93	
						15.700	20.10	6.50	85.80	2.1	31.08	8.92	
15.700	20.10	6.37	84.50	2.3	31.09	8.91	1.5						
2012/4/10 8:05	C2	MF	831469	807738	1.53	1.000	20.20	8.19	107.9	1.8	30.53	8.63	1.4
						1.000	20.20	8.19	107.9	1.9	30.53	8.63	
						0.765	20.00	7.80	102.7	1.9	30.80	8.65	4.7
						0.765	20.00	7.67	100.1	2.1	30.80	8.65	
						0.530	20.00	7.28	96.2	1.9	29.92	8.63	
0.530	20.00	7.28	94.9	2.1	28.90	8.64	1.7						
2012/4/10 9:25	C3	MF	832199	808874	17.1	1.000	20.10	6.11	80.6	2.0	30.64	8.99	2.6
						1.000	20.10	6.11	80.6	2.1	30.68	8.99	
						8.550	20.10	5.98	79.3	1.7	30.71	8.98	2.8
						8.550	20.10	5.98	78.0	1.6	30.71	8.98	
						16.100	20.20	5.72	75.4	1.8	30.83	8.98	
16.100	20.20	5.72	75.4	1.9	30.84	8.96	1.8						

MF- Mid Flood Tide
ME- Mid Ebb tide

Contract No. DC/2009/13

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



Sok Kwu Wan

Date 12-Apr-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									
2012/4/12 16:35	W1	ME	832960	807730	2.1	1.050	20.80	7.92	106.8	1.4	30.74	8.33	1.6
						1.050	20.80	7.80	105.6	1.5	30.75	8.31	
2012/4/12 16:25	W2	ME	832677	807991	13.1	1.000	21.10	7.98	106.1	1.2	30.50	8.57	1.5
						1.000	21.10	7.88	105.0	1.1	30.51	8.48	
						6.550	20.80	7.68	103.0	1.3	30.74	8.39	3.0
						6.550	20.80	7.68	103.0	1.5	30.74	8.36	
						12.100	20.80	7.37	98.0	1.3	30.79	8.31	1.5
						12.100	20.80	7.37	98.0	1.4	30.79	8.30	
2012/4/12 16:10	W3	ME	832036	807904	13.3	1.000	21.10	7.20	97.2	1.2	30.36	8.63	2.1
						1.000	21.10	7.08	94.8	1.4	30.48	8.53	
						6.650	20.90	6.72	90.0	1.5	30.74	8.38	2.0
						6.650	20.80	6.72	90.0	1.7	30.75	8.37	
						12.300	20.70	6.36	85.2	1.5	30.81	8.34	2.4
						12.300	20.70	6.36	85.2	1.4	30.82	8.33	
2012/4/12 16:55	C1	ME	833707	808175	15.3	1.000	20.80	8.18	109.1	1.6	30.53	8.57	3.7
						1.000	20.80	7.98	107.1	1.6	30.52	8.48	
						7.650	21.00	6.97	92.9	1.7	30.60	8.58	2.1
						7.650	21.00	7.07	93.9	1.8	30.61	8.51	
						14.300	21.00	6.77	90.9	1.3	30.66	8.36	2.2
						14.300	20.90	6.77	90.9	1.4	30.66	8.34	
2012/4/12 15:55	C2	ME	831453	807744	12.7	1.000	20.80	8.18	110.1	1.4	30.67	8.50	4.2
						1.000	20.80	8.28	110.1	1.5	30.63	8.45	
						6.350	20.70	8.08	107.1	1.5	30.77	8.38	2.2
						6.350	20.60	8.08	108.1	1.4	30.80	8.36	
						11.700	20.60	7.58	101.0	1.4	30.79	8.54	2.2
						11.700	20.60	7.27	97.0	1.7	30.56	8.37	
2012/4/12 17:15	C3	ME	832225	808854	15.3	1.000	21.00	7.56	100.8	1.4	30.48	8.28	2.8
						1.000	20.90	7.56	100.8	1.5	30.63	8.27	
						7.650	20.90	7.32	97.2	1.6	30.69	8.26	2.2
						7.650	20.90	7.20	97.2	1.5	30.69	8.26	
						14.300	20.80	6.96	93.6	1.3	30.74	8.24	2.7
						14.300	20.80	6.96	93.6	1.5	30.74	8.24	
2012/4/12 9:50	W1	MF	832978	807735	2.8	1.400	21.20	6.44	86.8	0.9	30.06	8.54	2.5
						1.400	21.20	6.30	84.0	1.1	30.06	8.48	
2012/4/12 9:40	W2	MF	832674	807979	15.1	1.000	21.10	7.14	95.2	1.3	30.02	8.48	5.3
						1.000	21.10	7.00	93.8	1.4	30.02	8.43	
						7.550	20.60	6.58	88.2	1.3	30.73	8.38	3.8
						7.550	20.60	6.58	86.8	1.2	30.74	8.36	
						14.100	20.60	6.44	85.4	1.5	30.86	8.34	6.7
						14.100	20.60	6.44	85.4	1.5	30.86	8.33	
2012/4/12 9:25	W3	MF	832049	807890	15.3	1.000	21.10	7.92	105.6	1.2	30.03	8.43	4.4
						1.000	21.10	7.80	103.2	1.4	30.05	8.40	
						7.650	20.80	7.32	98.4	1.3	30.40	8.35	5.3
						7.650	20.80	7.32	97.2	1.3	30.41	8.34	
						14.300	20.60	7.20	96.0	1.1	30.67	8.34	5.0
						14.300	20.60	7.08	94.8	1.1	30.69	8.32	
2012/4/12 10:10	C1	MF	833700	808184	17.1	1.000	20.80	6.45	85.5	1.2	30.36	8.45	10.1
						1.000	20.80	6.45	85.5	1.4	30.35	8.42	
						8.550	20.80	6.30	85.5	1.6	30.47	8.37	7.0
						8.550	20.80	6.30	85.5	1.6	30.49	8.37	
						16.100	20.60	6.45	85.5	1.4	30.85	8.38	7.1
						16.100	20.60	6.45	85.5	1.3	30.86	8.37	
2012/4/12 9:10	C2	MF	831474	807759	15.3	1.000	20.90	7.92	105.6	1.4	30.36	8.24	4.9
						1.000	20.90	7.81	103.4	1.6	30.39	8.23	
						7.650	20.60	7.59	101.2	1.4	30.67	8.27	4.2
						7.650	20.60	7.48	99.0	1.5	30.70	8.24	
						14.300	20.60	7.37	97.9	1.4	30.58	8.22	3.1
						14.300	20.60	7.26	96.8	1.5	30.56	8.21	
2012/4/12 10:30	C3	MF	832231	808869	17.3	1.000	20.90	6.30	85.5	1.4	30.10	8.28	3.3
						1.000	20.90	6.30	84.0	1.5	30.08	8.28	
						8.650	20.80	6.30	84.0	1.2	30.47	8.27	2.7
						8.650	20.80	6.30	84.0	1.3	30.51	8.28	
						16.300	20.40	6.15	82.5	1.1	31.11	8.31	2.4
						16.300	20.40	6.30	82.5	1.2	31.13	8.31	

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 14-Apr-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									
2012/4/14 8:50	W1	ME	832969	807735	2.3	1.150	22.00	6.82	92.4	1.2	29.94	8.47	4.8
						1.150	22.00	6.82	92.4	1.3	29.93	8.44	
2012/4/14 8:40	W2	ME	832677	807988	13.3	1.000	21.90	7.48	103.4	1.6	30.28	8.55	2.7
						1.000	21.90	7.48	103.4	1.4	30.34	8.50	
						6.650	21.70	7.48	101.2	1.6	30.81	8.41	2.1
						6.650	21.70	7.48	101.2	1.8	30.86	8.40	
						12.300	21.60	7.48	101.2	1.2	30.97	8.35	6.7
						12.300	21.50	7.48	101.2	1.3	30.99	8.36	
2012/4/14 8:25	W3	ME	832047	807891	13.3	1.000	22.00	7.92	110.0	1.4	29.99	8.43	4.2
						1.000	22.00	7.92	107.8	1.5	29.98	8.41	
						6.650	21.70	7.70	105.6	1.5	30.71	8.38	3.4
						6.650	21.70	7.70	105.6	1.7	30.74	8.37	
						12.300	21.60	7.70	103.4	1.2	30.93	8.35	1.4
						12.300	21.60	7.48	103.4	1.3	30.93	8.35	
2012/4/14 9:10	C1	ME	833707	808180	15.9	1.000	22.00	7.70	105.6	1.6	29.85	8.53	2.5
						1.000	22.00	7.70	103.4	1.6	30.00	8.50	
						7.950	21.80	7.48	101.2	1.5	30.66	8.42	2.8
						7.950	21.80	7.48	101.2	1.5	30.71	8.42	
						14.900	21.60	7.48	101.2	1.7	30.99	8.40	2.8
						14.900	21.50	7.92	105.6	1.8	31.03	8.50	
2012/4/14 8:10	C2	ME	831459	807749	13.2	1.000	21.80	7.92	110.0	1.4	30.17	8.47	3.2
						1.000	21.80	7.92	107.8	1.5	30.29	8.43	
						6.600	21.50	7.92	107.8	1.4	30.84	8.34	1.5
						6.600	21.50	7.92	105.6	1.4	30.85	8.33	
						12.200	21.30	7.70	103.4	1.4	30.85	8.30	3.5
						12.200	21.30	7.70	103.4	1.6	30.87	8.29	
2012/4/14 9:30	C3	ME	832227	808869	15.4	1.000	22.00	7.04	96.8	1.4	29.95	8.27	3.2
						1.000	22.00	7.04	96.8	1.6	29.95	8.27	
						7.700	21.90	7.04	94.6	1.6	30.19	8.28	1.5
						7.700	21.90	7.04	94.6	1.8	30.27	8.29	
						14.400	21.50	7.04	94.6	1.2	30.99	8.31	0.5
						14.400	21.50	7.04	94.6	1.5	31.02	8.32	
2012/4/14 11:30	W1	MF	832968	807727	2.6	1.300	21.90	7.04	96.8	0.8	30.43	8.51	0.6
						1.300	21.90	7.04	94.6	1.1	30.44	8.47	
2012/4/14 11:20	W2	MF	832652	807981	15.1	1.000	21.90	7.26	99.0	1.7	30.18	8.45	3.6
						1.000	21.90	7.26	99.0	1.8	30.20	8.43	
						7.550	21.80	7.04	94.6	1.7	30.63	8.40	2.0
						7.550	21.80	7.04	94.6	1.8	30.65	8.39	
						14.100	21.50	7.04	94.6	1.6	31.00	8.36	3.2
						14.100	21.50	7.04	94.6	1.4	31.03	8.37	
2012/4/14 11:05	W3	MF	832045	807903	15.3	1.000	22.00	7.04	94.6	1.9	30.06	8.33	1.1
						1.000	22.00	7.04	94.6	2.1	30.10	8.33	
						7.650	21.90	7.04	94.6	1.9	30.36	8.33	0.8
						7.650	21.90	7.04	96.8	2.1	30.40	8.34	
						14.300	21.80	7.04	94.6	1.9	30.72	8.35	1.7
						14.300	21.80	7.04	94.6	1.8	30.76	8.35	
2012/4/14 11:50	C1	MF	833714	808161	16.7	1.000	21.90	7.04	94.6	1.5	30.11	8.51	2.3
						1.000	21.90	7.04	94.6	1.7	30.19	8.44	
						8.350	21.70	6.82	94.6	1.8	30.50	8.36	1.8
						8.350	21.70	6.82	94.6	1.9	30.54	8.35	
						15.700	21.50	6.82	92.4	2.0	30.95	8.33	1.8
						15.700	21.50	6.82	92.4	2.2	30.99	8.34	
2012/4/14 10:50	C2	MF	831473	807741	15.3	1.000	22.00	7.48	101.2	1.5	29.95	8.62	1.2
						1.000	22.00	7.48	101.2	1.7	30.13	8.55	
						7.650	21.90	7.26	99.0	2.3	30.25	8.43	1.2
						7.650	21.90	7.26	99.0	2.4	30.24	8.42	
						14.300	21.80	7.26	96.8	2.1	30.62	8.40	1.0
						14.300	21.80	7.26	96.8	2.1	30.62	8.40	
2012/4/14 12:10	C3	MF	832225	808884	16.7	1.000	21.80	6.60	90.2	1.7	30.24	8.28	1.1
						1.000	21.80	6.60	90.2	1.9	30.26	8.28	
						8.350	21.70	6.60	90.2	2.1	30.53	8.29	1.2
						8.350	21.70	6.60	90.2	2.2	30.53	8.30	
						15.700	21.50	6.60	90.2	1.3	30.98	8.29	5.2
						15.700	21.50	6.82	92.4	1.5	31.00	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 16-Apr-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									
2012/4/16 9:45	W1	ME	832952	807730	2.1	1.050	22.60	7.35	100.5	1.7	30.20	8.48	1.3
						1.050	22.60	7.05	97.5	1.7	30.25	8.43	
2012/4/16 9:35	W2	ME	832674	807979	13.1	1.000	22.60	7.56	104.4	1.6	30.22	8.55	0.8
						1.000	22.50	7.20	99.0	1.5	30.32	8.49	
						6.550	22.30	6.93	94.6	1.5	30.69	8.43	2.6
						6.550	22.30	6.49	89.1	1.6	30.71	8.41	
						12.100	22.00	6.05	82.5	1.5	31.16	8.36	2.4
						12.100	21.90	6.05	82.5	1.8	31.19	8.35	
2012/4/16 9:20	W3	ME	832049	807889	13.3	1.000	22.70	7.38	101.7	1.6	30.16	8.54	1.0
						1.000	22.70	7.02	97.2	1.6	30.26	8.49	
						6.650	22.10	7.44	102.0	1.9	31.02	8.44	0.9
						6.650	22.00	6.72	91.2	1.8	31.15	8.41	
						12.300	21.90	6.44	88.2	1.6	30.72	8.34	<0.5
						12.300	21.90	6.44	86.8	1.7	30.68	8.34	
2012/4/16 10:05	C1	ME	833709	808177	15.3	1.000	22.70	7.05	97.5	1.5	30.04	8.36	0.9
						1.000	22.70	6.90	96.0	1.6	30.04	8.35	
						7.650	22.60	6.75	93.0	2.0	30.37	8.36	1.7
						7.650	22.40	6.75	93.0	1.8	30.52	8.35	
						14.300	21.90	6.60	90.0	1.7	31.24	8.35	0.7
						14.300	21.90	6.45	90.0	1.8	31.25	8.34	
2012/4/16 9:05	C2	ME	831454	807746	13.2	1.000	22.90	6.90	94.5	1.4	29.91	8.40	1.2
						1.000	22.90	6.60	91.5	1.6	29.91	8.35	
						6.600	22.10	6.15	85.5	1.6	31.05	8.33	0.8
						6.600	22.00	6.15	84.0	1.6	31.09	8.31	
						12.200	21.80	5.76	79.2	1.7	31.09	8.27	3.1
						12.200	21.70	5.76	79.2	1.8	31.11	8.26	
2012/4/16 10:25	C3	ME	832199	808853	15.1	1.000	22.70	6.97	95.2	1.6	30.03	8.29	0.6
						1.000	22.70	6.80	93.5	1.7	30.03	8.28	
						7.550	22.60	6.63	91.8	1.8	30.27	8.29	<0.5
						7.550	22.60	6.46	90.1	1.6	30.32	8.30	
						14.100	22.50	6.08	83.2	1.5	30.47	8.31	0.9
						14.100	22.40	6.08	83.2	1.7	30.51	8.31	
2012/4/16 14:55	W1	MF	832967	807735	2.8	1.400	22.80	7.50	103.50	1.8	29.83	8.52	0.7
						1.400	22.80	7.05	96.00	1.9	29.85	8.44	
2012/4/16 14:45	W2	MF	832654	807962	15.2	1.000	22.70	7.99	109.89	1.8	29.72	8.51	0.6
						1.000	22.70	7.88	108.78	1.8	29.75	8.46	
						7.600	22.20	7.44	102.12	1.2	30.93	8.37	0.8
						7.600	22.00	7.33	101.01	1.2	31.16	8.36	
						14.200	21.70	6.55	88.80	1.3	31.82	8.32	1.1
						14.200	21.70	6.44	88.80	1.3	31.83	8.31	
2012/4/16 14:30	W3	MF	832049	807905	15.1	1.000	23.00	8.08	112.20	1.5	30.25	8.36	1.2
						1.000	23.00	7.91	109.65	1.7	30.24	8.34	
						7.550	22.60	7.48	103.70	1.6	30.46	8.35	0.6
						7.550	22.60	7.40	102.00	1.5	30.47	8.34	
						14.100	22.40	7.14	98.60	1.7	30.76	8.32	0.9
						14.100	22.40	7.14	98.60	1.8	30.72	8.32	
2012/4/16 15:15	C1	MF	833721	808184	16.7	1.000	22.90	8.06	110.50	2.1	29.34	8.32	0.8
						1.000	22.90	7.93	109.20	2.2	29.36	8.30	
						8.350	22.70	7.54	104.00	2.3	30.10	8.31	1.0
						8.350	22.70	7.54	102.70	2.0	30.05	8.31	
						15.700	22.30	7.28	100.10	1.8	30.68	8.29	0.8
						15.700	22.40	7.28	100.10	2.0	30.41	8.29	
2012/4/16 14:15	C2	MF	831469	807732	15.1	1.000	22.80	7.04	96.00	1.6	30.50	8.46	<0.5
						1.000	23.00	6.88	96.00	1.4	30.45	8.42	
						7.550	22.10	6.72	92.80	1.9	31.10	8.39	1.2
						7.550	22.10	6.72	92.80	1.8	31.11	8.39	
						14.100	22.00	6.56	89.60	1.9	31.07	8.35	1.4
						14.100	22.00	6.56	89.60	1.8	31.07	8.33	
2012/4/16 15:35	C3	MF	832207	808869	16.3	1.000	22.90	7.13	98.80	1.9	29.76	8.28	2.8
						1.000	22.90	6.94	95.95	2.1	29.78	8.27	
						8.150	22.00	6.47	88.20	1.8	31.24	8.28	1.3
						8.150	21.90	6.27	86.24	1.9	31.33	8.28	
						15.300	21.60	5.78	79.38	1.5	31.90	8.28	0.9
						15.300	21.60	5.78	78.40	1.7	31.90	8.27	

MF- Mid Flood Tide
ME- Mid Ebb tide

Contract No. DC/2009/13

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



Sok Kwu Wan

Date 18-Apr-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									
184/2012 10:50:00	W1	ME	832966	807737	2.3	1.150	22.00	6.82	93.1	1.1	30.83	8.50	3.4
						1.150	22.00	6.72	92.2	1.4	30.84	8.43	
184/2012 10:40:00	W2	ME	832692	807988	13.3	1.000	22.00	7.68	105.0	1.4	30.87	8.41	2.1
						1.000	22.00	7.56	103.2	1.6	30.87	8.36	
						6.650	21.90	7.50	102.6	1.7	31.20	8.16	6.5
						6.650	21.90	7.47	102.3	1.8	31.20	8.15	
						12.300	21.90	7.17	98.1	1.6	31.34	8.20	3.1
						12.300	21.90	7.14	97.8	1.6	31.34	8.20	
184/2012 10:25:00	W3	ME	832049	807890	13.3	1.000	22.10	7.22	98.3	1.5	29.85	8.42	2.9
						1.000	22.10	7.02	95.5	1.7	29.81	8.34	
						6.650	21.90	6.67	91.1	1.7	31.07	8.28	3.5
						6.650	21.90	6.64	90.9	1.6	31.11	8.27	
						12.300	21.90	6.18	84.7	1.5	31.26	8.20	4.0
						12.300	21.90	6.18	84.7	1.6	31.26	8.20	
184/2012 11:10:00	C1	ME	833697	808179	15.2	1.000	22.00	6.88	94.4	1.9	30.87	8.22	2.6
						1.000	22.00	6.88	94.0	2.0	30.88	8.21	
						7.600	21.90	6.80	92.8	1.6	31.07	8.23	2.6
						7.600	21.90	6.76	92.4	1.8	31.07	8.23	
						14.200	21.90	6.68	91.2	1.7	31.08	8.21	3.6
						14.200	21.90	6.64	90.4	1.9	31.07	8.22	
184/2012 10:10:00	C2	ME	831481	807744	13.5	1.000	22.10	7.03	95.0	1.8	30.11	8.43	4.8
						1.000	22.10	6.84	93.1	1.8	30.08	8.43	
						6.750	21.90	6.84	93.1	1.6	31.27	8.31	2.6
						6.750	21.90	6.65	91.2	1.8	31.27	8.28	
						12.500	21.90	6.84	91.2	1.7	28.16	8.18	3.1
						12.500	21.90	6.84	93.1	1.7	28.16	8.19	
184/2012 11:30:00	C3	ME	832245	808866	15.3	1.000	21.90	7.15	97.9	1.5	30.98	8.21	4.5
						1.000	21.90	7.15	97.4	1.7	30.98	8.21	
						7.650	21.90	7.01	96.0	1.7	31.00	8.21	3.2
						7.650	21.90	6.96	95.5	1.7	31.00	8.21	
						14.300	21.90	6.91	94.1	1.4	31.05	8.21	3.3
						14.300	21.90	6.91	94.1	1.5	31.02	8.21	
184/2012 16:50:00	W1	MF	832959	807751	2.8	1.400	22.00	7.24	98.9	1.6	30.84	8.31	5.0
						1.400	22.00	6.12	83.6	1.6	30.85	8.28	
184/2012 16:40:00	W2	MF	832651	808007	15.3	1.000	22.10	7.56	104.4	1.6	30.62	8.50	7.0
						1.000	22.10	7.20	99.0	1.6	30.71	8.41	
						7.650	22.10	6.66	90.9	1.8	30.78	8.33	4.3
						7.650	22.10	6.48	88.2	1.8	30.77	8.31	
						14.300	21.90	5.67	76.7	1.4	31.28	8.25	2.7
						14.300	21.90	5.46	75.6	1.6	31.27	8.26	
184/2012 16:25:00	W3	MF	832042	807907	15.3	1.000	22.10	6.84	93.6	1.8	30.39	8.48	1.5
						1.000	22.10	6.48	88.8	1.9	30.50	8.40	
						7.650	22.10	5.82	79.2	1.8	30.65	8.28	3.3
						7.650	22.10	5.70	77.4	1.8	30.65	8.24	
						14.300	22.00	5.28	72.6	1.5	30.79	8.28	3.0
						14.300	22.10	5.16	70.8	1.6	30.75	8.27	
184/2012 17:10:00	C1	MF	833721	808169	16.7	1.000	22.10	6.49	89.1	1.8	30.56	8.44	2.2
						1.000	22.10	6.60	90.0	1.8	30.66	8.34	
						8.350	22.00	6.24	85.2	1.5	30.89	8.30	3.3
						8.350	22.00	6.24	85.2	1.6	30.91	8.27	
						15.700	21.90	6.05	83.5	2.0	31.17	8.23	1.8
						15.700	21.90	6.05	82.3	2.1	31.17	8.23	
184/2012 16:10:00	C2	MF	831482	807749	15.1	1.000	22.30	7.35	100.8	1.5	29.55	8.53	2.7
						1.000	22.30	7.07	96.6	1.7	29.59	8.45	
						7.550	22.10	6.93	94.5	1.5	30.85	8.37	2.4
						7.550	22.00	6.75	92.7	1.6	30.95	8.37	
						14.100	21.90	6.00	81.6	1.7	31.28	8.34	3.5
						14.100	21.90	5.88	81.6	1.8	31.28	8.33	
184/2012 17:30:00	C3	MF	832246	808847	17.1	1.000	22.10	6.27	85.3	2.0	30.62	8.17	6.9
						1.000	22.10	6.27	85.3	1.9	30.66	8.15	
						8.550	22.00	6.14	85.3	1.7	30.79	8.14	3.9
						8.550	22.00	6.14	85.3	1.8	30.80	8.15	
						16.100	22.00	5.88	80.4	1.3	30.94	8.15	2.4
						16.100	22.00	5.88	80.4	1.5	30.95	8.15	

MF- Mid Flood Tide
ME- Mid Ebb tide

Contract No. DC/2009/13

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



Sok Kwu Wan

Date 20-Apr-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									
	W1	ME											
	W2	ME											
	W3	ME											
	C1	ME											
	C2	ME											
	C3	ME											
2012/4/20 17:25	W1	MF	832988	807753	2.8	1.400	22.20	6.82	85.2	1.0	29.79	8.43	3.2
						1.400	22.20	7.48	87.4	1.0	29.82	8.38	
2012/4/20 17:15	W2	MF	832642	808001	15.3	1.000	22.20	6.82	82.7	1.4	29.92	8.37	4.1
						1.000	22.20	7.59	79.8	1.3	29.93	8.33	
						7.650	22.20	7.48	78.3	1.3	30.11	8.28	3.0
						7.650	22.20	7.04	77.5	1.3	30.12	8.26	
						14.300	22.10	7.04	76.0	1.6	30.81	8.25	
14.300	22.10	6.82	75.6	1.8	30.83	8.24	2.5						
2012/4/20 17:00	W3	MF	832065	807871	15.4	1.000	22.10	7.10	81.0	1.2	30.24	8.20	5.3
						1.000	22.10	7.00	80.5	1.2	30.41	8.17	
						7.700	22.10	6.50	78.9	1.5	30.42	8.16	4.4
						7.700	22.10	6.40	75.9	1.7	31.06	8.15	
						14.400	22.10	6.20	75.4	1.4	31.06	8.15	
14.400	22.20	7.37	92.6	1.4	29.58	8.48	4.2						
2012/4/20 17:45	C1	MF	833727	808159	2.8	1.000	22.20	6.71	91.7	1.4	29.63	8.38	4.2
						1.000	22.20	6.71	88.8	1.3	29.99	8.30	
						1.400	22.20	6.60	88.8	1.4	30.09	8.28	2.6
						1.400	22.20	6.49	86.9	1.5	30.18	8.25	
						1.800	22.20	6.38	86.4	1.7	30.17	8.23	
1.800	22.20	6.27	85.9	1.8	30.16	8.25	4.3						
2012/4/20 16:45	C2	MF	831489	807713	15.3	1.000	22.10	7.70	94.0	1.3	29.80	8.57	3.2
						1.000	22.10	7.59	89.1	1.4	29.80	8.46	
						7.650	22.10	7.26	84.2	1.5	30.82	8.31	3.3
						7.650	22.10	7.15	82.7	1.6	30.96	8.25	
						14.300	22.00	6.93	80.5	1.3	30.60	8.20	
14.300	22.00	6.93	81.1	1.4	30.46	8.19	5.7						
2012/4/20 18:05	C3	MF	832697	808847	16.9	1.000	22.20	6.27	74.5	1.2	29.57	8.16	5.9
						1.000	22.20	6.27	74.1	1.3	29.58	8.16	
						8.450	22.20	6.27	73.8	1.7	29.67	8.15	4.8
						8.450	22.20	6.16	72.2	1.8	29.68	8.15	
						15.900	20.00	6.16	72.0	1.5	30.14	8.16	
15.900	20.00	5.94	71.6	1.6	30.13	8.16	4.3						

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-Apr-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									
2012/4/23 13:40	W1	ME	832952	807719	2.1	1.050	22.60	6.07	74.1	1.8	30.91	8.41	4.3
						1.050	22.60	6.38	76.8	2.0	31.02	8.37	
2012/4/23 13:30	W2	ME	832674	807976	13.3	1.000	22.50	5.90	70.7	1.6	31.02	8.68	3.3
						1.000	22.50	6.61	80.6	1.4	31.03	8.58	
						6.650	22.50	6.41	78.1	1.7	31.14	8.40	3.7
						6.650	22.40	6.45	78.4	1.8	31.15	8.38	
						12.300	22.30	6.36	77.6	1.7	31.10	8.32	3.9
						12.300	22.30	6.17	76.1	1.8	31.19	8.30	
2012/4/23 13:15	W3	ME	832019	807917	13.3	1.000	22.60	6.20	76.5	1.9	30.90	8.93	2.7
						1.000	22.60	6.17	76.4	2.1	30.92	8.53	
						6.650	22.50	5.91	73.2	1.9	31.05	8.34	2.1
						6.650	22.50	6.29	76.7	2.1	31.06	8.33	
						12.300	22.50	6.27	76.5	1.9	31.07	8.30	4.0
12.300	22.50	5.83	70.2	1.8	31.06	8.29							
2012/4/23 14:00	C1	ME	833711	808185	15.1	1.000	22.50	6.32	77.1	1.5	30.98	8.46	6.3
						1.000	22.50	6.29	75.6	1.7	30.98	8.37	
						7.550	22.50	6.18	75.4	1.3	31.00	8.27	3.7
						7.550	22.50	6.13	74.5	1.4	31.01	8.28	
						14.100	22.40	6.03	73.6	1.1	31.15	8.28	6.7
14.100	22.40	5.77	70.5	1.1	31.15	8.28							
2012/4/23 13:00	C2	ME	831459	807733	13.4	1.000	22.90	5.52	68.2	1.8	30.31	8.55	4.4
						1.000	22.90	5.64	69.8	1.9	30.31	8.48	
						6.700	22.40	6.11	73.6	1.2	30.99	8.38	3.1
						6.700	22.40	6.14	73.4	1.0	31.00	8.35	
						12.400	22.40	6.24	75.1	1.3	30.93	8.28	2.5
						12.400	22.40	6.22	75.6	1.2	30.90	8.27	
2012/4/23 14:20	C3	ME	832249	808884	14.8	1.000	22.60	5.67	69.2	1.7	30.73	8.32	5.3
						1.000	22.60	5.81	71.1	1.9	30.95	8.29	
						7.400	22.40	5.73	69.5	1.3	31.14	8.28	5.0
						7.400	22.40	5.64	68.4	1.5	31.14	8.27	
						13.800	22.40	5.56	67.5	2.1	31.16	8.27	3.4
						13.800	22.40	5.18	64.1	2.2	31.16	8.26	
2012/4/23 8:40	W1	MF	832949	807739	2.7	1.350	22.60	6.58	81.10	1.7	30.74	8.46	5.2
						1.350	22.60	7.14	87.11	1.7	30.73	8.41	
2012/4/23 8:30	W2	MF	832644	807962	15.1	1.000	22.60	6.72	80.10	1.6	30.57	8.36	2.3
						1.000	22.60	7.28	89.10	1.5	30.57	8.33	
						7.550	22.50	7.28	89.50	1.5	30.77	8.27	4.6
						7.550	22.50	6.86	84.32	1.6	30.79	8.25	
						14.100	22.30	6.86	83.69	1.5	31.23	8.26	2.6
						14.100	22.30	6.72	82.10	1.8	31.24	8.26	
2012/4/23 8:15	W3	MF	832031	807911	15.4	1.000	22.60	6.72	82.20	1.6	30.47	8.48	2.4
						1.000	22.60	7.28	87.60	1.6	30.48	8.43	
						7.700	22.60	7.14	87.10	1.9	30.52	8.26	6.5
						7.700	22.60	6.86	84.10	1.9	30.48	8.26	
						14.400	22.60	6.86	83.60	1.7	30.50	8.25	2.2
						14.400	22.40	6.72	81.00	1.6	30.94	8.22	
2012/4/23 9:00	C1	MF	833698	808156	16.7	1.000	22.40	6.72	81.20	1.5	30.97	8.23	2.7
						1.000	22.70	7.14	87.16	1.5	23.15	8.79	
						8.350	22.60	6.44	78.57	1.7	29.65	8.60	1.7
						8.350	22.50	6.44	78.57	1.9	30.80	8.36	
						15.700	22.50	6.30	76.40	1.8	30.81	8.34	1.8
						15.700	22.40	6.30	76.10	2.0	31.12	8.29	
2012/4/23 8:00	C2	MF	831465	807752	15.2	1.000	22.40	6.30	75.00	1.3	31.14	8.29	3.2
						1.000	22.90	7.56	84.40	1.4	30.06	8.19	
						7.600	22.80	7.00	83.40	1.6	30.09	8.17	1.3
						7.600	22.50	7.00	84.10	1.5	30.75	8.21	
						14.200	22.50	6.72	81.20	1.3	30.76	8.19	2.4
						14.200	22.40	6.72	81.30	1.4	30.24	8.06	
2012/4/23 9:20	C3	MF	832211	808854	16.5	1.000	22.40	6.72	81.98	1.3	30.23	8.04	9.8
						1.000	22.50	6.30	75.50	1.4	30.97	8.52	
						8.250	22.50	6.16	74.60	1.9	31.00	8.46	7.9
						8.250	22.50	6.72	81.20	1.8	31.00	8.32	
						15.500	22.50	6.72	81.30	1.5	30.99	8.31	6.4
						15.500	22.50	6.72	81.30	1.5	31.03	8.27	

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 25-Apr-12

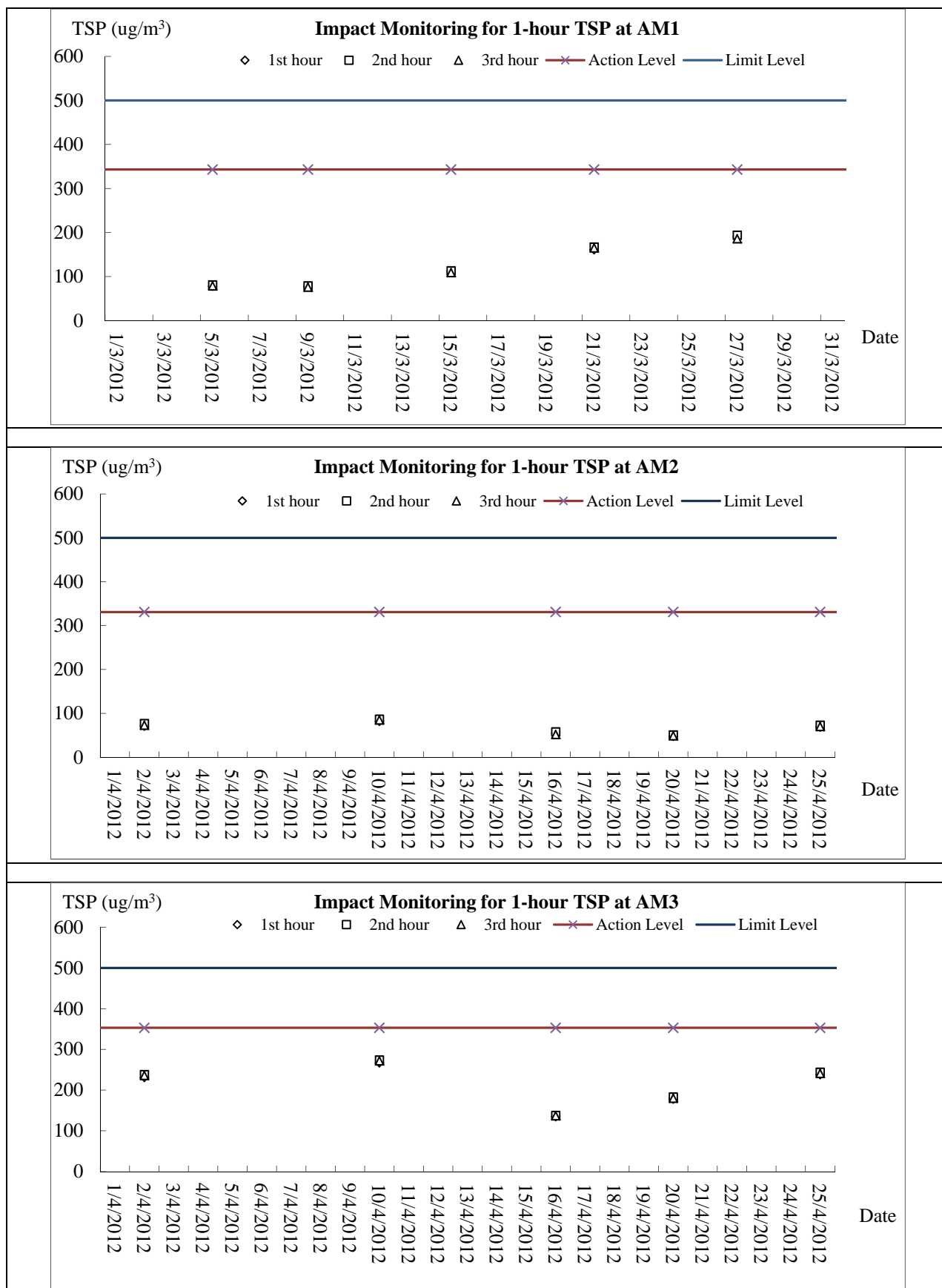
Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/4/25 14:10	W1	ME	832983	807739	2.2	1.100	22.90	7.46	97.6	1.5	30.68	8.49	2.7
						1.100	22.90	7.44	97.3	1.5	30.70	8.41	
2012/4/25 14:00	W2	ME	832654	808003	13.2	1.000	22.90	7.59	99.2	1.6	30.73	8.47	4.0
						1.000	22.90	7.55	98.7	1.7	30.72	8.42	
						6.600	22.80	7.43	96.9	1.4	31.04	8.33	1.4
						6.600	22.80	7.34	95.7	1.4	31.04	8.33	
						12.200	22.70	7.15	93.1	1.7	30.94	8.29	4.3
						12.200	22.70	6.97	90.6	1.7	30.94	8.28	
2012/4/25 13:45	W3	ME	832059	807877	13.5	1.000	23.20	7.72	100.9	1.2	30.04	8.33	2.0
						1.000	23.20	7.68	100.3	1.4	30.04	8.31	
						6.750	22.90	7.59	99.1	1.6	30.73	8.31	3.1
						6.750	22.90	7.53	98.2	1.6	30.75	8.30	
						12.500	22.70	6.86	89.2	1.6	30.98	8.28	3.6
12.500	22.70	6.84	88.9	1.6	30.97	8.27							
2012/4/25 14:30	C1	ME	833715	808199	15.3	1.000	23.70	7.46	97.5	1.7	29.25	8.32	2.6
						1.000	23.70	7.43	97.2	1.8	29.23	8.30	
						7.650	23.60	7.41	96.7	1.6	29.34	8.27	4.4
						7.650	23.60	7.39	96.5	1.7	29.34	8.26	
						14.300	22.80	6.86	89.5	1.8	31.03	8.29	4.0
						14.300	22.80	6.83	89.0	1.9	31.04	8.29	
2012/4/25 13:30	C2	ME	831483	807739	13.3	1.000	23.20	7.84	102.8	1.8	30.15	8.41	3.8
						1.000	23.20	7.79	102.0	1.6	30.16	8.37	
						6.650	22.80	7.61	99.4	1.5	30.96	8.33	4.0
						6.650	22.80	7.57	98.9	1.6	30.96	8.33	
						12.300	22.70	7.34	95.9	1.8	30.62	8.07	4.3
						12.300	22.70	7.08	92.4	1.9	30.62	8.05	
2012/4/25 14:50	C3	ME	832225	808848	15.7	1.000	23.60	7.48	97.8	1.5	29.17	8.21	6.0
						1.000	23.60	7.50	98.1	1.5	29.18	8.22	
						7.850	22.90	7.29	95.2	1.6	30.89	8.28	2.1
						7.850	22.80	7.28	95.0	1.8	30.96	8.27	
						14.700	22.70	7.27	94.7	1.9	31.28	8.27	4.7
						14.700	22.70	7.18	93.7	2.2	31.28	8.25	
2012/4/25 8:45	W1	MF	83299	807745	2.8	1.400	23.10	7.60	99.3	1.6	29.55	8.30	1.9
						1.400	23.10	7.61	99.5	1.7	29.54	8.27	
2012/4/25 8:35	W2	MF	832696	807961	15.6	1.000	23.10	7.54	98.7	1.3	28.44	8.32	7.2
						1.000	23.10	7.50	98.3	1.3	28.44	8.29	
						7.800	22.90	7.45	97.2	1.7	30.22	8.29	2.0
						7.800	22.90	7.41	96.7	1.8	30.23	8.27	
						14.600	22.60	7.35	95.8	1.5	31.27	8.27	3.5
						14.600	22.60	6.95	90.6	1.5	31.27	8.26	
2012/4/25 8:20	W3	MF	832051	807900	15.5	1.000	23.20	7.64	100.1	1.7	29.15	8.35	2.8
						1.000	23.20	7.61	99.6	1.6	29.12	8.30	
						7.750	22.90	7.45	97.1	1.3	30.73	8.28	2.5
						7.750	22.80	7.36	95.8	1.4	30.74	8.28	
						14.500	22.70	6.79	88.3	1.4	31.06	8.26	2.0
						14.500	22.70	6.53	84.9	1.6	31.04	8.24	
2012/4/25 9:05	C1	MF	833712	808179	16.7	1.000	23.10	7.48	97.7	2.0	28.31	8.21	1.6
						1.000	23.10	7.51	98.0	2.1	28.31	8.20	
						8.350	22.90	7.55	98.6	1.7	30.52	8.24	2.0
						8.350	22.90	7.54	98.4	1.7	30.31	8.24	
						15.700	22.70	7.13	93.0	1.8	31.39	8.26	3.2
						15.700	22.60	7.18	93.7	1.8	31.41	8.27	
2012/4/25 8:05	C2	MF	831469	807751	15.2	1.000	23.30	7.80	102.1	1.8	29.11	8.19	1.5
						1.000	23.30	7.75	101.6	1.9	29.11	8.17	
						7.600	23.10	7.54	98.5	1.6	30.04	8.20	3.8
						7.600	23.10	7.44	97.3	1.7	30.07	8.18	
						14.200	23.00	6.91	90.0	1.7	30.36	8.02	4.0
						14.200	23.00	6.78	88.3	1.9	30.36	8.00	
2012/4/25 9:25	C3	MF			16.5	1.000	23.10	7.60	99.3	1.7	28.80	8.19	4.7
						1.000	23.10	7.58	99.1	1.8	28.79	8.19	
						8.250	22.70	7.61	99.3	1.9	31.34	8.27	6.1
						8.250	22.70	7.49	97.8	1.9	31.34	8.26	
						15.500	22.60	7.23	94.4	1.5	31.44	8.26	2.3
						15.500	22.60	7.08	92.4	1.6	31.44	8.26	

MF- Mid Flood Tide
ME- Mid Ebb tide

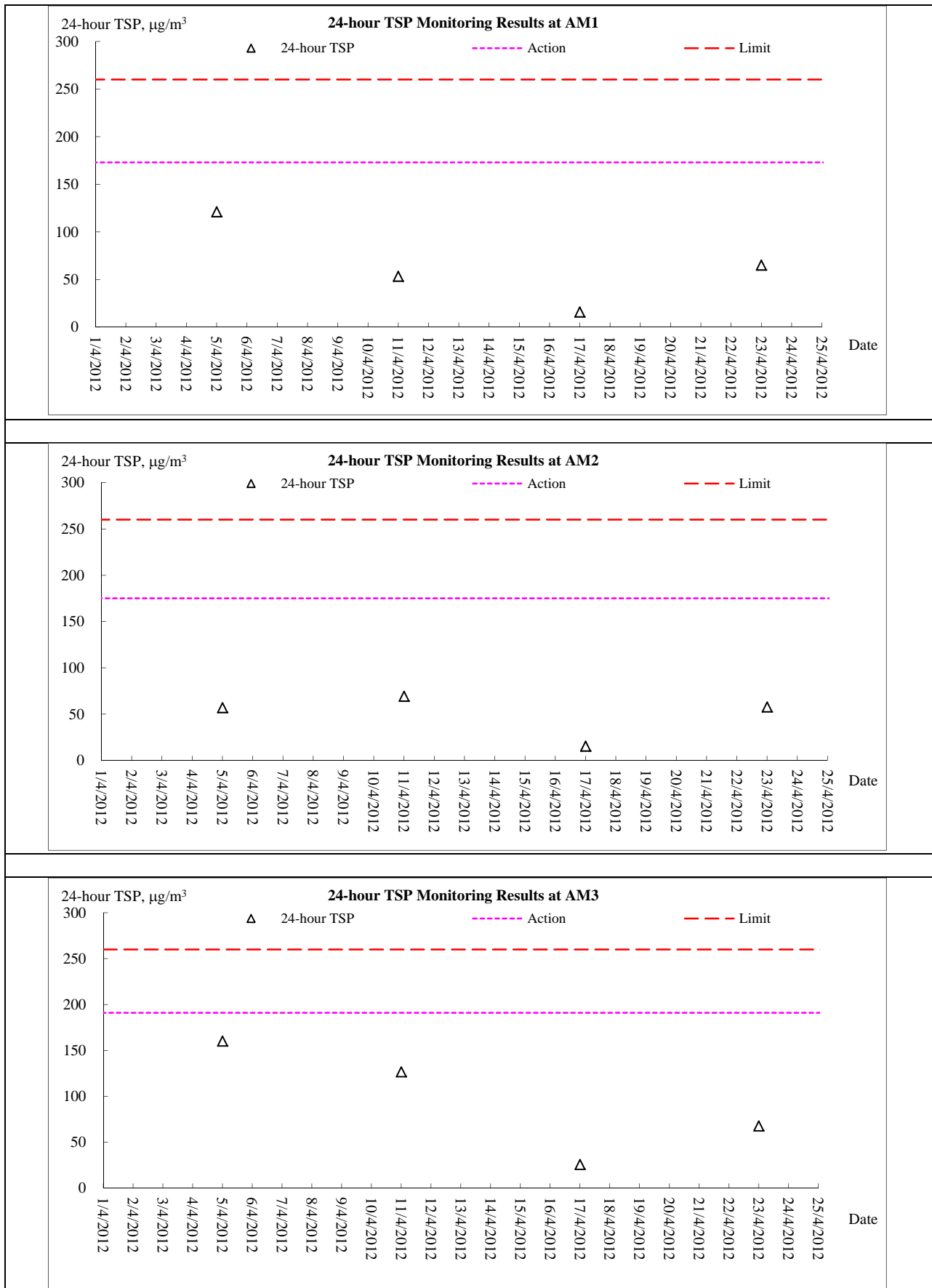
Appendix H

Graphical Plots of Monitoring Results

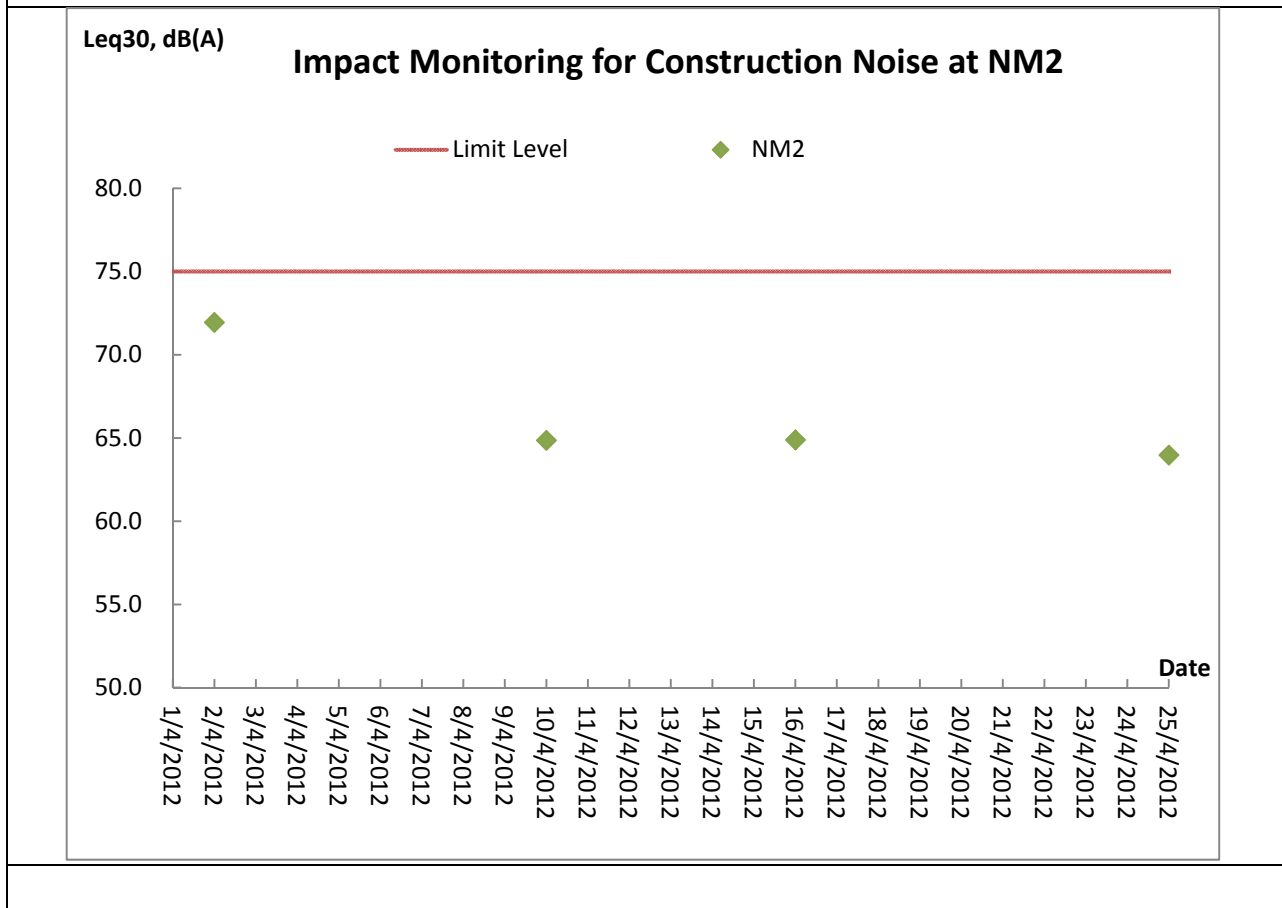
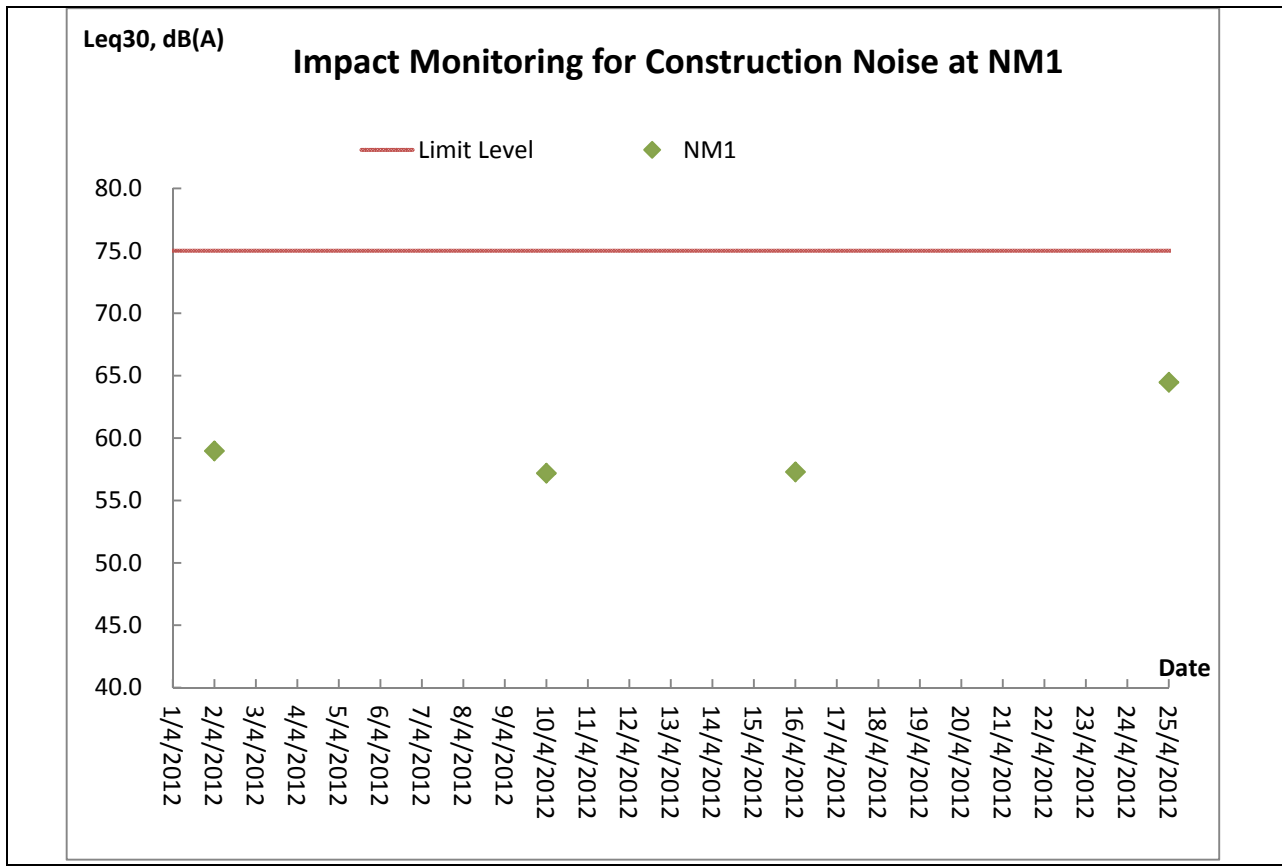
Air Quality Monitoring – 1 hour TSP Monitoring

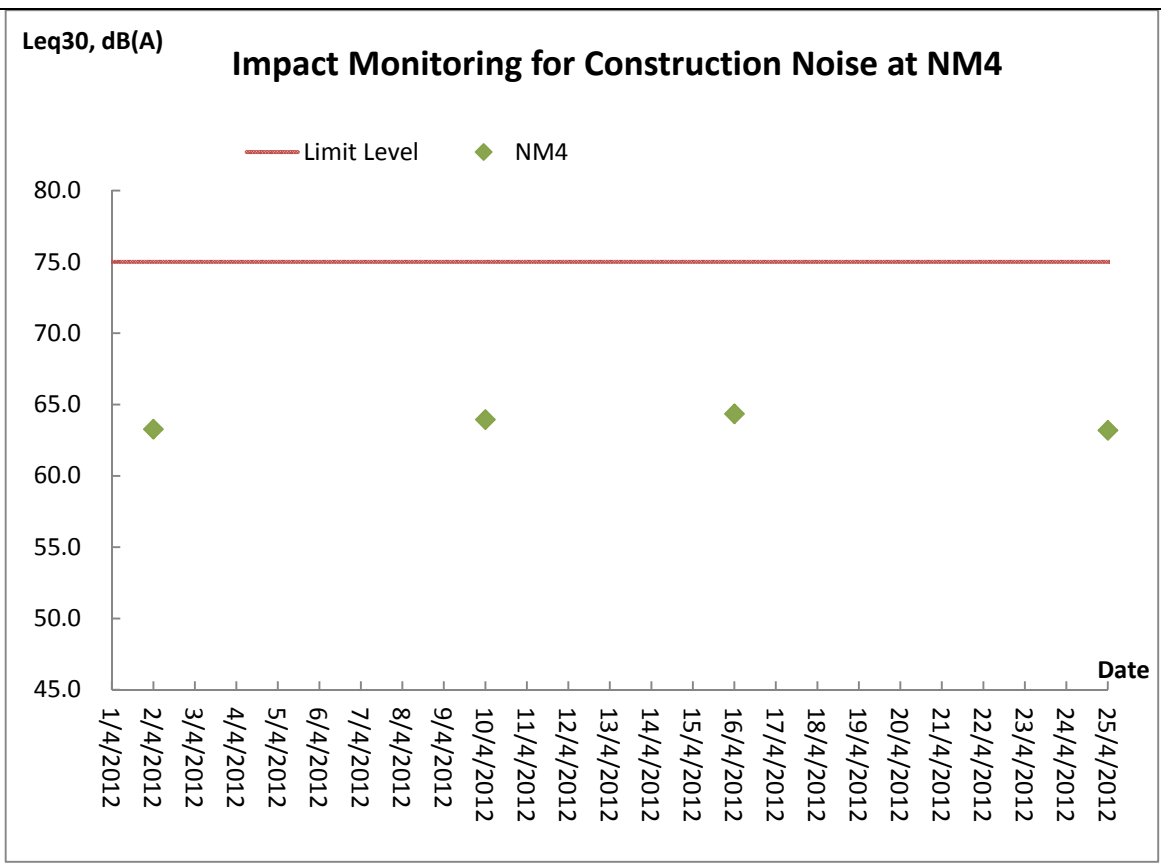
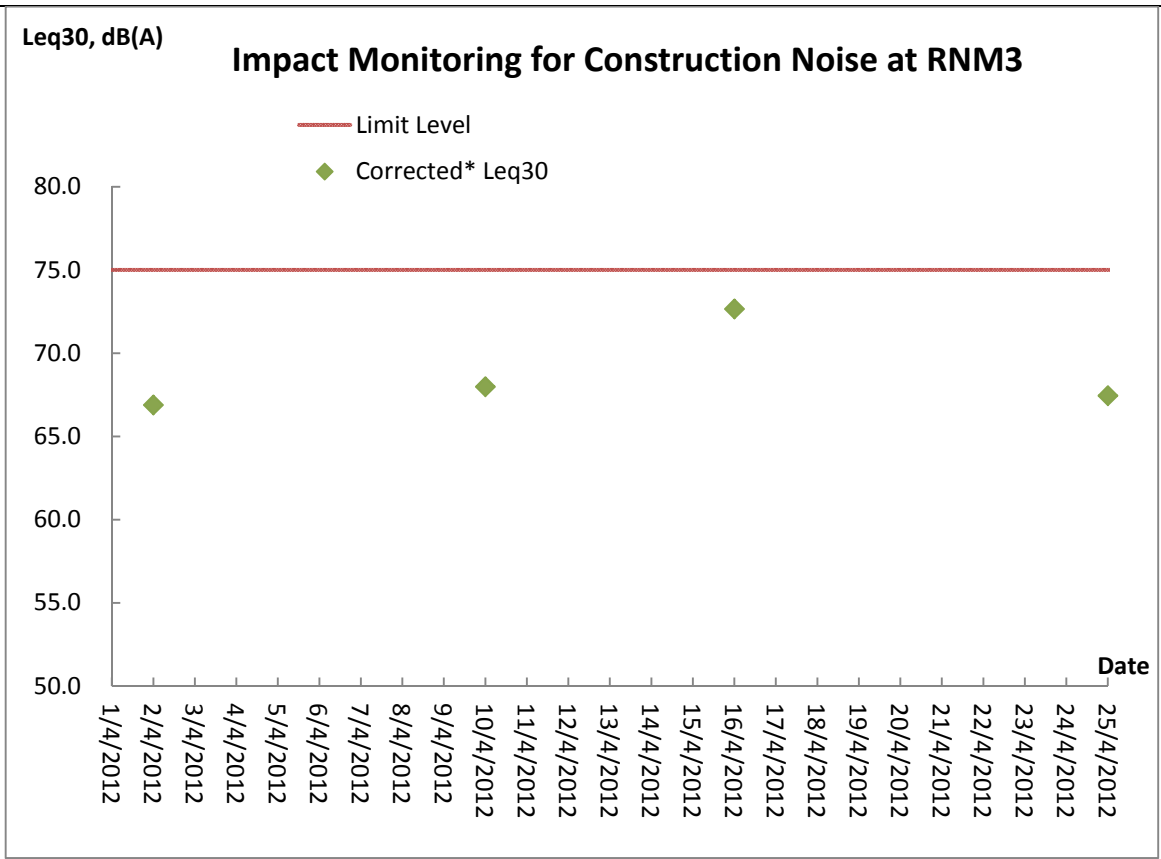


Air Quality Monitoring – 24 hour TSP Monitoring

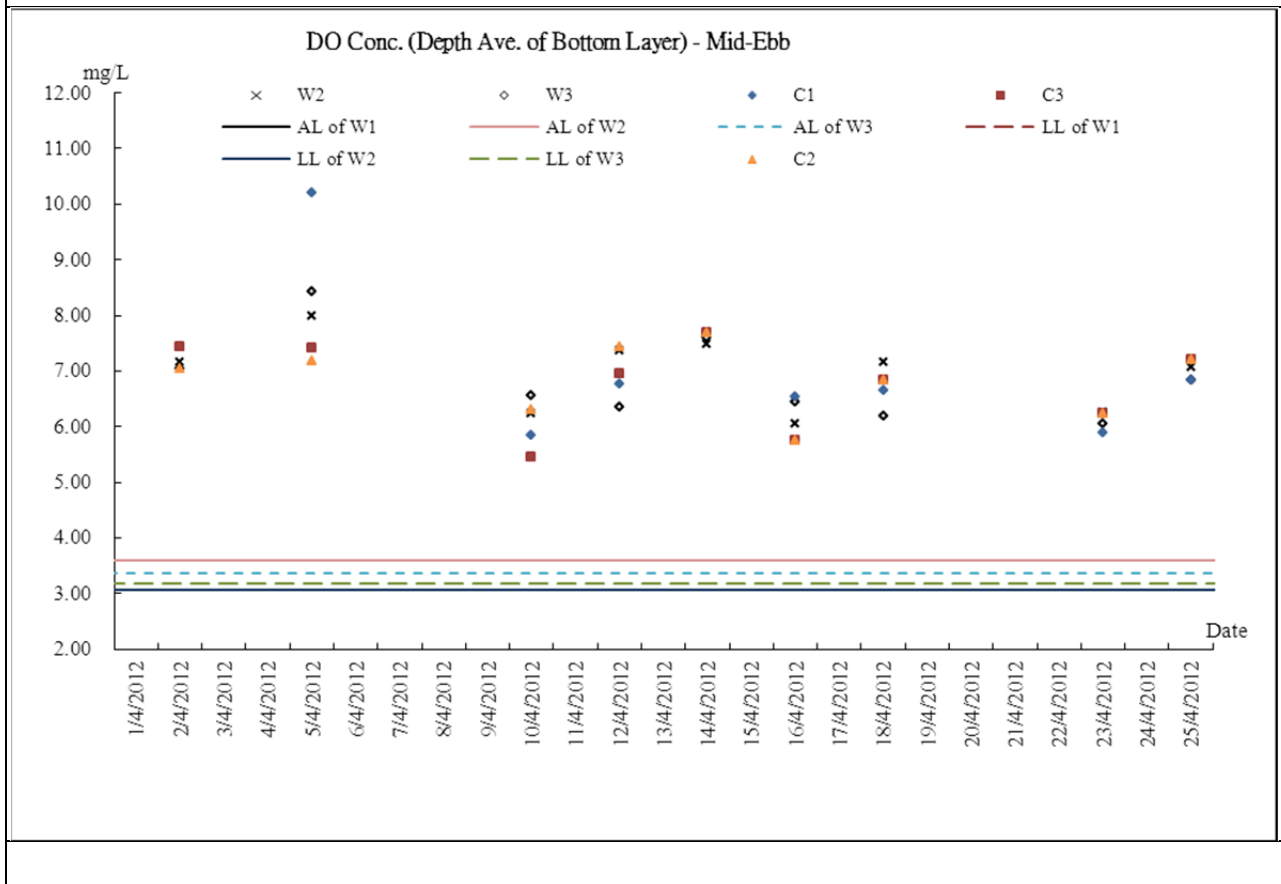
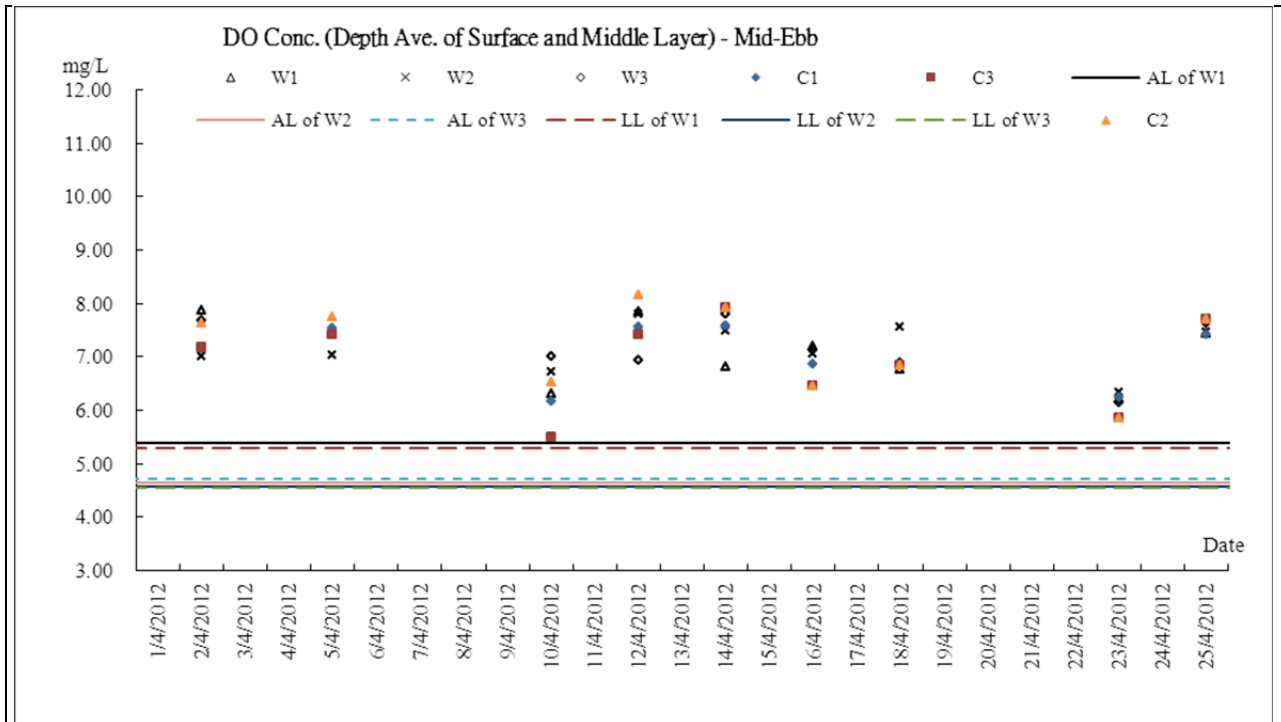


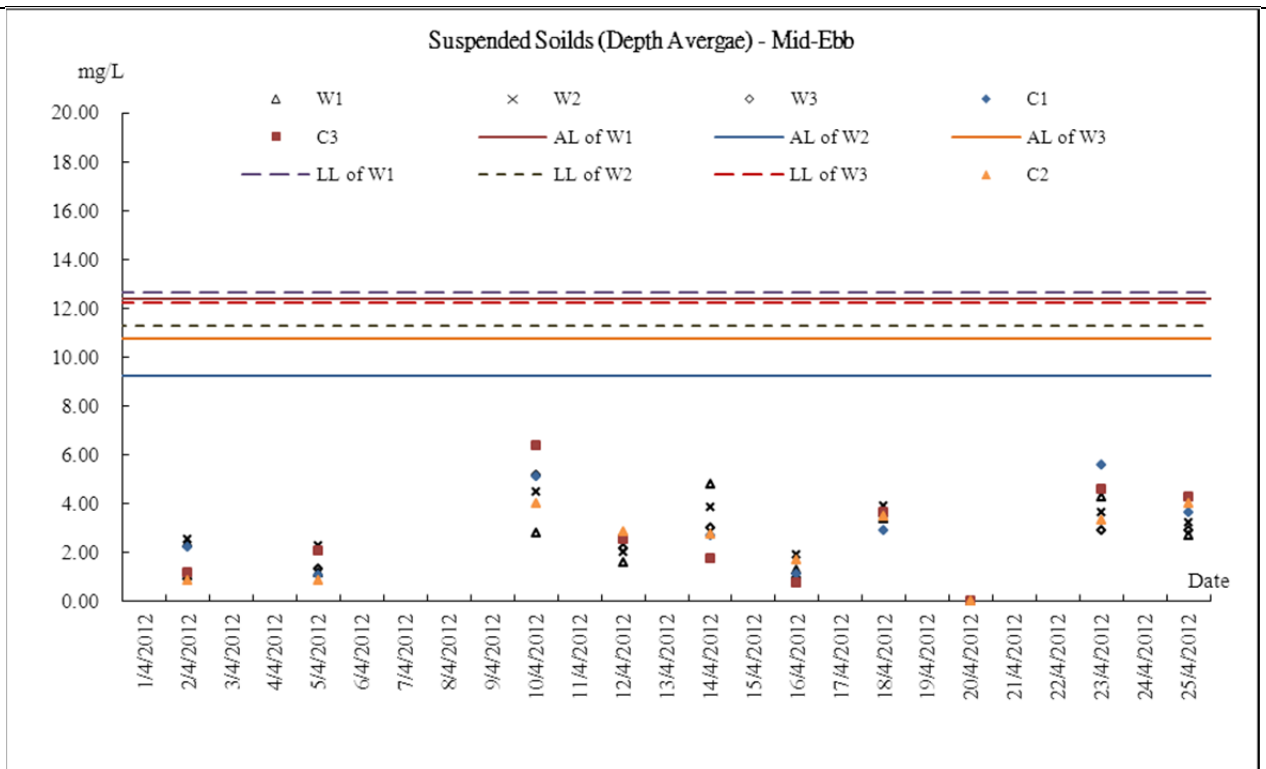
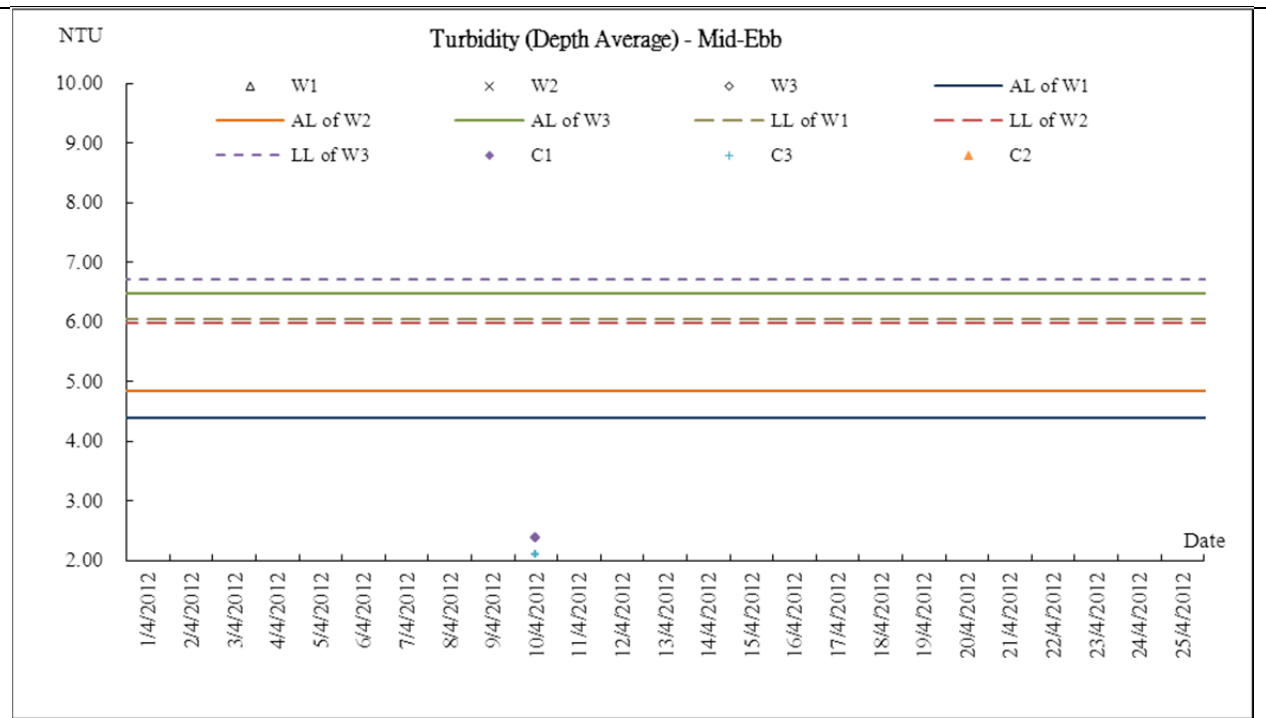
Construction Noise Monitoring



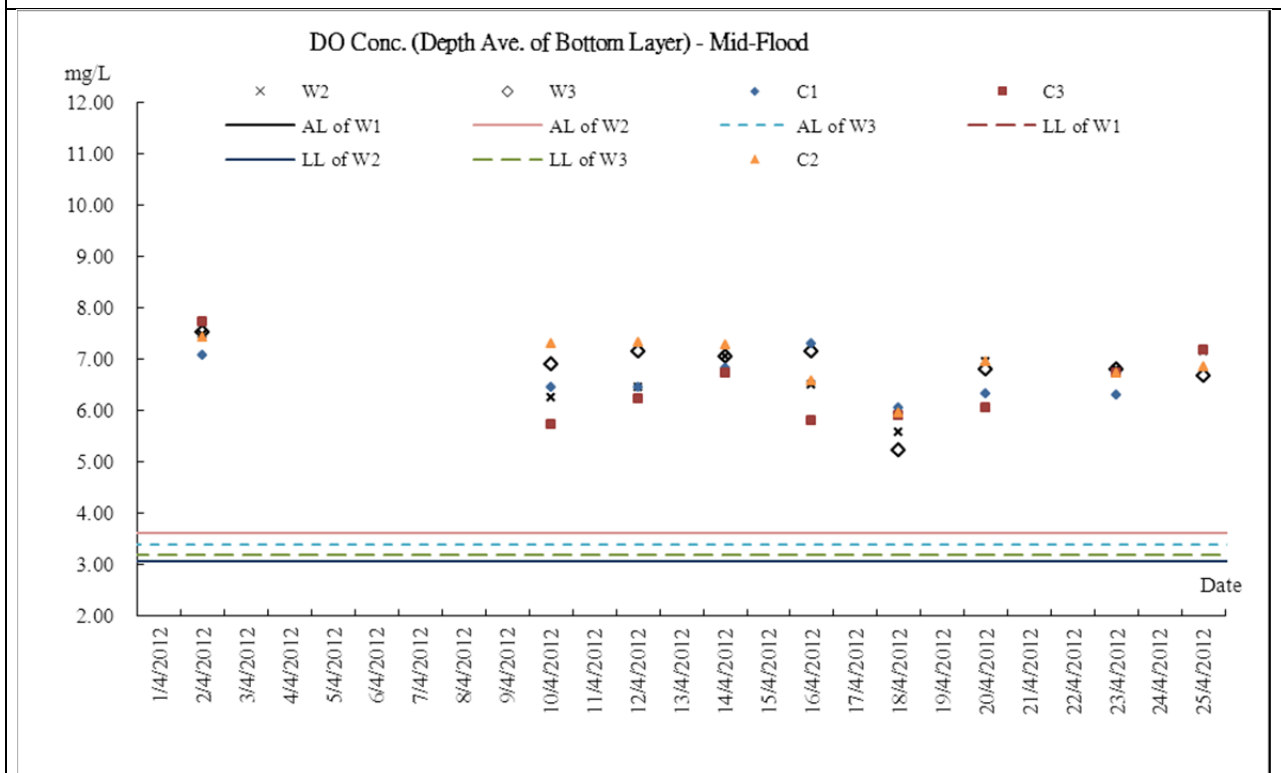
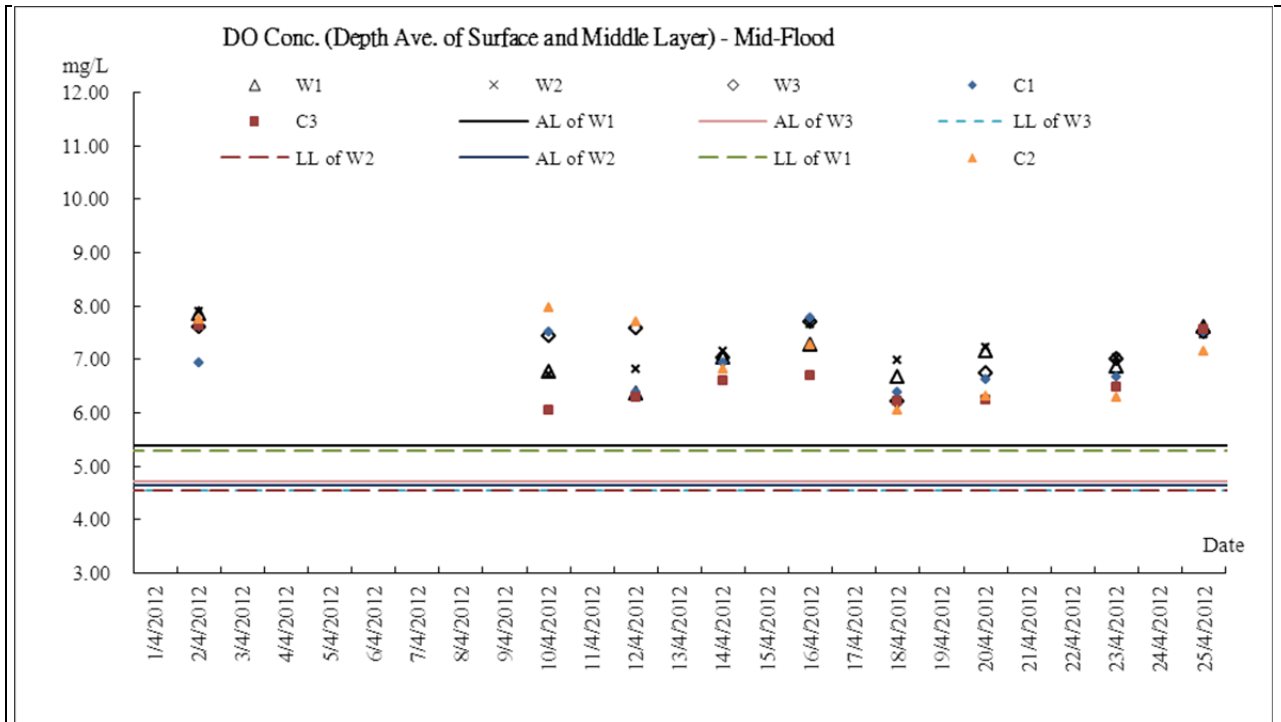


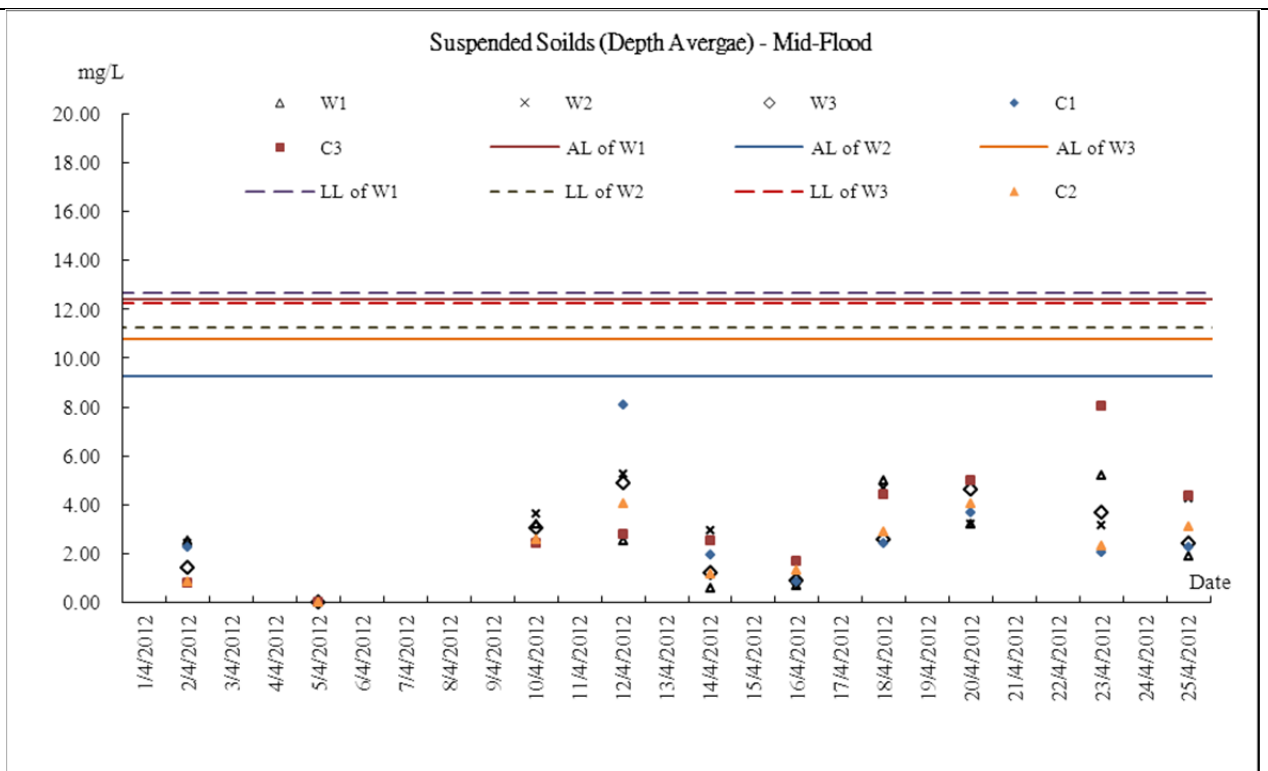
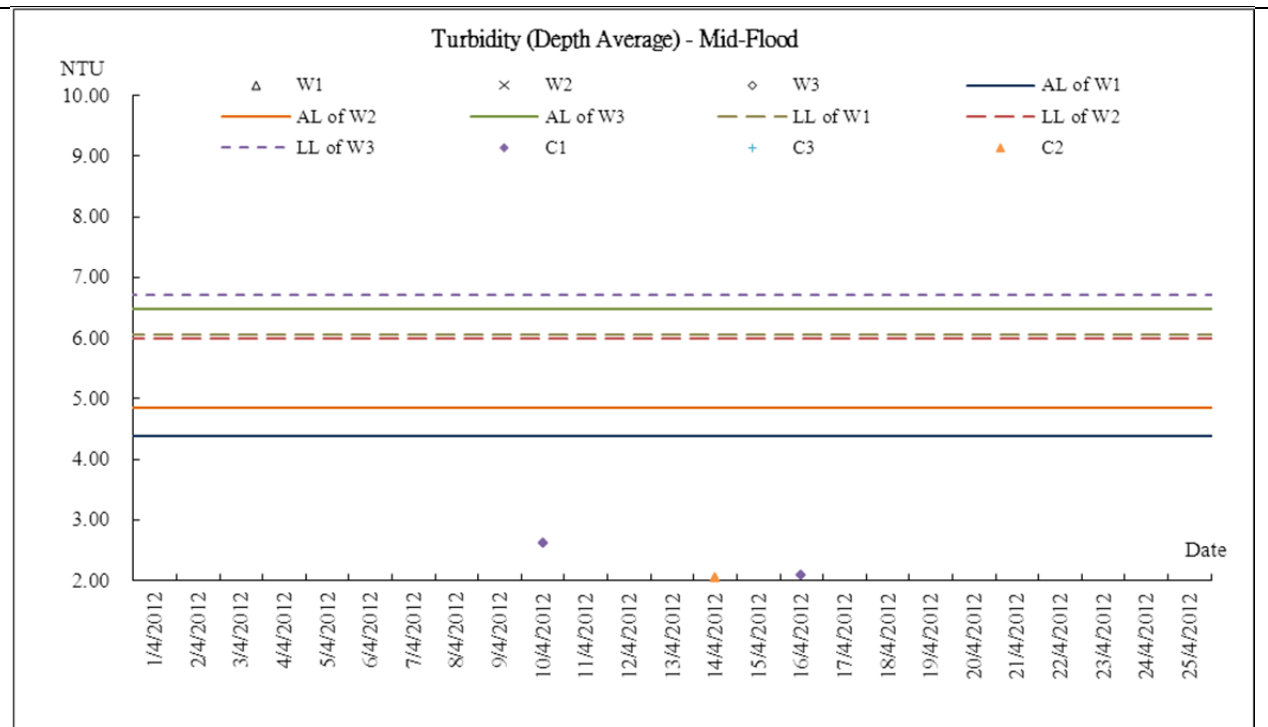
Marine Water Quality Monitoring - Mid-Ebb Tide





Marine Water Quality Monitoring - Mid-Flood Tide





Appendix I

Meteorological Information

Meteorological Data Extracted from HKO during the Reporting Period

Date		Weather
1-Apr-12	Sun	Mainly fine.
2-Apr-12	Mon	Light to moderate southerly winds.
3-Apr-12	Tue	Mainly fine.
4-Apr-12	Wed	holiday
5-Apr-12	Thu	cloudy with rain and squally thunderstorms
6-Apr-12	Fri	holiday
7-Apr-12	Sat	holiday
8-Apr-12	Sun	holiday
9-Apr-12	Mon	holiday
10-Apr-12	Tue	Mainly fine with coastal fog
11-Apr-12	Wed	Light to moderate southerly winds.
12-Apr-12	Thu	Moderate southerly winds.
13-Apr-12	Fri	Mainly cloudy with a few showers.
14-Apr-12	Sat	Moderate southerly winds.
15-Apr-12	Sun	Moderate easterly winds
16-Apr-12	Mon	One or two squally thunderstorms
17-Apr-12	Tue	Cloudy with occasional rain.
18-Apr-12	Wed	Cloudy to overcast with rain and a few squally thunderstorms
19-Apr-12	Thu	Moderate easterly winds
20-Apr-12	Fri	Cloudy with rain and squally thunderstorms.
21-Apr-12	Sat	Moderate to fresh southeasterly winds.
22-Apr-12	Sun	Sunny periods.
23-Apr-12	Mon	Mainly cloudy with a few showers.
24-Apr-12	Tue	Moderate to fresh southwesterly winds
25-Apr-12	Wed	Moderate to fresh southwesterly winds
26-Apr-12	Thu	Sunny periods.
27-Apr-12	Fri	Cloudy with occasional rain.
28-Apr-12	Sat	holiday
29-Apr-12	Sun	Sunny periods.
30-Apr-12	Mon	Moderate to fresh southeasterly winds.

Appendix J

Monthly Summary Waste Flow Table

Monthly Summary Waste Flow Table for April 2012

Month	Actual Quantities of Inert C&D Materials Generated Monthly												Actual Quantities of C&D Wastes Generated Monthly									
	Total Quantity Generated (a) = (c)+(d)+(e)		Hard Rock and Large Broken Concrete (b)		Reused in the Contract (c)		Reused in other Projects (d)		Disposed as Public Fill (e)		Imported Fill (f)		Metals		Paper/ cardboard packaging		Plastics		Chemical Waste		Others, e.g. rubbish	
	(in '000m ³)		(in '000m ³)		(in '000m ³)		(in '000m ³)		(in '000m ³)		(in '000m ³)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in tonne)	
	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW
2011	10.430	33.543	0.160	0.407	0.740	1.059	0.000	0.000	9.690	32.484	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	206.870	46.690
Jan	0.000	3.311	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.311	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.530	5.090
Feb	0.170	6.271	0.000	0.000	0.000	0.000	0.000	0.000	0.170	6.271	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.860	5.660
Mar	0.619	4.543	0.000	0.000	0.000	0.000	0.000	0.000	0.619	4.543	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.940	9.500
Apr	0.157	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.157	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.520	1.700
May																						
Jun																						
Sub-total	11.376	47.669	0.160	0.407	0.740	1.059	0.000	0.000	10.636	46.610	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	260.720	68.640
Jul																						
Aug																						
Sep																						
Oct																						
Nov																						
Dec																						
Total	11.376	47.669	0.160	0.407	0.740	1.059	0.000	0.000	10.636	46.610	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	260.720	68.640
	59.044		0.567		1.799		0.000		57.246		0.000		0.000		0.000		0.000		0.000		329.360	

Remark: Assume 1.0 m³ 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

 Date: 3-4-2012

Inspected by _____
 ETL/ ET's Representative: _____
 RE's Representative: _____
 Contractor's Representative: _____
 IEC's Representative: _____
 Time: 2pm

Checklist No. TCS512B-
Poy Cheung
Joseph Ng
Edwin Leung

PART A:

GENERAL INFORMATION

Environmental Permit No.

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

EP-281/2007A

Area Inspected
 1 Sok Kwu Wan

PART B:

SITE AUDIT

Note: Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable		Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
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 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 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 ³ 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"/>	
Section 2: Air Quality							
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"/>	
Section 3: Noise							
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 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"/>	
Section 4: Waste/Chemical Management							
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"/>	

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Section 5: Landscape & Visual							
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"/>	
Section 6: Others							
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: (24-2012): Follow up:

No environmental issue was observed during inspection

General reminder that sedimentation tank would be set up at Bay D before any water 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 NG)	(Ray Chang)	(H.S. Leung)	()

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

 Date: 17-4-2011

Inspected by _____
 ETL/ ET's Representative: _____
 RE's Representative: _____
 Contractor's Representative: _____
 IEC's Representative: _____
 Time: 9:30 am

Checklist No. TCS512B-
Ray Cheung
Joseph Ng
Edwin Leung
R.K. Kwok

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

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 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 ³ 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"/>	
Section 2: Air Quality							
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"/>	
Section 3: Noise							
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"/>	
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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"/>	
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Section 4: Waste/Chemical Management							
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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						
Section 5: Landscape & Visual						
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"/>	
Section 6: Others						
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: (10-11-2012): Follow up:

No adverse environmental issue is observed.
 But it is reminded that the sedimentation tank to be set up before water discharging.
 At Bay D area next to outside of R/W.
 Joseph.

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

(CC Kerk) (Joseph NG Brown) (Ray Cheung) (H.S. Chung) ()

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 Cheung
Joseph Ng
Edwin Leung

Date: 17-4-2012

Time: 2pm

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

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						
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 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"/>	

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 ³ 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"/>	
Section 2: Air Quality							
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"/>	
Section 3: Noise							
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 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"/>	
Section 4: Waste/Chemical Management							
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
Section 5: Landscape & Visual							
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"/>	
Section 6: Others							
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: (17-11-2012): Follow up:

No environmental issue is observed during inspection but reminded to carry out preventive measures for rainstorm water run-off. Also, sedimentation tank is reminded to provide before any discharging of Bay D. of RIW.

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) (Roy Chang) (H.S.) ()

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

Inspected by _____
 ETL/ ET's Representative: Ray Cheung
 RE's Representative: Joseph Ng
 Contractor's Representative: Edwin Leung
 IEC's Representative: _____

Checklist No. TCS512B-

Date: 24-4-2012

Time: 2pm

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

Note:	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
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 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"/>	
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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
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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 ³ 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"/>	
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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"/>	
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Section 2: Air Quality						
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"/>	
Section 3: Noise						
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"/>	
Section 4: Waste/Chemical Management							
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
Section 5: Landscape & Visual							
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"/>	
Section 6: Others							
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: (24-4-2012): Follow up:

T1A, T4A, T7A.
 The ~~retained~~^{transplanted} trees ~~was~~^{were} recorded damaged by broken tree branches.
 No construction activities ~~was~~^{were} involved.
 No environmental issue ~~was~~^{is} found during inspection.
 Also, sedimentation tank is placed before water discharging (Bay D) of R/W.
 Joseph.

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 Ching) (H.S. Leung) ()

Appendix L

Implementation Schedule of Mitigation Measures

Implementation Schedule of Air Quality Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines
					D	C	O	
Construction Phase								
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"> • Stockpiles of imported material kept on site should be contained within hoardings, dampened and / or covered during dry and windy weather; • Material stockpiled alongside trenches should be covered with tarpaulins whenever works are close to village houses; • Water sprays should be used during the delivery and handling of cement, sands, aggregates and the like. • 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. 	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

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** 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	
Construction Phase								
4.41-4.43	3.19	<ul style="list-style-type: none"> • Use of quiet PME for the construction of the pumping stations • Use of temporary noise barrier during the construction of Pumping Station P1a 	Work site /during the construction of Pumping Stations	Contractor		√		EIAO-TM, NCO
4.44 – 4.49	3.19	Implementation of following measures during the sewer construction: <ul style="list-style-type: none"> • Use of quiet PME or method; • Restriction on the number plant (1 item for each type of plant); and • Good Site Practices <ul style="list-style-type: none"> ➤ Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program. ➤ 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 utilized, wherever practicable, in screening noise from on-site construction activities. 	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"> Use of noise screening structures such as acoustic shed and barrier wherever practicable and feasible in areas with sufficient clearance and headroom. 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. 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. 	Work site /during the construction of Sewer.	Contractor		√		
4.60	Section 35	Noise monitoring	Designated noise monitoring locations / throughout construction period	Contractor/ Environmental Team		√		EM&A Manual

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

Implementation Schedule of Water Quality Control Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location (duration /completion of measures)	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines
					D	C	O	
Construction Phase								
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"> • dredging should be undertaken using closed grab dredgers with a maximum total production rate of 55m³/hr; • 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; • dredging operation should be undertaken during ebb tide only; • 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 should 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 200mm) 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; • 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 	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"> the decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard. 						
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"> 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 minimizing 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 should 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 	Construction works sites	Contractor		√		ProPECC PN 1/94
5.80	4.38	<p><u>General Construction Activities</u></p> <p>Debris and rubbish generated on-site should be collected, handled and disposed of properly to avoid entering the nearby coastal waters and stormwater drains. All fuel tanks and storage areas should be provided</p>	Construction works sites	Contractor		√		

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

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

N/A Not applicable

Implementation Schedule of Sediment Contamination Mitigation Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines
					D	C	O	
6.17	5.3	Follow the requirement and procedures for dredged mud disposal specified under the WBTC No. 34/2002.	Marine works site / during dredging works	Contractor		√		WBTC No. 34/2002
6.18	5.4	Implement appropriate dredging methods which have been incorporated into the recommended water quality mitigation measures.	Marine works site, during dredging works	Contractor		√		
6.19	5.5	During the transportation and disposal of the dredged sediment, the following measures should be taken: <ul style="list-style-type: none"> • 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. 	Marine works site and at the identified sensitive receivers	Contractor		√		

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

N/A Not applicable

Implementation Schedule of Solid Waste Management Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
Construction Phase								
7.14	6.4	<u>Good site practices</u> <ul style="list-style-type: none"> 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 Training (proper waste management and chemical handling procedure) should be provided for site staffs 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. 	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"> 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 	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"> 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. 						
7.18	6.7	<u>General Site Wastes</u> <ul style="list-style-type: none"> A collection area for construction site waste should be provided where waste can be stored prior to removal from site An enclosed and covered area for the collection of the waste is recommended to reduce 'wind blow' of light material 	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"> After use, chemical waste should be handled according to the Code of Practice on the Package, Labelling and Storage of Chemical Wastes Any unused chemicals or those with remaining functional capacity should be recycled 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. 	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"> 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. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should be undertaken within the designated areas equipped control these discharges 						
7.21-7.22	6.10 – 6.11	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> The C&D waste should be separated on-site into three categories: <ul style="list-style-type: none"> ➤ 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; ➤ C&D waste for re-use and / or recycling, the non-inert portion of the C&D material, (e.g. steel and other metals, woods, glass and plastic); ➤ C&D waste which cannot be re-used and / or recycled (e.g. wood, glass and plastic) Where possible, inert material should be re-used on-site Where practicable, steel and other metals should be separated for re-use and/or recycling prior to disposal of C&D material 	During all construction phases	Contractors		√		WBTC No. 4/98, 5/98, 21/2002, 25/99, 12/2000

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 ** 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	
Construction Phase								
8.157	7.2	<u>Terrestrial Ecology</u> <ul style="list-style-type: none"> Labeling and fencing of the uncommon tree species Avoidance of use of woodland habitats as Works Area, in particular where trees are located 	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"> Use of closed-grab dredger Deploy silt curtains during dredging. 	Marine works site / during dredging works	Contractor		√		
8.161	7.4	Site runoff <ul style="list-style-type: none"> Construction and maintenance of sand / silt removal facilities Silt curtains Timing of earthworks Coverage of sand / fill piles during storms. Barriers along the landward side of Pumping Station P2 site boundary (to prevent site runoff from entering area with Romer’s Tree Frog) 	All work sites / during construction phase	Contractor		√		

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

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

N/A Not applicable

Implementation Schedule of Fisheries Impact Measures

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

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

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

N/A Not applicable

Implementation Schedule of Landscape and Visual Impact Measures

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

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

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

N/A Not applicable

Appendix M
Tree Inspection Report

經緯園藝有限公司

Melofield Nursery & Landscape Contractor Ltd

元朗下攸田村 125 號 125, Ha Yau Tin Tsuen, Yuen Long, N.T.

TEL: (852) 2572-0048 FAX: (822)2573-9099 E-mail: melofield@netvigator.com

Contract No. DC/2009/13

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

Sok Kwu Wan

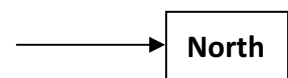
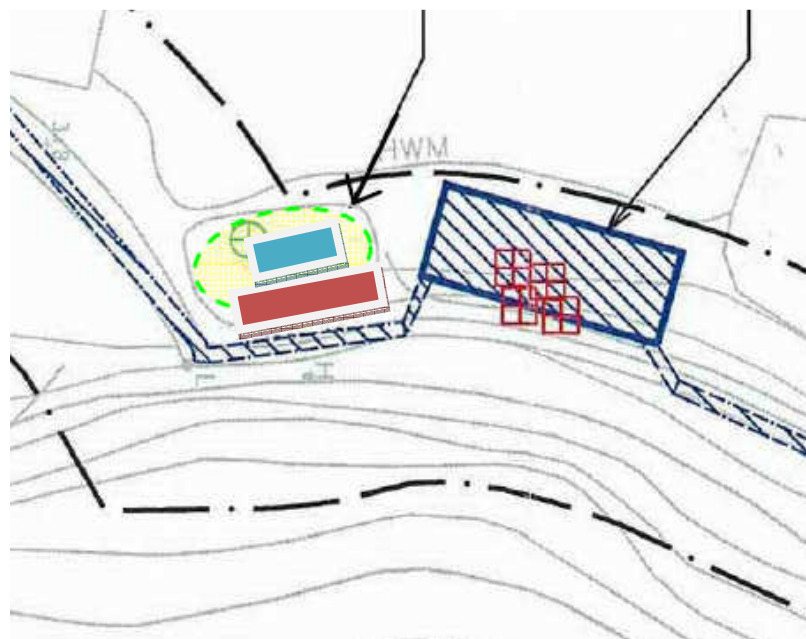
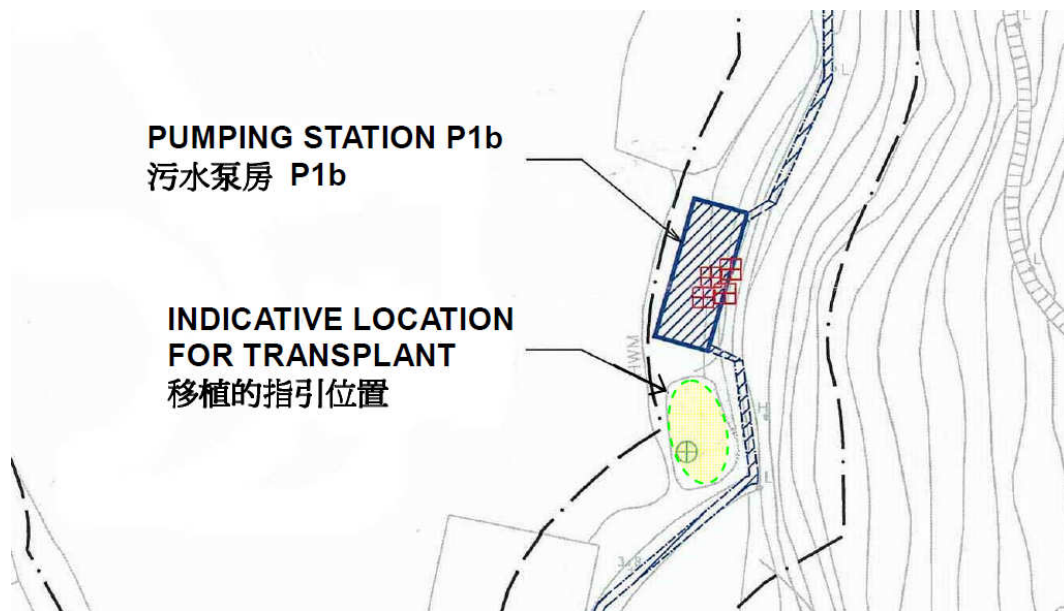
Tree Inspection Report for *Celtis timorensis*

Inspection Date : 16-04-2012

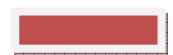


1. Introduction

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



Tree Protection Zone - 1



Tree Protection Zone - 2

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	16 April 2012, around 15:30
Location	A soil ground adjacent to the Pumping Station P1b Chung Mei, at Sok Kwu Wan, Lamma Island.
Weather	Cloudy, the vegetations are located under the shade of existing tall trees.
The labeled <i>Celtis timorensis</i> under Tree Protection Zone 2	CT_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
April 2012	16 April 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>Current Status: Very Poor</p> <p>Justification: Leaves were dry. The bark was also dry. No significant improvement in health. The plant was very weak.</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.