



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
Quarterly Environmental Monitoring and Audit
(EM&A) Summary Report No. Q7
(February to April 2012)**

PREPARED FOR
**LEADER CIVIL ENGINEERING CORPORATION
LIMITED**

Quality Index Date	Reference No.	Prepared By	Certified By
14 June 2012	TCS00512/09/600/R0494v2	 Nicola Hon Environmental Consultant	 T.W. Tam Environmental Team Leader

Version	Date	Description
1	28 May 2012	First submission
2	14 June 2012	Amended against IEC's comments on 13 June 2012

Scott Wilson CDM Joint Venture

Chief Engineer/Harbour Area Treatment Scheme
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Hong Kong

Your reference:

Our reference: 05117/6/16/389631

Date: 18 June 2012

Attention: Mr Kenley C K Kwok

BY FAX ONLY

Dear Sirs,

Contract No. DC/2009/13

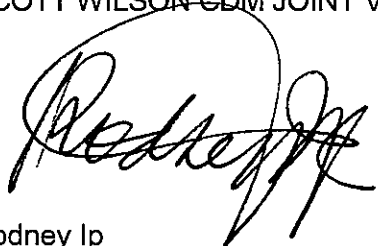
**Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan
Sok Kwu Wan Portion Area**

Quarterly EM&A Summary Report No. Q7 (February to April 2012)

We refer to the Environmental Permit (EP-281/2007/A) and the email from the Environmental Team, Action-United Environmental Services and Consulting (AUES), with the revised report for the captioned project, dated 14 June 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/y

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 7th Quarterly Environmental Monitoring and Audit (EM&A) Summary Report for Sok Kwu Wan (hereinafter ‘this Report’) for the designated works under the Environmental Permit [EP-281/2007/A], covering the construction period from **1 February to 25 April 2012** (hereinafter ‘the Reporting Period’).

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES.02 For marine water quality monitoring, 2 monitoring events in which one mid-flood tide on 5 April and one mid-ebb tide on 20 April were cancelled due to inclement weather in this Reporting Period.

ES.03 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	144
	24-hour TSP	45
Construction Noise	$L_{eq(30min)}$ Daytime	52
Water Quality	Marine Water Sampling	35
Inspection / Audit	ET Regular Environmental Site Inspection	12

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES.04 In this Reporting Period, no exceedance of construction noise and marine water quality monitoring were recorded. However, one (1) Action Level exceedance of 24-hour TSP monitoring was recorded at Location AM3 on 31 March 2012. Notification of Exceedance (NOE) has been issued to relevant parties upon confirmation of the monitoring result.

ES.05 The investigation report for the cause of exceedance concluded that the exceedance was due to adjacent dusty public road. Since the condition of the public road is not under controlled by the Contract, the Contractor is reminded to control the speed limit of the engaged village vehicles of the Project. It is concluded that the exceedance was not related to the works under the Project. The statistics of environmental exceedance, NOE issued and investigation of exceedance are summarized in the following table.

Environmental Issues	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation	Corrective Actions
Air Quality	1-hour TSP	0	0	0	--	--
	24-hour TSP	1	0	1	Not Project related	N.A.
Construction Noise	$L_{eq(30min)}$ Daytime	0	0	0	--	--
Water Quality	DO	0	0	0	--	--
	Turbidity	0	0	0	--	--
	SS	0	0	0	--	--

Note: NOE – Notification of Exceedance

ENVIRONMENTAL COMPLAINT

ES.06 No written or verbal environmental complaint was recorded in this Reporting Period. The statistics of environmental complaint are summarized in the following table.

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
1– 29 February 2012	0	1	NA
1– 31 March 2012	0	1	NA

1– 25 April 2012	0	1	NA
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NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES.07 No environmental summons or successful prosecutions were recorded in this Reporting Period. The statistics of environmental complaint are summarized in the following tables.

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
1– 29 February 2012	0	0	NA
1– 31 March 2012	0	0	NA
1– 25 April 2012	0	0	NA

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
1– 29 February 2012	0	0	NA
1– 31 March 2012	0	0	NA
1– 25 April 2012	0	0	NA

REPORTING CHANGE

ES.08 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. Such reporting change was adopted from April 2012.

SITE INSPECTION BY EXTERNAL PARTIES

ES.09 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.10 As wet season is approaching, muddy water and other water quality pollutants via site surface water runoff into the sea body within Fish culture zone at Picnic Bay and the Secondary recreation contact subzone at Mo Tat Wan is the key issue of the Project. Mitigation measures for water quality should be properly maintained to prevent any muddy or sandy runoff from the loose soil surface overflow on the site boundary.

ES.11 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

1.1 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 Shue 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 to implement the environmental monitoring and auditing works to fulfill the requirements as stipulated in the Environmental Monitoring and Audit (EM&A) Manuals. 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 program. 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 This is the 7th Quarterly EM&A Summary Report for Sok Kwu Wan Portion Area presenting the monitoring results and inspection findings for the reporting period from **1 February to 25 April 2012**.

1.2 REPORT STRUCTURE

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

SECTION 1	INTRODUCTION
SECTION 2	SUMMARY OF IMPACT ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS
SECTION 3	MONITORING RESULTS AND BREACHES OF ENVIRONMENTAL QUALITY CRITERIA
SECTION 4	NON-COMPLIANCE, COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS
SECTION 5	CONCLUSION

2 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

2.1 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](#).

2.2 CONSTRUCTION PROGRESS

2.02 The master and three month rolling construction programs are enclosed in [Appendix C](#) and the major construction activities undertaken in this quarter are listed below:-

1 to 29 February 2012

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

1 to 31 March 2012

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

1 to 25 April 2012

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

2.3 SUMMARY OF ENVIRONMENTAL SUBMISSIONS

2.03 Summary of the relevant permits, licences, and/or notifications on environmental protection for this Project in this Reporting Month is presented in [Table 2-1](#).

Table 2-1 Status of Environmental Licenses and Permits

Item	Description	License/Permit Status
1	Air pollution Control (Construction Dust) 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-RS0771-11 Valid from: 2 Sep 2011 Until: 1 Mar 2012
6	Construction Noise Permit	Permit no. GW-RS0284-12 Valid from: 26 Mar 2012 Until: 25 Sep 2012

3 SUMMARY OF MONITORING REQUIREMENTS

3.1 ENVIRONMENTAL ASPECT

- 3.01 The EM&A baseline monitoring program 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 the Air and Noise monitoring parameters 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"> • $L_{eq(30min)}$ during normal working hours; and • $L_{eq(15min)}$ 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)

3.2 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* stipulations, 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

3.3 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: $L_{eq(30min)}$ & $L_{eq(5min)}$, L10 and L90.

$L_{eq(15min)}$ & $L_{eq(5min)}$, L10 and L90 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.

3.4 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 arrange 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 SS 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.

3.5 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 Dissolved Oxygen 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 program in the relevant Monthly EM&A Report.

3.6 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) which near the Project site. The meteorological information in this Reporting Period is presented in Appendix F.

3.7 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 program.
- 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.

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

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

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

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 Monitoring

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

4 IMPACT MONITORING RESULTS

4.01 The environmental monitoring results will be compared against the Action and Limit Levels established based on the baseline monitoring results and statutory criteria. In case the measured data exceed the environmental quality criteria, remedial actions will be triggered according to the Event and Action Plan. In the Reporting Period, the graphical plots of the trends of monitored parameter over the past three months are presented in *Appendix E*.

4.1 RESULTS OF AIR QUALITY MONITORING

4.02 In this Reporting Period, a total of **144** events of 1-hour TSP and **45** events of 24-hour TSP measurements were conducted at designated Location AM1, AM2 and AM3. Results of air quality monitoring at the identified locations during the Reporting Period are summarized in *Tables 4-1*.

Table 4-1 Summary of 1-hour and 24-hour TSP Results

Station	1-hour TSP ($\mu\text{g}/\text{m}^3$)			24-hour TSP ($\mu\text{g}/\text{m}^3$)		
	Max	Min	Mean	Max	Min	Mean
AM1	194	51	95	121	12	47
Record Date	27-Mar-12	20-Apr-12	48 events	5-Apr-12	2-Mar-12	15 events
AM2	191	48	92	157	15	62
Record Date	27-Mar-12	20-Apr-12	48 events	31-Mar-12	17-Apr-12	15 events
AM3	274	77	146	201	26	105
Record Date	10-Apr-12	29-Feb-12	48 events	31-Mar-12	17-Apr-12	15 events

Note: bold and italic indicate Action Level exceedance.

4.03 1-hour TSP results fluctuated below the Action Level during the Reporting Period but one (1) Action Level exceedance of 24-hour TSP monitoring was recorded at Location AM3 on 31 March 2012. Notification of Exceedance (NOE) has been issued to relevant parties upon confirmation of the monitoring result. The investigation report for the cause of exceedance has been conducted.

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

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

4.06 In conclusion, the exceedance was not related to the works under the Project and no remedial actions are required.

4.2 RESULTS OF CONSTRUCTION NOISE MONITORING

4.07 Summary of construction noise monitoring at the identified locations during the Reporting Period are summarized in *Table 4-2* below. In this Reporting Period, a total of **52** events of construction noise measurement were conducted while no documented construction complaint was received and all the construction noise results were below the Limit level. No NOE or

corrective action was recommended for this parameter.

Table 4-2 Summary of Construction Noise Monitoring Results

Station	Leq(30min) (dB(A))	
	Max	Min
NM1	69.0	50.9
Record Date	27-Mar-12	15-Mar-12
NM2	71.9	58.2
Record Date	2-Apr-12	7-Feb-12
RNM3	72.7	55.1
Record Date	16-Apr-12	13-Feb-12
NM4	73.7	51.3
Record Date	5-Mar-12	13-Feb-12

4.3 RESULTS OF MARINE WATER QUALITY OF MONITORING

- 4.08 The construction of marine outfall works was commenced on 19 July 2011 and therefore the marine water quality monitoring is required in this Reporting Period.
- 4.09 In this Reporting Period, 35 monitoring days have been carried out at the designated locations. However, 2 monitoring events in which one mid-flood tide on 5 April and one mid-ebb tide 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.
- 4.10 The statistical analysis result for the parameters of DO, turbidity and suspended solids in this reporting quarter are shown in *Tables 4-3 to 4-6*.

Table 4-3 Statistic of Monitoring Result for DO concentration (mg/L) (Surface & Mid-layers)

Station	W1	W2	W3	C1	C2	C3
Average	7.81	7.78	7.75	7.69	7.74	7.65
Min	6.23	6.34	6.14	6.18	5.85	5.49
Max	9.58	9.55	9.39	9.48	9.08	9.46

Table 4-4 Statistic of Monitoring Result for DO concentration (mg/L) (Bottom layers)

Station	W1	W2	W3	C1	C2	C3
Average	NA	7.43	7.43	7.53	7.36	7.44
Min	NA	5.57	5.22	5.85	5.76	5.37
Max	NA	9.22	9.57	10.20	9.35	9.36

Table 4-5 Statistic of Monitoring Result for Turbidity (NTU)

Station	W1	W2	W3	C1	C2	C3
Average	2.61	2.82	2.98	3.17	3.06	3.22
Min	0.82	1.10	1.19	1.35	1.04	1.27
Max	4.11	4.84	5.52	6.18	6.45	6.29

Note: bold and underlined indicate Limit Level exceedance.

Table 4-6 Statistic of Monitoring Result for Suspended Solids (mg/L)

Station	W1	W2	W3	C1	C2	C3
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Station	W1	W2	W3	C1	C2	C3
Average	3.63	3.40	3.16	3.34	3.01	3.56
Min	0.60	0.83	0.90	0.80	0.75	0.75
Max	8.20	7.73	6.53	8.07	8.43	8.03

- 4.11 A summary of exceedances for the three parameters: dissolved oxygen (DO), turbidity and suspended solids are shown in **Table 4-7**.

Table 4-7 Summary of Exceedances in 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

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

4.4 ECOLOGICAL MONITORING

- 4.13 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.
- 4.14 Since the health condition of CT7 to CT10 are poor, as a contingency measure in case that CT7 to CT10 can no longer be recovered, additional 7 no. of *Celtis Timorensis* were planted adjacent to the under-monitoring *Celtis Timorensis* CT7 to CT10 on 30 April 2011. Since health condition for the transplanted and newly planted *Celtis Timorensis* were still unsatisfactory, regular inspection was carried out on **15, 29 February, 15, 31 March and 16 April**. The copies of the inspection reports are attached in relevant Monthly EM&A Report (**February 2012, March 2012 and April 2012**).
- 4.15 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.

- 4.16 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.

5 WASTE MANAGEMENT

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

5.1 RECORDS OF WASTE QUANTITIES

5.02 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

5.03 The quantities of waste for disposal in this Reporting Period are summarized in [Table 5-1](#) and [5-2](#) and the Monthly Summary Waste Flow Table is shown in [Appendix G](#). Whenever possible, materials were reused on-site as far as practicable.

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

Type of Waste	Quantity			Disposal Location
	Feb 12	Mar 12	Apr 12	
C&D Materials (Inert) ('000m ³)	0	0	0	-
Reused in the Contract (Inert) ('000m ³)	0	0	0	-
Reused in other Projects (Inert) ('000m ³)	0	0	0	-
Disposal as Public Fill (Inert) ('000m ³)	6.271	4.543	0	WENT Landfill site

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

Type of Waste	Quantity			Disposal Location
	Feb 12	Mar 12	Apr 12	
Metal (kg)	0	0	0	-
Paper / Cardboard Packing (kg)	0	0	0	-
Plastic (kg)	0	0	0	-
Chemical Wastes (kg)	0	0	0	
General Refuses (tonne)	5.660	9.50	1.70	Outlying Islands Transfer Facilities (Sok Kwu Wan)

5.04 There was no site effluent discharged but the estimated volume of surface runoff was less than 50m³ in this reporting quarter.

6 SITE INSPECTION

- 6.01 According to the Final Report Environmental Monitoring and Audit Manual [2095/13.3], 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, site inspection was carried out on **7, 14, 21, 28 February, 6, 13, 20, 27 March and 3, 10, 17 and 24 April 2012**. Besides, routine joint-site visit by IEC, RE, Leader and ET was carried out on **7 February, 6 March and 10 April 2012**.
- 6.02 Observations for the site inspections and monthly audit within this Reporting Period are summarized in *Table 6-1*.

Table 6-1 Site Observations

Date	Findings / Deficiencies	Follow-Up Status
7 February 2012	<ul style="list-style-type: none"> No environmental issue was observed during site inspection. 	N.A.
14 February 2012	<ul style="list-style-type: none"> Dust generation at the slope should be minimized to avoid nuisance to adjacent public road. (Portion H) Stagnant water should be removed or larvicidal oil should be applied to suppress mosquito breeding. (Portion H) 	<ul style="list-style-type: none"> The deficiency has been followed during site inspection on 28 February 2012. The deficiency has been followed during site inspection on 21 March 2012.
21 February 2012	<ul style="list-style-type: none"> Dust generation was still observed, water spraying device was recommended along the slope to minimize the nuisance to public. 	The deficiency has been followed during site inspection on 28 February 2012.
28 February 2012	<ul style="list-style-type: none"> No environmental issue was observed during site inspection. 	N.A.
6 March 2012	<ul style="list-style-type: none"> Desilting tank under concrete plant should be cleaned and the silt should be removed in order to restore its desilting ability. 	The deficiency has been followed during site inspection on 13 March 2012.
13 March 2012	<ul style="list-style-type: none"> No environmental issue was observed during site inspection. 	N.A.
20 March 2012	<ul style="list-style-type: none"> As a reminder, the geotextile for filtration purpose at the effluent point should be replaced regularly. (Portion L2, sedimentation tank) 	Not required for reminder.
27 March 2012	<ul style="list-style-type: none"> No environmental issue was observed during site inspection. As a reminder, a sedimentation tank should be placed at Portion G near retaining wall to pretreat water quality prior discharging. 	Not required for reminder.
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.

7 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

7.1 ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

7.01 No environmental complaint, summons and prosecution was received in this Reporting Period. The statistical summary table of environmental complaint is presented in [Tables 7-1, 7-2](#) and [7-3](#).

Table 7-1 Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
27 July 2010 – 31 January 2012	1 (Nov 2011)	1 (Nov 2011)	Marine water quality
1 – 29 February 2012	0	1	NA
1– 31 March 2012	0	1	NA
1– 25 April 2012	0	1	NA

Table 7-2 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
27 July 2010 – 31 January 2012	0	0	NA
1 – 29 February 2012	0	0	NA
1– 31 March 2012	0	0	NA
1– 25 April 2012	0	0	NA

Table 7-3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
27 July 2010 – 31 January 2012	0	0	NA
1 – 29 February 2012	0	0	NA
1– 31 March 2012	0	0	NA
1– 25 April 2012	0	0	NA

8 IMPLEMENTATION STATUS OF MITIGATION MEASURES

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

Dust Mitigation Measure

- 8.02 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:
- 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 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

- 8.03 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:
- Use of quiet equipment for the construction activities of the Pumping Stations and sewer alignment;
 - Use of temporary noise barrier around the site boundary of Pumping Station P1a;
 - Use of kick ripper (saw and lift) method to replace the breaker for pavement removal during sewer alignment construction;
 - Restriction on the number of plant during sewer alignment construction;
 - 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;
 - 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
 - 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 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 utilised, wherever practicable, in screening noise from on-site construction activities.

Water Quality Mitigation Measure

- 8.04 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.

- 8.05 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

- 8.06 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

- 8.07 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

- 8.08 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

- 8.09 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).
- 8.10 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.
- 8.11 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

- 8.12 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.
- 8.13 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.
- 8.14 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

- 8.15 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

- 8.16 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.
- 8.17 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

- 8.18 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.
- 8.19 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

- 8.20 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.
- 8.21 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.

- 8.22 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

- 8.23 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.
- 8.24 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

- 8.25 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

- 8.26 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
- 8.27 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 Month are summarized in [Table 8-1](#).

Table 8-1 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.
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.

9 CONCLUSIONS AND RECOMMENTATIONS

9.1 CONCLUSIONS

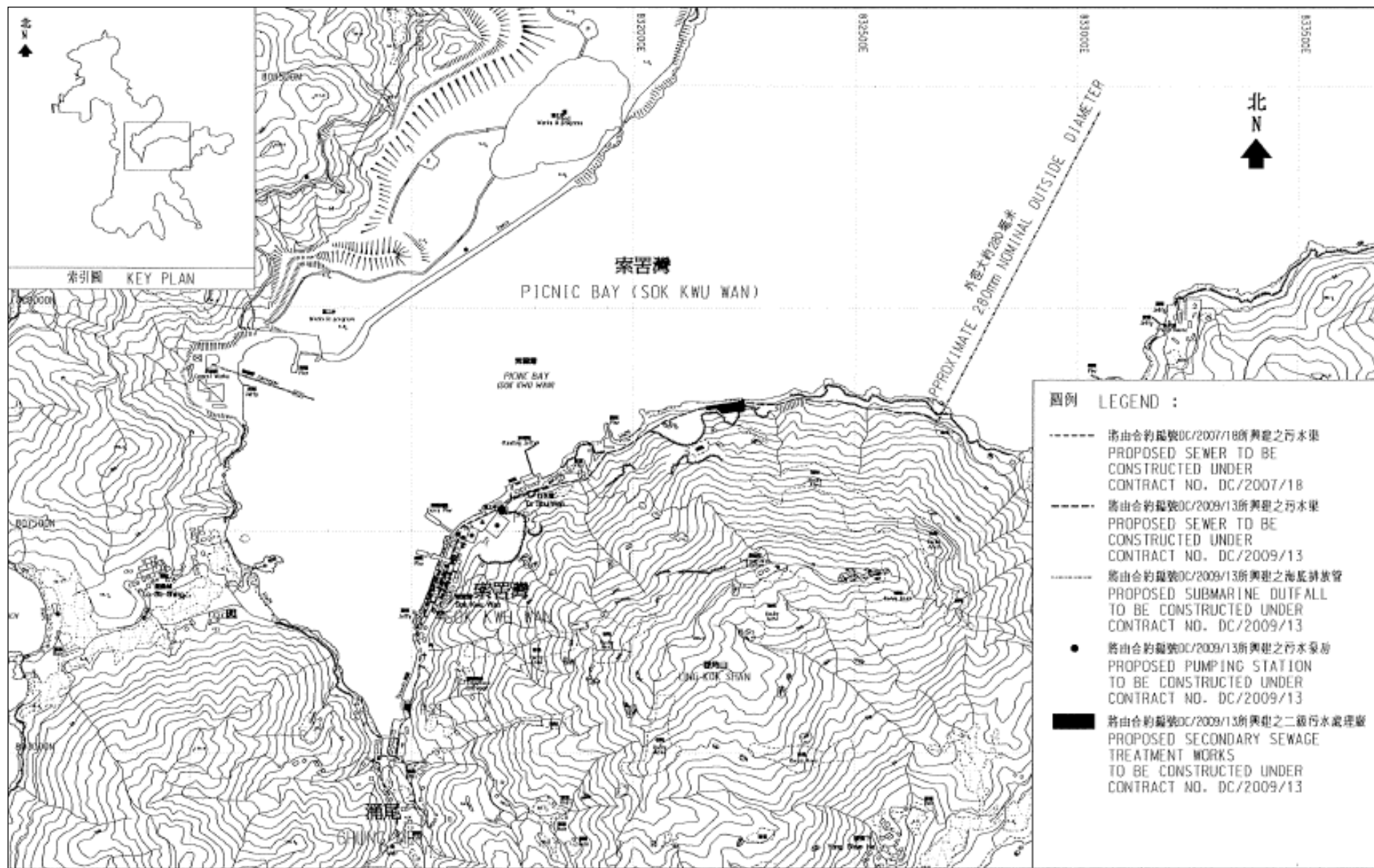
- 9.01 This is the 7th Quarterly EM&A Summary Report for Sok Kwu Wan Portion Area under the Project covering the construction period from **1 February to 25 April 2012**.
- 9.02 No noise complaint (which is an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in this Reporting Period. No NOE or the associated corrective actions were therefore issued.
- 9.03 No 1-hour TSP results were triggered the Action or Limit Level in this Reporting Period. However, one (1) Action Level exceedance of 24-hour TSP monitoring was recorded at Location AM3 on 31 March 2012. The investigation report for the cause of exceedance concluded that the exceedance was due to adjacent dusty public road. Since the condition of the public road is not under controlled by the Contract, the Contractor is reminded to control the speed limit of the engaged village vehicles of the Project. It is concluded that the exceedance was not related to the works under the Project.
- 9.04 For marine water quality monitoring, 2 monitoring events in which one mid-flood tide on 5 April and one mid-ebb tide on 20 April were cancelled due to inclement weather in this Reporting Period.
- 9.05 The monitoring result demonstrated no exceedance of Action or Limit Level of marine water quality monitoring in this Reporting Period.
- 9.06 No notification of summons or successful prosecution was received in this Reporting Period.
- 9.07 **12** events of site inspection were carried out by ET in this Reporting Period and no non-compliance was observed during the inspection. In general, all the observation has been rectified during the next week site inspection. The environmental performance of the Project was therefore considered as satisfactory.
- 9.08 No site inspection was undertaken by external parties i.e. Environmental Protection Department (EPD) or Agriculture, Fisheries and Conservation Department (AFCD) within the Reporting Period.

9.2 RECOMMENDATIONS

- 9.09 As wet season is approaching, muddy water and other water quality pollutants via site surface water runoff into the sea body within Fish culture zone at Picnic Bay and the Secondary recreation contact subzone at Mo Tat Wan is the key issue of the Project. Mitigation measures for water quality should be properly maintained to prevent any muddy or sandy runoff from the loose soil surface overflow on the site boundary.
- 9.10 Moreover, special attention should be also paid on the dust mitigation measures to avoid fugitive dust emissions from loose soil surface or haul road. Mitigation measures implemented for control the surface runoff including wheel wash facilities, covering of the loose soil surface or stockpile with tarpaulin sheet, etc., should fully implement.

Appendix A

Site Layout Plan – Sok Kwu Wan Portion Area



Appendix B

Organization Structure and Contact Details of Relevant Parties

Contact Details of Key Personnel

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

Legend:

DSD (Employer) – Drainage Services Department

CDM (Engineer) – Scott Wilson CDM Joint Venture

Leader (Main Contractor) – Leader Civil Engineering Corporation Limited

Scott Wilson (IEC) – Scott Wilson Limited

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

Appendix C

Master and Three Months Rolling Construction Programs

Activity ID	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	2010	2011	2012	2013	2014	2015	2016	2017	2018	
Project Key Date																
KD0010	0	05/05/10 A	05/05/10 A		05/05/10 A		Receive Letter of Acceptance									
KD0020	0	17/05/10 A	17/05/10 A		17/05/10 A		Project Commencement Date									
KD0030	0	15/08/11 *	15/08/11		15/08/11	0 *	Section W1 - Slope Works in Portion A & C (456d)									
KD0040	0	14/02/14 *	14/02/14		14/02/14	0 *	Section W2 - YSW STW & Submarine Outfall (1370d)									
KD0050	0	13/02/11 *	13/02/11		13/02/11	0 *	Section W3 - Footpath Diversion in Ptn G (273d)									
KD0060	0	15/08/11 *	15/08/11		15/08/11	0 *	Section W4 - Slope Works in Portion H & I (456d)									
KD0070	0	15/11/11 *	15/11/11		15/11/11	0 *	Section W5 - P.S. No. 1 in Portion D (548d)									
KD0080	0	15/11/11 *	15/11/11		15/11/11	0 *	Section W6 - Sewer & PS No2 in Ptn. E & F (548d)									
KD0090	0	14/02/14 *	14/02/14		14/02/14	0 *	Section W7 - SKW STW, RM & Sm. Outfall (1370d)									
KD0100	0	15/08/12 *	15/08/12		15/08/12	0 *	Section W8 - Landscape Softworks (822d)									
KD0110	0	15/08/13 *	15/08/13		15/08/13	0 *	Section W9 - Establishment Works (1187d)									
KD0115	0	30/06/11 *	30/06/11		30/06/11	0 *	Start Operate Temp. Sewage Treatment in Port. A&H									
KD0125	0	14/02/14 *	14/02/14		14/02/14	0 *	Project Completion									
Preliminary (Civil)																
PRE0020	60	17/05/10	15/07/10	19/05/10	17/07/10 *	2d	Pre-condition Survey									
PRE0040	60	17/05/10 *	15/07/10	19/05/10	17/07/10 *	2d	Erection of Engineer's Site Accommodation at YSW									
PRE0050	75	17/05/10	30/07/10	18/05/10	31/07/10 *	1d	Taking over the Secondary Engineer's Site Accommod									
PRE0060	60	17/05/10	15/07/10	18/05/10	16/07/10 *	1d	Application of Consent from Marine Department									
PRE0090	120	17/05/10	13/09/10	17/09/10	14/01/11	123d	Working Group Meeting for Outfall Construction									
PRE0100	120	17/05/10	13/09/10	17/05/10	13/09/10	0	Application & Consent of XP from HyD (Mo Tat Rd)									
PRE0130	90	17/05/10	14/08/10	18/05/10	15/08/10 *	1d	Setup Web-site for EM&A Reporting									
Preliminary (E&M)																
Technical Submission																
Process Design of SKWSTW & YSWSTW																
E&M0010	38	17/05/10	23/06/10	17/05/10	23/06/10	0	Submission									
E&M0020	21	24/06/10	14/07/10	24/06/10	14/07/10	0	Vetting and Comment by ER									
E&M0030	28	15/07/10	11/08/10	20/05/11	16/06/11	309d	Revision and Resubmission									
E&M0080	14	12/08/10	25/08/10	17/06/11	30/06/11	309d	Approval from the Engineer									
Hydraulic Design																
E&M0040	21	15/07/10	04/08/10	15/07/10	04/08/10	0	Submission									
E&M0050	14	05/08/10	18/08/10	27/05/11	09/06/11	295d	Vetting and Comment by ER									
E&M0060	14	19/08/10	01/09/10	10/06/11	23/06/11	295d	Revision and Resubmission									
E&M0430	7	02/09/10	08/09/10	24/06/11	30/06/11	295d	Approval from the Engineer									
Equipment Submission & Approval																
E&M0070	50	17/05/10	05/07/10	08/06/10	27/07/10	22d	Submission of Membrane Module									
E&M0090	14	06/07/10	19/07/10	28/07/10	10/08/10	22d	Vetting and Comment by ER									
E&M0100	14	20/07/10	02/08/10	11/08/10	24/08/10	22d	Revision and Resubmission									
E&M0101	90	05/08/10	02/11/10	05/08/10	02/11/10	0	Submission of Equipment									
E&M0102	60	03/11/10	01/01/11	03/11/10	01/01/11	0	Vetting and Comment by ER									
E&M0103	60	02/01/11	02/03/11	02/01/11	02/03/11	0	Revision and Resubmission									
E&M0110	30	03/03/11	01/04/11	03/03/11	01/04/11	0	Approval on Coarse Screens									
E&M0120	30	03/03/11	01/04/11	03/03/11	01/04/11	0	Approval on Fine Screens									
E&M0130	30	03/03/11	01/04/11	03/03/11	01/04/11	0	Approval on Pumps									
E&M0140	30	03/03/11	01/04/11	03/04/11	02/05/11	31d	Approval on Submersible Mixers									
E&M0150	30	03/03/11	01/04/11	19/03/11	17/04/11	16d	Approval on Grit Removal Equipment									
E&M0160	60	03/08/10	01/10/10	25/08/10	23/10/10	22d	Approval on MBR Membrane Modules (M.M.)									
E&M0170	30	03/03/11	01/04/11	03/03/11	01/04/11	0	Approval on Sludge Dewatering Equipment									
E&M0180	30	03/03/11	01/04/11	18/05/11	16/06/11	76d	Approval on Valves, Pipes & Fittings									
E&M0190	30	03/03/11	01/04/11	18/05/11	16/06/11	76d	Approval on Penstocks									
E&M0200	30	03/03/11	01/04/11	01/08/11	30/08/11	151d	Approval on Instrumentation									
E&M0210	30	03/03/11	01/04/11	03/03/11	01/04/11	0	Approval on MCC & LVSB									
E&M0220	30	03/03/11	01/04/11	11/06/11	10/07/11	100d	Approval on BS Equipment									
E&M0230	30	03/03/11	01/04/11	01/06/11	30/06/11	90d	Approval on FS Equipment									
Drawings Submission & Approval																
E&M0235	60	24/06/10	22/08/10	12/01/11	12/03/11	202d	Sub. P&ID Drawings									
E&M0240	45	05/08/10	18/09/10	18/12/10	31/01/11	135d	Sub. Plant GA Drawings									
E&M0250	45	05/08/10	18/09/10	18/12/10	31/01/11	135d	Sub. Civil Works Requirements Drawings									
E&M0260	90	19/09/10	17/12/10	13/03/11	10/06/11	175d	Sub. Mechanical Installation Drawings									
E&M0270	120	19/09/10	16/01/11	11/02/11	10/06/11	145d	Sub. Electrical Installation Drawings									
E&M0280	120	19/09/10	16/01/11	11/02/11	10/06/11	145d	Sub. BS Installation Drawings									
E&M0290	120	19/09/10	16/01/11	01/02/11	31/05/11	135d	Sub. FS Installation Drawings									
Statutory Submission																
E&M0295	39	02/04/11	10/05/11	01/07/11	08/08/11	90d	Preparation of Submission to HEC									
E&M0300	150	11/05/11	07/10/11	09/08/11	05/01/12	90d	Application & Approval from HEC									
E&M0305	180	08/10/11	04/04/12	06/01/12	03/07/12	90d	Provision of Cables to the STWs									
E&M0320	14	02/04/11	15/04/11	15/04/12	28/04/12	379d	Form 314 Submission to FSD									
E&M0325	14	16/04/11	29/04/11	29/04/12	12/05/12	379d	Submission to WSD									
E&M0330	28	29/09/11	26/10/11	12/07/12	08/08/12	287d	Form 501 Submission to FSD (YSW)									
E&M0340	28	29/09/11	26/10/11	12/07/12	08/08/12	287d	Form 501 Submission to FSD (SKW)									
E&M0350	28	15/04/11	12/05/11	18/01/14	14/02/14	1009d	Form 501 Submission to FSD (PS1 & PS2)									
+Yung Shue Wan																
	1370	17/05/10	14/02/14	17/05/10	14/02/14	0										
Sok Kwu Wan																
Preliminary																
SKW0250	16	17/05/10	01/06/10	17/05/10	01/06/10	0	Approval of Environmental Team									
SKW0260	14	02/06/10	15/06/10	02/06/10	15/06/10	0	Baseline monitoring (Air & Noise)									
SKW0270	213	16/06/10	14/01/11	16/06/10	14/01/11	0	Baseline monitoring (Water)									
Section W3 - Footpath Diversion in Portion G																
Civil & Geotechnical Works																
SKW0240	21	17/05/10	06/06/10	17/05/10	06/06/10	0	Site Clearance									

Start date	05/05/10	■ Early bar
Finish date	14/02/14	■ Progress bar
Data date	17/05/10	■ Critical bar
Run date	11/08/10	■ 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
Works Programme (Rev. 1)

Date	Revision	Checked	Approved
17/05/10	Revision 0	StL	VC
31/07/10	Revision 1	StL	VC

Activity ID	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	2010	2011	2012	2013	2014	2015	2016	2017	2018	
SKW0241	9	07/06/10	15/06/10	07/06/10	15/06/10	0		Initial Survey								
SKW0242	57	16/06/10	11/08/10	16/06/10	11/08/10	0		Excavation to formation for Bay 1 to 5								
SKW0251	21	12/08/10	01/09/10	12/08/10	01/09/10	0		Drill & install Dowel Bar for Bay 1 & 3								
SKW0301	14	02/09/10	15/09/10	02/09/10	15/09/10	0		Erect Formwork, mesh & weephole for Bay 1 & 3								
SKW0311	14	16/09/10	29/09/10	16/09/10	29/09/10	0		Concreting for Bay 1 & 3								
SKW0321	7	30/09/10	06/10/10	30/09/10	06/10/10	0		Drilling & install Dowel Bar for Bay 2 & 5								
SKW0331	7	07/10/10	13/10/10	07/10/10	13/10/10	0		Erect Formwork, mesh & weephole for Bay 2 & 5								
SKW0341	7	14/10/10	20/10/10	14/10/10	20/10/10	0		Concreting for Bay 2 & 5								
SKW0351	21	21/10/10	10/11/10	21/10/10	10/11/10	0		Excavation to formation for Bay 6 to 9								
SKW0361	6	11/11/10	16/11/10	11/11/10	16/11/10	0		Drill & install dowel Bar for Bay 4 & 7								
SKW0371	7	17/11/10	23/11/10	17/11/10	23/11/10	0		Erect formwork, mesh & weephole for Bay 4 & 7								
SKW0381	7	24/11/10	30/11/10	24/11/10	30/11/10	0		Concreting for Bay 4 & 7								
SKW0391	3	01/12/10	03/12/10	01/12/10	03/12/10	0		Drill & install dowel Bar for Bay 6 & 9								
SKW0401	7	04/12/10	10/12/10	04/12/10	10/12/10	0		Erect formwork, mesh & weephole for Bay 6 & 9								
SKW0411	7	11/12/10	17/12/10	11/12/10	17/12/10	0		Concreting for Bay 6 & 9								
SKW0421	1	18/12/10	18/12/10	18/12/10	18/12/10	0		Drill & install dowel Bar for Bay 8								
SKW0431	4	19/12/10	22/12/10	19/12/10	22/12/10	0		Erect formwork, mesh & weephole for Bay 8								
SKW0441	4	23/12/10	26/12/10	23/12/10	26/12/10	0		Concreting for Bay 8								
SKW0461	3	27/12/10	29/12/10	27/12/10	29/12/10	0		Excavation for no fine concrete Bay (1-9)								
SKW0471	7	30/12/10	05/01/11	30/12/10	05/01/11	0		Concreting for no-fine concrete								
SKW0481	14	06/01/11	19/01/11	06/01/11	19/01/11	0		Installation of Wall tie & stone facing								
SKW0491	7	06/01/11	12/01/11	06/01/11	12/01/11	0		Construction of Gabion Wall								
SKW0501	3	06/01/11	08/01/11	06/01/11	08/01/11	0		Place Geotextile								
SKW0511	7	09/01/11	15/01/11	09/01/11	15/01/11	0		Backfill behind the retaining wall to approx. +4								
SKW0521	14	16/01/11	29/01/11	16/01/11	29/01/11	0		Utilities Laying and diversion								
SKW0531	7	30/01/11	05/02/11	30/01/11	05/02/11	0		Concreting for Pavement								
SKW0541	7	06/02/11	12/02/11	06/02/11	12/02/11	0		Installation of Flower Pot								
SKW0551	1	13/02/11	13/02/11	13/02/11	13/02/11	0		Permanent Footpath Diversion								
Section W4 - Slope Works in Portions H & I																
Geotechnical Works																
SKW0588	30	15/06/10	14/07/10	15/06/10	14/07/10	0		Construct scaffolding access								
SKW0590	100	15/07/10	22/10/10	15/07/10	22/10/10	0		Site Clearance for Slope								
SKW0591	28	21/09/10	18/10/10	21/09/10	18/10/10	0		Initial Survey for Slope								
SKW0592	80	19/10/10	06/01/11	19/10/10	06/01/11	0		Temporary Rockfall fence at ex. Footpath								
SKW0593	200	28/11/10	15/06/11	28/11/10	15/06/11	0		Cut Slope								
SKW0594	248	11/12/10	15/08/11	11/12/10	15/08/11	0		Road & Drains Works								
SKW0595	260	29/11/10	15/08/11	29/11/10	15/08/11	0		Rock Meshing & Rockfall Fence								
Section W5 - P.S. No. 1 in Portion D																
Civil & Geotechnical Works																
SKW0651	7	17/05/10	23/05/10	17/05/10	23/05/10	0		Site Clearance								
SKW0652	7	24/05/10	30/05/10	24/05/10	30/05/10	0		Initial Survey								
SKW0661	30	31/05/10	29/06/10	31/05/10	29/06/10	0		Transplantation for uncommon vegetation								
SKW0681	49	30/06/10	17/08/10	30/06/10	17/08/10	0		Excavate to lower the working platform to +3mPD								
SKW0691	40	18/08/10	26/09/10	18/08/10	26/09/10	0		ELS to +2.2mPD								
SKW0721	92	17/09/10	17/12/10	17/09/10	17/12/10	0		Excavate to formation								
Structural Works																
SKW0741	15	18/12/10	01/01/11	18/12/10	01/01/11	0		Base Slab (BSD2 & BSD3)								
SKW0751	14	01/01/11	14/01/11	01/01/11	14/01/11	0		Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) Approx.								
SKW0761	14	14/01/11	27/01/11	14/01/11	27/01/11	0		Base Slab (BSD1) to +3.98								
SKW0771	14	27/01/11	09/02/11	27/01/11	09/02/11	0		Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) to +6.3								
SKW0781	14	09/02/11	22/02/11	09/02/11	22/02/11	0		Base Slab (GSB1-3, GSC1-5, GSD1-2)								
SKW0791	14	22/02/11	07/03/11	22/02/11	07/03/11	0		Base Slab (GSE1 & GSF1)								
SKW0801	14	07/03/11	20/03/11	07/03/11	20/03/11	0		Wall & Column (CE1-3, CF1-3)								
SKW0811	14	21/03/11	03/04/11	21/03/11	03/04/11	0		Ground Beam (GB1-1.2 GB2-1.2 GB3-1, GBA-1, GBB1-4)								
SKW0821	14	04/04/11	17/04/11	04/04/11	17/04/11	0		Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) to +10.								
SKW0831	14	18/04/11	01/05/11	18/04/11	01/05/11	0		Roof Beams & Parapet								
SKW0841	45	18/04/11	01/06/11	18/04/11	01/06/11	0		ABWF installation								
SKW0861	168	02/05/11	16/10/11	01/06/11	15/11/11	30d		300mm U-channel & 675mm Step Channel								
E&M Works (PS1)																
Submission & Delivery																
E&M1001	113	17/05/10	06/09/10	10/11/10	02/03/11	177d		Submission of Pumps								
E&M1002	143	17/05/10	06/10/10	11/10/10	02/03/11	147d		Submission of Gen-Set								
E&M1003	133	17/05/10	26/09/10	21/10/10	02/03/11	157d		Submission of DeO System								
E&M1004	180	17/05/10	12/11/10	04/09/10	02/03/11	110d		Submission of LV SB & MCC								
E&M1005	180	17/05/10	12/11/10	04/09/10	02/03/11	110d		Submission of Instrumentation								
E&M1006	213	17/05/10	15/12/10	02/08/10	02/03/11	77d		Submission of FS System								
E&M1007	213	17/05/10	15/12/10	02/08/10	02/03/11	77d		Submission of BS System								
E&M1011	60	07/09/10	05/11/10	03/03/11	01/05/11	177d		Delivery of Pumps								
E&M1012	60	07/10/10	05/12/10	03/03/11	01/05/11	147d		Delivery of Gen-Set								
E&M1013	60	27/09/10	25/11/10	03/03/11	01/05/11	157d		Delivery of DeO System								
E&M1014	60	13/11/10	11/01/11	03/03/11	01/05/11	110d		Delivery of LV SB & MCC								
E&M1015	60	13/11/10	11/01/11	03/03/11	01/05/11	110d		Delivery of Instrumentation								
E&M1016	60	16/12/10	13/02/11	03/03/11	01/05/11	77d		Delivery of FS Equipment								
E&M1017	60	16/12/10	13/02/11	03/03/11	01/05/11	77d		Delivery of BS Equipment								
Installation, T&C																
E&M1101	55	02/05/11	25/06/11	02/05/11	25/06/11	0		Install Pumps								
E&M1102	55	02/05/11	25/06/11	02/05/11	25/06/11	0		Install Gen Set								
E&M1103	55	02/05/11	25/06/11	02/05/11	25/06/11	0		Install DeO System								
E&M1104	55	02/05/11	25/06/11	02/05/11	25/06/11	0		Install LV SB & MCC								
E&M1105	55	02/05/11	25/06/11	02/05/11	25/06/11	0		Install Instrumentation								
E&M1106	55	02/05/11	25/06/11	02/05/11	25/06/11	0		Install FS Equipment								
E&M1107	55	02/05/11	25/06/11	02/05/11	25/06/11	0		Install BS Equipment								
E&M1110	46	26/06/11	10/08/11	27/08/11	11/10/11	62d		Install Valves, Pipes & Fittings								

Start date 05/05/10
Finish date 14/02/14
Data date 17/05/10
Run date 11/08/10
Page number 2A

- Early bar
- Progress bar
- Critical bar
- Summary bar
- ▲ Progress point
- ▲ Critical point
- ▲ Summary point
- ◆ Start milestone point
- ◆ Finish milestone point

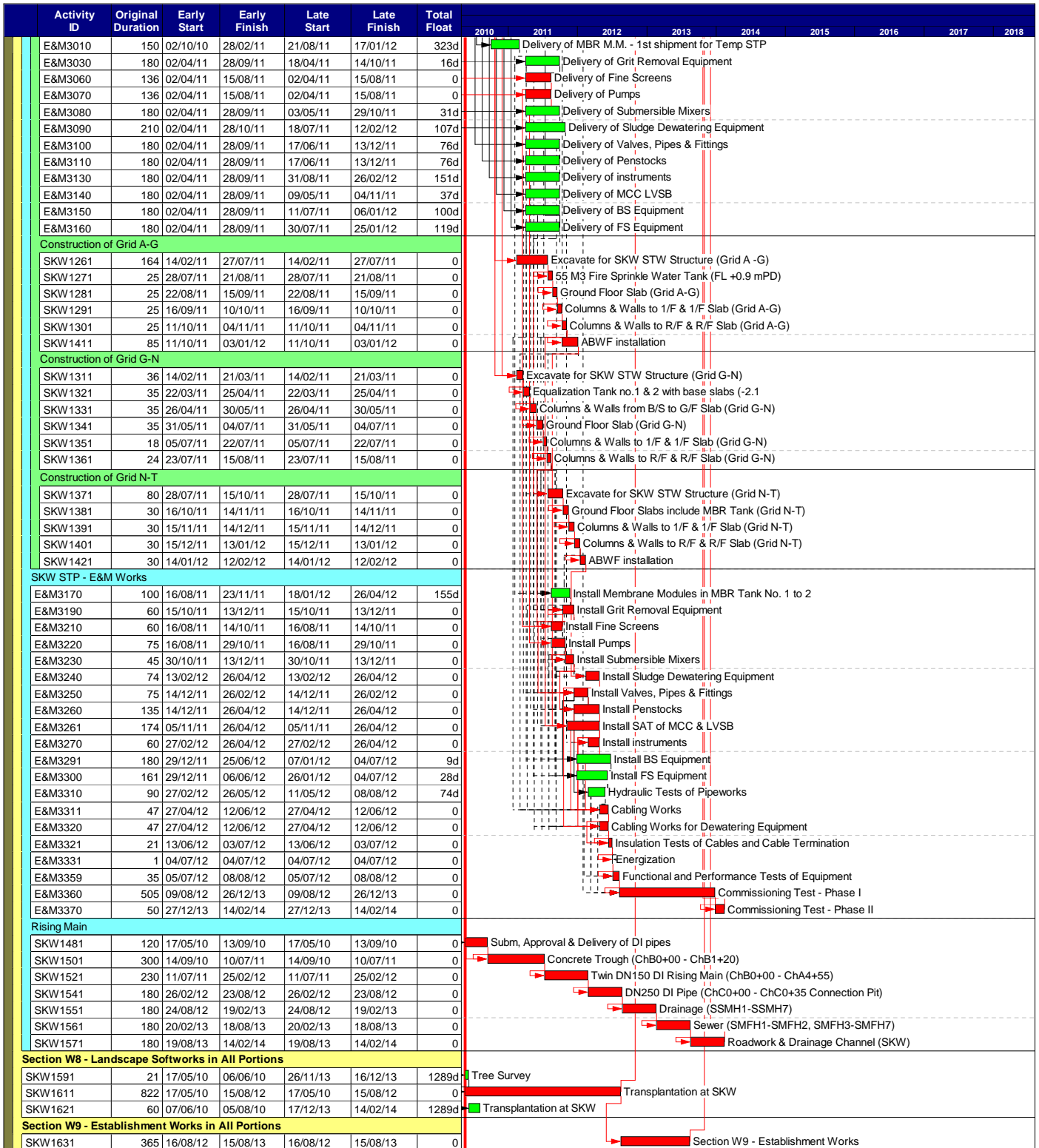
Leader Civil Engineering Corp. Ltd.
Contract No. DC/2009/13
Construction of Sewage Treatment Works at YSW & SKW
Works Programme (Rev. 1)

Date	Revision	Checked	Approved
17/05/10	Revision 0	SIL	VC
31/07/10	Revision 1	SIL	VC

Activity ID	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float											
							2010	2011	2012	2013	2014	2015	2016	2017	2018		
E&M1120	7	11/08/11	17/08/11	12/10/11	18/10/11	62d			Hydraulic Test of Pipeworks								
E&M1130	28	18/08/11	14/09/11	19/10/11	15/11/11	62d			Form 501 Submission to FSD								
E&M1140	43	26/06/11	07/08/11	26/06/11	07/08/11	0			Cabling Works								
E&M1150	7	08/08/11	14/08/11	08/08/11	14/08/11	0			Insulation Tests of Cables and Cable Termination								
E&M1160	3	15/08/11	17/08/11	15/08/11	17/08/11	0			Energization								
E&M1170	30	18/08/11	16/09/11	18/08/11	16/09/11	0			Functional and Performance Tests of Equipment								
E&M11800	60	17/09/11	15/11/11	17/09/11	15/11/11	0			Commissioning Test								
Section W6 - Sewer and PS No.2 in Portions E&H																	
Civil & Geotechnical Works																	
SKW0881	7	17/05/10	23/05/10	17/05/10	23/05/10	0			Site Clearance								
SKW0891	7	17/05/10	23/05/10	17/05/10	23/05/10	0			Plant mobilization								
SKW0892	30	24/05/10	22/06/10	24/05/10	22/06/10	0			Initial Survey								
SKW0901	30	23/06/10	22/07/10	23/06/10	22/07/10	0			Tree Transplantation								
SKW0921	14	23/07/10	05/08/10	23/07/10	05/08/10	0			Cut Slope & U-Channel								
SKW0931	14	06/08/10	19/08/10	06/08/10	19/08/10	0			Hoarding & Fencing								
SKW0951	106	20/08/10	03/12/10	20/08/10	03/12/10	0			Excavate to formation								
SKW0961	257	04/12/10	17/08/11	04/03/11	15/11/11	90d			Mass Conc. Retaining Wall								
SKW1491	180	14/09/10	12/03/11	14/09/10	12/03/11	0			Concrete Trough (ChA0+45 - ChA1+75)								
SKW1511	180	13/03/11	08/09/11	13/03/11	08/09/11	0			Twin DN150 DI Rising Main (ChA0+00 - ChA5+79)								
SKW1531	34	09/09/11	12/10/11	09/09/11	12/10/11	0			Extent village sewers S163.1 & S164.1								
SKW1581	34	13/10/11	15/11/11	13/10/11	15/11/11	0			Construct Manhole no. S163 & S164								
Structural Works																	
SKW0971	14	04/12/10	17/12/10	04/12/10	17/12/10	0			Base Slab to -3.2mPD								
SKW0981	14	18/12/10	31/12/10	18/12/10	31/12/10	0			Basement Beam (BBB-1,BBC-1,BBD-1)								
SKW0991	14	01/01/11	14/01/11	01/01/11	14/01/11	0			Wall & Column to +1.5mPD								
SKW1001	14	15/01/11	28/01/11	15/01/11	28/01/11	0			Base Slab (BSC-4) to +3mPD								
SKW1011	14	29/01/11	11/02/11	29/01/11	11/02/11	0			Wall & Column to +5.35mPD								
SKW1021	20	12/02/11	03/03/11	12/02/11	03/03/11	0			Ground Slab								
SKW1031	14	04/03/11	17/03/11	04/03/11	17/03/11	0			Ground Beam								
SKW1041	14	18/03/11	31/03/11	18/03/11	31/03/11	0			Wall & Column to +9.35mPD								
SKW1051	14	01/04/11	14/04/11	01/04/11	14/04/11	0			Roof Beams & Parapet								
SKW1061	90	01/04/11	29/06/11	01/04/11	29/06/11	0			ABWF installation (wet tray/dry tray)								
SKW1081	215	15/04/11	15/11/11	15/04/11	15/11/11	0			375mm U-channel with catchpits								
E&M Works (PS2)																	
Submission & Delivery																	
E&M2001	113	17/05/10	06/09/10	17/05/10	06/09/10	0			Submission of Pumps								
E&M2002	143	17/05/10	06/10/10	17/05/10	06/10/10	0			Submission of Gen-Set								
E&M2003	133	17/05/10	26/09/10	17/05/10	26/09/10	0			Submission of DeO System								
E&M2004	271	17/05/10	11/02/11	17/05/10	11/02/11	0			Submission of LV SB & MCC								
E&M2005	243	17/05/10	14/01/11	17/05/10	14/01/11	0			Submission of Instrumentation								
E&M2006	213	17/05/10	15/12/10	17/05/10	15/12/10	0			Submission of FS System								
E&M2007	213	17/05/10	15/12/10	17/05/10	15/12/10	0			Submission of BS System								
E&M2011	282	07/09/10	15/06/11	07/09/10	15/06/11	0			Delivery of Pumps								
E&M2012	252	07/10/10	15/06/11	07/10/10	15/06/11	0			Delivery of Gen-Set								
E&M2013	262	27/09/10	15/06/11	27/09/10	15/06/11	0			Delivery of DeO System								
E&M2014	62	12/02/11	14/04/11	12/02/11	14/04/11	0			Delivery of LV SB & MCC								
E&M2015	90	15/01/11	14/04/11	15/01/11	14/04/11	0			Delivery of Instrumentation								
E&M2016	120	16/12/10	14/04/11	16/12/10	14/04/11	0			Delivery of FS Equipment								
E&M2017	120	16/12/10	14/04/11	16/12/10	14/04/11	0			Delivery of BS Equipment								
Installation, T&C																	
E&M2101	60	16/06/11	14/08/11	16/06/11	14/08/11	0			Install Pumps								
E&M2102	60	16/06/11	14/08/11	16/06/11	14/08/11	0			Install Gen Set								
E&M2103	60	16/06/11	14/08/11	16/06/11	14/08/11	0			Install DeO System								
E&M2104	60	15/04/11	13/06/11	15/04/11	13/06/11	0			Install LV SB & MCC								
E&M2105	60	15/04/11	13/06/11	15/04/11	13/06/11	0			Install Instrumentation								
E&M2106	60	15/04/11	13/06/11	15/04/11	13/06/11	0			Install FS Equipment								
E&M2107	60	15/04/11	13/06/11	15/04/11	13/06/11	0			Install BS Equipment								
E&M2110	58	15/08/11	11/10/11	15/08/11	11/10/11	0			Install Valves, Pipes & Fittings								
E&M2120	7	12/10/11	18/10/11	12/10/11	18/10/11	0			Hydraulic Test of Pipeworks								
E&M2130	28	19/10/11	15/11/11	19/10/11	15/11/11	0			Form 501 Submission to FSD								
E&M2140	55	14/06/11	07/08/11	14/06/11	07/08/11	0			Cabling Works								
E&M2150	7	08/08/11	14/08/11	08/08/11	14/08/11	0			Insulation Tests of Cables and Cable Termination								
E&M2160	3	15/08/11	17/08/11	15/08/11	17/08/11	0			Energization								
E&M2170	30	18/08/11	16/09/11	18/08/11	16/09/11	0			Functional and Performance Tests of Equipment								
E&M2180	60	17/09/11	15/11/11	17/09/11	15/11/11	0			Commissioning Test								
Section W7 - SKW STW,Sewer and Submarine Outfall																	
Submarine Outfall																	
SKW1131	60	17/05/10	15/07/10	17/05/10	15/07/10	0			Hydrographical Survey (SKW)								
SKW1141	183	16/07/10	14/01/11	16/07/10	14/01/11	0			Water Quality Baseline Monitoring under EP (SKW)								
SKW1151	185	15/01/11	18/07/11	15/01/11	18/07/11	0			Set up Temporary Working Platform								
SKW1161	90	19/07/11	16/10/11	19/07/11	16/10/11	0			Dredging of MD for Diffuser-SKW (PS CL 1.122(3))								
SKW1171	120	17/10/11	13/02/12	17/10/11	13/02/12	0			ELS for HDD Set-up (SKW)								
SKW1181	60	14/02/12	13/04/12	14/02/12	13/04/12	0			Mobilization of HDD plant & equipment to SKW								
SKW1191	30	14/04/12	13/05/12	14/04/12	13/05/12	0			Setting up at drillhole location								
SKW1201	210	14/05/12	09/12/12	14/05/12	09/12/12	0			Drill pilot hole and reaming hole - NS280 - 750m								
SKW1211	180	10/12/12	07/06/13	10/12/12	07/06/13	0			Receiving Pit for HDD (SKW)								
SKW1221	57	08/06/13	03/08/13	08/06/13	03/08/13	0			Installation of NS280 HDPE 450mm dia. pipe								
SKW1231	60	04/08/13	02/10/13	04/08/13	02/10/13	0			Dredging of Marine Deposit for Diffuser								
SKW1241	60	03/10/13	01/12/13	03/10/13	01/12/13	0			Diffuser Construction								
SKW1251	45	02/12/13	15/01/14	02/12/13	15/01/14	0			Removal of Receiving Pit								
SKW1431	30	16/01/14	14/02/14	16/01/14	14/02/14	0			Removal of silt curtain								
SKW STW																	
Submission & Delivery (E&M)																	

Start date	05/05/10	■ Early bar
Finish date	14/02/14	■ Progress bar
Data date	17/05/10	■ Critical bar
Run date	11/08/10	■ Summary bar
Page number	3A	▲ Progress point
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		◆ Summary point
		◆ Start milestone point
		◆ Finish milestone point

Leader Civil Engineering Corp. Ltd.
Contract No. DC/2009/13
Construction of Sewage Treatment Works at YSW & SKW
Works Programme (Rev.



Start date	05/05/10	■ Early bar
Finish date	14/02/14	■ Progress bar
Data date	17/05/10	■ Critical bar
Run date	11/08/10	■ Summary bar
Page number	4A	▲ Progress point
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		◆ Start milestone point
		◆ Finish milestone point

Leader Civil Engineering Corp. Ltd.
Contract No. DC/2009/13
Construction of Sewage Treatment Works at YSW & SKW
Works Programme (Rev. 1)

Date	Revision	Checked	Approved
17/05/10	Revision 0	StL	VC
31/07/10	Revision 1	StL	VC

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2011	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			KD0125											
KD0050	Section W3 - Footpath Diversion in Ptn G (273d)	0	100		24/03/11 A		24/03/11 A			KD0125											
KD0115	Start Operate Temp Sewage Treatment in Port. A&H	0	0		02/06/12		30/06/11 *	-338d *	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	80	19/11/11 A	05/02/12	19/11/11 A	30/11/11	-67d	E&M0103	E&M0450, E&M3100											
E&M0190	Approval on Penstocks	30	100	15/11/11 A	15/11/11 A	15/11/11 A	15/11/11 A		E&M0103	E&M0460, E&M3110											
E&M0200	Approval on Instrumentation	30	100	21/06/11 A	21/06/11 A	21/06/11 A	21/06/11 A		E&M0103	E&M0470, E&M3130											
E&M0210	Approval on MCC & LVSB	30	90	19/11/11 A	02/02/12	19/11/11 A	01/04/11	-307d	E&M0103	E&M0480, E&M3140											
E&M0220	Approval on BS Equipment	30	50	30/11/11 A	26/02/12	30/11/11 A	04/10/11	-145d	E&M0103, E&M0280	E&M0490, E&M3150											
E&M0230	Approval on FS Equipment	30	70	30/11/11 A	03/03/12	30/11/11 A	01/11/11	-123d	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	90	04/08/10 A	04/02/12	04/08/10 A	06/11/11	-90d	E&M0040	E&M0250, E&M0280, E&M0290											
E&M0250	Sub. Builder's Works Requirements Drawings	15	90	04/08/10 A	07/02/12	04/08/10 A	07/11/11	-92d	E&M0240, E&M0260, E&M0270	E&M0280, E&M0290											
E&M0260	Sub. Mechanical Installation Drawings	60	90	27/09/10 A	05/02/12	27/09/10 A	06/11/11	-92d	E&M0040	E&M0250											
E&M0270	Sub. Electrical Installation Drawings	60	90	27/09/10 A	05/02/12	27/09/10 A	06/11/11	-92d	E&M0040	E&M0250, E&M0280											
E&M0280	Sub. BS Installation Drawings	120	90	27/09/10 A	11/02/12	27/09/10 A	19/09/11	-145d	E&M0240, E&M0250, E&M0270	E&M0220											
E&M0290	Sub. FS Installation Drawings	120	80	13/11/10 A	23/02/12	13/11/10 A	23/10/11	-123d	E&M0240, E&M0250	E&M0230											
Statutory Submission																					

Start date	05/05/10	█ Early bar
Finish date	24/02/15	█ Progress bar
Data date	31/01/12	█ Critical bar
Run date	15/02/12	█ Summary bar
Page number	1A	▲ Progress point
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		▲ Summary point
		▲ Start milestone point
		▲ Finish milestone point

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

(Marked on 31 Jan 2012)

Date	Revision	Checked	Approved
31/01/12	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
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	18/03/12	01/11/11 A	05/01/12	-73d	E&M0295	E&M0305							
E&M0305	Provision of Cables to the STWs	180	0	19/03/12	14/09/12	06/01/12	03/07/12	-73d	E&M0300	E&M0680							
E&M0320	Form 314 Submission to FSD	14	0	04/03/12	17/03/12	25/04/12	08/05/12	52d	E&M0230	E&M0325, E&M0670							
E&M0325	Submission to WSD	14	70	01/11/11 A	21/03/12	01/11/11 A	12/05/12	52d	E&M0320	E&M0670, E&M0680							
E&M0350	Form 501 Submission to FSD (PS1 & PS2)	28	0	07/05/12	04/06/12	16/01/15	24/02/15	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	YSW0152, YSW0500, YSW0610,							
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 W2 - 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 Str)	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 Str)	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	90	06/07/11 A	02/02/12	06/07/11 A	01/07/11	-216d	YSW0570	YSW0590							
YSW0590	G/F to 1/F construction	50	70	29/09/11 A	17/02/12	29/09/11 A	16/07/11	-216d	YSW0580	YSW0600							
YSW0600	1/F to Roof construction	50	60	01/11/11 A	08/03/12	01/11/11 A	05/08/11	-216d	YSW0590	YSW0720, YSW0800							
YSW0720	Water Test	36	0	09/03/12	13/04/12	06/08/11	10/09/11	-216d	YSW0600	E&M0530, E&M0540, E&M0550,							
YSW0800	ABWF installation	36	0	09/03/12	13/04/12	06/08/11	10/09/11	-216d	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	01/02/12	20/07/11 A	26/08/11	-160d	YSW0630	YSW0810, YSW0840							
YSW0810	ABWF installation	86	5	02/01/12 A	21/04/12	02/01/12 A	25/09/11	-209d	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	31/01/12	19/02/12	27/02/11	18/03/11	-338d	YSW0690	YSW0710							
YSW0710	Water test	14	0	20/02/12	04/03/12	19/03/11	01/04/11	-338d	YSW0700	E&M0510, E&M0630, E&M0640							
YSW0820	ABWF installation	34	0	31/01/12	04/03/12	27/02/11	01/04/11	-338d	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	0	31/01/12	21/02/12	03/07/11	25/07/11	-212d	YSW0730	YSW0750							
YSW0750	Sub-structure construction (outfall shaft)	22	0	22/02/12	14/03/12	25/07/11	16/08/11	-212d	YSW0740	YSW0760							
YSW0760	Backfill & remove ELS (outfall shaft)	24	0	15/03/12	07/04/12	16/08/11	09/09/11	-212d	YSW0750	YSW0770, YSW1470							
YSW0770	Excavate to formation by open cut	22	10	30/01/12 A	27/04/12	30/01/12 A	28/09/11	-212d	YSW0760	YSW0780							
YSW0780	Base slab construction	21	0	27/04/12	18/05/12	29/09/11	19/10/11	-212d	YSW0770	YSW0790							
YSW0790	Superstructure construction upto +10.5mPD	30	0	18/05/12	17/06/12	20/10/11	18/11/11	-212d	YSW0780	YSW0795, YSW0870							
YSW0795	Apply protective paint	30	0	17/06/12	17/07/12	19/11/11	18/12/11	-212d	YSW0790	YSW0830							

Start date	05/05/10		Early bar
Finish date	24/02/15		Progress bar
Data date	31/01/12		Critical bar
Run date	15/02/12		Summary bar
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			Critical point
			Summary point
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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 (Feb 2012 - Apr 2012)

(Marked on 31 Jan 2012)

Date	Revision	Checked	Approved
31/01/12	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
YSW0870	ABWF installation	60	0	17/06/12	16/08/12	28/12/11	25/02/12	-173d	YSW0790	E&M0520, E&M0605, E&M0630,							
Fire Hose Reel / Sprinkler Pump Rm																	
YSW0840	ELS & excavate to formation (+0 mPD approx.)	30	0	01/02/12	02/03/12	01/09/11	30/09/11	-154d	YSW0035, YSW0422, YSW0640	YSW0860							
YSW0860	Sub-structure construction	30	0	02/03/12	01/04/12	01/10/11	30/10/11	-154d	YSW0840	YSW0880							
YSW0880	Backfill & remove ELS	30	0	01/04/12	01/05/12	31/10/11	29/11/11	-154d	YSW0860	YSW0890							
YSW0890	Construction Ground Slab at +5.2mPD	30	0	01/05/12	31/05/12	30/11/11	29/12/11	-154d	YSW0880	YSW0900, YSW0930							
YSW0900	Superstructure construction upto +8.2mPD	35	0	31/05/12	05/07/12	30/12/11	02/02/12	-154d	YSW0890	YSW0910, YSW0925							
YSW0930	Construction of Gurad House	60	0	31/05/12	30/07/12	06/05/12	04/07/12	-26d	YSW0890	E&M0690, KD0040							
Emergency Storage Tank																	
YSW1470	ELS & excavate to formation (-1.5mPD Approx.)	30	0	08/04/12	07/05/12	07/11/11	06/12/11	-153d	YSW0035, YSW0760	YSW1480							
YSW1480	Sub-structure construction	40	0	08/05/12	16/06/12	07/12/11	15/01/12	-153d	YSW1470	YSW1490							
YSW1490	Backfill & extract sheetpile	30	0	17/06/12	16/07/12	16/01/12	14/02/12	-153d	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	02/04/12	24/08/11 A	05/01/12	-88d	YSW0153	YSW0155							
YSW0155	RC Concrete Barrier (above Ground Level)	120	0	03/04/12	31/07/12	06/01/12	04/05/12	-88d	YSW0154	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	31/01/12	29/02/12	20/07/13	18/08/13	536d	YSW0360	YSW0370							
YSW0370	Dredging of Marine Deposit for Diffuser (YSW)	60	0	01/03/12	29/04/12	19/08/13	17/10/13	536d	YSW0360, YSW0365	YSW0380							
YSW0380	Diffuser Construction (YSW)	60	0	30/04/12	28/06/12	18/10/13	16/12/13	536d	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	29/04/12	01/09/11 A	28/09/11	-214d	E&M0170	E&M0580							
E&M0450	Delivery of Valves, Pipes & Fittings	180	70	30/08/11 A	30/03/12	30/08/11 A	23/01/12	-67d	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	03/02/12	28/07/12	02/04/11	25/09/11	-307d	E&M0210	E&M0620							
E&M0490	Delivery of BS Equipment	180	20	11/12/11 A	19/07/12	11/12/11 A	25/02/12	-145d	E&M0220	E&M0630							
E&M0500	Delivery FS Equipment	180	20	11/12/11 A	25/07/12	11/12/11 A	24/03/12	-123d	E&M0230	E&M0640							
E&M0510	Install Membrane Modules in MBR Tank no. 4	90	0	05/03/12	02/06/12	02/04/11	30/06/11	-338d	E&M0360, YSW0710, YSW0820	KD0115							
E&M0540	Install Coarse Screens	75	0	14/04/12	27/06/12	11/09/11	24/11/11	-216d	E&M0390, YSW0720, YSW0800	E&M0530, E&M0550, E&M0570,							
E&M0560	Install Pumps	90	0	14/04/12	12/07/12	11/09/11	09/12/11	-216d	E&M0410, YSW0720, YSW0800	E&M0570, E&M0590, E&M0660							

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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 (Feb 2012 - Apr 2012)

Date	Revision	Checked	Approved
31/01/12	Revision 0	RH	VC

(Marked on 31 Jan 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	
E&M0580	Install Sludge Dewatering Equipment	280	0	30/04/12	03/02/13	29/09/11	04/07/12	-214d	E&M0440, YSW0720, YSW0800	E&M0690													
E&M0600	Install Penstocks (Batch 1, GL H - T)	180	0	14/04/12	10/10/12	07/01/12	04/07/12	-98d	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	SKW0265, SKW0592, SKW0681,													
SKW0265	Baseline Monitoring Submission (A & N)	14	100	16/06/10 A	08/07/10 A	16/06/10 A	08/07/10 A		SKW0260	SKW0592, SKW0681, SKW0921,													
Section W 4 - 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	10	02/01/12 A	25/02/12	02/01/12 A	17/06/11	-252d	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	29/02/12	04/05/11 A	19/05/11	-286d	SKW05934, SKW05940	SKW05942													
SKW05942	Slope Drainage & Misc. (+35 to +20mPD)	58	50	01/11/11 A	29/03/12	01/11/11 A	17/06/11	-286d	SKW05936, SKW05941	SKW05943													
SKW05943	Slope Drainage & Misc. (+20 to +5mPD)	59	0	30/03/12	27/05/12	18/06/11	15/08/11	-286d	SKW05938, SKW05942	KD0060													
SKW0595	Rock Meshing & Rockfall Fence	260	0	31/01/12	16/10/12	29/11/10	15/08/11	-428d	SKW05932	KD0060													
Section W 5 - 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	100	18/01/12 A	31/01/12	18/01/12 A	31/01/12		SKW0831	E&M1101, E&M1102, E&M1103,													
SKW0861	300mm U-channel & 675mm Step Channel	168	0	31/01/12	16/07/12	01/06/11	15/11/11	-244d	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													
E&M1002	Submission of Gen-Set	198	100	17/05/10 A	24/02/11 A	17/05/10 A	24/02/11 A			E&M1012													
E&M1003	Submission of DeO System	198	100	17/05/10 A	11/07/11 A	17/05/10 A	11/07/11 A			E&M1013													
E&M1004	Submission of LV SB & MCC	180	95	17/05/10 A	08/02/12	17/05/10 A	02/12/10	-433d		E&M1014													
E&M1005	Submission of Instrumentation	243	95	17/05/10 A	12/02/12	17/05/10 A	01/05/11	-286d		E&M1015													
E&M1006	Submission of FS System	243	95	17/05/10 A	12/02/12	17/05/10 A	05/02/11	-372d		E&M1016													

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 Contract No. DC/2009/13
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Date	Revision	Checked	Approved
31/01/12	Revision 0	RH	VC

(Marked on 31 Jan 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
E&M1007	Submission of BS System	243	95	17/05/10 A	12/02/12	17/05/10 A	16/02/11	-361d		E&M1017							
E&M1011	Delivery of Pumps	150	100	24/02/11 A	21/07/11 A	24/02/11 A	21/07/11 A		E&M1001	E&M1101							
E&M1012	Delivery of Gen-Set	150	100	24/02/11 A	23/09/11 A	24/02/11 A	23/09/11 A		E&M1002	E&M1102							
E&M1013	Delivery of DeO System	150	100	11/07/11 A	28/10/11 A	11/07/11 A	28/10/11 A		E&M1003	E&M1103							
E&M1015	Delivery of Instrumentation	90	100	01/11/11 A	03/11/11 A	01/11/11 A	03/11/11 A		E&M1005	E&M1105							
E&M1016	Delivery of FS Equipment	107	20	01/12/11 A	07/05/12	01/12/11 A	01/05/11	-372d	E&M1006	E&M1106							
E&M1017	Delivery of BS Equipment	107	30	15/11/11 A	26/04/12	15/11/11 A	01/05/11	-361d	E&M1007	E&M1107							
Installation, T&C																	
E&M1101	Install Pumps	55	0	31/01/12	25/03/12	02/05/11	25/06/11	-274d	E&M1011, SKW0831, SKW0841	E&M1110, E&M1140							
E&M1102	Install Gen Set	55	0	31/01/12	25/03/12	02/05/11	25/06/11	-274d	E&M1012, SKW0831, SKW0841	E&M1110, E&M1140							
E&M1103	Install DeO System	55	0	31/01/12	25/03/12	02/05/11	25/06/11	-274d	E&M1013, SKW0831, SKW0841	E&M1110, E&M1140							
E&M1105	Install Instrumentation	55	0	12/02/12	07/04/12	02/05/11	25/06/11	-286d	E&M1015, SKW0831, SKW0841	E&M1140							
E&M1106	Install FS Equipment	55	0	07/05/12	01/07/12	02/05/11	25/06/11	-372d	E&M1016, SKW0831, SKW0841	E&M1130, E&M1140							
E&M1107	Install BS Equipment	55	0	27/04/12	20/06/12	02/05/11	25/06/11	-361d	E&M1017, SKW0831, SKW0841	E&M1110, E&M1140							
Section W6 - Sewer and PS No.2 in Portions E&H																	
Civil & Geotechnical Works																	
SKW0881	Site Clearance	7	100	17/05/10 A	23/05/10 A	17/05/10 A	23/05/10 A		KD0020	SKW0891							
SKW0891	Plant mobilization	7	100	17/05/10 A	23/05/10 A	17/05/10 A	23/05/10 A		SKW0881	SKW0892							
SKW0892	Initial Survey	30	100	24/05/10 A	22/06/10 A	24/05/10 A	22/06/10 A		SKW0891	SKW0901							
SKW0901	Tree Transplantation	30	100	23/06/10 A	22/07/10 A	23/06/10 A	22/07/10 A		SKW0892	SKW0921							
SKW0921	Cut Slope & U-Channel	14	100	23/07/10 A	31/01/11 A	23/07/10 A	31/01/11 A		SKW0260, SKW0265, SKW0901	SKW0931, SKW0951							
SKW0931	Hoarding & Fencing	14	100	15/09/10 A	07/10/10 A	15/09/10 A	07/10/10 A		SKW0921	SKW0951							
SKW0951	Excavate to formation	106	100	04/10/10 A	13/06/11 A	04/10/10 A	13/06/11 A		SKW0921, SKW0931	SKW0961, SKW0971							
SKW0961	Mass Conc. Retaining Wall	257	0	31/01/12	13/10/12	04/03/11	15/11/11	-333d	SKW0951	KD0080							
SKW1491	Concrete Trough (ChA0+45 - ChA1+75)	180	100	01/03/11 A	31/08/11 A	01/03/11 A	31/08/11 A		PRE0100	SKW1511							
SKW15111	Twin DN150 DI Rising Main (ChA0+45 - ChA5+79)	150	95	16/05/11 A	07/02/12	16/05/11 A	09/08/11	-182d	SKW1491	SKW1531							
SKW15112	Twin DN150 DI Rising Main (ChA0+00 - ChA0+45)	30	0	15/04/12	15/05/12	17/10/11	15/11/11	-182d	SKW1581	KD0080							
SKW1531	Extent village sewers S163.1 & S164.1	34	0	07/02/12	12/03/12	10/08/11	12/09/11	-182d	SKW15111	SKW1581							
SKW1581	Construct Manhole no. S163 & S164	34	0	12/03/12	15/04/12	13/09/11	16/10/11	-182d	SKW1531	KD0080, SKW15112							
Structural Works																	
SKW0971	Base Slab to -3.2mPD	14	100	02/05/11 A	31/08/11 A	02/05/11 A	31/08/11 A		SKW0951	SKW0981							
SKW0981	Basement Beam (BBB-1,BBC-1,BBD-1)	14	100	01/09/11 A	15/10/11 A	01/09/11 A	15/10/11 A		SKW0971	SKW0991							
SKW0991	Wall & Column to +1.5mPD	14	100	15/10/11 A	31/10/11 A	15/10/11 A	31/10/11 A		SKW0981	SKW1001							
SKW1001	Base Slab (BSC-4) to +3mPD	14	100	01/11/11 A	30/11/11 A	01/11/11 A	30/11/11 A		SKW0991	SKW1011							
SKW1011	Wall & Column to +5.35mPD	14	100	02/01/12 A	31/01/12 A	02/01/12 A	31/01/12 A		SKW1001	SKW1021							
SKW1021	Ground Slab	20	10	31/01/12 A	17/02/12	31/01/12 A	03/03/11	-351d	SKW1011	SKW1031							
SKW1031	Ground Beam	14	0	18/02/12	02/03/12	04/03/11	17/03/11	-351d	SKW1021	SKW1041							
SKW1041	Wall & Column to +9.35mPD	14	0	03/03/12	16/03/12	18/03/11	31/03/11	-351d	SKW1031	SKW1051							
SKW1051	Roof Beams & Parapet	14	0	17/03/12	30/03/12	01/04/11	14/04/11	-351d	SKW1041	E&M2101, E&M2102, E&M2103,							
SKW1061	ABWF installation (wet tray/dry tray)	90	0	17/03/12	14/06/12	18/04/11	16/07/11	-334d	SKW1051	E&M2101, E&M2102, E&M2103,							
SKW1081	375mm U-channel with catchpits	215	0	31/03/12	31/10/12	15/04/11	15/11/11	-351d	SKW1051	KD0080							
E&M Works (PS2)																	
Submission & Delivery																	
E&M2001	Submission of Pumps	198	100	17/05/10 A	24/02/11 A	17/05/10 A	24/02/11 A		KD0020	E&M2011							
E&M2002	Submission of Gen-Set	198	100	17/05/10 A	24/02/11 A	17/05/10 A	24/02/11 A			E&M2012							
E&M2003	Submission of DeO System	198	100	17/05/10 A	11/07/11 A	17/05/10 A	11/07/11 A			E&M2013							
E&M2004	Submission of LV SB & MCC	271	95	17/05/10 A	13/02/12	17/05/10 A	13/02/11	-365d		E&M2014							
E&M2005	Submission of Instrumentation	243	95	17/05/10 A	12/02/12	17/05/10 A	01/05/11	-286d		E&M2015							
E&M2006	Submission of FS System	243	95	17/05/10 A	12/02/12	17/05/10 A	05/02/11	-372d		E&M2016							
E&M2007	Submission of BS System	243	95	17/05/10 A	12/02/12	17/05/10 A	16/02/11	-361d		E&M2017							
E&M2011	Delivery of Pumps	150	100	24/02/11 A	21/07/11 A	24/02/11 A	21/07/11 A		E&M2001	E&M2101							
E&M2012	Delivery of Gen-Set	150	100	24/02/11 A	23/09/11 A	24/02/11 A	23/09/11 A		E&M2002	E&M2102							
E&M2013	Delivery of DeO System	150	100	11/07/11 A	28/10/11 A	11/07/11 A	28/10/11 A		E&M2003	E&M2103							
E&M2014	Delivery of LV SB & MCC	150	0	31/01/12	28/06/12	03/12/10	01/05/11	-424d	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	07/05/12	01/12/11 A	01/05/11	-372d	E&M2006	E&M3050, E&M2106							

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											DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
E&M2017	Delivery of BS Equipment	107	30	15/01/11 A	26/04/12	15/01/11 A	01/05/11	-361d	E&M2007	E&M2107												
Installation, T&C																						
E&M2101	Install Pumps	55	0	31/03/12	24/05/12	03/07/11	26/08/11	-272d	E&M2011, SKW1051, SKW1061	E&M2110												
E&M2102	Install Gen Set	55	0	31/03/12	24/05/12	03/07/11	26/08/11	-272d	E&M2012, SKW1051, SKW1061	E&M2110												
E&M2103	Install DeO System	55	0	31/03/12	24/05/12	03/07/11	26/08/11	-272d	E&M2013, SKW1051, SKW1061	E&M2110												
E&M2105	Install Instrumentation	55	0	31/03/12	24/05/12	02/05/11	25/06/11	-334d	E&M2015, SKW1051, SKW1061	E&M2140												
E&M2106	Install FS Equipment	55	0	07/05/12	01/07/12	02/05/11	25/06/11	-372d	E&M2016, SKW1051, SKW1061	E&M2140												
E&M2107	Install BS Equipment	55	0	27/04/12	20/06/12	02/05/11	25/06/11	-361d	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	10	16/01/12 A	25/07/12	16/01/12 A	23/01/13	183d	SKW1191	SKW1211												
SKW1211	Receiving Pit for HDD (SKW)	180	50	16/01/12 A	23/10/12	16/01/12 A	23/04/13	183d	SKW1201	SKW1221												
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	14/05/12	01/09/11 A	12/02/12	-92d	E&M0170	E&M3240												
E&M3100	Delivery of Valves, Pipes & Fittings	180	70	30/08/11 A	30/03/12	30/08/11 A	06/06/14	798d	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	03/02/12	31/07/12	09/05/11	04/11/11	-270d	E&M0210	E&M3261												
E&M3150	Delivery of BS Equipment	180	0	27/02/12	24/08/12	24/12/13	21/06/14	666d	E&M0220	E&M3291												
E&M3160	Delivery of FS Equipment	180	0	04/03/12	30/08/12	14/01/12	11/07/12	-50d	E&M0230	E&M0340, E&M3300												
Construction of Grid A-G																						
SKW1261	Excavate for SKW STW Structure (Grid A -G)	164	35	30/07/11 A	16/05/12	30/07/11 A	27/07/11	-294d		SKW1271, SKW1371												
SKW1271	55 M3 Fire Sprinkle Water Tank (FL +0.9 mPD)	25	0	16/05/12	10/06/12	28/07/11	21/08/11	-294d	SKW1261	SKW1281												
Construction of Grid G-N																						
SKW1321	Equalization Tank no.1 & 2 with base slabs (-2.1	35	0	31/01/12	05/03/12	04/08/11	07/09/11	-180d		SKW1331												
SKW1331	Columns & Walls from B/S to G/F Slab (Grid G-N)	35	0	06/03/12	09/04/12	08/09/11	12/10/11	-180d	SKW1321	SKW1341												
SKW1341	Ground Floor Slab (Grid G-N)	35	0	10/04/12	14/05/12	13/10/11	16/11/11	-180d	SKW1331	SKW1351												
SKW1351	Columns & Walls to 1/F & 1/F Slab (Grid G-N)	18	0	15/05/12	01/06/12	17/11/11	04/12/11	-180d	SKW1341	SKW1361												
SKW1361	Columns & Walls to R/F & R/F Slab (Grid G-N)	24	0	02/06/12	25/06/12	05/12/11	28/12/11	-180d	SKW1351	E&M3170, E&M3190, E&M3210,												
Construction of Grid N-T																						
SKW1371	Excavate for SKW STW Structure (Grid N-T)	80	0	16/05/12	04/08/12	28/07/11	15/10/11	-294d	SKW05938, SKW1261	SKW1381												
SKW STP - E&M Works																						
E&M3220	Install Pumps	75	0	31/01/12	14/04/12	29/12/11	12/03/12	-33d	E&M3070	E&M3230, E&M3250, E&M3260,												
E&M3230	Install Submersible Mixers	45	0	15/04/12	29/05/12	13/03/12	26/04/12	-33d	E&M3080, E&M3220	E&M3250, E&M3260, E&M3311,												
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	75	15/08/11 A	02/04/12	15/08/11 A	16/03/12	-17d	SKW1501	SKW1541												
SKW1541	DN250 DI Pipe (ChC0+00 - ChC0+35 Connection Pit)	208	0	02/04/12	27/10/12	17/03/12	10/10/12	-17d	SKW1521	SKW1561												
Section W8 - 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	73	17/05/10 A	08/09/12	17/05/10 A	15/08/12	-24d	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													

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											2011 DEC	JAN	FEB	MAR	APR	MAY	JUN
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			KD0125							
KD0050	Section W3 - Footpath Diversion in Ptn G (273d)	0	100		24/03/11 A		24/03/11 A			KD0125							
KD0115	Start Operate Temp Sewage Treatment in Port. A&H	0	0		02/06/12		30/06/11 *	-338d *	E&M0510	KD0125							◆
+Preliminary (Civil)																	
		191	100	17/05/10 A	23/11/10 A	17/05/10 A	23/11/10 A		KD0020								
Preliminary (E&M)																	
Technical Submission																	
+Process Design of SKWSTW & YSWSTW																	
		563	100	17/05/10 A	30/11/11 A	17/05/10 A	30/11/11 A										
+Hydraulic Design																	
		563	100	17/05/10 A	30/11/11 A	17/05/10 A	30/11/11 A										
+Equipment Submission & Approval																	
		657	96	17/05/10 A	03/03/12	17/05/10 A	30/11/11	-94d									
+Drawings Submission & Approval																	
		610	90	24/06/10 A	23/02/12	24/06/10 A	07/11/11	-108d									
+Statutory Submission																	
		286	43	01/11/11 A	14/09/12	01/11/11 A	24/02/15	825d									
Yung Shue Wan																	
+Preliminary																	
		229	100	17/05/10 A	31/12/10 A	17/05/10 A	31/12/10 A										
Section W 2 - YSW STW & Submarine Outfall																	
+Civil & Structural Work																	
		823	54	17/05/10 A	16/08/12	17/05/10 A	04/07/12	-43d									
+Submarine Outfall																	
		774	86	17/05/10 A	28/06/12	17/05/10 A	16/12/13	536d									
+E&M Works - YSW STP																	
		711	57	24/02/11 A	03/02/13	24/02/11 A	04/07/12	-214d									
Sok Kwu Wan																	
+Preliminary																	
		53	100	17/05/10 A	08/07/10 A	17/05/10 A	08/07/10 A										
Section W 4 - Slope Works in Portions H & I																	
+Geotechnical Works																	
		855	59	15/06/10 A	16/10/12	15/06/10 A	31/01/12	-428d									
Section W 5 - P.S. No. 1 in Portion D																	
+Civil & Geotechnical Works																	
		319	100	17/05/10 A	31/03/11 A	17/05/10 A	31/03/11 A										
+Structural Works																	
		454	53	20/04/11 A	16/07/12	20/04/11 A	31/01/12	-244d									
E&M Works (PS1)																	
+Submission & Delivery																	
		722	91	17/05/10 A	07/05/12	17/05/10 A	03/11/11	-372d									
+Installation, T&C																	
		153	0	31/01/12	01/07/12	02/05/11	25/06/11	-372d									
Section W 6 - Sewer and PS No.2 in Portions E&H																	
+Civil & Geotechnical Works																	
		881	59	17/05/10 A	13/10/12	17/05/10 A	15/11/11	-333d									
+Structural Works																	
		549	17	02/05/11 A	31/10/12	04/03/11 A	31/01/12	-351d									
E&M Works (PS2)																	
+Submission & Delivery																	
		774	86	17/05/10 A	28/06/12	17/05/10 A	03/11/11	-424d									
+Installation, T&C																	

Start date	05/05/10		Early bar
Finish date	24/02/15		Progress bar
Data date	31/01/12		Critical bar
Run date	15/02/12		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 (Feb 2012 - Apr 2012)

(Marked on 31 Jan 2012)

Date	Revision	Checked	Approved
31/01/12	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
		93	0	31/03/12	01/07/12	02/05/11	26/08/11	-310d									
Section W7 - SKW STW ,Sewer and Submarine Outfall																	
+Submarine Outfall																	
		890	82	17/05/10 A	23/10/12	17/05/10 A	23/04/13	183d									
SKW STW																	
+Submission & Delivery (E&M)																	
		554	66	24/02/11 A	30/08/12	24/02/11 A	21/06/14	660d									
+Construction of Grid A-G																	
		317	30	30/07/11 A	10/06/12	28/07/11 A	21/08/11	-294d									
+Construction of Grid G-N																	
		147	0	31/01/12	25/06/12	04/08/11	28/12/11	-180d									
+Construction of Grid N-T																	
		80	0	16/05/12	04/08/12	28/07/11	15/10/11	-294d									
+SKW STP - E&M Works																	
		120	0	31/01/12	29/05/12	29/12/11	26/04/12	-33d									
+Rising Main																	
		895	69	17/05/10 A	27/10/12	17/05/10 A	10/10/12	-17d									
+Section W8 - Landscape Softworks in All Portions																	
		846	75	17/05/10 A	08/09/12	17/05/10 A	15/08/12	-24d									

Start date	05/05/10		Early bar
Finish date	24/02/15		Progress bar
Data date	31/01/12		Critical bar
Run date	15/02/12		Summary bar
Page number	2A		Progress point
			Critical point
			Summary point
			Start milestone point
			Finish milestone point

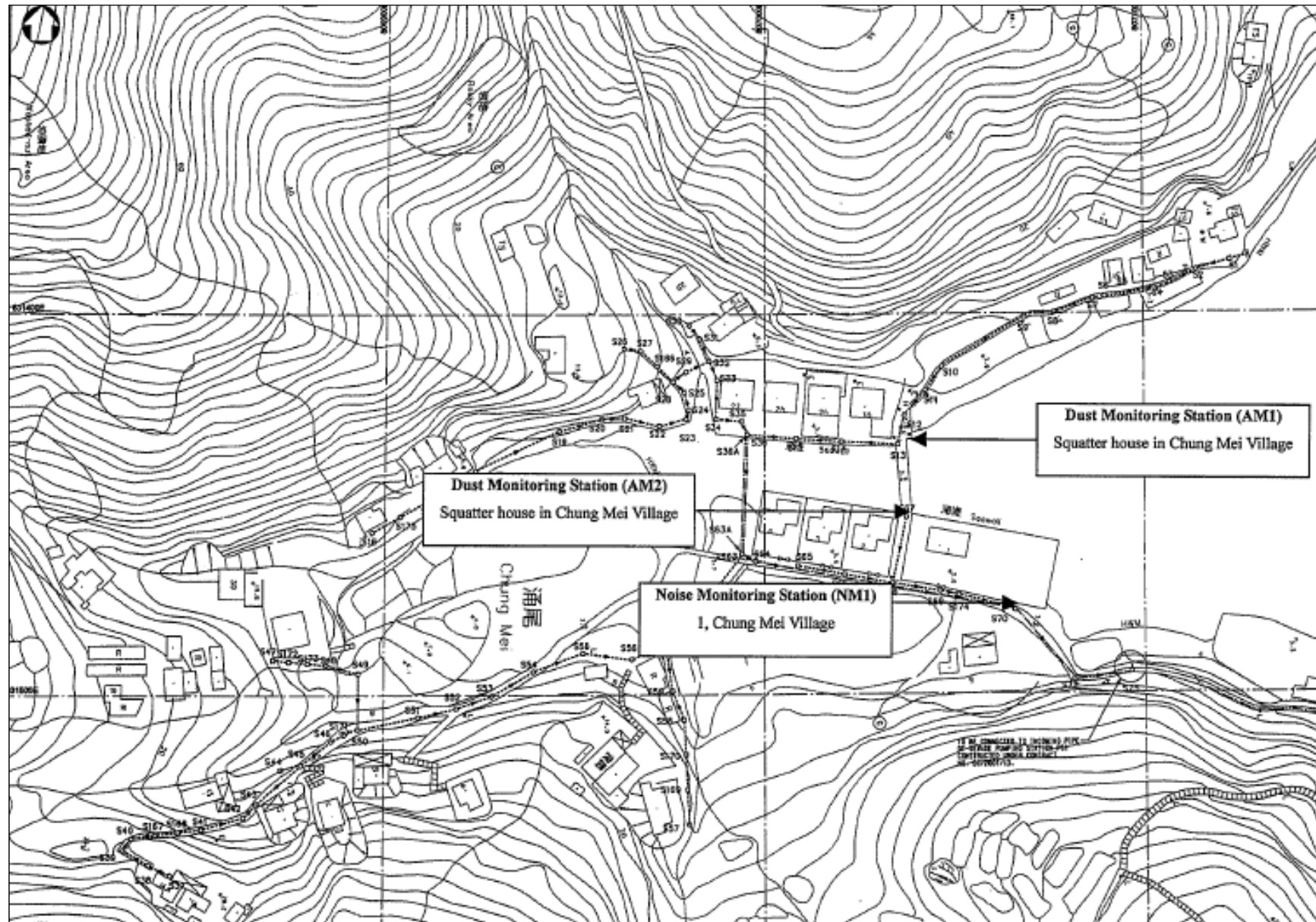
Leader Civil Engineering Corp. Ltd.
Contract No. DC/2009/13
Construction of Sewage Treatment Works at YSW & SKW
3-month Rolling Programme (Feb 2012 - Apr 2012)

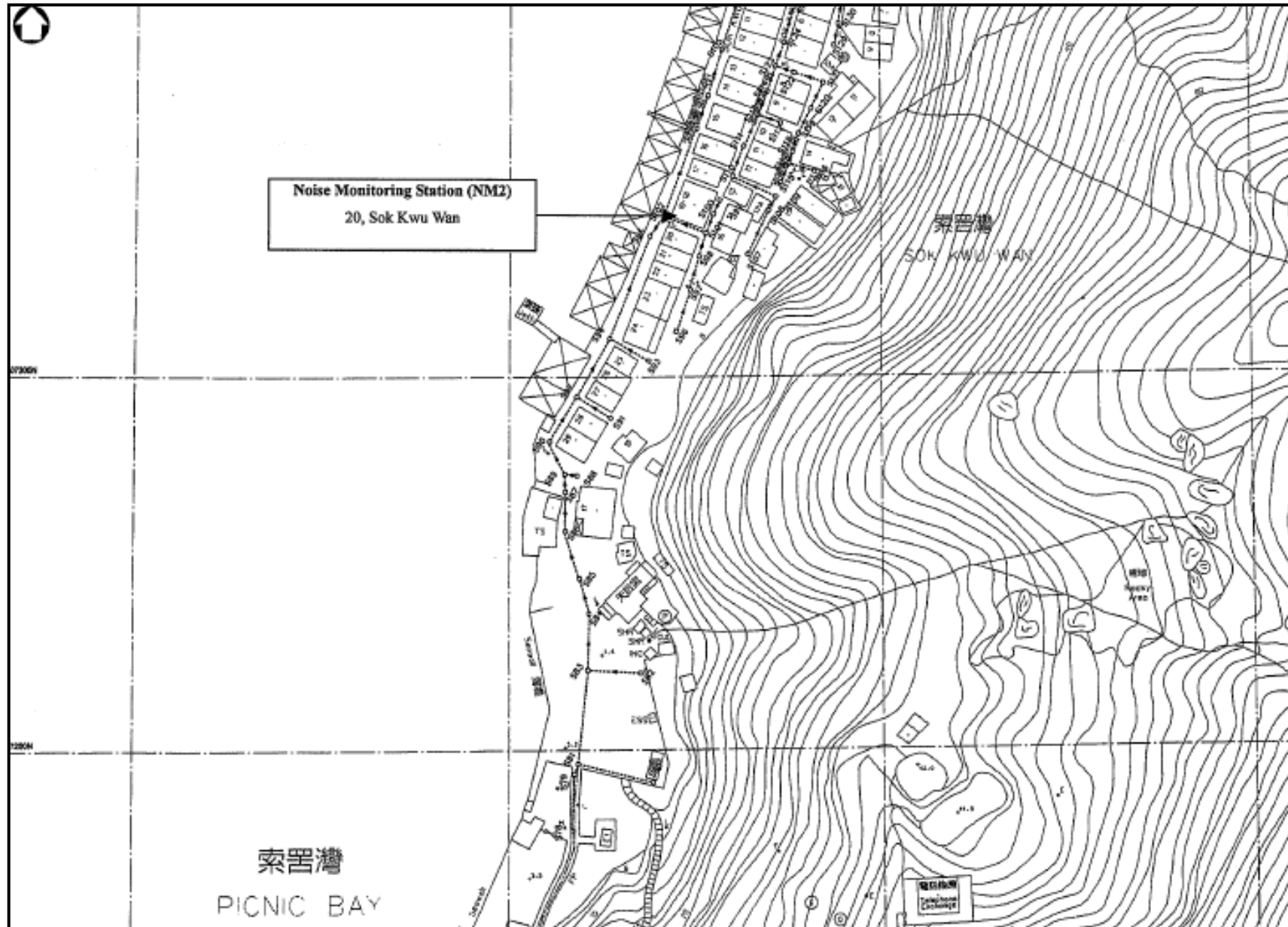
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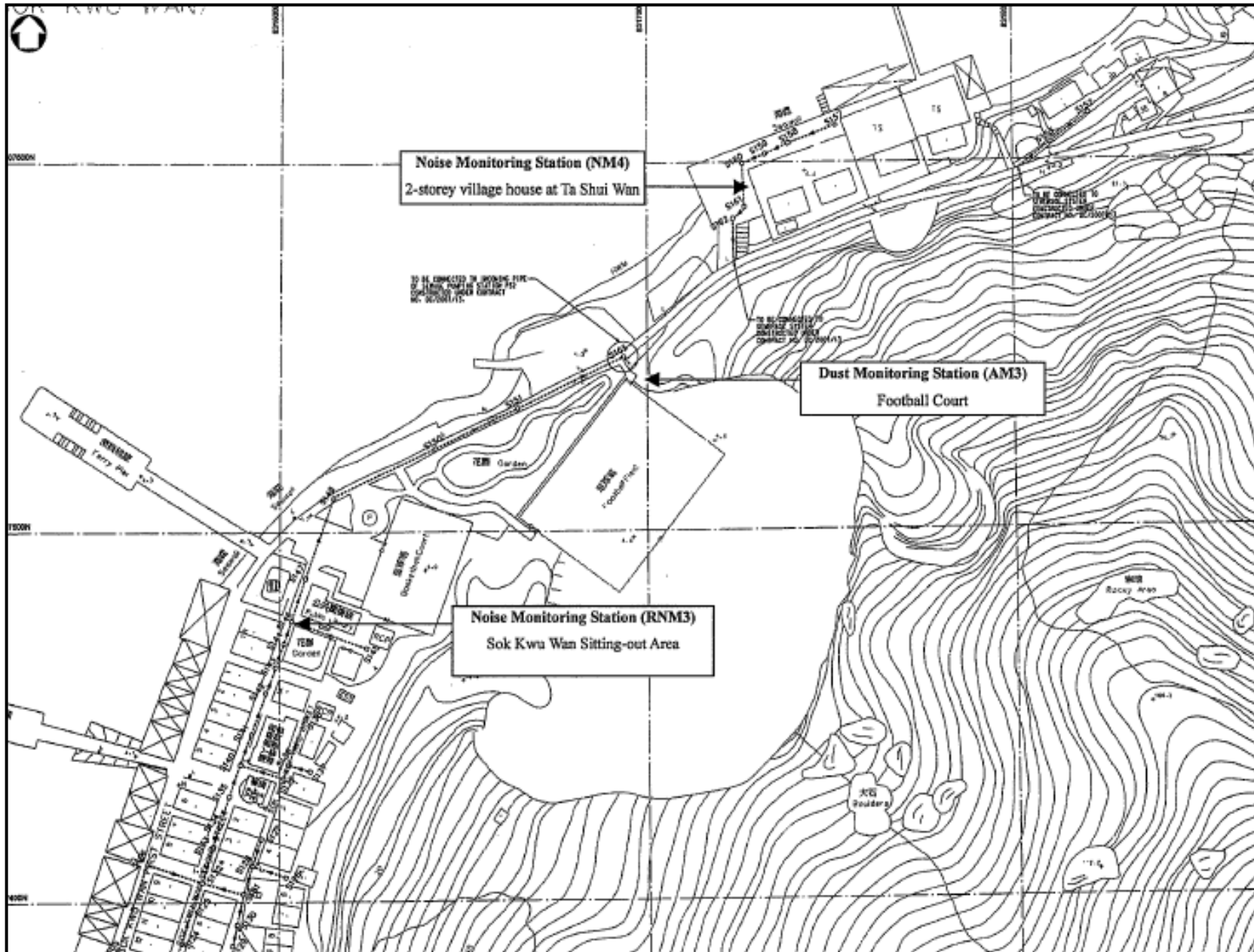
Date	Revision	Checked	Approved
31/01/12	Revision 0	RH	VC

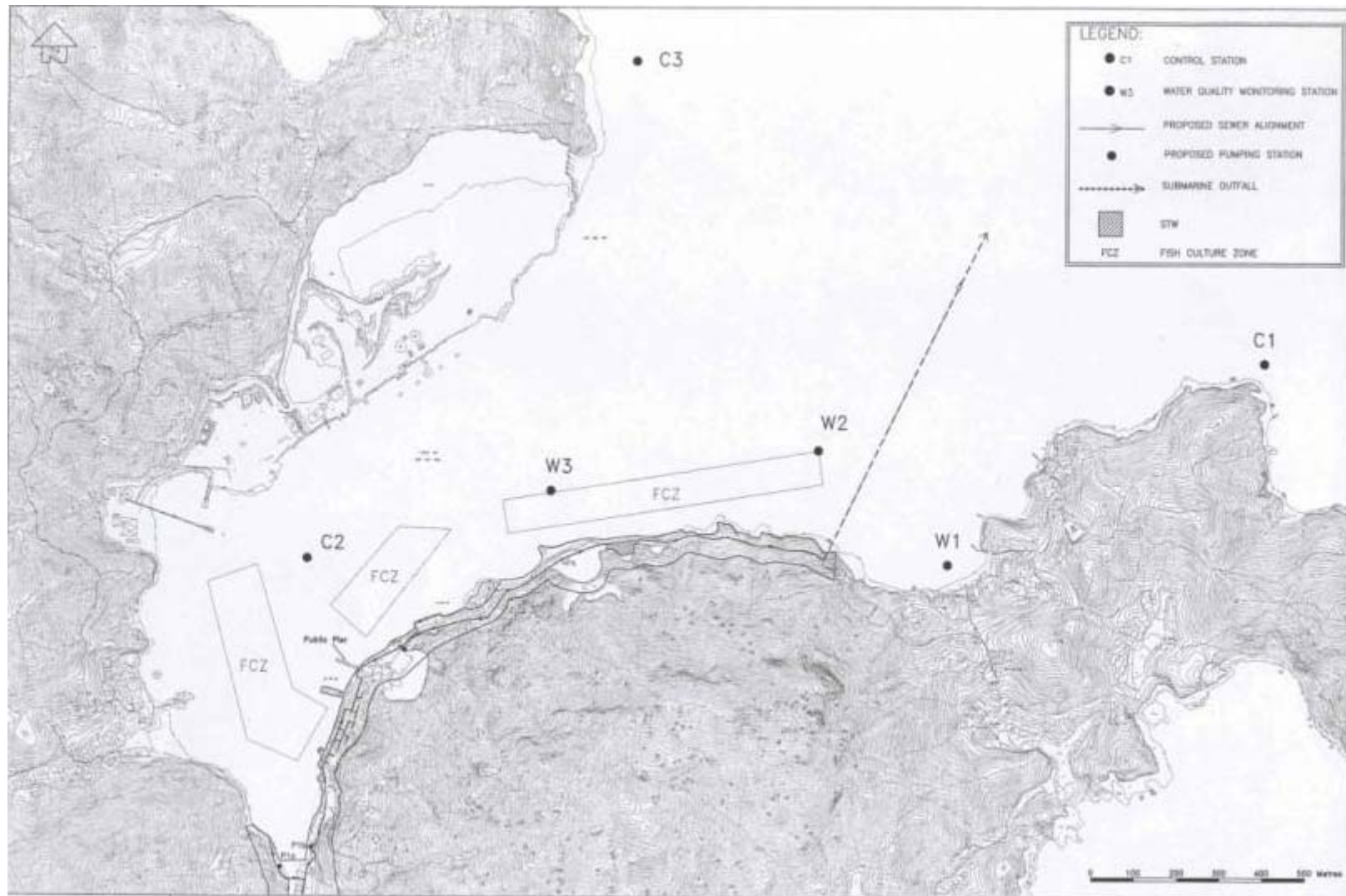
Appendix D

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







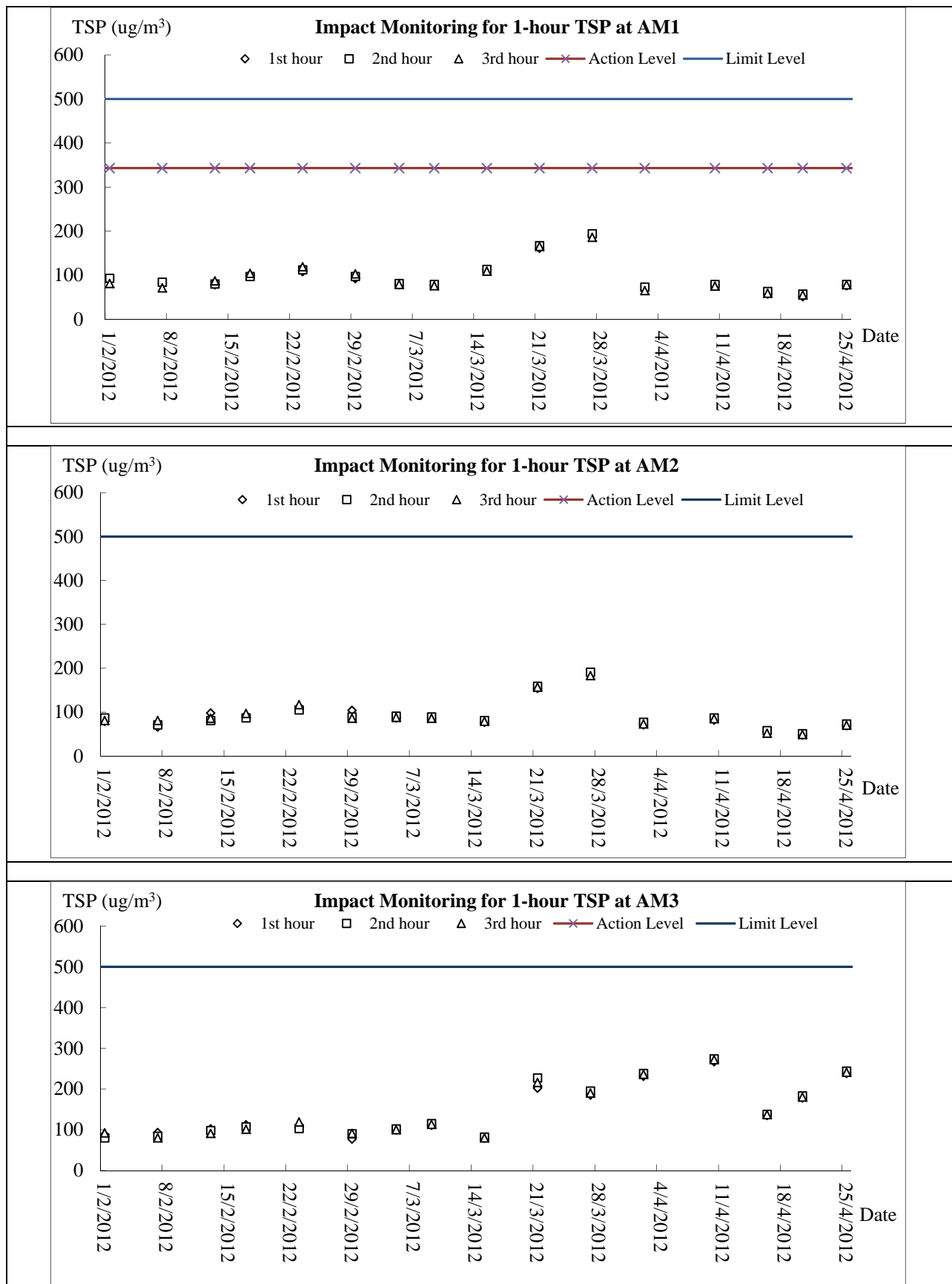


Appendix E

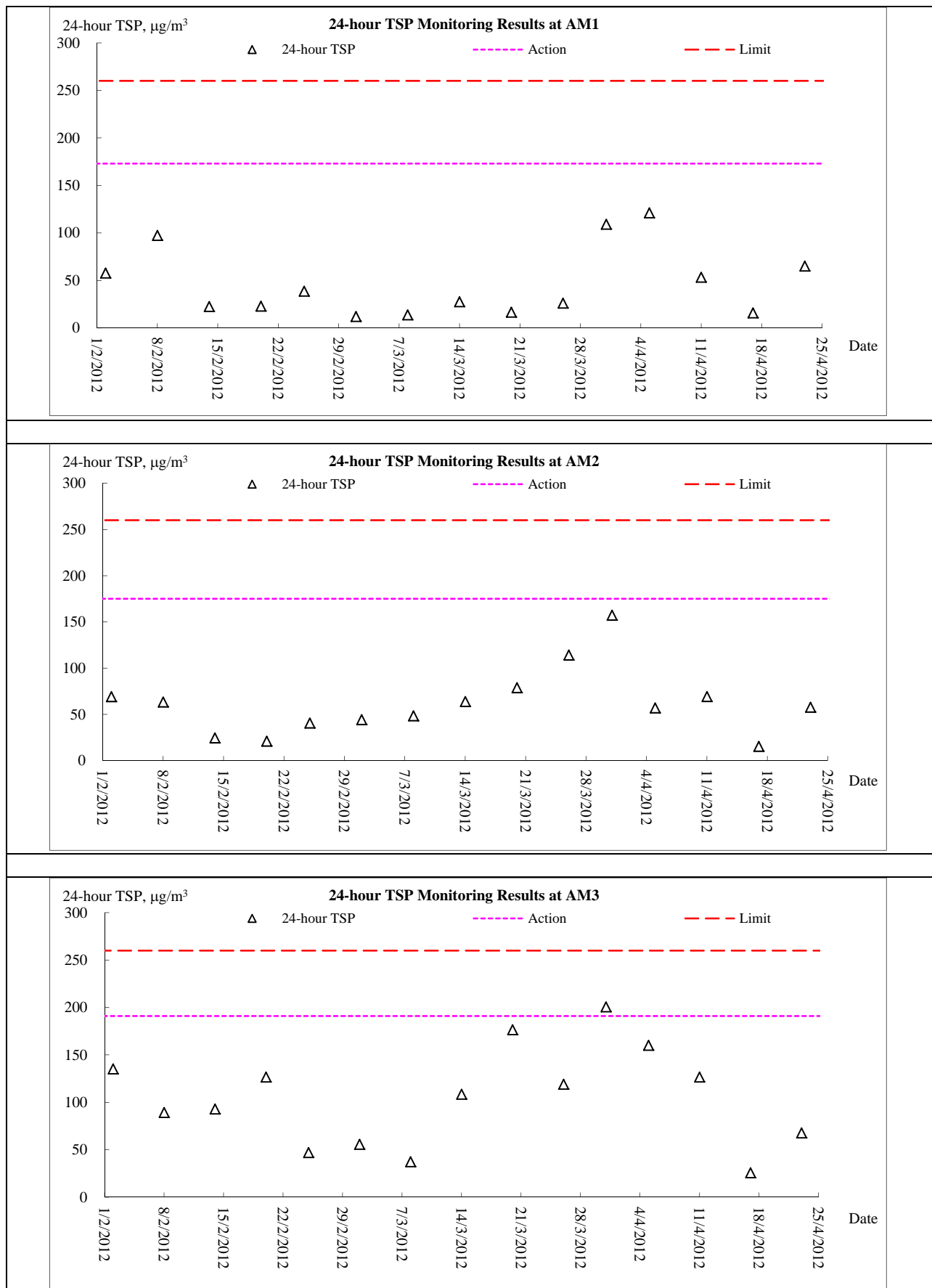
Graphical Plots of Impact Monitoring

- 1. Air Quality**
- 2. Construction Noise**
- 3. Marine Water Quality**

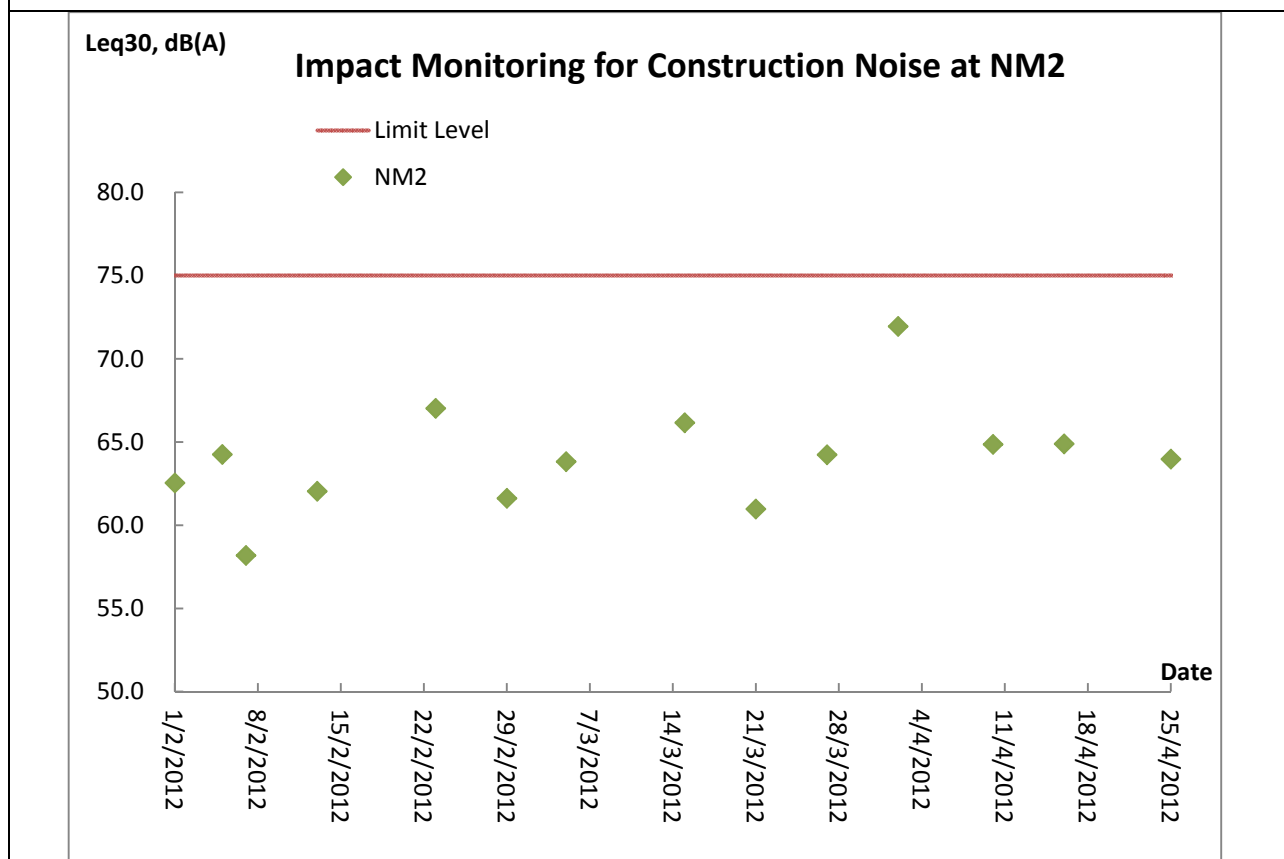
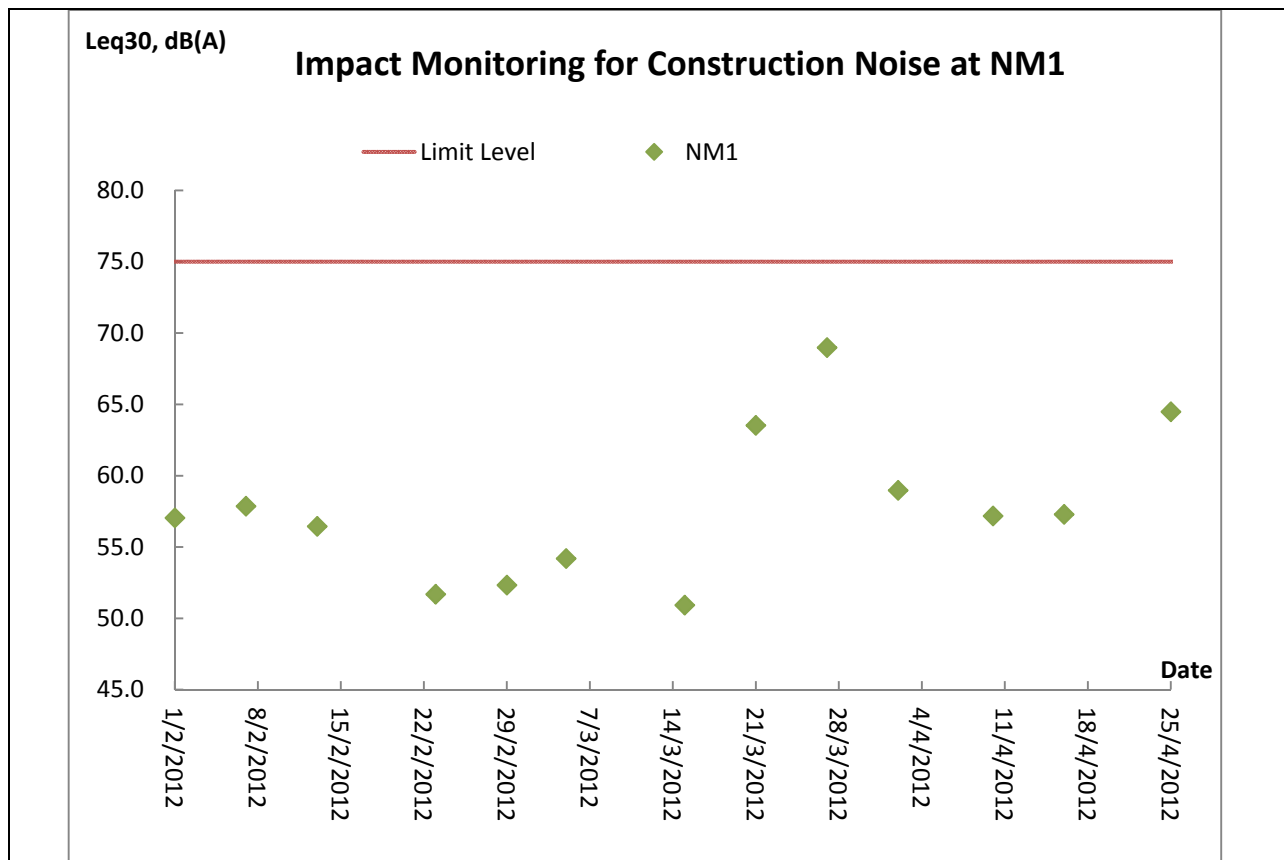
Air Quality Monitoring – 1 hour TSP Monitoring

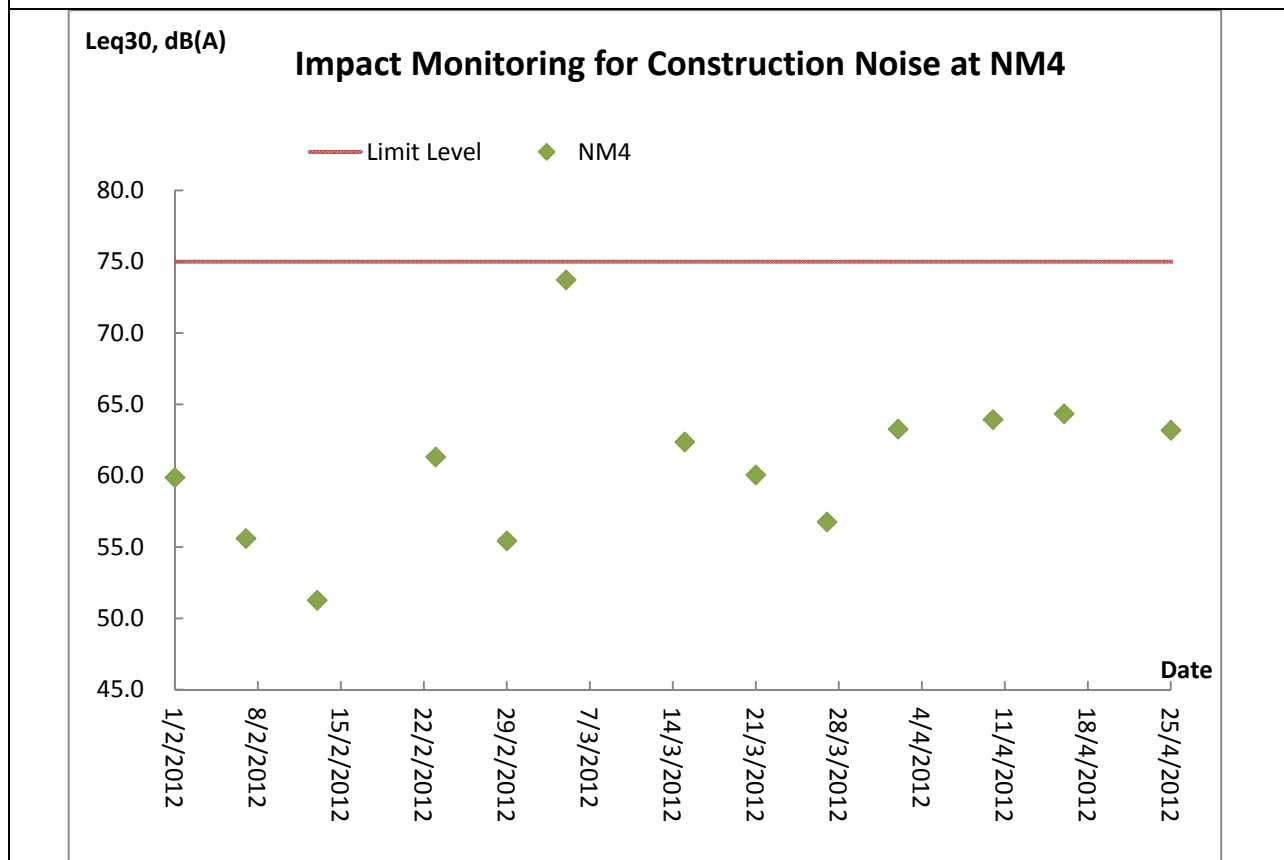
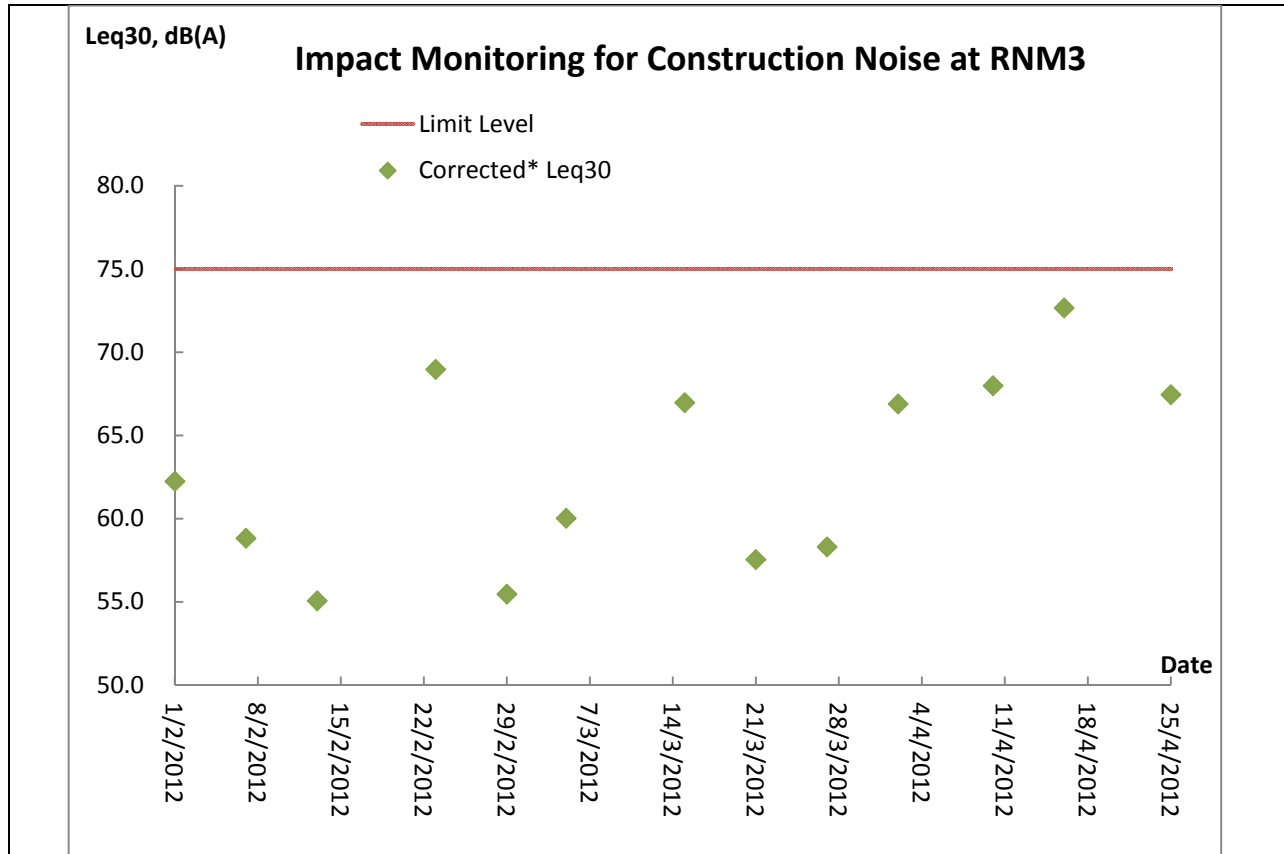


Air Quality Monitoring – 24 hour TSP Monitoring

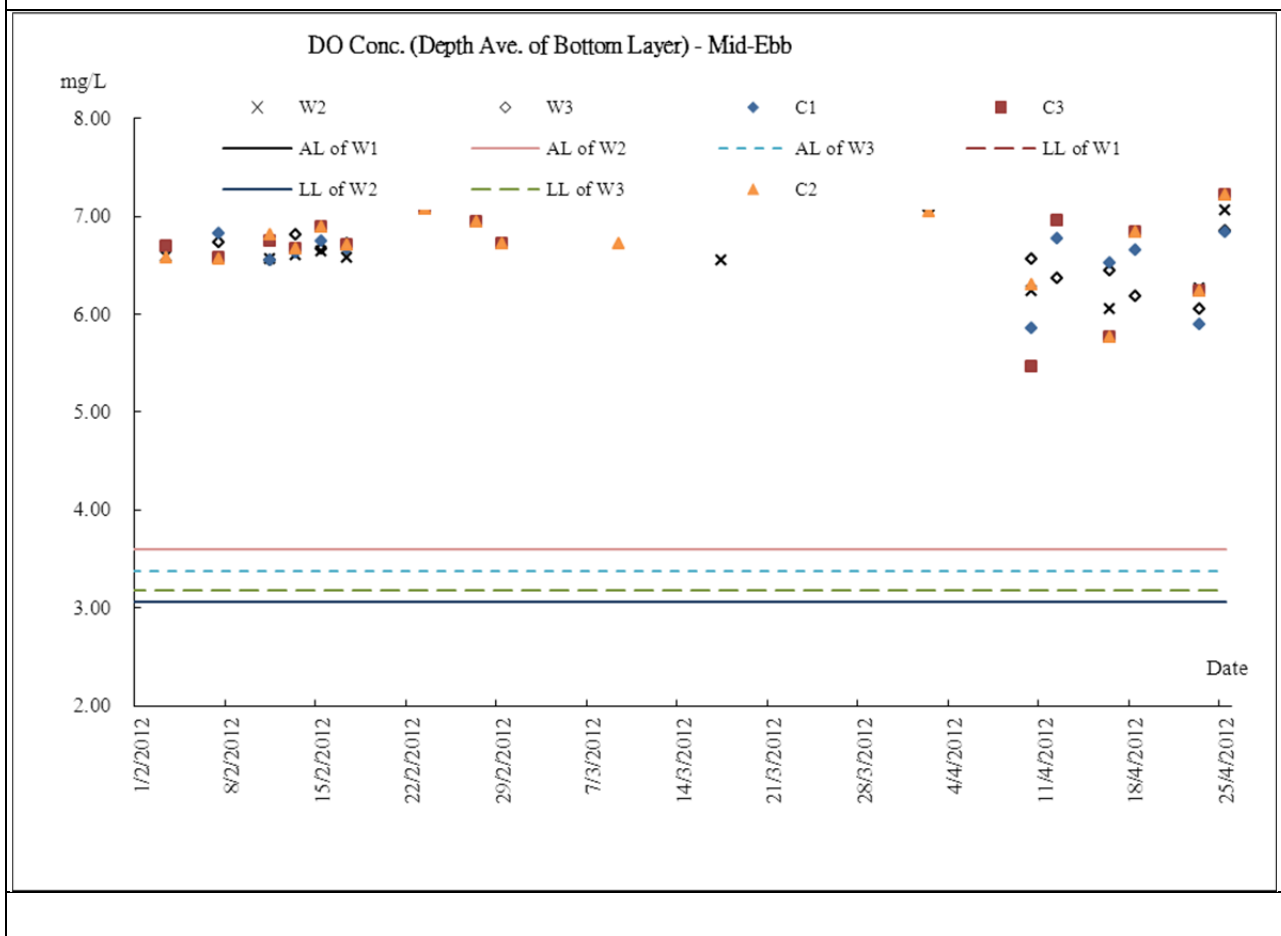
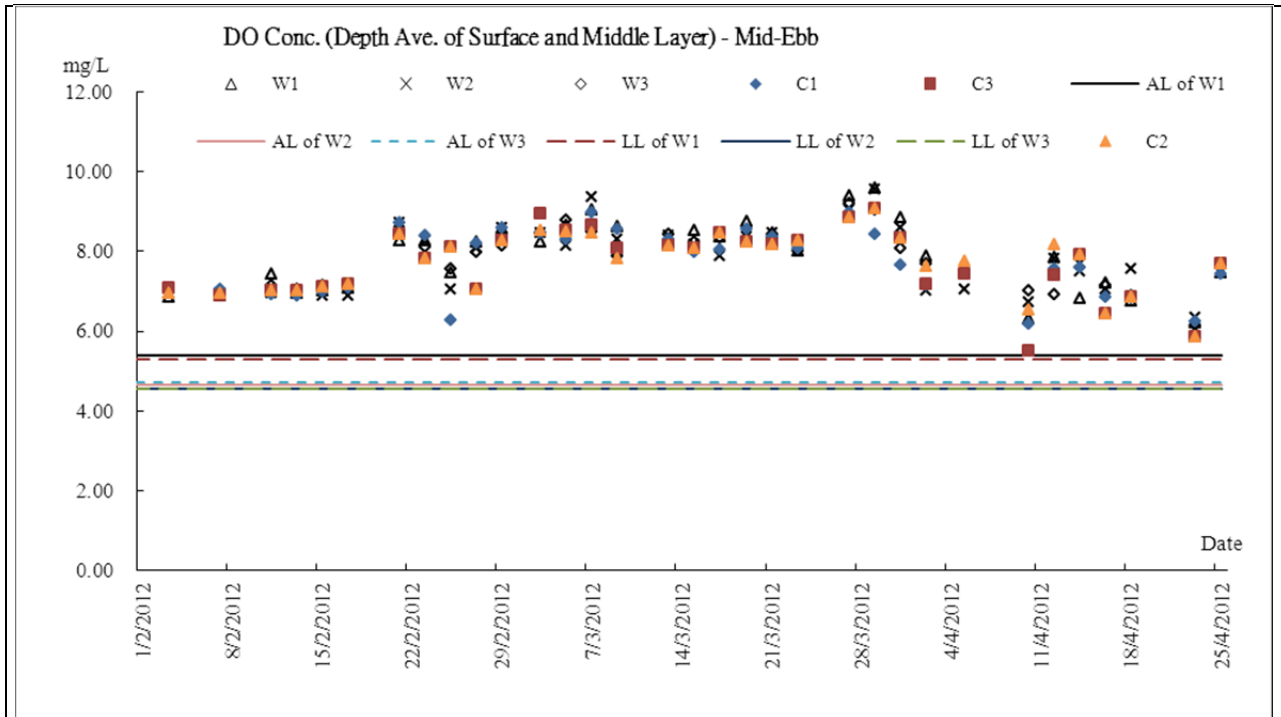


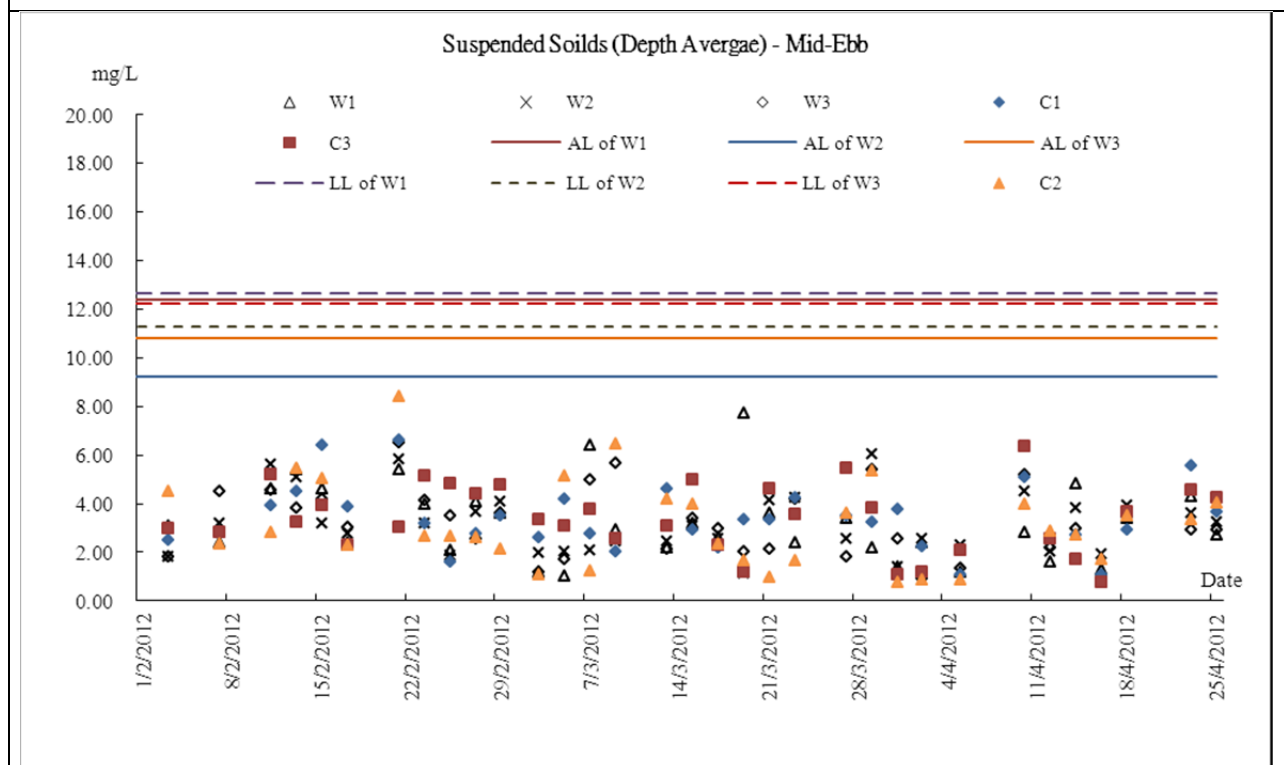
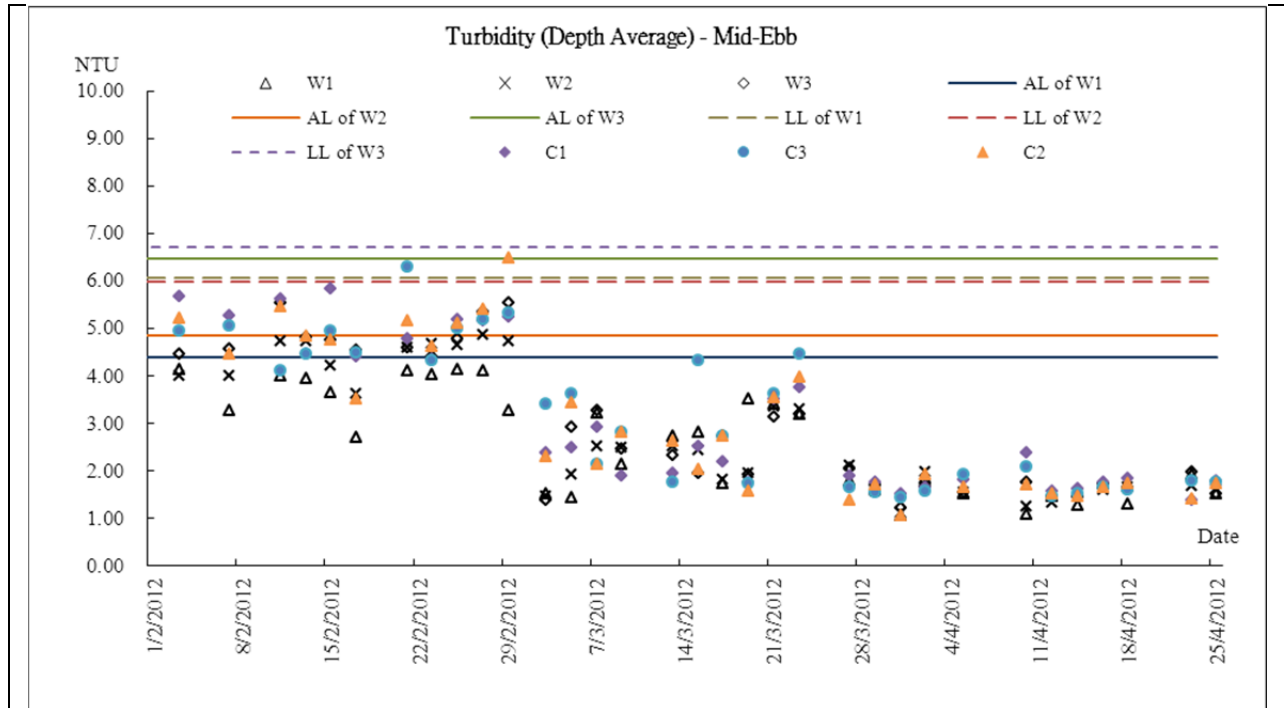
Construction Noise Monitoring



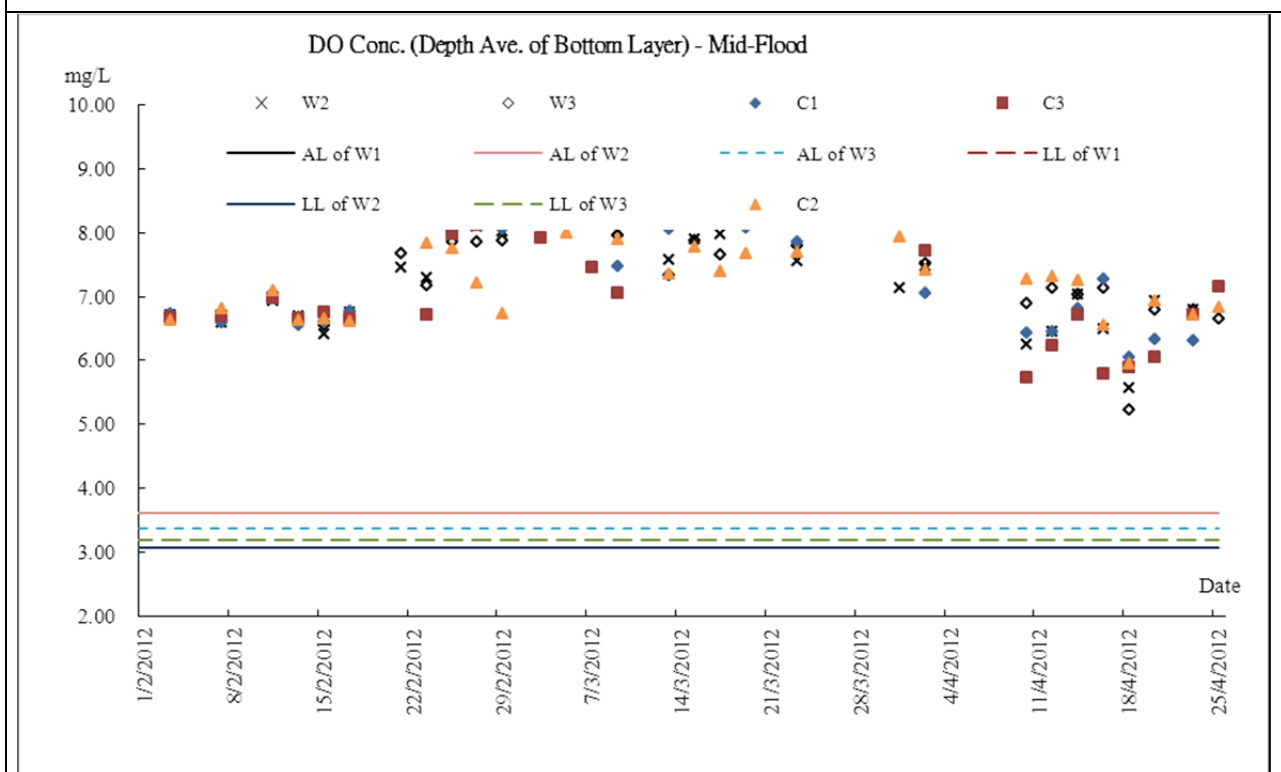
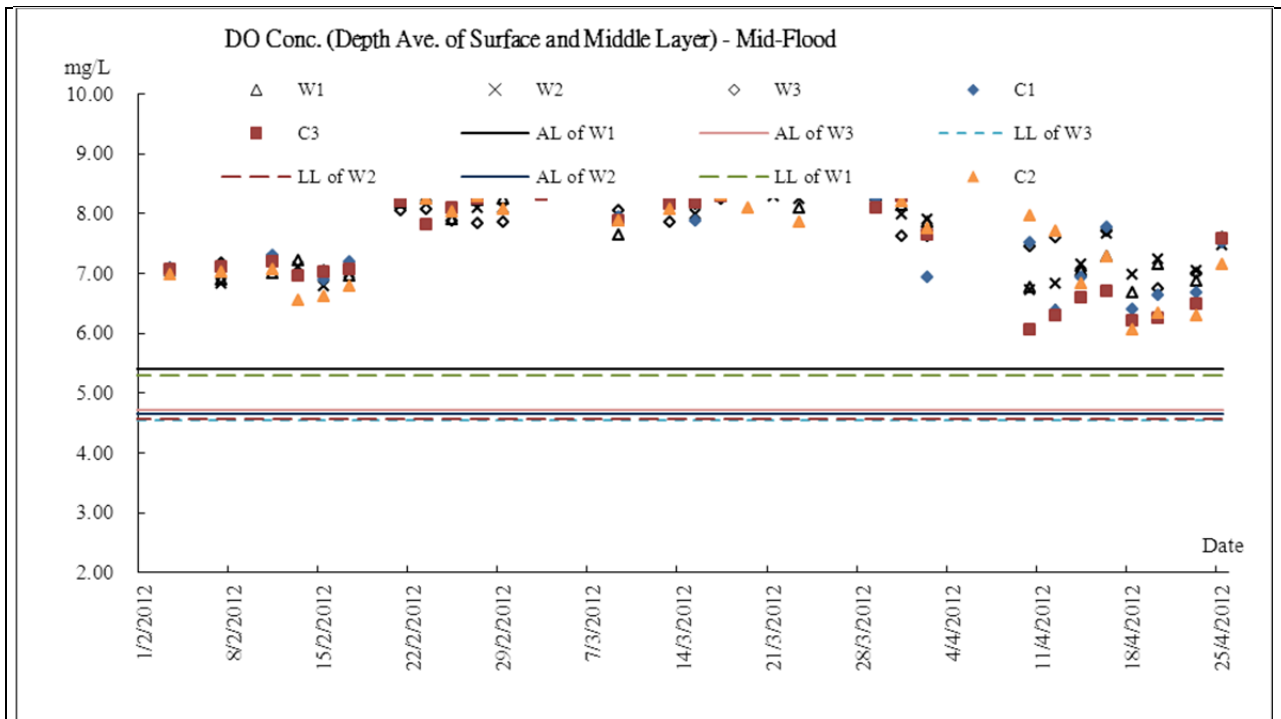


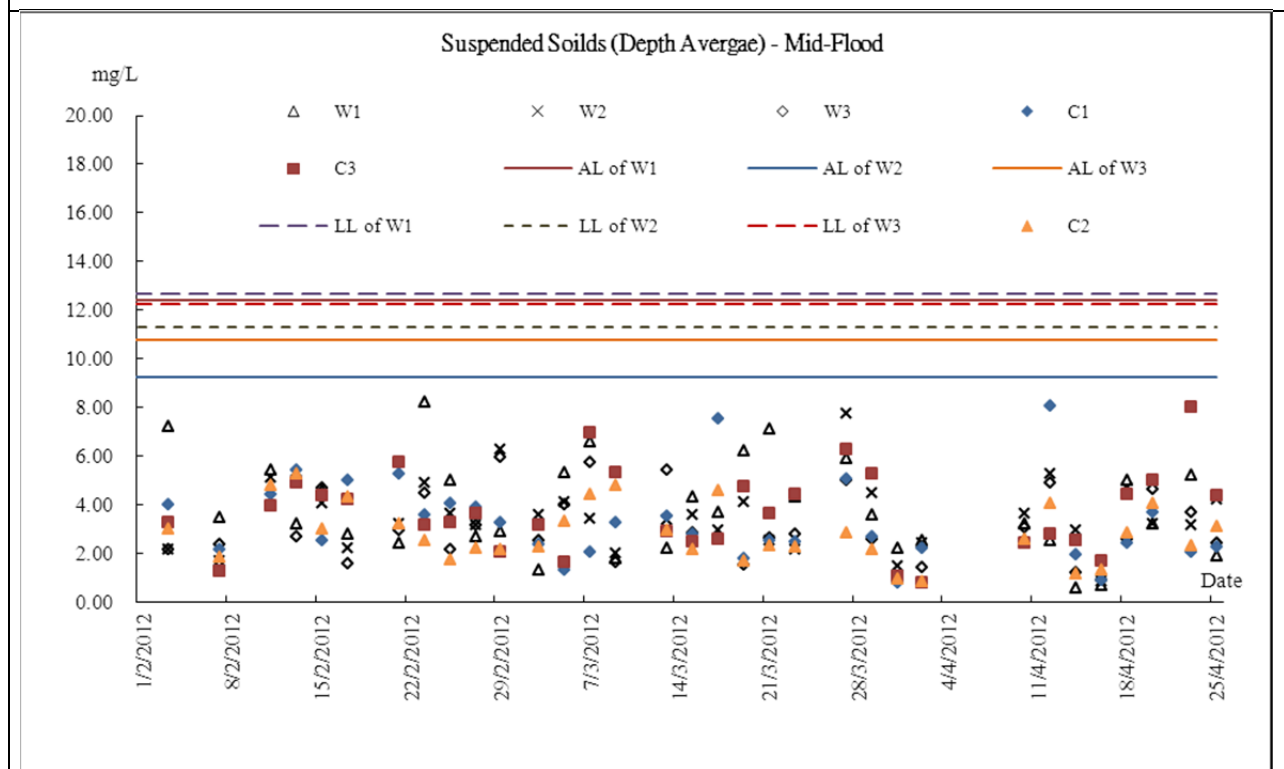
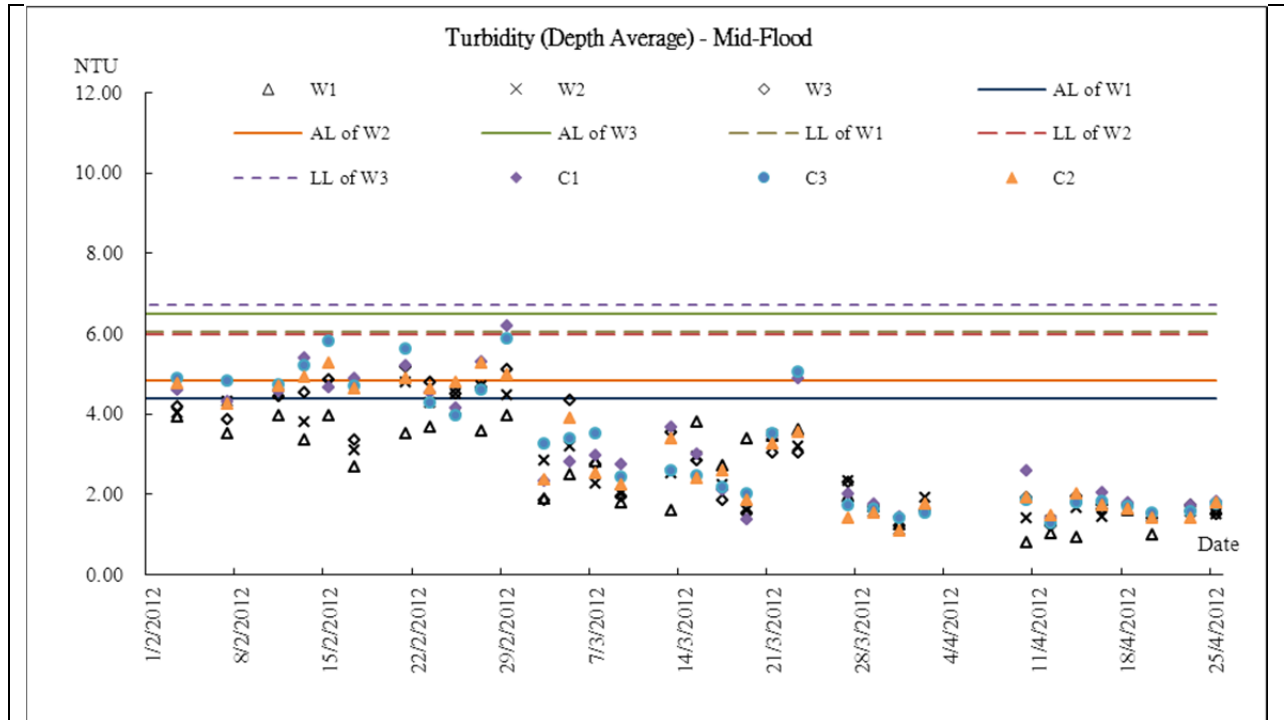
Marine Water Quality Monitoring - Mid-Ebb Tide





Marine Water Quality Monitoring - Mid-Flood Tide





Appendix F

Meteorological Information

Weather Condition – February 2012

With frequent interchange of the northeast monsoon and the humid maritime airstream over the south China coast, February 2012 was marked by gloomy and humid weather with a few foggy episodes in Hong Kong. The total duration of bright sunshine in the month was 38.1 hours, only about 40 percent of the normal and the monthly mean relative humidity was 85 percent, 5 percent above normal.

The month was also cooler with less rainfall than usual. The mean temperature of the month was 15.8 degrees, 1.0 degree below the normal figure of 16.8 degrees. The total rainfall in the month was 29.5 millimetres, 24.9 millimetres below the normal figure of 54.4 millimetres.

Weather Condition – March 2012

March 2012 was characterized by a distinctive transition from humid to dry weather. Resulting from the contests between the northeast monsoon and maritime airstream over the south China coastal areas, the weather of the first half of the month in Hong Kong was gloomier, cooler and more humid than usual. In contrast, the second half of the month was generally fine, mild and dry under the prevalence of a continental airstream for most of the time. Overall, the mean temperature and relative humidity of the whole month are both near-normal. The monthly rainfall was only 22.1 millimetres, about 27 percent of the normal.

Weather Condition – April 2012

With the prevalence of the warm maritime airstream for most of the time except the early part of the month, April 2012 was warmer than usual. The monthly mean temperature of 23.9 degrees was 1.3 degrees above the normal figure of 22.6 degrees. The daily mean temperature of 28.5 degrees at the Observatory on 30 April tied with that on 26 April 1994 as the highest in April since record began.

The details meteorological data for each successive day could be referred to the Monthly EM&A Report (February, March and April 2012).

Appendix G

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