



PROJECT NO.: TCS/00512/09

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

**SOK KWU WAN PORTION AREA
MONTHLY ENVIRONMENTAL MONITORING AND AUDIT
(EM&A) REPORT (No.18) – JANUARY 2012**

PREPARED FOR
LEADER CIVIL ENGINEERING CORPORATION LIMITED

Quality Index

| Date | Reference No. | Prepared By | Approved By |
|------------------|-------------------------|--|---|
| 13 February 2012 | TCS00512/09/600/R0427v2 |  |  |
| | | Nicola Hon Environmental Consultant | T.W. Tam Environmental Team Leader |

| Version | Date | Description |
|----------------|------------------|---|
| 1 | 8 February 2012 | First Submission |
| 2 | 13 February 2012 | Amended against IEC's comments on 9 February 2012 |
| | | |

Scott Wilson CDM Joint Venture

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

Your reference:

Our reference: 05117/6/16/385902

Date: 14 February 2012

Attention: Mr Kenley C K Kwok

BY FAX & EMAIL

Dear Sirs,

Contract No. DC/2009/13

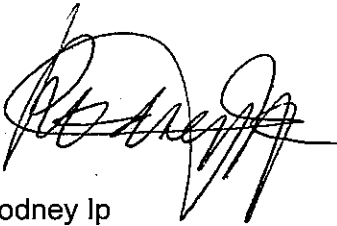
**Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan
Sok Kwu Wan Portion Area**

Monthly Environmental Monitoring and Audit (EM&A) Report No. 18 (January 2012)

We refer to the Monthly EM&A Monitoring Report No. 18 for January 2012 received under cover of the email from the Environmental Team, Action-United Environmental Services and Consulting (AUES), dated 13 February 2012. We have no comment and have verified the captioned report.

Yours faithfully

SCOTT WILSON CDM JOINT VENTURE



Rodney Ip

ICWR/SYSL/ecwc

| | | |
|----|--------------------------|-------------------------|
| 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 **18th** monthly Environmental Monitoring and Audit (EM&A) Report for Sok Kwu Wan (hereinafter ‘this Report’) for the designated works under the Environmental Permit [EP-281/2007/A], covering a period from **1 to 31 January 2012** (hereinafter ‘the Reporting Period’).

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

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

| Issues | Environmental Monitoring Parameters / Inspection | Occasions |
|--------------------|--|-----------|
| Air Quality | 1-hour TSP | 45 |
| | 24-hour TSP | 12 |
| Construction Noise | Leq (30min) Daytime | 16 |
| Water Quality | Marine Water Sampling | 10 |
| Inspection / Audit | ET Regular Environmental Site Inspection | 4 |

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

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES.04. No exceedance of air quality, construction noise and marine water quality monitoring were recorded in this Reporting Period. No Notification of Exceedance (NOE) was, therefore, issued. The statistics of environmental exceedance, NOE issued and investigation of exceedance are summarized in the following table.

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

Note: NOE – Notification of Exceedance

ENVIRONMENTAL COMPLAINT, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

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

REPORTING CHANGE

ES.06. There is no reporting change in this Reporting Period.

SITE INSPECTION BY EXTERNAL PARTIES

ES.07. A site visit was carried by Environmental Protection Department (EPD) on 5 January 2012 to re-inspect the environmental performance of the construction site and they have no comment during the site inspection.

FUTURE KEY ISSUES

ES.08. During dry season, special attention should be paid to the dust mitigation measures to avoid fugitive dust emissions from loose soil surface or haul road. Nevertheless, mitigation measures

implemented for control the surface runoff including wheel wash facilities, covering of the loose soil surface or stockpile with tarpaulin sheet, etc., should fully implement.

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

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1 INTRODUCTION

PROJECT BACKGROUND

- 1.01 The Leader Civil Engineering Corporation Limited (Leader) has been awarded the *Contract DC/2009/13 - Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan* (the Project) by the Drainage Services Department (DSD) on 4 May 2010. The Project is part of an overall plan approved under a statutory EIA for Outlying Islands Sewerage Stage 1 Phase 2 Package J – Sok Kwu Wan Sewage Collection and Treatment (Register No. AEIAR-075/2003) and Disposal Facilities and Outlying Islands Sewerage Stage 1 Phase 1 Package C – Yung Shue Wan Sewage Treatment Works and Outfall (Register No. EIA-124/BC). The Environmental Permit (EP) No. EP-281/2007 and EP-282/2007 for the Project have been obtained by the DSD on 29 June 2007 for the relevant works. After July 2009, EP-281/2007/A instead EP-281/2007 is EP for Sok Kwu Wan relevant works.
- 1.02 The Project involves construction of sewage treatment works at Sok Kwu Wan and Yung She Wan with a capacity of 1,430m³/day and 2,850m³/day respectively to provide secondary treatment, construction of 2 pumping stations at Sok Kwu Wan and 1 pumping station at Yung Shue Wan, construction of submarine outfall from the coastline and laying of underground sewerage pipeline. The site layout plan for the captioned work under the Project is showing in **Appendix A**.
- 1.03 According to the Particular Specification (PS) and **Appendix 25** of the Project, Leader should establish an Environmental Team (ET) to implement the environmental monitoring and auditing works to fulfill the requirements as stipulated in the Environmental Monitoring and Audit (EM&A) Manual. This EM&A Manual is referred to the Appendix B of the Review Report on EIA Study – Sok Kwu Wan (Final) in January 2007 (Agreement No. CE 20/2005(DS)).
- 1.04 Action-United Environmental Services and Consulting (AUES) has been commissioned by Leader as the ET to implement the relevant EM&A programme. Organization chart of the Environmental Team for the Project is shown in **Appendix B**. For ease of reporting, the proposed EM&A programme for baseline and impact monitoring is split to following two stand-alone parts:
- (a) Proposed EM&A Programme for Baseline and Impact Monitoring – Sok Kwu Wan (under EP No. 281/2007/A varied on 23 September 2009)
 - (b) Proposed EM&A Programme for Baseline and Impact Monitoring – Yung Shue Wan (under EP No. 282/2007)
- 1.05 According to the EM&A Manual of Sok Kwu Wan and Yung Shue Wan, baseline water quality monitoring should be carried out for consecutive six months before the marine work commencement. Therefore, the baseline reports of Sok Kwu Wan and Yung Shue Wan are divided to two volumes i.e. the Volume 1 for air quality and noise monitoring; and the Volume II for water quality monitoring for separate submission.
- 1.06 There is a concurrent DSD contract “*DC/2007/18 Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage 1 Works*” undertaking at Sok Kwu Wan since April 2008.
- 1.07 Consider that the construction works of DC/2007/18 and DC/2009/13 at Sok Kwu Wan is under the same Environmental Permit and EM&A Manual, the performance criteria of air quality and construction noise at Sok Kwu Wan under the Project is recommended to adopt the Action/Limit Levels established by contract DC/2007/18. The Baseline Monitoring Report Volume 1 under the Project for air quality and noise at Sok Kwu Wan was submitted on 9 July 2010 and verified by IEC and for EPD endorsement before the relevant land works commencement on 27 July 2010.
- 1.08 This is the **18th** monthly EM&A Report – Sok Kwu Wan Portion Area presenting the monitoring results and inspection findings for the Reporting Period from **1 to 31 January 2012**.

REPORT STRUCTURE

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

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

2 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE

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

CONSTRUCTION PROGRESS

- 2.02 The master and three month rolling construction programme are enclosed in [Appendix C](#) and the major construction activities undertaken in this Reporting Period are listed below:-
- Construction of Pumping Station No. 1 & 2
 - Rock Slope Cutting Works
 - Construction of submarine outfall

SUMMARY OF ENVIRONMENTAL SUBMISSIONS

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

Table 2-1 Status of Environmental Licenses and Permits

| Item | Description | License/Permit Status |
|------|--|---|
| 1 | Air Pollution Control (Construction Dust) Regulation | Notified EPD on 19 May 2010 Ref.: 317486 |
| 2 | Chemical Waste Producer Registration | Issued on 8/6/2010 WPN 5213-912-L2720-01 |
| 3 | Water Pollution Control Ordinance | Approved on 29/9/2010 Valid to: 30/09/2015 Licence no.: WT00007567-2010 |
| 4 | Billing Account for Disposal of Construction Waste | Issued on 26 May 2010 A/C No: 7010815 |
| 5 | Construction Noise Permit | Permit no. GW-RS0771-11 Valid from: 2 Sep 2011 Until: 1 Mar 2012 |

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

3 SUMMARY OF BASELINE MONITORING REQUIREMENTS

ENVIRONMENTAL ASPECT

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

Table 3-1 Summary of EM&A Requirements

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

MONITORING LOCATIONS

Air Quality

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

Table 3-2 Location of Air Quality Monitoring Station

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

Construction Noise

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

Table 3-3 Location of Construction Noise Monitoring Station

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

Water Quality

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

Table 3-4 Location of Marine Water Quality Monitoring Station

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

MONITORING FREQUENCY AND PERIOD

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

Air Quality Monitoring

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

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

Duration: Throughout the construction period.

Noise Monitoring

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

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

Duration: Throughout the construction period.

Marine Water Quality Monitoring

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

- Frequency: Three days a week, at mid ebb and mid flood tides. The interval between 2 sets of monitoring will be more than 36 hours.
- Sampling Depth
- (i.) Three depths: 1m below water surface, 1m above sea bottom and at mid-depth when the water depth exceeds 6m.
 - (ii.) If the water depth is between 3m and 6m, two depths: 1m below water surface and 1m above sea bottom.
 - (iii.) If the water depth is less than 3m, 1 sample at mid-depth is taken
- Duration: During the course of marine works

Post-Construction Monitoring – Marine Water

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

MONITORING EQUIPMENT

Air Quality Monitoring

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

Noise Monitoring

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

Water Quality Monitoring

- 3.11 ***Dissolved Oxygen and Temperature Measuring Equipment*** – The instrument should be a portable and weatherproof dissolved oxygen (DO) measuring instrument complete with cable and sensor, and use a DC power source. The equipment should be capable of measuring as included a DO level in the range of 0 – 20mg L⁻¹ and 0 – 200% saturation; and a temperature of 0 – 45 degree Celsius.
- 3.12 ***pH Meter*** – The instrument shall consist of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It shall be readable to 0.1 pH in a range of 0 to 14.
- 3.13 ***Turbidity (NTU) Measuring Equipment*** – The instrument should be a portable and weatherproof turbidity measuring instrument using a DC power source. It should have a photoelectric sensor capable of measuring turbidity between 0 - 1000 NTU.
- 3.14 ***Water Sampling Equipment*** – A water sampler should comprise a transparent PVC cylinder, with a capacity of not less than 2 litres, which can be effectively sealed with latex cups at both ends. The sampler should have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth.
- 3.15 ***Water Depth Detector*** – A portable, battery-operated echo sounder should be used for the determination of water depth at each designated monitoring station. This unit can either be hand held or affixed to the bottom of the work boat.
- 3.16 ***Salinity Measuring Equipment*** – A portable salinometer capable of measuring salinity in the range of 0 - 40 parts per thousand (ppt) should be provided for measuring salinity of the water at each monitoring location.

- 3.17 **Sample Containers and Storage** – Water samples for suspended solids should be stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4°C without being frozen).
- 3.18 **Monitoring Position Equipment** - A hand-held or boat-fixed type digital Differential Global Positioning System (DGPS) with way point bearing indication and Radio Technical Commission for maritime (RTCM) Type 16 error message ‘screen pop-up’ facilities (for real-time auto-display of error messages and DGPS corrections from the Hong Kong Hydrographic Office), or other equipment instrument of similar accuracy, should be provided and used during marine water monitoring to ensure the monitoring vessel is at the correct location before taking measurements.
- 3.19 **Suspended Solids Analysis** – Analysis of suspended solids shall be carried out in a HOKLAS or other international accredited laboratory.

EQUIPMENT CALIBRATION

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

METEOROLOGICAL INFORMATION

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

DATA MANAGEMENT AND DATA QA/QC CONTROL

- 3.26 The impact monitoring data are handled by the ET’s systematic data recording and management, which complies with in-house Quality Management System. Standard Field Data Sheets (FDS) are used in the impact monitoring programme.
- 3.27 The monitoring data recorded in the equipment e.g. 1-hour TSP meter, sound level meter and Multi-parameter Water Quality Monitoring System, are downloaded directly from the equipments at the end of each monitoring day. The downloaded monitoring data are input into a computerized database properly maintained by the ET. The laboratory results are input directly into the computerized database and QA/QC checked by personnel other than those who input the data. For monitoring activities require laboratory analysis, the local laboratory follows the QA/QC requirements as set out under the HOKLAS scheme for all laboratory testing.

DETERMINATION OF ACTION/LIMIT (A/L) LEVELS

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

Table 3-5 Action and Limit Levels for Air Quality

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

Table 3-6 Action and Limit Levels for Construction Noise

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

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

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

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

4 IMPACT MONITORING RESULTS - AIR QUALITY

4.01 As informed by Leader, the construction of relevant land works at Sok Kwu Wan was commenced on 27 July 2010, therefore, the impact EM&A programme was started as compliance with the contract Particular Specification, Sok Kwu Wan EM&A Manual and the EP.

Results of Air Quality Monitoring

4.02 In this Reporting Period, **45** and **12** monitoring events were performed for 1-hour TSP and 24-hour TSP monitoring respectively at the designated locations AM1, AM2 and AM3. The monitoring results for 24-hour and 1-hour TSP at AM1, AM2 and AM3 are summarized in *Tables 4-1, 4-2 and 4-3* respectively. The detail 24-hour TSP data are shown in *Appendix G* and the graphical plots of are shown in *Appendix H*.

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

| Date | 24-hour TSP ($\mu\text{g}/\text{m}^3$) | 1-hour TSP ($\mu\text{g}/\text{m}^3$) | | | | |
|-----------------|--|---|------------|-------------------------------|-------------------------------|-------------------------------|
| | | Date | Start Time | 1 st hour measured | 2 nd hour measured | 3 rd hour measured |
| 5-Jan-12 | 70 | 3-Jan-12 | 8:27 | 92 | 87 | 85 |
| 11-Jan-12 | 122 | 6-Jan-12 | 11:24 | 79 | 84 | 90 |
| 17-Jan-12 | 27 | 12-Jan-12 | 12:38 | 91 | 78 | 88 |
| 27-Jan-12 | 63 | 18-Jan-12 | 9:12 | 84 | 86 | 91 |
| | | 27-Jan-12 | 11:28 | 78 | 76 | 89 |
| Average (Range) | 71 (27 – 122) | Average (Range) | | 85 (76 – 92) | | |

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

| Date | 24-hour TSP ($\mu\text{g}/\text{m}^3$) | 1-hour TSP ($\mu\text{g}/\text{m}^3$) | | | | |
|-----------------|--|---|------------|-------------------------------|-------------------------------|-------------------------------|
| | | Date | Start Time | 1 st hour measured | 2 nd hour measured | 3 rd hour measured |
| 5-Jan-12 | 65 | 3-Jan-12 | 11:53 | 78 | 67 | 81 |
| 11-Jan-12 | 168 | 6-Jan-12 | 13:51 | 85 | 77 | 68 |
| 17-Jan-12 | 49 | 12-Jan-12 | 10:09 | 76 | 84 | 81 |
| 27-Jan-12 | 61 | 18-Jan-12 | 11:34 | 81 | 72 | 79 |
| | | 27-Jan-12 | 11:34 | 91 | 74 | 80 |
| Average (Range) | 86 (49 – 168) | Average (Range) | | 78 (67 – 91) | | |

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

| Date | 24-hour TSP ($\mu\text{g}/\text{m}^3$) | 1-hour TSP ($\mu\text{g}/\text{m}^3$) | | | | |
|-----------------|--|---|------------|-------------------------------|-------------------------------|-------------------------------|
| | | Date | Start Time | 1 st hour measured | 2 nd hour measured | 3 rd hour measured |
| 5-Jan-12 | 72 | 3-Jan-12 | 14:53 | 92 | 97 | 81 |
| 11-Jan-12 | 177 | 6-Jan-12 | 15:19 | 78 | 96 | 74 |
| 17-Jan-12 | 68 | 12-Jan-12 | 14:51 | 90 | 84 | 72 |
| 27-Jan-12 | 119 | 18-Jan-12 | 14:16 | 92 | 84 | 77 |
| | | 27-Jan-12 | 9:02 | 77 | 96 | 88 |
| Average (Range) | 109 (68 – 177) | Average (Range) | | 85 (72 – 97) | | |

4.03 As shown in *Tables 4-1, 4-2 and 4-3*, 1-hour TSP results fluctuated well below the Action Level during the Reporting Period. No Notification of Exceedance (NOE) of 24-hour and 1-hour TSP air quality criteria or corrective action was therefore required.

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

5 IMPACT MONITORING RESULTS – CONSTRUCTION NOISE

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

Results of Construction Noise Monitoring

5.02 In this Reporting Period, 4 construction noise monitoring events were undertaken at designated location NM1, NM2, RNM3 and NM4. The results for $L_{eq30min}$ at NM1, NM2, RNM3 and NM3 are summarized in *Tables 5-1, 5-2, 5-3 and 5-4* and graphical plots are shown in *Appendix H*.

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

| Date | Start Time | End time | 1 st Leq5 | 2 nd Leq5 | 3 rd Leq5 | 4 th Leq5 | 5 th Leq5 | 6 th Leq5 | Leq30 |
|-----------------------------|------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------|
| 3-Jan-12 | 10:36 | 11:06 | 45.8 | 43.7 | 42.1 | 44.3 | 43.2 | 43.3 | 43.9 |
| 12-Jan-12 | 9:54 | 10:24 | 50.1 | 52.6 | 51.1 | 49.6 | 49.7 | 49.5 | 50.6 |
| 18-Jan-12 | 9:38 | 10:08 | 43.6 | 42.7 | 46.2 | 44.1 | 45.6 | 42.7 | 44.4 |
| 27-Jan-12 | 10:43 | 11:13 | 44.6 | 43.1 | 44.6 | 47.2 | 46.3 | 44.8 | 45.3 |
| Limit Level in dB(A) | | | | | | | | | 75 |

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

| Date | Start Time | End time | 1 st Leq5 | 2 nd Leq5 | 3 rd Leq5 | 4 th Leq5 | 5 th Leq5 | 6 th Leq5 | Leq30 |
|-----------------------------|------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------|
| 3-Jan-12 | 11:18 | 11:48 | 55.1 | 52.4 | 55.7 | 63.4 | 53.5 | 52.7 | 57.6 |
| 12-Jan-12 | 10:41 | 11:11 | 54.5 | 56.2 | 56.7 | 55.9 | 54.7 | 54.8 | 55.5 |
| 18-Jan-12 | 10:39 | 11:09 | 52.3 | 54.6 | 51.9 | 53.6 | 54.2 | 53.9 | 53.5 |
| 27-Jan-12 | 11:24 | 11:54 | 53.7 | 56.2 | 55.9 | 54.4 | 53.8 | 53.1 | 54.7 |
| Limit Level in dB(A) | | | | | | | | | 75 |

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

| Date | Start Time | End time | 1 st Leq5 | 2 nd Leq5 | 3 rd Leq5 | 4 th Leq5 | 5 th Leq5 | 6 th Leq5 | Leq30 | Corrected* Leq30 |
|-----------------------------|------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------|------------------|
| 3-Jan-12 | 14:25 | 14:55 | 50.9 | 51.8 | 52.5 | 51.8 | 52.7 | 50.4 | 51.8 | 54.8 |
| 12-Jan-12 | 11:35 | 12:05 | 52.4 | 50.9 | 51.1 | 54.2 | 55.1 | 55.6 | 53.6 | 56.6 |
| 18-Jan-12 | 11:27 | 11:57 | 52.4 | 53.1 | 52.8 | 53.8 | 52.6 | 51.9 | 52.8 | 55.8 |
| 27-Jan-12 | 13:02 | 13:32 | 50.2 | 51.3 | 52.6 | 52.4 | 50.9 | 49.6 | 51.3 | 54.3 |
| Limit Level in dB(A) | | | | | | | | | 75 | |

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

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

| Date | Start Time | End time | 1 st Leq5 | 2 nd Leq5 | 3 rd Leq5 | 4 th Leq5 | 5 th Leq5 | 6 th Leq5 | Leq30 |
|-----------------------------|------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------|
| 3-Jan-12 | 15:30 | 16:00 | 51.4 | 52.9 | 49.8 | 50.7 | 51.6 | 53.2 | 51.8 |
| 12-Jan-12 | 12:26 | 12:56 | 51.9 | 52.4 | 49.6 | 52.8 | 49.7 | 56.5 | 52.8 |
| 18-Jan-12 | 12:07 | 12:37 | 52.4 | 51.0 | 52.1 | 53.8 | 54.2 | 53.6 | 53.0 |
| 27-Jan-12 | 13:38 | 14:08 | 50.9 | 51.3 | 51.4 | 50.1 | 50.8 | 47.3 | 50.5 |
| Limit Level in dB(A) | | | | | | | | | 75 |

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

6 IMPACT MONITORING RESULTS – WATER QUALITY

- 6.01 The construction of marine outfall works was commenced on 19 July 2011 and therefore marine water quality monitoring is required in this Reporting Period. In this Reporting Period, 10 events of water quality monitoring were carried out at the designated locations. The monitoring results including in-situ measurements and laboratory testing results are presented in [Appendix G](#). The graphical plots are shown in [Appendix H](#).
- 6.02 During the Reporting Period, field measurements of both control and impact stations showed that marine water of the depth average of the salinity concentration was within 29.25 to 33.55 ppt, and pH value was within 7.80 to 8.45.
- 6.03 Monitoring results of 3 key parameters: dissolved oxygen (DO), turbidity and suspended solids (SS) in this Reporting Period, are summarized in [Tables 6-1, 6-2, 6-3 and 6-4](#). A summary of exceedances for the 3 parameters are shown in [Table 6-5](#).

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

| Sampling date | Dissolved Oxygen conc. of Depth Ave. of Surf. and Mid Layer (mg/L) | | | | | | Dissolved Oxygen conc. of Depth Ave. of Bottom Layer (mg/L) | | | | | |
|---------------|--|------|------|------|------|------|---|------|------|------|------|------|
| | W1 | W2 | W3 | C1 | C2 | C3 | W1 | W2 | W3 | C1 | C2 | C3 |
| 4-Jan-12 | 6.20 | 6.32 | 6.18 | 6.34 | 6.11 | 6.12 | NA | 5.92 | 5.94 | 5.98 | 5.94 | 5.95 |
| 6-Jan-12 | 6.76 | 6.86 | 6.73 | 6.69 | 6.90 | 7.13 | NA | 6.75 | 6.77 | 6.43 | 6.58 | 6.91 |
| 10-Jan-12 | 6.79 | 6.84 | 7.05 | 6.84 | 7.01 | 6.77 | NA | 6.65 | 6.79 | 6.53 | 6.79 | 6.61 |
| 12-Jan-12 | 6.86 | 6.61 | 6.80 | 6.78 | 6.70 | 6.78 | NA | 6.15 | 6.35 | 6.57 | 6.31 | 6.59 |
| 14-Jan-12 | 6.47 | 6.34 | 6.47 | 6.33 | 6.45 | 6.45 | NA | 6.16 | 6.28 | 6.12 | 6.36 | 6.36 |
| 16-Jan-12 | 6.93 | 6.86 | 6.89 | 6.96 | 7.01 | 7.01 | NA | 6.65 | 6.63 | 6.73 | 6.68 | 6.68 |
| 18-Jan-12 | 6.78 | 6.86 | 6.73 | 6.98 | 6.81 | 6.81 | NA | 6.78 | 6.37 | 6.81 | 6.45 | 6.45 |
| 20-Jan-12 | 6.95 | 7.00 | 7.01 | 6.84 | 6.97 | 6.97 | NA | 6.84 | 6.63 | 6.65 | 6.63 | 6.63 |
| 27-Jan-12 | 6.93 | 6.72 | 6.95 | 6.85 | 7.03 | 7.03 | NA | 6.43 | 6.77 | 6.46 | 6.81 | 6.81 |
| 30-Jan-12 | 6.95 | 6.82 | 6.99 | 6.83 | 7.15 | 7.15 | NA | 6.62 | 6.75 | 6.65 | 6.87 | 6.87 |

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

| Sampling date | Turbidity Depth Ave. (NTU) | | | | | | Suspended Solids Depth Ave. (mg/L) | | | | | |
|---------------|----------------------------|------|------|------|------|------|------------------------------------|------|------|------|------|------|
| | W1 | W2 | W3 | C1 | C2 | C3 | W1 | W2 | W3 | C1 | C2 | C3 |
| 4-Jan-12 | 4.25 | 4.50 | 5.14 | 5.48 | 5.13 | 5.11 | 3.70 | 3.03 | 5.20 | 3.23 | 3.27 | 3.20 |
| 6-Jan-12 | 4.01 | 4.40 | 3.95 | 4.42 | 3.39 | 4.11 | 2.70 | 1.30 | 2.43 | 2.67 | 2.10 | 2.80 |
| 10-Jan-12 | 4.02 | 4.12 | 3.86 | 3.75 | 3.93 | 4.17 | 3.80 | 4.53 | 3.37 | 6.30 | 1.73 | 3.07 |
| 12-Jan-12 | 4.25 | 4.57 | 4.80 | 4.80 | 4.30 | 4.62 | 6.00 | 7.60 | 5.63 | 6.43 | 5.80 | 7.47 |
| 14-Jan-12 | 4.05 | 4.49 | 4.04 | 4.22 | 3.83 | 4.40 | 3.80 | 3.50 | 5.23 | 3.67 | 4.70 | 4.80 |
| 16-Jan-12 | 3.35 | 3.71 | 3.87 | 3.63 | 3.48 | 4.28 | 2.30 | 2.40 | 2.00 | 1.90 | 1.50 | 1.90 |
| 18-Jan-12 | 3.94 | 3.31 | 3.64 | 3.27 | 2.83 | 3.55 | 5.30 | 4.00 | 5.27 | 4.43 | 5.57 | 4.97 |
| 20-Jan-12 | 3.99 | 3.78 | 4.13 | 3.91 | 4.22 | 3.72 | 5.50 | 5.03 | 7.10 | 4.93 | 5.30 | 7.50 |
| 27-Jan-12 | 4.07 | 4.38 | 3.78 | 3.97 | 3.63 | 4.40 | 3.80 | 4.73 | 4.27 | 4.63 | 7.40 | 5.97 |
| 30-Jan-12 | 4.10 | 4.38 | 5.35 | 5.42 | 5.13 | 5.48 | 9.70 | 4.73 | 2.95 | 3.73 | 2.73 | 2.93 |

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

| Sampling date | Dissolved Oxygen conc. of Depth Ave. of Surf. and Mid Layer (mg/L) | | | | | | Dissolved Oxygen conc. of Depth Ave. of Bottom Layer (mg/L) | | | | | |
|---------------|--|------|------|------|------|------|---|------|------|------|------|------|
| | W1 | W2 | W3 | C1 | C2 | C3 | W1 | W2 | W3 | C1 | C2 | C3 |
| 4-Jan-12 | 6.80 | 6.42 | 6.47 | 6.44 | 6.90 | 6.77 | NA | 6.57 | 6.29 | 6.50 | 6.48 | 6.79 |
| 6-Jan-12 | 6.82 | 6.69 | 6.72 | 6.74 | 6.82 | 6.50 | NA | 6.67 | 6.41 | 6.48 | 6.67 | 6.33 |
| 10-Jan-12 | 6.88 | 6.66 | 6.61 | 6.94 | 6.68 | 6.83 | NA | 6.62 | 6.43 | 6.77 | 6.57 | 6.57 |
| 12-Jan-12 | 6.86 | 6.73 | 6.78 | 6.85 | 6.83 | 6.78 | NA | 6.23 | 6.32 | 6.37 | 6.55 | 6.25 |
| 14-Jan-12 | 6.21 | 6.51 | 6.41 | 6.30 | 6.25 | 6.38 | NA | 6.39 | 6.16 | 6.25 | 6.17 | 6.15 |
| 16-Jan-12 | 6.76 | 6.89 | 6.86 | 6.77 | 6.42 | 6.74 | NA | 6.65 | 6.68 | 6.42 | 6.65 | 6.57 |
| 18-Jan-12 | 6.83 | 6.72 | 6.86 | 6.77 | 6.30 | 6.78 | NA | 6.31 | 6.59 | 6.30 | 6.88 | 6.23 |
| 20-Jan-12 | 6.95 | 6.99 | 7.05 | 6.86 | 6.58 | 7.06 | NA | 6.60 | 6.78 | 6.58 | 6.87 | 6.85 |

| Sampling date | Dissolved Oxygen conc. of Depth Ave. of Surf. and Mid Layer (mg/L) | | | | | | Dissolved Oxygen conc. of Depth Ave. of Bottom Layer (mg/L) | | | | | |
|---------------|--|------|------|------|------|------|---|------|------|------|------|------|
| | W1 | W2 | W3 | C1 | C2 | C3 | W1 | W2 | W3 | C1 | C2 | C3 |
| 27-Jan-12 | 6.96 | 6.98 | 7.01 | 7.03 | 6.69 | 7.08 | NA | 6.71 | 6.69 | 6.69 | 6.77 | 6.89 |
| 30-Jan-12 | 7.02 | 7.00 | 7.10 | 7.00 | 6.54 | 7.12 | NA | 6.54 | 6.85 | 6.54 | 6.85 | 7.04 |

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

| Sampling date | Turbidity Depth Ave. (NTU) | | | | | | Suspended Solids Depth Ave. (mg/L) | | | | | |
|---------------|----------------------------|------|------|------|------|------|------------------------------------|------|------|------|-------|------|
| | W1 | W2 | W3 | C1 | C2 | C3 | W1 | W2 | W3 | C1 | C2 | C3 |
| 4-Jan-12 | 4.16 | 4.70 | 4.39 | 5.33 | 4.23 | 4.88 | 4.50 | 3.87 | 4.23 | 3.80 | 5.70 | 3.70 |
| 6-Jan-12 | 4.08 | 4.63 | 4.11 | 4.07 | 3.83 | 4.09 | 2.00 | 2.00 | 4.20 | 2.97 | 2.23 | 2.47 |
| 10-Jan-12 | 3.94 | 4.01 | 3.86 | 3.86 | 3.86 | 3.84 | 4.70 | 3.67 | 2.03 | 3.10 | 3.47 | 4.40 |
| 12-Jan-12 | 3.92 | 3.85 | 4.12 | 4.17 | 4.54 | 4.22 | 4.40 | 5.77 | 4.07 | 6.53 | 5.97 | 4.63 |
| 14-Jan-12 | 3.89 | 3.61 | 4.14 | 3.79 | 3.54 | 4.19 | 1.90 | 6.83 | 4.40 | 3.33 | 3.30 | 4.43 |
| 16-Jan-12 | 3.80 | 3.78 | 3.90 | 3.63 | 3.14 | 4.17 | 3.90 | 3.20 | 4.17 | 1.10 | 2.67 | 0.95 |
| 18-Jan-12 | 3.55 | 3.57 | 3.82 | 3.34 | 3.29 | 4.04 | 1.70 | 4.73 | 3.70 | 4.13 | 4.27 | 3.53 |
| 20-Jan-12 | 3.96 | 3.73 | 4.29 | 3.57 | 4.24 | 3.34 | 7.10 | 7.40 | 6.17 | 7.03 | 11.20 | 8.50 |
| 27-Jan-12 | 4.06 | 4.13 | 4.16 | 3.98 | 4.13 | 4.10 | 6.10 | 6.63 | 4.57 | 4.20 | 3.17 | 3.37 |
| 30-Jan-12 | 4.22 | 4.34 | 5.57 | 5.17 | 5.37 | 4.76 | 4.30 | 3.80 | 5.17 | 3.07 | 5.23 | 4.63 |

Table 6-5 Summarized Exceedances of Marine Water Quality

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

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

7 ECOLOGY

- 7.01 According to Clause 3.7 and Figure 4 in the Environmental Permit No. EP-281/2007/A, a total of 12 numbers *Celtis Timorensis* (uncommon species) in Chung Mei at Sok Kwu Wan, are identified to require labeling, fencing and protection. Out of these, four numbers located in the Pumping Station No.1 area are required to be transplanted in advance of pumping station construction and the transplantation proposal has been submitted to EPD previously.
- 7.02 Regular inspection of the transplanted tree was carried out by the landscaping sub-Contractor (Melofield Nursery and Landscape Contractor Limited) on **31 January 2012**. As a contingency measure in case that CT7 to CT10 can no longer be recovered, additional 7 no. of *Celtis Timorensis* (No. CT_1A to CT7A) were planted adjacent to the under-monitoring *Celtis Timorensis* CT7 to CT10 on 30 April 2011.
- 7.03 The tree inspection report is presented in [Appendix M](#).

8 WASTE MANAGEMENT

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

Records of Waste Quantities

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

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

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

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

| Type of Waste | Quantity | Disposal Location |
|--|----------|--------------------|
| C&D Materials (Inert) ('000m ³) | 0 | - |
| Reused in the Contract (Inert) ('000m ³) | 0 | - |
| Reused in other Projects (Inert) ('000m ³) | 3.311 | WENT Landfill Site |
| Disposal as Public Fill (Inert) ('000m ³) | 0 | - |

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

| Type of Waste | Quantity | Disposal Location |
|--------------------------------|----------|--|
| Metal (kg) | 0 | - |
| Paper / Cardboard Packing (kg) | 0 | - |
| Plastic (kg) | 0 | - |
| Chemical Wastes (kg) | 0 | - |
| General Refuses (tonne) | 5.090 | Outlying Islands Transfer Facilities (Sok Kwu Wan) |

8.04 There was no site effluent discharged but the estimated volume of surface runoff was less than 50m³ in this monthly period.

9 SITE INSPECTION

- 9.01 According to the Environmental Monitoring and Audit Manual, the environmental site inspection should be formulated by ET Leader. Regular environmental site inspections had been carried out by the ET to confirm the environmental performance. In this Reporting Period, weekly site inspection by ET was carried out on **6, 10, 17 and 31 January 2012** and a joint-site visit by IEC Representative, RE, the Contractor and ET was carried out on **6 January 2012**.
- 9.02 The findings/ deficiencies that observed during the weekly site inspection are listed in **Table 9-1** and the relevant checklists are attached in **Appendix K**.

Table 9-1 Site Observations

| Date | Findings / Deficiencies | Follow-Up Status |
|-----------------|---|---|
| 6 January 2012 | <ul style="list-style-type: none"> A generator without drip tray was observed within the site (Portion F). Drip tray is required to avoid contamination of soil or water, or removal of the equipment from the site is reminded. Oil drum without drip tray was observed on the of HDD working platform. Drip tray is required. | <ul style="list-style-type: none"> Drip tray was not required as the generator was removed from the site. Drip tray was provided during site inspection on 10 January 2012. |
| 10 January 2012 | <ul style="list-style-type: none"> Silt curtain needed to be repaired and re-position to restore the water protection function. (Bay 2) | The deficiency has been followed during site inspection on 31 January 2012. |
| 17 January 2012 | <ul style="list-style-type: none"> Regular maintenance for silt curtain was reminded especially before rainstorm weather. Larvicidal to be placed to stagnant water at pumping station 1 and 2. | The deficiencies have been followed during site inspection on 31 January 2012. |
| 31 January 2012 | <ul style="list-style-type: none"> No environmental issue was observed during site inspection. | N.A. |

10 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

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

Table 10-1 Statistical Summary of Environmental Complaints

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

Table 10-2 Statistical Summary of Environmental Summons

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

Table 10-3 Statistical Summary of Environmental Prosecution

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

11 IMPLEMENTATION STATUS OF MITIGATION MEASURES

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

Dust Mitigation Measure

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

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

Noise Mitigation Measure

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

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

Water Quality Mitigation Measure

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

- 11.05 During the dredging works, the Contractor should be responsible for the design and implementation of the following mitigation measures.
- Dredging should be undertaken using closed grab dredgers with a total production rate of 55m³/hr;
 - Deployment of 2-layer silt curtains with first layer enclosing the grab and the second layer at around 50, from the dredging area while dredging works are in progress;
 - all vessels should be sized such that adequate clearance (i.e. minimum clearance of 0.6m) is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;
 - all pipe leakages should be repaired promptly and plant shall not be operated with leaking pipes;
 - excess material should be cleaned from the decks and exposed fittings of barges before the vessel is moved;
 - adequate freeboard (i.e. minimum of 200mm) should be maintained on barges to ensure that decks are not washed by wave action;
 - all barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material; and
 - loading of barges and hoppers should be controlled to prevent splashing of dredged material to the surrounding water, and barges and hoppers should not be filled to a level which would cause the overflow of materials or sediment laden water during loading or transportation; and
 - the decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard.

Construction Run-off and Drainage

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

General Construction Activities

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

Wastewater Arising from Workforce

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

Sediment Contamination Mitigation Measure

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

Construction Waste Mitigation Measure

Good Site Practices and Waste Reduction Measures

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

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

General Site Wastes

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

Chemical Wastes

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

Construction and Demolition Material

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

Ecology Mitigation Measure

Terrestrial Ecology

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

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

Intertidal and Subtidal Ecology

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

Fisheries Mitigation Measure

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

Landscape & Visual Mitigation Measure

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

Table 11-1 Environmental Mitigation Measures

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

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

12 IMPACT FORECAST

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

Water Quality

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

Air Quality

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

Noise

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

Waste and Chemical Management

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

13 CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

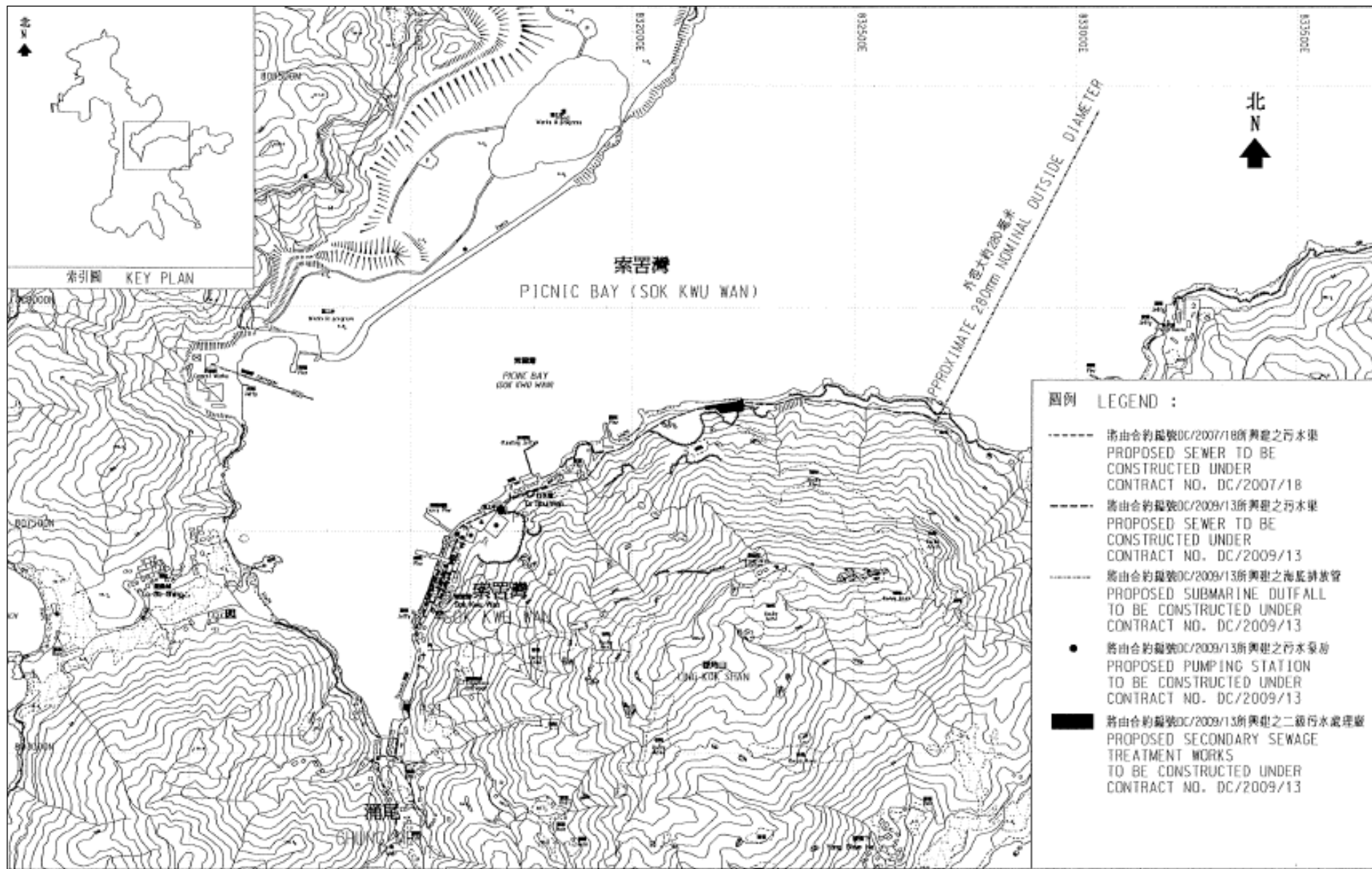
- 13.01 This is the **18th** monthly EM&A Report covering the construction period from **1 to 31 January 2012**.
- 13.02 No 1-hour or 24-hour TSP results were found to be triggered the Action or Limit Level in this Reporting Period.
- 13.03 No noise complaint (an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in this Reporting Period.
- 13.04 The monitoring result demonstrated no exceedance of Action or Limit Level of marine water quality monitoring in this Reporting Period.
- 13.05 No documented complaint, notification of summons or successful prosecution was received.
- 13.06 In this Reporting Period, weekly site inspection by ET was carried out on **6, 10, 17 and 31 January 2012** and a joint-site visit by IEC Representative, RE, the Contractor and ET was carried out on **6 January 2012**. All the observation has been rectified during the next week site inspection. The environmental performance of the Project was therefore considered as satisfactory.
- 13.07 A site visit was carried by Environmental Protection Department (EPD) on 5 January 2012 to re-inspect the environmental performance of the construction site and they have no comment during the site inspection.

RECOMMENDATIONS

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

Appendix A

Site Layout Plan – Sok Kwu Wan Portion Area



Appendix B

Organization Structure and Contact Details of Relevant Parties

Contact Details of Key Personnel

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

Legend:

DSD (Employer) – Drainage Services Department

CDM (Engineer) – Scott Wilson CDM Joint Venture

Leader (Main Contractor) – Leader Civil Engineering Corporation Limited

Scott Wilson (IEC) – Scott Wilson Limited

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

Appendix C

A Master and Three Months Rolling Construction Programme

| Activity ID | Description | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors | Successors | 2011 | | | | | | | | | | | |
|--|---|-------------------|------------------|-------------|--------------|------------|-------------|-------------|---------------------------|----------------------------|------|-----|-----|------|--|--|-----|-----|-----|-----|----|--|
| | | | | | | | | | | | OCT | NOV | DEC | 2012 | | | JAN | FEB | MAR | APR | IA | |
| Project Key Date | | | | | | | | | | | | | | | | | | | | | | |
| KD0010 | Receive Letter of Acceptance | 0 | 100 | | 05/05/10 A | | 05/05/10 A | | | KD0125 | | | | | | | | | | | | |
| KD0020 | Project Commencement Date | 0 | 100 | | 17/05/10 A | | 17/05/10 A | | | E&M0010, E&M0070, E&M1001, | | | | | | | | | | | | |
| KD0030 | Section W1 - Slope Works in Portion A & C (456d) | 0 | 100 | | 14/10/11 A | | 14/10/11 A | | YSW0150 | KD0125 | | | | | | | | | | | | |
| KD0050 | Section W3 - Footpath Diversion in Ptn G (273d) | 0 | 100 | | 24/03/11 A | | 24/03/11 A | | SKW0551 | KD0125 | | | | | | | | | | | | |
| KD0115 | Start Operate Temp Sewage Treatment in Port. A&H | 0 | 0 | | 02/05/12 | | 30/06/11 * | -307d * | 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 Accommodation | 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 | 05/01/12 | 19/11/11 A | 30/11/11 | -36d | 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 | 02/01/12 | 19/11/11 A | 01/04/11 | -276d | E&M0103 | E&M0480, E&M3140 | | | | | | | | | | | | |
| E&M0220 | Approval on BS Equipment | 30 | 50 | 30/11/11 A | 07/02/12 | 30/11/11 A | 04/10/11 | -126d | E&M0103, E&M0280 | E&M0490, E&M3150 | | | | | | | | | | | | |
| E&M0230 | Approval on FS Equipment | 30 | 70 | 30/11/11 A | 01/02/12 | 30/11/11 A | 01/11/11 | -92d | 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 | 04/01/12 | 04/08/10 A | 25/10/11 | -71d | E&M0040 | E&M0250, E&M0280, E&M0290 | | | | | | | | | | | | |
| E&M0250 | Sub. Builder's Works Requirements Drawings | 15 | 90 | 04/08/10 A | 07/01/12 | 04/08/10 A | 26/10/11 | -73d | E&M0240, E&M0260, E&M0270 | E&M0280, E&M0290 | | | | | | | | | | | | |
| E&M0260 | Sub. Mechanical Installation Drawings | 60 | 90 | 27/09/10 A | 05/01/12 | 27/09/10 A | 25/10/11 | -73d | E&M0040 | E&M0250 | | | | | | | | | | | | |
| E&M0270 | Sub. Electrical Installation Drawings | 60 | 90 | 27/09/10 A | 05/01/12 | 27/09/10 A | 25/10/11 | -73d | E&M0040 | E&M0250, E&M0280 | | | | | | | | | | | | |
| E&M0280 | Sub. BS Installation Drawings | 120 | 80 | 27/09/10 A | 23/01/12 | 27/09/10 A | 19/09/11 | -126d | E&M0240, E&M0250, E&M0270 | E&M0220 | | | | | | | | | | | | |
| E&M0290 | Sub. FS Installation Drawings | 120 | 80 | 13/11/10 A | 23/01/12 | 13/11/10 A | 23/10/11 | -92d | E&M0240, E&M0250 | E&M0230 | | | | | | | | | | | | |

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|-------------|----------|------------------------|
| Start date | 05/05/10 | Early bar |
| Finish date | 06/02/15 | Progress bar |
| Data date | 31/12/11 | Critical bar |
| Run date | 11/01/12 | 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 (Jan 2012 - Mar 2012)

(Marked on 31 Dec 2011)

| | | | |
|----------|------------|---------|----------|
| Date | Revision | Checked | Approved |
| 31/12/10 | Revision 0 | RH | VC |
| | | | |
| | | | |

| Activity ID | Description | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors | Successors | Gantt Chart (OCT 2011 - APR 2012) | | | | | | | | | | | | |
|---|--|-------------------|------------------|-------------|--------------|------------|-------------|-------------|----------------------------|----------------------------|-----------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|
| 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 | [Gantt bar: 01/11/11 to 30/11/11] | | | | | | | | | | | | |
| E&M0300 | Application & Approval from HEC | 150 | 90 | 01/11/11 A | 16/02/12 | 01/11/11 A | 05/01/12 | -42d | E&M0295 | E&M0305 | [Gantt bar: 01/11/11 to 16/02/12] | | | | | | | | | | | | |
| E&M0305 | Provision of Cables to the STWs | 180 | 0 | 17/02/12 | 14/08/12 | 06/01/12 | 03/07/12 | -42d | E&M0300 | E&M0680 | [Gantt bar: 17/02/12 to 14/08/12] | | | | | | | | | | | | |
| E&M0320 | Form 314 Submission to FSD | 14 | 0 | 02/02/12 | 15/02/12 | 25/04/12 | 08/05/12 | 83d | E&M0230 | E&M0325, E&M0670 | [Gantt bar: 02/02/12 to 15/02/12] | | | | | | | | | | | | |
| E&M0325 | Submission to WSD | 14 | 70 | 01/11/11 A | 19/02/12 | 01/11/11 A | 12/05/12 | 83d | E&M0320 | E&M0670, E&M0680 | [Gantt bar: 01/11/11 to 19/02/12] | | | | | | | | | | | | |
| E&M0350 | Form 501 Submission to FSD (PS1 & PS2) | 28 | 0 | 06/04/12 | 04/05/12 | 30/12/14 | 06/02/15 | 946d | E&M2016 | | [Gantt bar: 06/04/12 to 04/05/12] | | | | | | | | | | | | |
| 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 | [Gantt bar: 17/05/10 to 01/06/10] | | | | | | | | | | | | |
| 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 | [Gantt bar: 31/07/10 to 22/08/10] | | | | | | | | | | | | |
| YSW0035 | Baseline Monitoring Report Submission (A & N) | 14 | 100 | 23/08/10 A | 07/09/10 A | 23/08/10 A | 07/09/10 A | | YSW0030 | YSW0120, YSW0152, YSW0500, | [Gantt bar: 23/08/10 to 07/09/10] | | | | | | | | | | | | |
| YSW0040 | Baseline monitoring (Water) | 213 | 100 | 30/07/10 A | 31/12/10 A | 30/07/10 A | 31/12/10 A | | YSW0020 | YSW0350 | [Gantt bar: 30/07/10 to 31/12/10] | | | | | | | | | | | | |
| YSW0050 | Erect Hoarding and Fencing | 60 | 100 | 17/05/10 A | 15/07/10 A | 17/05/10 A | 15/07/10 A | | | | [Gantt bar: 17/05/10 to 15/07/10] | | | | | | | | | | | | |
| Section W 1 - Slope Works in Portion A & C | | | | | | | | | | | | | | | | | | | | | | | |
| YSW0075 | Mobilization | 30 | 100 | 17/05/10 A | 15/06/10 A | 17/05/10 A | 15/06/10 A | | KD0020 | YSW0100 | [Gantt bar: 17/05/10 to 15/06/10] | | | | | | | | | | | | |
| YSW0080 | Site Clearance | 30 | 100 | 17/05/10 A | 15/06/10 A | 17/05/10 A | 15/06/10 A | | | YSW0085, YSW0120 | [Gantt bar: 17/05/10 to 15/06/10] | | | | | | | | | | | | |
| YSW0085 | Initial Survey | 14 | 100 | 02/06/10 A | 15/06/10 A | 02/06/10 A | 15/06/10 A | | YSW0080 | YSW0120 | [Gantt bar: 02/06/10 to 15/06/10] | | | | | | | | | | | | |
| YSW0090 | Verify the Rock Boulder required Stablization Wk | 30 | 100 | 19/07/10 A | 21/03/11 A | 19/07/10 A | 21/03/11 A | | | YSW0100, YSW0110 | [Gantt bar: 19/07/10 to 21/03/11] | | | | | | | | | | | | |
| YSW0100 | Removal of Rock Boulder | 280 | 100 | 20/09/10 A | 03/06/11 A | 20/09/10 A | 03/06/11 A | | YSW0075, YSW0090 | YSW0150 | [Gantt bar: 20/09/10 to 03/06/11] | | | | | | | | | | | | |
| YSW0110 | Stablizing work for rockboulder | 280 | 100 | 16/07/11 A | 19/08/11 A | 16/07/11 A | 19/08/11 A | | YSW0090 | YSW0150 | [Gantt bar: 16/07/11 to 19/08/11] | | | | | | | | | | | | |
| YSW0120 | Cut the slope to design profile | 100 | 100 | 13/09/10 A | 14/09/10 A | 13/09/10 A | 14/09/10 A | | YSW0035, YSW0080, YSW0085 | YSW0131, YSW0165 | [Gantt bar: 13/09/10 to 14/09/10] | | | | | | | | | | | | |
| YSW0131 | Mobilization of Plant and Material of Soil Nails | 20 | 100 | 01/09/10 A | 14/09/10 A | 01/09/10 A | 14/09/10 A | | YSW0120 | YSW0132 | [Gantt bar: 01/09/10 to 14/09/10] | | | | | | | | | | | | |
| YSW0132 | Erect Scaffold and Working Platform | 20 | 100 | 15/09/10 A | 16/09/10 A | 15/09/10 A | 16/09/10 A | | YSW0131 | YSW0133 | [Gantt bar: 15/09/10 to 16/09/10] | | | | | | | | | | | | |
| YSW0133 | Setting out and Verify Locations of Soil Nails | 10 | 100 | 14/09/10 A | 31/10/10 A | 14/09/10 A | 31/10/10 A | | YSW0132 | YSW0134 | [Gantt bar: 14/09/10 to 31/10/10] | | | | | | | | | | | | |
| YSW0134 | Drilling and Soil Nails Installation | 20 | 100 | 08/10/10 A | 19/11/10 A | 08/10/10 A | 19/11/10 A | | YSW0133 | YSW0135 | [Gantt bar: 08/10/10 to 19/11/10] | | | | | | | | | | | | |
| YSW0135 | Construction of Nail Heads | 10 | 100 | 24/11/10 A | 01/12/10 A | 24/11/10 A | 01/12/10 A | | YSW0134 | YSW0136 | [Gantt bar: 24/11/10 to 01/12/10] | | | | | | | | | | | | |
| YSW0136 | Mesh Installation on Cut Slope | 10 | 100 | 04/12/10 A | 04/12/10 A | 04/12/10 A | 04/12/10 A | | YSW0135 | YSW0137 | [Gantt bar: 04/12/10 to 04/12/10] | | | | | | | | | | | | |
| YSW0137 | Hydroseeding | 30 | 0 | 31/12/11 | 29/01/12 | 13/01/14 | 11/02/14 | 744d | YSW0136 | YSW0140 | [Gantt bar: 31/12/11 to 29/01/12] | | | | | | | | | | | | |
| YSW0140 | Construct U-channels & Step Channel on Cut Slope | 116 | 100 | 02/04/11 A | 30/09/11 A | 02/04/11 A | 30/09/11 A | | YSW0137 | YSW0150 | [Gantt bar: 02/04/11 to 30/09/11] | | | | | | | | | | | | |
| YSW0150 | Construction of access, u-channels and catch pit | 76 | 96 | 10/01/11 A | 01/02/12 | 10/01/11 A | 14/02/14 | 744d | YSW0100, YSW0110, YSW0140, | KD0030 | [Gantt bar: 10/01/11 to 01/02/12] | | | | | | | | | | | | |
| YSW0165 | Construction of Barrier Wall (below Ground Lev) | 226 | 92 | 10/09/10 A | 18/01/12 | 10/09/10 A | 03/11/11 | -75d | YSW0120 | YSW0150, YSW0154, YSW0155 | [Gantt bar: 10/09/10 to 18/01/12] | | | | | | | | | | | | |
| Section W 2 - YSW STW & Submarine Outfall | | | | | | | | | | | | | | | | | | | | | | | |
| Civil & Structural Work | | | | | | | | | | | | | | | | | | | | | | | |
| YSW0412 | Mobilization | 30 | 100 | 17/05/10 A | 15/06/10 A | 17/05/10 A | 15/06/10 A | | KD0020 | YSW0422 | [Gantt bar: 17/05/10 to 15/06/10] | | | | | | | | | | | | |
| 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, | [Gantt bar: 17/05/10 to 15/06/10] | | | | | | | | | | | | |
| YSW0432 | Initial Survey | 14 | 100 | 02/06/10 A | 15/06/10 A | 02/06/10 A | 15/06/10 A | | YSW0422 | YSW0510 | [Gantt bar: 02/06/10 to 15/06/10] | | | | | | | | | | | | |
| YSW STP - GL H - 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 | [Gantt bar: 17/09/10 to 16/12/10] | | | | | | | | | | | | |
| YSW0510 | Sub-structure construction (Inlet Pumping Stn) | 30 | 100 | 17/12/10 A | 04/04/11 A | 17/12/10 A | 04/04/11 A | | YSW0432, YSW0500 | YSW0520 | [Gantt bar: 17/12/10 to 04/04/11] | | | | | | | | | | | | |
| YSW0520 | Backfill & Remove ELS (Inlet Pumping Stn) | 30 | 100 | 03/01/11 A | 05/05/11 A | 03/01/11 A | 05/05/11 A | | YSW0510 | YSW0530, YSW0610 | [Gantt bar: 03/01/11 to 05/05/11] | | | | | | | | | | | | |
| 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 | [Gantt bar: 11/01/11 to 08/06/11] | | | | | | | | | | | | |
| 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 | [Gantt bar: 13/06/11 to 28/09/11] | | | | | | | | | | | | |
| 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 | [Gantt bar: 15/08/11 to 18/10/11] | | | | | | | | | | | | |
| YSW0570 | Excavate to formation by open cut | 30 | 97 | 02/07/11 A | 31/12/11 | 02/07/11 A | 12/06/11 | -202d | YSW0550 | YSW0580 | [Gantt bar: 02/07/11 to 31/12/11] | | | | | | | | | | | | |
| YSW0580 | Base slab construction | 30 | 85 | 06/07/11 A | 05/01/12 | 06/07/11 A | 16/06/11 | -202d | YSW0570 | YSW0590 | [Gantt bar: 06/07/11 to 05/01/12] | | | | | | | | | | | | |
| YSW0590 | G/F to 1/F construction | 50 | 55 | 29/09/11 A | 27/01/12 | 29/09/11 A | 09/07/11 | -202d | YSW0580 | YSW0600 | [Gantt bar: 29/09/11 to 27/01/12] | | | | | | | | | | | | |
| YSW0600 | 1/F to Roof construction | 50 | 45 | 01/11/11 A | 24/02/12 | 01/11/11 A | 05/08/11 | -202d | YSW0590 | YSW0720, YSW0800 | [Gantt bar: 01/11/11 to 24/02/12] | | | | | | | | | | | | |
| YSW0720 | Water Test | 36 | 0 | 24/02/12 | 31/03/12 | 06/08/11 | 10/09/11 | -202d | YSW0600 | E&M0530, E&M0540, E&M0550, | [Gantt bar: 24/02/12 to 31/03/12] | | | | | | | | | | | | |
| YSW0800 | ABWF installation | 36 | 0 | 24/02/12 | 31/03/12 | 06/08/11 | 10/09/11 | -202d | YSW0600 | E&M0530, E&M0540, E&M0550, | [Gantt bar: 24/02/12 to 31/03/12] | | | | | | | | | | | | |
| YSW STP - GL T - 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 | [Gantt bar: 08/09/10 to 17/09/10] | | | | | | | | | | | | |
| YSW0620 | Base slab construction | 60 | 100 | 18/09/10 A | 23/05/11 A | 18/09/10 A | 23/05/11 A | | YSW0610 | YSW0630 | [Gantt bar: 18/09/10 to 23/05/11] | | | | | | | | | | | | |
| 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 | [Gantt bar: 27/12/10 to 19/07/11] | | | | | | | | | | | | |
| YSW0640 | 1/F to Roof Construction | 91 | 96 | 20/07/11 A | 03/01/12 | 20/07/11 A | 21/08/11 | -135d | YSW0630 | YSW0810, YSW0840 | [Gantt bar: 20/07/11 to 03/01/12] | | | | | | | | | | | | |
| YSW0810 | ABWF installation | 86 | 0 | 31/12/11 | 25/03/12 | 02/07/11 | 25/09/11 | -182d | YSW0640 | E&M0610, E&M0620, E&M0630, | [Gantt bar: 31/12/11 to 25/03/12] | | | | | | | | | | | | |

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|-------------|----------|--|------------------------|
| Start date | 05/05/10 | | Early bar |
| Finish date | 06/02/15 | | Progress bar |
| Data date | 31/12/11 | | Critical bar |
| Run date | 11/01/12 | | Summary bar |
| Page number | 2A | | Progress point |
| | | | Critical point |
| | | | Summary point |
| | | | Start milestone point |
| | | | Finish milestone point |

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| | | | |
|----------|------------|---------|----------|
| Date | Revision | Checked | Approved |
| 31/12/10 | Revision 0 | RH | VC |
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| Activity ID | Description | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors | Successors | Gantt Chart (OCT 2011 - APR 2012) | | | | | | | | | | | |
|---|--|-------------------|------------------|-------------|--------------|------------|-------------|-------------|---------------------------|---------------------------|-----------------------------------|--|--|--|--|--|--|--|--|--|--|--|
| YSW STP - GL F - 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 | [Gantt bar: 21/08/10 to 14/10/10] | | | | | | | | | | | |
| 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 | [Gantt bar: 15/10/10 to 31/12/10] | | | | | | | | | | | |
| 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 | [Gantt bar: 08/01/11 to 15/03/11] | | | | | | | | | | | |
| YSW0680 | Base slab construction | 30 | 100 | 16/03/11 A | 28/03/11 A | 16/03/11 A | 28/03/11 A | | YSW0670 | YSW0690 | [Gantt bar: 16/03/11 to 28/03/11] | | | | | | | | | | | |
| 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 | [Gantt bar: 30/03/11 to 18/06/11] | | | | | | | | | | | |
| YSW0700 | Apply protective paint | 20 | 0 | 31/12/11 | 19/01/12 | 27/02/11 | 18/03/11 | -307d | YSW0690 | YSW0710 | [Gantt bar: 31/12/11 to 19/01/12] | | | | | | | | | | | |
| YSW0710 | Water test | 14 | 0 | 20/01/12 | 02/02/12 | 19/03/11 | 01/04/11 | -307d | YSW0700 | E&M0510, E&M0630, E&M0640 | [Gantt bar: 20/01/12 to 02/02/12] | | | | | | | | | | | |
| YSW0820 | ABWF installation | 34 | 0 | 31/12/11 | 02/02/12 | 27/02/11 | 01/04/11 | -307d | YSW0690 | E&M0510, E&M0630, E&M0640 | [Gantt bar: 31/12/11 to 02/02/12] | | | | | | | | | | | |
| YSW STP - GL A - F | | | | | | | | | | | | | | | | | | | | | | |
| YSW0730 | Completion of HDD | 0 | 0 | 31/12/11 | | 01/07/11 | | -183d | YSW0360 | YSW0740 | [Gantt bar: 31/12/11 to 01/07/11] | | | | | | | | | | | |
| YSW0740 | ELS & excavate for Outfall Shaft | 22 | 0 | 31/12/11 | 21/01/12 | 01/07/11 | 22/07/11 | -183d | YSW0730 | YSW0750 | [Gantt bar: 31/12/11 to 21/01/12] | | | | | | | | | | | |
| YSW0750 | Sub-structure construction (outfall shaft) | 22 | 0 | 22/01/12 | 12/02/12 | 23/07/11 | 13/08/11 | -183d | YSW0740 | YSW0760 | [Gantt bar: 22/01/12 to 12/02/12] | | | | | | | | | | | |
| YSW0760 | Backfill & remove ELS (outfall shaft) | 24 | 0 | 13/02/12 | 07/03/12 | 14/08/11 | 06/09/11 | -183d | YSW0750 | YSW0770, YSW1470 | [Gantt bar: 13/02/12 to 07/03/12] | | | | | | | | | | | |
| YSW0770 | Excavate to formation by open cut | 22 | 0 | 08/03/12 | 29/03/12 | 07/09/11 | 28/09/11 | -183d | YSW0760 | YSW0780 | [Gantt bar: 08/03/12 to 29/03/12] | | | | | | | | | | | |
| YSW0780 | Base slab construction | 21 | 0 | 30/03/12 | 19/04/12 | 29/09/11 | 19/10/11 | -183d | YSW0770 | YSW0790 | [Gantt bar: 30/03/12 to 19/04/12] | | | | | | | | | | | |
| YSW0790 | Superstructure construction upto +10.5mPD | 30 | 0 | 20/04/12 | 19/05/12 | 20/10/11 | 18/11/11 | -183d | YSW0780 | YSW0795, YSW0870 | [Gantt bar: 20/04/12 to 19/05/12] | | | | | | | | | | | |
| Fire Hose Reel / Sprinkler Pump Rm | | | | | | | | | | | | | | | | | | | | | | |
| YSW0840 | ELS & excavate to formation (+0 mPD approx) | 30 | 0 | 03/01/12 | 02/02/12 | 01/09/11 | 30/09/11 | -125d | YSW0035, YSW0422, YSW0640 | YSW0860 | [Gantt bar: 03/01/12 to 02/02/12] | | | | | | | | | | | |
| YSW0860 | Sub-structure construction | 30 | 0 | 02/02/12 | 03/03/12 | 01/10/11 | 30/10/11 | -125d | YSW0840 | YSW0880 | [Gantt bar: 02/02/12 to 03/03/12] | | | | | | | | | | | |
| YSW0880 | Backfill & remove ELS | 30 | 0 | 03/03/12 | 02/04/12 | 31/10/11 | 29/11/11 | -125d | YSW0860 | YSW0890 | [Gantt bar: 03/03/12 to 02/04/12] | | | | | | | | | | | |
| YSW0890 | Construction Ground Slab at +5.2mPD | 30 | 0 | 02/04/12 | 02/05/12 | 30/11/11 | 29/12/11 | -125d | YSW0880 | YSW0900, YSW0930 | [Gantt bar: 02/04/12 to 02/05/12] | | | | | | | | | | | |
| YSW0900 | Superstructure construction upto +8.2mPD | 35 | 0 | 02/05/12 | 06/06/12 | 30/12/11 | 02/02/12 | -125d | YSW0890 | YSW0910, YSW0925 | [Gantt bar: 02/05/12 to 06/06/12] | | | | | | | | | | | |
| YSW0930 | Construction of Guard House | 60 | 0 | 02/05/12 | 01/07/12 | 06/05/12 | 04/07/12 | 3d | YSW0890 | E&M0690, KD0040 | [Gantt bar: 02/05/12 to 01/07/12] | | | | | | | | | | | |
| Emergency Storage Tank | | | | | | | | | | | | | | | | | | | | | | |
| YSW1470 | ELS & excavate to formation (-1.5mPD Approx) | 30 | 0 | 08/03/12 | 06/04/12 | 07/11/11 | 06/12/11 | -122d | YSW0035, YSW0760 | YSW1480 | [Gantt bar: 08/03/12 to 06/04/12] | | | | | | | | | | | |
| YSW1480 | Sub-structure construction | 40 | 0 | 07/04/12 | 16/05/12 | 07/12/11 | 15/01/12 | -122d | YSW1470 | YSW1490 | [Gantt bar: 07/04/12 to 16/05/12] | | | | | | | | | | | |
| 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 | [Gantt bar: 02/12/10 to 09/05/11] | | | | | | | | | | | |
| 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 | [Gantt bar: 20/11/10 to 20/04/11] | | | | | | | | | | | |
| YSW0154 | Construction of Subsoil Drain | 90 | 30 | 24/08/11 A | 21/03/12 | 24/08/11 A | 05/01/12 | -75d | YSW0153, YSW0165 | YSW0155 | [Gantt bar: 24/08/11 to 21/03/12] | | | | | | | | | | | |
| YSW0155 | RC Concrete Barrier (above Ground Level) | 120 | 0 | 21/03/12 | 19/07/12 | 06/01/12 | 04/05/12 | -75d | YSW0154, YSW0165 | YSW1640, YSW1660 | [Gantt bar: 21/03/12 to 19/07/12] | | | | | | | | | | | |
| 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 | [Gantt bar: 17/05/10 to 08/07/10] | | | | | | | | | | | |
| 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 | [Gantt bar: 17/05/10 to 15/07/10] | | | | | | | | | | | |
| YSW0210 | Ecology Survey | 90 | 100 | 16/07/10 A | 11/02/11 A | 16/07/10 A | 11/02/11 A | | YSW0200 | YSW0350 | [Gantt bar: 16/07/10 to 11/02/11] | | | | | | | | | | | |
| 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 | [Gantt bar: 17/05/10 to 27/08/10] | | | | | | | | | | | |
| YSW0230 | Hydrographical Survey (YSW) | 45 | 100 | 31/08/10 A | 31/01/11 A | 31/08/10 A | 31/01/11 A | | YSW0220 | YSW0350 | [Gantt bar: 31/08/10 to 31/01/11] | | | | | | | | | | | |
| 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 | [Gantt bar: 17/05/10 to 31/03/11] | | | | | | | | | | | |
| 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 | [Gantt bar: 24/09/10 to 25/03/11] | | | | | | | | | | | |
| 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 | [Gantt bar: 26/01/11 to 24/03/11] | | | | | | | | | | | |
| 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 | [Gantt bar: 06/11/10 to 19/01/11] | | | | | | | | | | | |
| 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 | [Gantt bar: 02/02/11 to 04/03/11] | | | | | | | | | | | |
| 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 | [Gantt bar: 31/01/11 to 29/03/11] | | | | | | | | | | | |
| 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 | [Gantt bar: 15/03/11 to 31/03/11] | | | | | | | | | | | |
| 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 | [Gantt bar: 02/04/11 to 28/04/11] | | | | | | | | | | | |
| 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 | [Gantt bar: 09/04/11 to 14/04/11] | | | | | | | | | | | |
| 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 | [Gantt bar: 19/04/11 to 28/04/11] | | | | | | | | | | | |
| 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 | [Gantt bar: 29/04/11 to 08/12/11] | | | | | | | | | | | |
| 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 | [Gantt bar: 14/12/11 to 30/12/11] | | | | | | | | | | | |
| YSW0365 | Set up of Silt Curtain as per EP | 30 | 0 | 31/12/11 | 29/01/12 | 20/07/13 | 18/08/13 | 567d | YSW0360 | YSW0370 | [Gantt bar: 31/12/11 to 29/01/12] | | | | | | | | | | | |
| YSW0370 | Dredging of Marine Deposit for Diffuser (YSW) | 60 | 0 | 30/01/12 | 29/03/12 | 19/08/13 | 17/10/13 | 567d | YSW0360, YSW0365 | YSW0380 | [Gantt bar: 30/01/12 to 29/03/12] | | | | | | | | | | | |
| YSW0380 | Diffuser Construction (YSW) | 60 | 0 | 30/03/12 | 28/05/12 | 18/10/13 | 16/12/13 | 567d | YSW0370 | YSW0390 | [Gantt bar: 30/03/12 to 28/05/12] | | | | | | | | | | | |
| E&M Works - YSW STP | | | | | | | | | | | | | | | | | | | | | | |
| E&M0360 | Delivery of MBR Memb. Mod. (MBR Tk4) | 137 | 100 | 24/02/11 A | 21/06/11 A | 24/02/11 A | 21/06/11 A | | E&M0160 | E&M0510 | [Gantt bar: 24/02/11 to 21/06/11] | | | | | | | | | | | |
| 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 | [Gantt bar: 24/02/11 to 17/10/11] | | | | | | | | | | | |

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|-------------|----------|------------------------|
| Start date | 05/05/10 | Early bar |
| Finish date | 06/02/15 | Progress bar |
| Data date | 31/12/11 | Critical bar |
| Run date | 11/01/12 | Summary bar |
| Page number | 3A | 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 (Jan 2012 - Mar 2012)

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| Date | Revision | Checked | Approved |
| 31/12/10 | Revision 0 | RH | VC |
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| | | | |

(Marked on 31 Dec 2011)

| Activity ID | Description | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors | Successors | Gantt Chart (OCT 2011 - APR 2012) | | | | | | | | | | | |
|---|---|-------------------|------------------|-------------|--------------|------------|-------------|-------------|---------------------------|----------------------------|-----------------------------------|--|--|--|--|--|--|--|--|--|--|--|
| 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 | [Gantt bar: 10/10/11 to 29/12/11] | | | | | | | | | | | |
| E&M0390 | Delivery of Coarse Screens | 162 | 90 | 06/09/11 A | 15/01/12 | 06/09/11 A | 10/09/11 | -127d | E&M0110 | E&M0540 | [Gantt bar: 06/09/11 to 15/01/12] | | | | | | | | | | | |
| 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 | [Gantt bar: 12/09/11 to 30/11/11] | | | | | | | | | | | |
| 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 | [Gantt bar: 23/06/11 to 05/09/11] | | | | | | | | | | | |
| 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 | [Gantt bar: 26/02/11 to 17/11/11] | | | | | | | | | | | |
| E&M0440 | Delivery of Sludge Dewatering Equipment | 180 | 50 | 01/09/11 A | 29/03/12 | 01/09/11 A | 28/09/11 | -183d | E&M0170 | E&M0580 | [Gantt bar: 01/09/11 to 29/03/12] | | | | | | | | | | | |
| E&M0450 | Delivery of Valves, Pipes & Fittings | 180 | 70 | 30/08/11 A | 28/02/12 | 30/08/11 A | 23/01/12 | -36d | E&M0180 | E&M0590, E&M0605 | [Gantt bar: 30/08/11 to 28/02/12] | | | | | | | | | | | |
| 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 | [Gantt bar: 12/08/11 to 24/12/11] | | | | | | | | | | | |
| 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 | [Gantt bar: 03/11/11 to 21/06/11] | | | | | | | | | | | |
| E&M0480 | Delivery of MCC LVSB | 177 | 0 | 03/01/12 | 27/06/12 | 02/04/11 | 25/09/11 | -276d | E&M0210 | E&M0620 | [Gantt bar: 03/01/12 to 27/06/12] | | | | | | | | | | | |
| E&M0490 | Delivery of BS Equipment | 180 | 20 | 11/12/11 A | 30/06/12 | 11/12/11 A | 25/02/12 | -126d | E&M0220 | E&M0630 | [Gantt bar: 11/12/11 to 30/06/12] | | | | | | | | | | | |
| E&M0500 | Delivery FS Equipment | 180 | 20 | 11/12/11 A | 24/06/12 | 11/12/11 A | 24/03/12 | -92d | E&M0230 | E&M0630, E&M0640 | [Gantt bar: 11/12/11 to 24/06/12] | | | | | | | | | | | |
| E&M0510 | Install Membrane Modules in MBR Tank no. 4 | 90 | 0 | 03/02/12 | 02/05/12 | 02/04/11 | 30/06/11 | -307d | E&M0360, YSW0710, YSW0820 | KD0115 | [Gantt bar: 03/02/12 to 02/05/12] | | | | | | | | | | | |
| E&M0540 | Install Coarse Screens | 75 | 0 | 31/03/12 | 14/06/12 | 11/09/11 | 24/11/11 | -202d | E&M0390, YSW0720, YSW0800 | E&M0530, E&M0550, E&M0570, | [Gantt bar: 31/03/12 to 14/06/12] | | | | | | | | | | | |
| E&M0560 | Install Pumps | 90 | 0 | 31/03/12 | 29/06/12 | 11/09/11 | 09/12/11 | -202d | E&M0410, YSW0720, YSW0800 | E&M0570, E&M0590, E&M0660 | [Gantt bar: 31/03/12 to 29/06/12] | | | | | | | | | | | |
| E&M0580 | Install Sludge Dewatering Equipment | 280 | 0 | 31/03/12 | 05/01/13 | 29/09/11 | 04/07/12 | -184d | E&M0440, YSW0720, YSW0800 | E&M0690 | [Gantt bar: 31/03/12 to 05/01/13] | | | | | | | | | | | |
| E&M0600 | Install Penstocks (Batch 1, GL H - T) | 180 | 0 | 31/03/12 | 27/09/12 | 07/01/12 | 04/07/12 | -84d | E&M0460, YSW0720, YSW0800 | E&M0690 | [Gantt bar: 31/03/12 to 27/09/12] | | | | | | | | | | | |
| 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 | [Gantt bar: 17/05/10 to 01/06/10] | | | | | | | | | | | |
| SKW0260 | Baseline monitoring (Air & Noise) | 14 | 100 | 02/06/10 A | 15/06/10 A | 02/06/10 A | 15/06/10 A | | SKW0250 | SKW0242, SKW0265, SKW0592, | [Gantt bar: 02/06/10 to 15/06/10] | | | | | | | | | | | |
| SKW0265 | Baseline Monitoring Submission (A & N) | 14 | 100 | 16/06/10 A | 08/07/10 A | 16/06/10 A | 08/07/10 A | | SKW0260 | SKW0242, SKW0592, SKW0681, | [Gantt bar: 16/06/10 to 08/07/10] | | | | | | | | | | | |
| Section W3 - Footpath Diversion in Portion G | | | | | | | | | | | | | | | | | | | | | | |
| Civil & Geotechnical Works | | | | | | | | | | | | | | | | | | | | | | |
| SKW0240 | Site Clearance | 21 | 100 | 17/05/10 A | 06/06/10 A | 17/05/10 A | 06/06/10 A | | | SKW0241 | [Gantt bar: 17/05/10 to 06/06/10] | | | | | | | | | | | |
| SKW0241 | Initial Survey | 9 | 100 | 07/06/10 A | 15/06/10 A | 07/06/10 A | 15/06/10 A | | SKW0240 | SKW0242 | [Gantt bar: 07/06/10 to 15/06/10] | | | | | | | | | | | |
| SKW0242 | Excavation to formation for Bay 1 to 5 | 50 | 100 | 16/06/10 A | 11/08/10 A | 16/06/10 A | 11/08/10 A | | SKW0241, SKW0260, SKW0265 | SKW0251 | [Gantt bar: 16/06/10 to 11/08/10] | | | | | | | | | | | |
| SKW0251 | Drill & Install Dowel Bar for Bay 1 & 3 | 20 | 100 | 02/08/10 A | 01/09/10 A | 02/08/10 A | 01/09/10 A | | SKW0242 | SKW0301 | [Gantt bar: 02/08/10 to 01/09/10] | | | | | | | | | | | |
| SKW0301 | Erect Formwork, mesh & weephole for Bay 1 & 3 | 12 | 100 | 02/09/10 A | 15/09/10 A | 02/09/10 A | 15/09/10 A | | SKW0251 | SKW0311 | [Gantt bar: 02/09/10 to 15/09/10] | | | | | | | | | | | |
| SKW0311 | Concreting for Bay 1 & 3 | 12 | 100 | 19/06/10 A | 29/09/10 A | 19/06/10 A | 29/09/10 A | | SKW0301 | SKW0321 | [Gantt bar: 19/06/10 to 29/09/10] | | | | | | | | | | | |
| SKW0321 | Drilling & install Dowel Bar for Bay 2 & 5 | 6 | 100 | 30/09/10 A | 06/10/10 A | 30/09/10 A | 06/10/10 A | | SKW0311 | SKW0331 | [Gantt bar: 30/09/10 to 06/10/10] | | | | | | | | | | | |
| SKW0331 | Erect Formwork, mesh & weephole for Bay 2 & 5 | 7 | 100 | 07/10/10 A | 13/10/10 A | 07/10/10 A | 13/10/10 A | | SKW0321 | SKW0341 | [Gantt bar: 07/10/10 to 13/10/10] | | | | | | | | | | | |
| SKW0341 | Concreting for Bay 2 & 5 | 7 | 100 | 14/10/10 A | 20/10/10 A | 14/10/10 A | 20/10/10 A | | SKW0331 | SKW0351 | [Gantt bar: 14/10/10 to 20/10/10] | | | | | | | | | | | |
| SKW0351 | Excavation to formation for Bay 6 to 9 | 20 | 100 | 21/10/10 A | 10/11/10 A | 21/10/10 A | 10/11/10 A | | SKW0341 | SKW0361 | [Gantt bar: 21/10/10 to 10/11/10] | | | | | | | | | | | |
| SKW0361 | Drill & install dowel Bar for Bay 4 & 7 | 6 | 100 | 11/11/10 A | 16/11/10 A | 11/11/10 A | 16/11/10 A | | SKW0351 | SKW0371 | [Gantt bar: 11/11/10 to 16/11/10] | | | | | | | | | | | |
| SKW0371 | Erect formwork, mesh & weephole for Bay 4 & 7 | 7 | 100 | 11/11/10 A | 16/11/10 A | 11/11/10 A | 16/11/10 A | | SKW0361 | SKW0381 | [Gantt bar: 11/11/10 to 16/11/10] | | | | | | | | | | | |
| SKW0381 | Concreting for Bay 4 & 7 | 7 | 100 | 17/11/10 A | 23/11/10 A | 17/11/10 A | 23/11/10 A | | SKW0371 | SKW0391 | [Gantt bar: 17/11/10 to 23/11/10] | | | | | | | | | | | |
| SKW0391 | Drill & install dowel Bar for Bay 6 & 9 | 3 | 100 | 24/11/10 A | 27/11/10 A | 24/11/10 A | 27/11/10 A | | SKW0381 | SKW0401 | [Gantt bar: 24/11/10 to 27/11/10] | | | | | | | | | | | |
| SKW0401 | Erect formwork, mesh & weephole for Bay 6 & 9 | 7 | 100 | 28/11/10 A | 05/12/10 A | 28/11/10 A | 05/12/10 A | | SKW0391 | SKW0411 | [Gantt bar: 28/11/10 to 05/12/10] | | | | | | | | | | | |
| SKW0411 | Concreting for Bay 6 & 9 | 7 | 100 | 06/12/10 A | 12/12/10 A | 06/12/10 A | 12/12/10 A | | SKW0401 | SKW0421 | [Gantt bar: 06/12/10 to 12/12/10] | | | | | | | | | | | |
| SKW0421 | Drill & install dowel Bar for Bay 8 | 1 | 100 | 13/12/10 A | 13/12/10 A | 13/12/10 A | 13/12/10 A | | SKW0411 | SKW0431 | [Gantt bar: 13/12/10 to 13/12/10] | | | | | | | | | | | |
| SKW0431 | Erect formwork, mesh & weephole for Bay 8 | 4 | 100 | 15/12/10 A | 21/12/10 A | 15/12/10 A | 21/12/10 A | | SKW0421 | SKW0441 | [Gantt bar: 15/12/10 to 21/12/10] | | | | | | | | | | | |
| SKW0441 | Concreting for Bay 8 | 4 | 100 | 22/12/10 A | 27/12/10 A | 22/12/10 A | 27/12/10 A | | SKW0431 | SKW0461 | [Gantt bar: 22/12/10 to 27/12/10] | | | | | | | | | | | |
| SKW0461 | Excavation for no fine concrete Bay (1-9) | 3 | 100 | 26/07/11 A | 28/07/11 A | 26/07/11 A | 28/07/11 A | | SKW0441 | SKW0471 | [Gantt bar: 26/07/11 to 28/07/11] | | | | | | | | | | | |
| SKW0471 | Concreting for no-fine concrete | 7 | 100 | 01/02/11 A | 07/02/11 A | 01/02/11 A | 07/02/11 A | | SKW0461 | SKW0481 | [Gantt bar: 01/02/11 to 07/02/11] | | | | | | | | | | | |
| SKW0481 | Installation of Wall tie & stone facing | 14 | 100 | 08/02/11 A | 11/02/11 A | 08/02/11 A | 11/02/11 A | | SKW0471 | SKW0491 | [Gantt bar: 08/02/11 to 11/02/11] | | | | | | | | | | | |
| SKW0491 | Construction of Gabion Wall | 7 | 100 | 08/02/11 A | 14/02/11 A | 08/02/11 A | 14/02/11 A | | SKW0481 | SKW0501 | [Gantt bar: 08/02/11 to 14/02/11] | | | | | | | | | | | |
| SKW0501 | Place Geotextile | 3 | 100 | 08/01/11 A | 28/02/11 A | 08/01/11 A | 28/02/11 A | | SKW0491 | SKW0511 | [Gantt bar: 08/01/11 to 28/02/11] | | | | | | | | | | | |
| SKW0511 | Backfill behind the retaining wall to approx +4 | 7 | 100 | 11/01/11 A | 28/02/11 A | 11/01/11 A | 28/02/11 A | | SKW0501 | SKW0521 | [Gantt bar: 11/01/11 to 28/02/11] | | | | | | | | | | | |
| SKW0521 | Watermain Laying and Diversion | 14 | 100 | 01/04/11 A | 10/05/11 A | 01/04/11 A | 10/05/11 A | | SKW0511 | SKW0531 | [Gantt bar: 01/04/11 to 10/05/11] | | | | | | | | | | | |
| SKW0531 | Concreting for Pavement | 7 | 100 | 02/06/11 A | 30/07/11 A | 02/06/11 A | 30/07/11 A | | SKW0521 | SKW0541 | [Gantt bar: 02/06/11 to 30/07/11] | | | | | | | | | | | |
| SKW0541 | Installation of Flower Pot | 7 | 0 | 31/12/11 | 06/01/12 | 11/03/11 | 18/03/11 | -294d | SKW0531 | SKW0551 | [Gantt bar: 31/12/11 to 06/01/12] | | | | | | | | | | | |
| SKW0551 | Permanent Footpath Diversion | 1 | 100 | 30/07/11 A | 30/07/11 A | 30/07/11 A | 30/07/11 A | | SKW0541 | KD0050, SKW1261, SKW1311 | [Gantt bar: 30/07/11 to 30/07/11] | | | | | | | | | | | |
| Section W4 - Slope Works in Portions H & I | | | | | | | | | | | | | | | | | | | | | | |
| Geotechnical Works | | | | | | | | | | | | | | | | | | | | | | |

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|---------------------------|----------|
| Start date | 05/05/10 |
| Finish date | 06/02/15 |
| Data date | 31/12/11 |
| Run date | 11/01/12 |
| Page number | 4A |
| c Primavera Systems, Inc. | |

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

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

(Marked on 31 Dec 2011)

| Date | Revision | Checked | Approved |
|----------|------------|---------|----------|
| 31/12/10 | Revision 0 | RH | VC |
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| Activity ID | Description | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors | Successors | 2011 | | | | | | | | | | | | | | | | | | | | |
|---|--|-------------------|------------------|-------------|--------------|------------|-------------|-------------|---------------------------|-----------------------------|------|-----|-----|------|--|--|-----|-----|-----|-----|----|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | OCT | NOV | DEC | 2012 | | | JAN | FEB | MAR | APR | IA | | | | | | | | | | |
| 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 | 20 | 01/12/11 A | 23/01/12 | 01/12/11 A | 20/05/11 | -248d | SKW05936 | SKW05938 | | | | | | | | | | | | | | | | | | | | | |
| SKW05938 | Excavation of Rock Berm (+12.5mPD to +5mPD) | 28 | 0 | 24/01/12 | 20/02/12 | 21/05/11 | 17/06/11 | -248d | SKW05937 | SKW05943, SKW1311, 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 | 29/01/12 | 04/05/11 A | 19/05/11 | -255d | SKW05934, SKW05940 | SKW05942 | | | | | | | | | | | | | | | | | | | | | |
| SKW05942 | Slope Drainage & Misc. (+35 to +20mPD) | 58 | 50 | 01/11/11 A | 27/02/12 | 01/11/11 A | 17/06/11 | -255d | SKW05936, SKW05941 | SKW05943 | | | | | | | | | | | | | | | | | | | | | |
| SKW05943 | Slope Drainage & Misc. (+20 to +5mPD) | 59 | 0 | 28/02/12 | 26/04/12 | 18/06/11 | 15/08/11 | -255d | SKW05938, SKW05942 | KD0060 | | | | | | | | | | | | | | | | | | | | | |
| SKW0595 | Rock Meshing & Rockfall Fence | 260 | 0 | 31/12/11 | 15/09/12 | 29/11/10 | 15/08/11 | -397d | SKW05932 | KD0060 | | | | | | | | | | | | | | | | | | | | | |
| Section W5 - P.S. No. 1 in Portion D | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Civil & Geotechnical Works | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SKW0651 | Site Clearance | 7 | 100 | 17/05/10 A | 23/05/10 A | 17/05/10 A | 23/05/10 A | | KD0020 | SKW0652 | | | | | | | | | | | | | | | | | | | | | |
| SKW0652 | Initial Survey | 7 | 100 | 24/05/10 A | 30/05/10 A | 24/05/10 A | 30/05/10 A | | SKW0651 | SKW0661, SKW0681 | | | | | | | | | | | | | | | | | | | | | |
| SKW0661 | Transplantation for uncommon vegetation | 30 | 100 | 31/05/10 A | 29/06/10 A | 31/05/10 A | 29/06/10 A | | SKW0652 | SKW0681 | | | | | | | | | | | | | | | | | | | | | |
| SKW0681 | Excavate to lower the working platform to +3mPD | 49 | 100 | 30/06/10 A | 17/08/10 A | 30/06/10 A | 17/08/10 A | | SKW0260, SKW0265, SKW0652 | SKW0691 | | | | | | | | | | | | | | | | | | | | | |
| SKW0691 | ELS to +2.2mPD | 40 | 100 | 18/08/10 A | 26/09/10 A | 18/08/10 A | 26/09/10 A | | SKW0681 | SKW0721 | | | | | | | | | | | | | | | | | | | | | |
| SKW0721 | Excavate to formation | 92 | 100 | 17/09/10 A | 31/03/11 A | 17/09/10 A | 31/03/11 A | | SKW0691 | SKW0741 | | | | | | | | | | | | | | | | | | | | | |
| Structural Works | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SKW0741 | Base Slab (BSD2 & BSD3) | 15 | 100 | 20/04/11 A | 28/07/11 A | 20/04/11 A | 28/07/11 A | | SKW0721 | SKW0751 | | | | | | | | | | | | | | | | | | | | | |
| SKW0751 | Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) Approx. | 14 | 100 | 01/09/11 A | 30/09/11 A | 01/09/11 A | 30/09/11 A | | SKW0741 | SKW0761 | | | | | | | | | | | | | | | | | | | | | |
| SKW0761 | Base Slab (BSD1) to +3.98 | 14 | 100 | 01/09/11 A | 30/09/11 A | 01/09/11 A | 30/09/11 A | | SKW0751 | SKW0771 | | | | | | | | | | | | | | | | | | | | | |
| SKW0771 | Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) to +6.3 | 14 | 100 | 01/10/11 A | 31/10/11 A | 01/10/11 A | 31/10/11 A | | SKW0761 | SKW0781 | | | | | | | | | | | | | | | | | | | | | |
| SKW0781 | Base Slab (GSB1-3, GSC1-5, GSD1-2) | 14 | 100 | 15/10/11 A | 15/11/11 A | 15/10/11 A | 15/11/11 A | | SKW0771 | SKW0791 | | | | | | | | | | | | | | | | | | | | | |
| SKW0791 | Base Slab (GSE1 & GSF1) | 14 | 100 | 01/11/11 A | 30/11/11 A | 01/11/11 A | 30/11/11 A | | SKW0781 | SKW0801 | | | | | | | | | | | | | | | | | | | | | |
| SKW0801 | Wall & Column (CE1-3, CF1-3) | 14 | 100 | 01/11/11 A | 30/11/11 A | 01/11/11 A | 30/11/11 A | | SKW0791 | SKW0811 | | | | | | | | | | | | | | | | | | | | | |
| SKW0811 | Ground Beam (GB1-1, 2 GB2-1, 2 GB3-1, GBA-1, GBB1-4) | 14 | 100 | 30/11/11 A | 31/12/11 A | 30/11/11 A | 31/12/11 A | | SKW0801 | SKW0821 | | | | | | | | | | | | | | | | | | | | | |
| SKW0821 | Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) to +10. | 14 | 60 | 19/12/11 A | 05/01/12 | 19/12/11 A | 17/04/11 | -263d | SKW0811 | SKW0831 | | | | | | | | | | | | | | | | | | | | | |
| SKW0831 | Roof Beams & Parapet | 14 | 0 | 05/01/12 | 19/01/12 | 18/04/11 | 01/05/11 | -263d | SKW0821 | E&M1101, E&M1102, E&M1103, | | | | | | | | | | | | | | | | | | | | | |
| SKW0841 | ABWF installation | 45 | 0 | 05/01/12 | 19/02/12 | 18/04/11 | 01/06/11 | -263d | SKW0831 | E&M1101, E&M1102, E&M1103, | | | | | | | | | | | | | | | | | | | | | |
| SKW0861 | 300mm U-channel & 675mm Step Channel | 168 | 0 | 19/01/12 | 05/07/12 | 01/06/11 | 15/11/11 | -233d | 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 | 08/01/12 | 17/05/10 A | 02/12/10 | -402d | | E&M1014 | | | | | | | | | | | | | | | | | | | | | |
| E&M1005 | Submission of Instrumentation | 243 | 95 | 17/05/10 A | 12/01/12 | 17/05/10 A | 01/05/11 | -255d | | E&M1015 | | | | | | | | | | | | | | | | | | | | | |
| E&M1006 | Submission of FS System | 243 | 95 | 17/05/10 A | 12/01/12 | 17/05/10 A | 05/02/11 | -341d | | E&M1016 | | | | | | | | | | | | | | | | | | | | | |
| E&M1007 | Submission of BS System | 243 | 95 | 17/05/10 A | 12/01/12 | 17/05/10 A | 05/02/11 | -341d | | 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 | 06/04/12 | 01/12/11 A | 01/05/11 | -341d | E&M1006 | E&M1106 | | | | | | | | | | | | | | | | | | | | | |
| E&M1017 | Delivery of BS Equipment | 107 | 20 | 15/11/11 A | 06/04/12 | 15/11/11 A | 01/05/11 | -341d | E&M1007 | E&M1107 | | | | | | | | | | | | | | | | | | | | | |
| Installation, T&C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E&M1101 | Install Pumps | 55 | 0 | 19/01/12 | 14/03/12 | 02/05/11 | 25/06/11 | -263d | E&M1011, SKW0831, SKW0841 | E&M1110, E&M1140 | | | | | | | | | | | | | | | | | | | | | |
| E&M1102 | Install Gen Set | 55 | 0 | 19/01/12 | 14/03/12 | 02/05/11 | 25/06/11 | -263d | E&M1012, SKW0831, SKW0841 | E&M1110, E&M1140 | | | | | | | | | | | | | | | | | | | | | |

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|-------------|----------|--------------------------|
| Start date | 05/05/10 | ■ Early bar |
| Finish date | 06/02/15 | ■ Progress bar |
| Data date | 31/12/11 | ■ Critical bar |
| Run date | 11/01/12 | ■ Summary bar |
| Page number | 5A | ▲ Progress point |
| | | ▼ Critical point |
| | | ◆ Summary point |
| | | ◇ Start milestone point |
| | | ◇ Finish milestone point |

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 Construction of Sewage Treatment Works at YSW & SKW
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| Date | Revision | Checked | Approved |
| 31/12/10 | Revision 0 | RH | VC |
| | | | |
| | | | |

(Marked on 31 Dec 2011)

| Activity ID | Description | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors | Successors | 2011 OCT NOV DEC JAN FEB MAR APR MA | | | | | | | | | | | | |
|--|---|-------------------|------------------|-------------|--------------|------------|-------------|-------------|---------------------------|----------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|
| E&M1103 | Install DeO System | 55 | 0 | 19/01/12 | 14/03/12 | 02/05/11 | 25/06/11 | -263d | E&M1013, SKW0831, SKW0841 | E&M1110, E&M1140 | [Gantt bar: 19/01/12 to 14/03/12] | | | | | | | | | | | | |
| E&M1105 | Install Instrumentation | 55 | 0 | 19/01/12 | 14/03/12 | 02/05/11 | 25/06/11 | -263d | E&M1015, SKW0831, SKW0841 | E&M1140 | [Gantt bar: 19/01/12 to 14/03/12] | | | | | | | | | | | | |
| E&M1106 | Install FS Equipment | 55 | 0 | 06/04/12 | 31/05/12 | 02/05/11 | 25/06/11 | -341d | E&M1016, SKW0831, SKW0841 | E&M1130, E&M1140 | [Gantt bar: 06/04/12 to 31/05/12] | | | | | | | | | | | | |
| E&M1107 | Install BS Equipment | 55 | 0 | 06/04/12 | 31/05/12 | 02/05/11 | 25/06/11 | -341d | E&M1017, SKW0831, SKW0841 | E&M1110, E&M1140 | [Gantt bar: 06/04/12 to 31/05/12] | | | | | | | | | | | | |
| Section W 6 - 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 | [Gantt bar: 17/05/10 to 23/05/10] | | | | | | | | | | | | |
| SKW0891 | Plant mobilization | 7 | 100 | 17/05/10 A | 23/05/10 A | 17/05/10 A | 23/05/10 A | | SKW0881 | SKW0892 | [Gantt bar: 17/05/10 to 23/05/10] | | | | | | | | | | | | |
| SKW0892 | Initial Survey | 30 | 100 | 24/05/10 A | 22/06/10 A | 24/05/10 A | 22/06/10 A | | SKW0891 | SKW0901 | [Gantt bar: 24/05/10 to 22/06/10] | | | | | | | | | | | | |
| SKW0901 | Tree Transplantation | 30 | 100 | 23/06/10 A | 22/07/10 A | 23/06/10 A | 22/07/10 A | | SKW0892 | SKW0921 | [Gantt bar: 23/06/10 to 22/07/10] | | | | | | | | | | | | |
| 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 | [Gantt bar: 23/07/10 to 31/01/11] | | | | | | | | | | | | |
| SKW0931 | Hoarding & Fencing | 14 | 100 | 15/09/10 A | 07/10/10 A | 15/09/10 A | 07/10/10 A | | SKW0921 | SKW0951 | [Gantt bar: 15/09/10 to 07/10/10] | | | | | | | | | | | | |
| 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 | [Gantt bar: 04/10/10 to 13/06/11] | | | | | | | | | | | | |
| SKW0961 | Mass Conc. Retaining Wall | 257 | 0 | 31/12/11 | 12/09/12 | 04/03/11 | 15/11/11 | -302d | SKW0951 | KD0080 | [Gantt bar: 31/12/11 to 12/09/12] | | | | | | | | | | | | |
| 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 | SKW15111 | [Gantt bar: 01/03/11 to 31/08/11] | | | | | | | | | | | | |
| SKW15111 | Twin DN150 DI Rising Main (ChA0+45 - ChA5+79) | 150 | 95 | 16/05/11 A | 07/01/12 | 16/05/11 A | 09/08/11 | -151d | SKW1491 | SKW1531 | [Gantt bar: 16/05/11 to 07/01/12] | | | | | | | | | | | | |
| SKW15112 | Twin DN150 DI Rising Main (ChA0+00 - ChA0+45) | 30 | 0 | 15/03/12 | 14/04/12 | 17/10/11 | 15/11/11 | -151d | SKW1581 | KD0080 | [Gantt bar: 15/03/12 to 14/04/12] | | | | | | | | | | | | |
| SKW1531 | Extent village sewers S163.1 & S164.1 | 34 | 0 | 07/01/12 | 10/02/12 | 10/08/11 | 12/09/11 | -151d | SKW15111 | SKW1581 | [Gantt bar: 07/01/12 to 10/02/12] | | | | | | | | | | | | |
| SKW1581 | Construct Manhole no. S163 & S164 | 34 | 0 | 10/02/12 | 15/03/12 | 13/09/11 | 16/10/11 | -151d | SKW1531 | KD0080, SKW15112 | [Gantt bar: 10/02/12 to 15/03/12] | | | | | | | | | | | | |
| 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 | [Gantt bar: 02/05/11 to 31/08/11] | | | | | | | | | | | | |
| 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 | [Gantt bar: 01/09/11 to 15/10/11] | | | | | | | | | | | | |
| 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 | [Gantt bar: 15/10/11 to 31/10/11] | | | | | | | | | | | | |
| 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 | [Gantt bar: 01/11/11 to 30/11/11] | | | | | | | | | | | | |
| SKW1011 | Wall & Column to +5.35mPD | 14 | 0 | 31/12/11 | 13/01/12 | 29/01/11 | 11/02/11 | -336d | SKW1001 | SKW1021 | [Gantt bar: 31/12/11 to 13/01/12] | | | | | | | | | | | | |
| SKW1021 | Ground Slab | 20 | 0 | 14/01/12 | 02/02/12 | 12/02/11 | 03/03/11 | -336d | SKW1011 | SKW1031 | [Gantt bar: 14/01/12 to 02/02/12] | | | | | | | | | | | | |
| SKW1031 | Ground Beam | 14 | 0 | 03/02/12 | 16/02/12 | 04/03/11 | 17/03/11 | -336d | SKW1021 | SKW1041 | [Gantt bar: 03/02/12 to 16/02/12] | | | | | | | | | | | | |
| SKW1041 | Wall & Column to +9.35mPD | 14 | 0 | 17/02/12 | 01/03/12 | 18/03/11 | 31/03/11 | -336d | SKW1031 | SKW1051 | [Gantt bar: 17/02/12 to 01/03/12] | | | | | | | | | | | | |
| SKW1051 | Roof Beams & Parapet | 14 | 0 | 02/03/12 | 15/03/12 | 01/04/11 | 14/04/11 | -336d | SKW1041 | E&M2101, E&M2102, E&M2103, | [Gantt bar: 02/03/12 to 15/03/12] | | | | | | | | | | | | |
| SKW1061 | ABWF installation (wet tray/dry tray) | 90 | 0 | 02/03/12 | 30/05/12 | 18/04/11 | 16/07/11 | -319d | SKW1051 | E&M2101, E&M2102, E&M2103, | [Gantt bar: 02/03/12 to 30/05/12] | | | | | | | | | | | | |
| SKW1081 | 375mm U-channel with catchpits | 215 | 0 | 16/03/12 | 16/10/12 | 15/04/11 | 15/11/11 | -336d | SKW1051 | KD0080 | [Gantt bar: 16/03/12 to 16/10/12] | | | | | | | | | | | | |
| 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 | [Gantt bar: 17/05/10 to 24/02/11] | | | | | | | | | | | | |
| 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 | [Gantt bar: 17/05/10 to 24/02/11] | | | | | | | | | | | | |
| 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 | [Gantt bar: 17/05/10 to 11/07/11] | | | | | | | | | | | | |
| E&M2004 | Submission of LV SB & MCC | 271 | 95 | 17/05/10 A | 13/01/12 | 17/05/10 A | 13/02/11 | -334d | | E&M2014 | [Gantt bar: 17/05/10 to 13/01/12] | | | | | | | | | | | | |
| E&M2005 | Submission of Instrumentation | 243 | 95 | 17/05/10 A | 12/01/12 | 17/05/10 A | 01/05/11 | -255d | | E&M2015 | [Gantt bar: 17/05/10 to 12/01/12] | | | | | | | | | | | | |
| E&M2006 | Submission of FS System | 243 | 95 | 17/05/10 A | 12/01/12 | 17/05/10 A | 05/02/11 | -341d | | E&M2016 | [Gantt bar: 17/05/10 to 12/01/12] | | | | | | | | | | | | |
| E&M2007 | Submission of BS System | 243 | 95 | 17/05/10 A | 12/01/12 | 17/05/10 A | 05/02/11 | -341d | | E&M2017 | [Gantt bar: 17/05/10 to 12/01/12] | | | | | | | | | | | | |
| 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 | [Gantt bar: 24/02/11 to 21/07/11] | | | | | | | | | | | | |
| 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 | [Gantt bar: 24/02/11 to 23/09/11] | | | | | | | | | | | | |
| 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 | [Gantt bar: 11/07/11 to 28/10/11] | | | | | | | | | | | | |
| E&M2014 | Delivery of LV SB & MCC | 150 | 0 | 31/12/11 | 28/05/12 | 03/12/10 | 01/05/11 | -393d | E&M2004 | E&M2104 | [Gantt bar: 31/12/11 to 28/05/12] | | | | | | | | | | | | |
| 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 | [Gantt bar: 21/06/11 to 03/11/11] | | | | | | | | | | | | |
| E&M2016 | Delivery of FS Equipment | 107 | 20 | 01/12/11 A | 06/04/12 | 01/12/11 A | 01/05/11 | -341d | E&M2006 | E&M0350, E&M2106 | [Gantt bar: 01/12/11 to 06/04/12] | | | | | | | | | | | | |
| E&M2017 | Delivery of BS Equipment | 107 | 20 | 15/01/11 A | 06/04/12 | 15/01/11 A | 01/05/11 | -341d | E&M2007 | E&M2107 | [Gantt bar: 15/01/11 to 06/04/12] | | | | | | | | | | | | |
| Installation, T&C | | | | | | | | | | | | | | | | | | | | | | | |
| E&M2101 | Install Pumps | 55 | 0 | 16/03/12 | 09/05/12 | 03/07/11 | 26/08/11 | -257d | E&M2011, SKW1051, SKW1061 | E&M2110 | [Gantt bar: 16/03/12 to 09/05/12] | | | | | | | | | | | | |
| E&M2102 | Install Gen Set | 55 | 0 | 16/03/12 | 09/05/12 | 03/07/11 | 26/08/11 | -257d | E&M2012, SKW1051, SKW1061 | E&M2110 | [Gantt bar: 16/03/12 to 09/05/12] | | | | | | | | | | | | |
| E&M2103 | Install DeO System | 55 | 0 | 16/03/12 | 09/05/12 | 03/07/11 | 26/08/11 | -257d | E&M2013, SKW1051, SKW1061 | E&M2110 | [Gantt bar: 16/03/12 to 09/05/12] | | | | | | | | | | | | |
| E&M2105 | Install Instrumentation | 55 | 0 | 16/03/12 | 09/05/12 | 02/05/11 | 25/06/11 | -319d | E&M2015, SKW1051, SKW1061 | E&M2140 | [Gantt bar: 16/03/12 to 09/05/12] | | | | | | | | | | | | |
| E&M2106 | Install FS Equipment | 55 | 0 | 06/04/12 | 31/05/12 | 02/05/11 | 25/06/11 | -341d | E&M2016, SKW1051, SKW1061 | E&M2140 | [Gantt bar: 06/04/12 to 31/05/12] | | | | | | | | | | | | |
| E&M2107 | Install BS Equipment | 55 | 0 | 06/04/12 | 31/05/12 | 02/05/11 | 25/06/11 | -341d | E&M2017, SKW1051, SKW1061 | E&M2110, E&M2140 | [Gantt bar: 06/04/12 to 31/05/12] | | | | | | | | | | | | |
| Section W 7 - SKW STW, Sewer and Submarine Outfall | | | | | | | | | | | | | | | | | | | | | | | |
| Submarine Outfall | | | | | | | | | | | | | | | | | | | | | | | |

| | | |
|-------------|----------|--------------------------|
| Start date | 05/05/10 | ■ Early bar |
| Finish date | 06/02/15 | ■ Progress bar |
| Data date | 31/12/11 | ■ Critical bar |
| Run date | 11/01/12 | ■ Summary bar |
| Page number | 6A | ▲ 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 (Jan 2012 - Mar 2012)

| | | | |
|----------|------------|---------|----------|
| Date | Revision | Checked | Approved |
| 31/12/10 | Revision 0 | RH | VC |
| | | | |
| | | | |

(Marked on 31 Dec 2011)

| Activity ID | Description | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors | Successors | 2011 | | | | | | | | | | | |
|--|--|-------------------|------------------|-------------|--------------|------------|-------------|-------------|--------------|----------------------------|------|-----|-----|------|--|--|-----|-----|-----|-----|----|--|
| | | | | | | | | | | | OCT | NOV | DEC | 2012 | | | JAN | FEB | MAR | APR | IA | |
| Project Key Date | | | | | | | | | | | | | | | | | | | | | | |
| KD0010 | Receive Letter of Acceptance | 0 | 100 | | 05/05/10 A | | 05/05/10 A | | | KD0125 | | | | | | | | | | | | |
| KD0020 | Project Commencement Date | 0 | 100 | | 17/05/10 A | | 17/05/10 A | | | E&M0010, E&M0070, E&M1001, | | | | | | | | | | | | |
| KD0030 | Section W1 - Slope Works in Portion A & C (456d) | 0 | 100 | | 14/10/11 A | | 14/10/11 A | | YSW0150 | KD0125 | | | | | | | | | | | | |
| KD0050 | Section W3 - Footpath Diversion in Ptn G (273d) | 0 | 100 | | 24/03/11 A | | 24/03/11 A | | SKW0551 | KD0125 | | | | | | | | | | | | |
| KD0115 | Start Operate Temp Sewage Treatment in Port. A&H | 0 | 0 | | 02/05/12 | | 30/06/11 * | -307d * | 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 | | | | | | | | | | | | | | | | | | | | | | |
| | | 632 | 96 | 17/05/10 A | 07/02/12 | 17/05/10 A | 30/11/11 | -69d | | | | | | | | | | | | | | |
| +Drawings Submission & Approval | | | | | | | | | | | | | | | | | | | | | | |
| | | 579 | 87 | 24/06/10 A | 23/01/12 | 24/06/10 A | 26/10/11 | -89d | | | | | | | | | | | | | | |
| +Statutory Submission | | | | | | | | | | | | | | | | | | | | | | |
| | | 255 | 43 | 01/11/11 A | 14/08/12 | 01/11/11 A | 06/02/15 | 843d | | | | | | | | | | | | | | |
| Yung Shue Wan | | | | | | | | | | | | | | | | | | | | | | |
| +Preliminary | | | | | | | | | | | | | | | | | | | | | | |
| | | 229 | 100 | 17/05/10 A | 31/12/10 A | 17/05/10 A | 31/12/10 A | | | | | | | | | | | | | | | |
| +Section W 1 - Slope Works in Portion A & C | | | | | | | | | | | | | | | | | | | | | | |
| | | 626 | 96 | 17/05/10 A | 01/02/12 | 17/05/10 A | 14/02/14 | 744d | | | | | | | | | | | | | | |
| Section W 2 - YSW STW & Submarine Outfall | | | | | | | | | | | | | | | | | | | | | | |
| +Civil & Structural Work | | | | | | | | | | | | | | | | | | | | | | |
| | | 794 | 56 | 17/05/10 A | 19/07/12 | 17/05/10 A | 04/07/12 | -14d | | | | | | | | | | | | | | |
| +Submarine Outfall | | | | | | | | | | | | | | | | | | | | | | |
| | | 743 | 86 | 17/05/10 A | 28/05/12 | 17/05/10 A | 16/12/13 | 567d | | | | | | | | | | | | | | |
| +E&M Works - YSW STP | | | | | | | | | | | | | | | | | | | | | | |
| | | 681 | 57 | 24/02/11 A | 05/01/13 | 24/02/11 A | 04/07/12 | -184d | | | | | | | | | | | | | | |
| Sok Kwu Wan | | | | | | | | | | | | | | | | | | | | | | |
| +Preliminary | | | | | | | | | | | | | | | | | | | | | | |
| | | 53 | 100 | 17/05/10 A | 08/07/10 A | 17/05/10 A | 08/07/10 A | | | | | | | | | | | | | | | |
| Section W 3 - Footpath Diversion in Portion G | | | | | | | | | | | | | | | | | | | | | | |
| +Civil & Geotechnical Works | | | | | | | | | | | | | | | | | | | | | | |
| | | 600 | 98 | 17/05/10 A | 06/01/12 | 17/05/10 A | 30/07/11 | -294d | | | | | | | | | | | | | | |
| Section W 4 - Slope Works in Portions H & I | | | | | | | | | | | | | | | | | | | | | | |
| +Geotechnical Works | | | | | | | | | | | | | | | | | | | | | | |
| | | 824 | 56 | 15/06/10 A | 15/09/12 | 15/06/10 A | 31/12/11 | -397d | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | | | | | | | | |
| | | 443 | 34 | 20/04/11 A | 05/07/12 | 18/04/11 A | 31/12/11 | -233d | | | | | | | | | | | | | | |
| E&M Works (PS1) | | | | | | | | | | | | | | | | | | | | | | |
| +Submission & Delivery | | | | | | | | | | | | | | | | | | | | | | |
| | | 691 | 90 | 17/05/10 A | 06/04/12 | 17/05/10 A | 03/11/11 | -341d | | | | | | | | | | | | | | |
| +Installation, T&C | | | | | | | | | | | | | | | | | | | | | | |
| | | 133 | 0 | 19/01/12 | 31/05/12 | 02/05/11 | 25/06/11 | -341d | | | | | | | | | | | | | | |
| Section W 6 - Sewer and PS No.2 in Portions E&H | | | | | | | | | | | | | | | | | | | | | | |
| +Civil & Geotechnical Works | | | | | | | | | | | | | | | | | | | | | | |
| | | 850 | 59 | 17/05/10 A | 12/09/12 | 17/05/10 A | 15/11/11 | -302d | | | | | | | | | | | | | | |

| | | | |
|-------------|----------|--|------------------------|
| Start date | 05/05/10 | | Early bar |
| Finish date | 06/02/15 | | Progress bar |
| Data date | 31/12/11 | | Critical bar |
| Run date | 11/01/12 | | 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 (Jan 2012 - Mar 2012)

<<Outline>>

| Date | Revision | Checked | Approved |
|----------|------------|---------|----------|
| 31/12/10 | Revision 0 | RH | VC |
| | | | |
| | | | |
| | | | |

(Marked on 31 Dec 2011)

| Activity ID | Description | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors | Successors | 2011 | | | | | | | | | | | | | | | | | | |
|--|-------------|-------------------|------------------|-------------|--------------|------------|-------------|-------------|--------------|------------|------|-----|-----|------|-----|-----|-----|-----|----|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | OCT | NOV | DEC | 2012 | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | JAN | FEB | MAR | APR | IA | | | | | | | | | | |
| +Structural Works | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 534 | 13 | 02/05/11 A | 16/10/12 | 29/01/11 A | 30/11/11 | -336d | | | | | | | | | | | | | | | | | | | | | |
| E&M Works (PS2) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| +Submission & Delivery | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 743 | 85 | 17/05/10 A | 28/05/12 | 17/05/10 A | 03/11/11 | -393d | | | | | | | | | | | | | | | | | | | | | |
| +Installation, T&C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 77 | 0 | 16/03/12 | 31/05/12 | 02/05/11 | 26/08/11 | -279d | | | | | | | | | | | | | | | | | | | | | |
| Section W7 - SKW STW, Sewer and Submarine Outfall | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| +Submarine Outfall | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 879 | 78 | 17/05/10 A | 11/10/12 | 17/05/10 A | 25/10/12 | 14d | | | | | | | | | | | | | | | | | | | | | |
| SKW STW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| +Submission & Delivery (E&M) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 529 | 66 | 24/02/11 A | 05/08/12 | 24/02/11 A | 09/06/14 | 672d | | | | | | | | | | | | | | | | | | | | | |
| +Construction of Grid A-G | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 164 | 20 | 30/07/11 A | 17/05/12 | 30/07/11 A | 27/07/11 | -294d | | | | | | | | | | | | | | | | | | | | | |
| +Construction of Grid G-N | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 106 | 0 | 21/02/12 | 05/06/12 | 29/06/11 | 12/10/11 | -237d | | | | | | | | | | | | | | | | | | | | | |
| +SKW STP - E&M Works | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 120 | 0 | 31/12/11 | 28/04/12 | 29/12/11 | 26/04/12 | -2d | | | | | | | | | | | | | | | | | | | | | |
| +Rising Main | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 864 | 69 | 17/05/10 A | 26/09/12 | 17/05/10 A | 10/10/12 | 15d | | | | | | | | | | | | | | | | | | | | | |
| +Section W8 - Landscape Softworks in All Portions | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 840 | 73 | 17/05/10 A | 02/09/12 | 17/05/10 A | 15/08/12 | -18d | | | | | | | | | | | | | | | | | | | | | |

| | | | |
|-------------|----------|--|------------------------|
| Start date | 05/05/10 | | Early bar |
| Finish date | 06/02/15 | | Progress bar |
| Data date | 31/12/11 | | Critical bar |
| Run date | 11/01/12 | | 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 (Jan 2012 - Mar 2012)

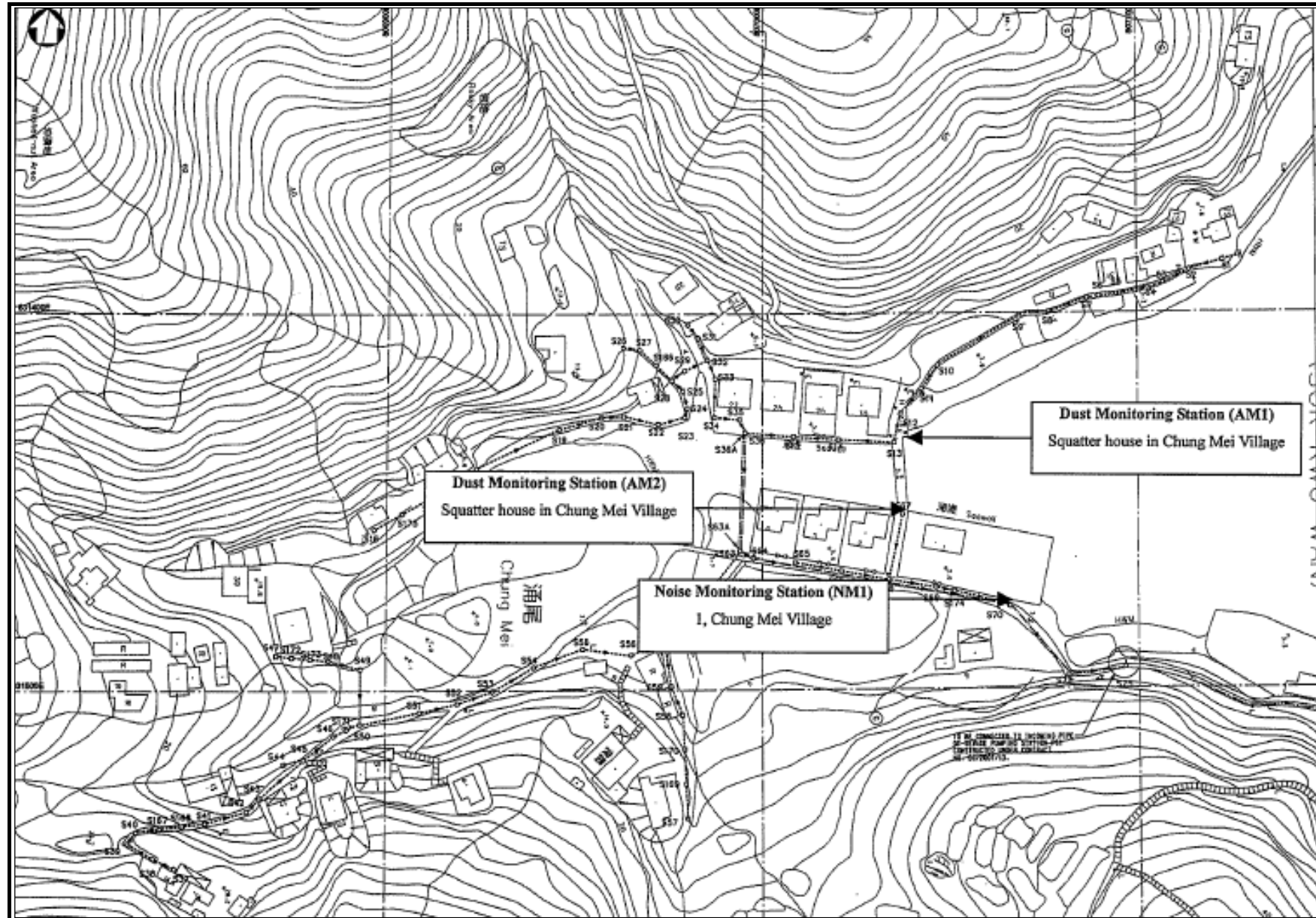
<< Outline >>

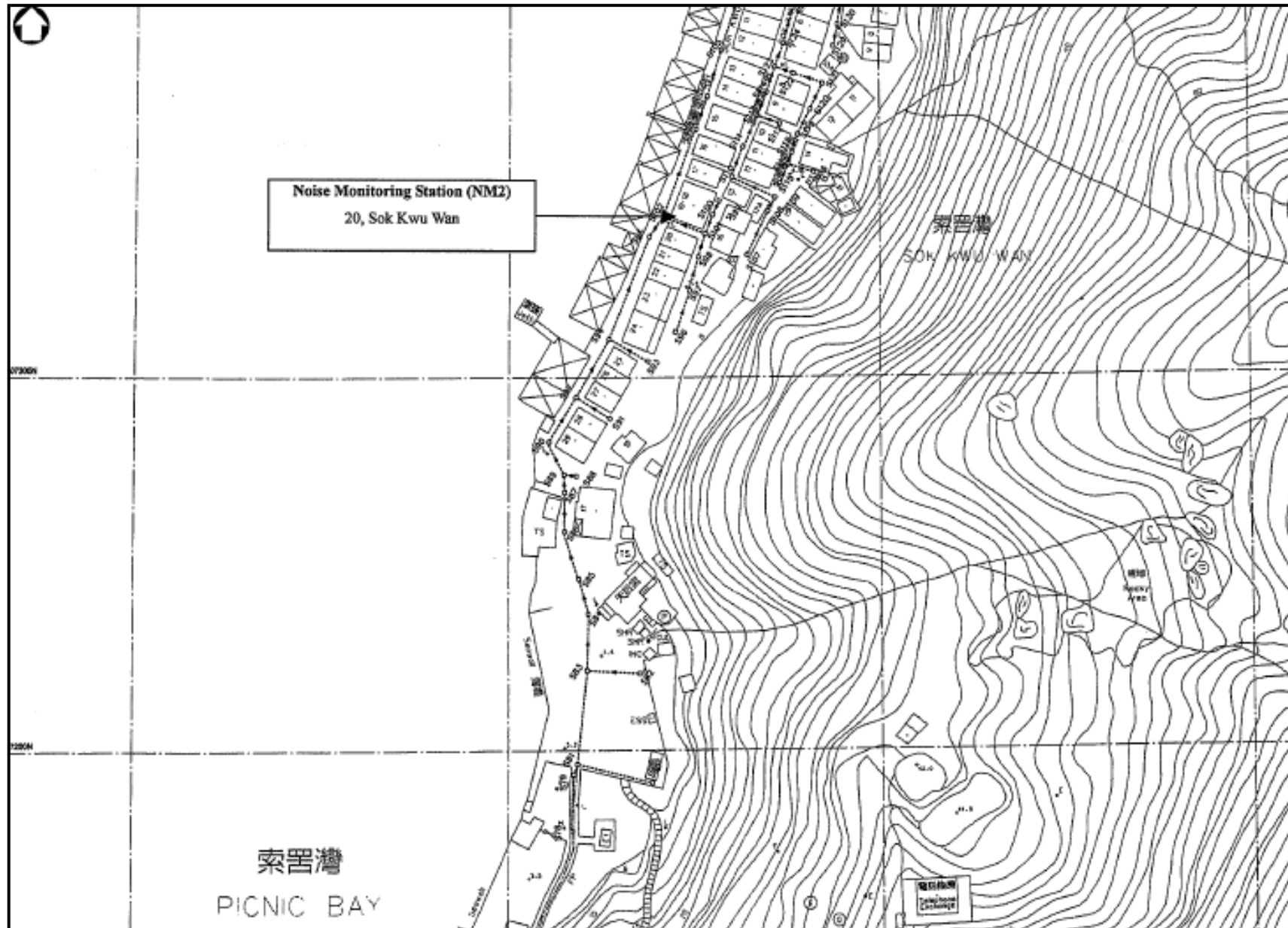
(Marked on 31 Dec 2011)

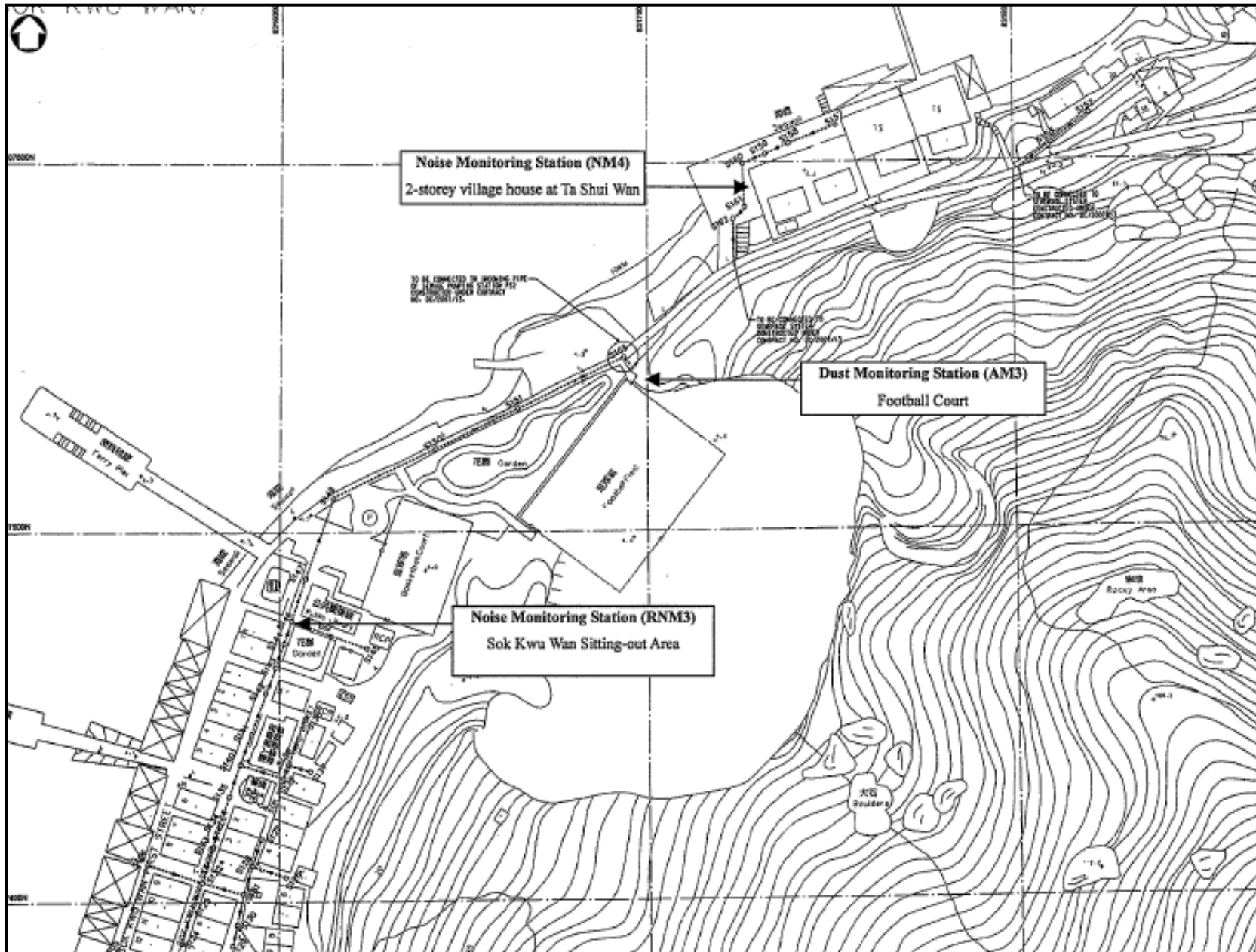
| Date | Revision | Checked | Approved |
|----------|------------|---------|----------|
| 31/12/10 | Revision 0 | RH | VC |
| | | | |
| | | | |
| | | | |

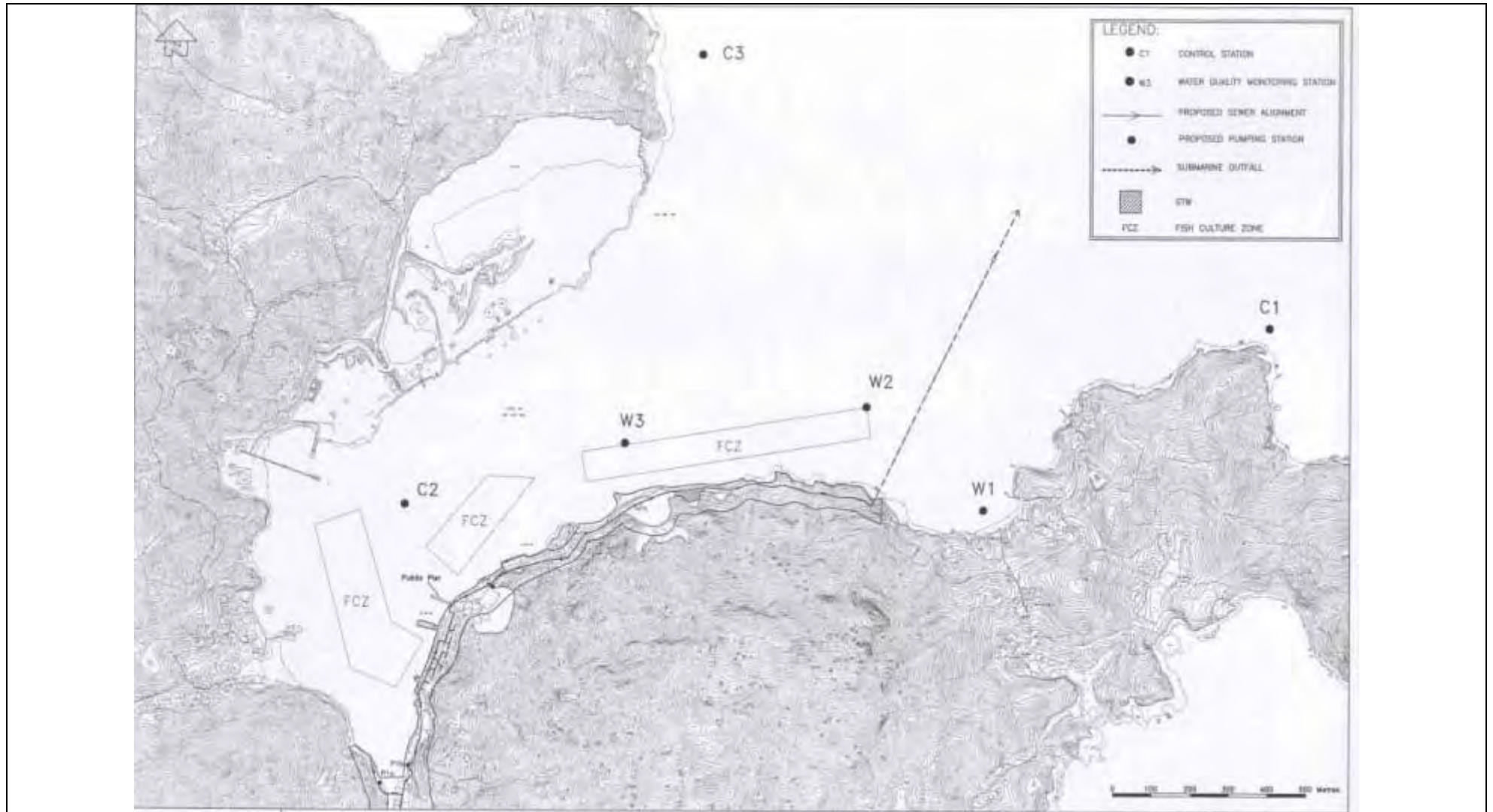
Appendix D

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









Appendix E

Monitoring Equipments Calibration Certificate



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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

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

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

DATA TABULATION

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

CALCULATIONS

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

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

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

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

For subsequent flow rate calculations:

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

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

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Football court
 Location ID : AM3

Date of Calibration: 3-Jan-12
 Next Calibration Date: 29-Feb-12
 Technician: Mr. Ben Tam

CONDITIONS

| | | | |
|--------------------------|--------|----------------------------|-------|
| Sea Level Pressure (hPa) | 1020.4 | Corrected Pressure (mm Hg) | 765.3 |
| Temperature (°C) | 17.0 | Temperature (K) | 290 |

CALIBRATION ORIFICE

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

CALIBRATION

| Plate No. | H2O (L) (in) | H2O (R) (in) | H2O (in) | Qstd (m3/min) | I (chart) | IC corrected | LINEAR REGRESSION |
|-----------|--------------|--------------|----------|---------------|-----------|--------------|---|
| 18 | 5.4 | 5.4 | 10.8 | 1.591 | 48 | 49.50 | Slope = 20.6159 Intercept = 16.9129 Corr. coeff. = 0.9997 |
| 13 | 4 | 4 | 8 | 1.371 | 44 | 45.37 | |
| 10 | 2.7 | 2.7 | 5.4 | 1.129 | 39 | 40.22 | |
| 7 | 1.6 | 1.6 | 3.2 | 0.872 | 34 | 35.06 | |
| 5 | 0.6 | 0.6 | 1.2 | 0.539 | 27 | 27.84 | |

Calculations :

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

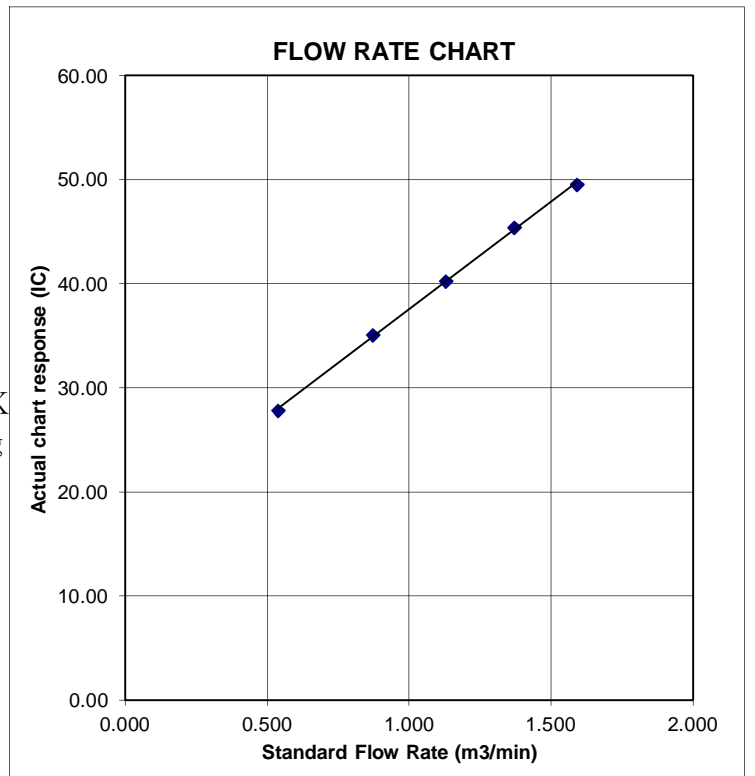
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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

For subsequent calculation of sampler flow:

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

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



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

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

Date of Calibration: 3-Jan-12
 Next Calibration Date: 29-Feb-12
 Technician: Mr. Ben Tam

CONDITIONS

| | | | |
|--------------------------|--------|----------------------------|-------|
| Sea Level Pressure (hPa) | 1020.4 | Corrected Pressure (mm Hg) | 765.3 |
| Temperature (°C) | 17.0 | Temperature (K) | 290 |

CALIBRATION ORIFICE

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

CALIBRATION

| Plate No. | H2O (L) (in) | H2O (R) (in) | H2O (in) | Qstd (m3/min) | I (chart) | IC corrected | LINEAR REGRESSION |
|-----------|--------------|--------------|----------|---------------|-----------|--------------|---|
| 18 | 5.9 | 5.9 | 11.8 | 1.663 | 56 | 57.75 | Slope = 25.5288 Intercept = 15.4955 Corr. coeff. = 0.9998 |
| 13 | 4.2 | 4.2 | 8.4 | 1.405 | 50 | 51.56 | |
| 10 | 3.1 | 3.1 | 6.2 | 1.209 | 45 | 46.40 | |
| 7 | 1.8 | 1.8 | 3.6 | 0.924 | 38 | 39.18 | |
| 5 | 1.0 | 1.0 | 2 | 0.692 | 32 | 33.00 | |

Calculations :

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

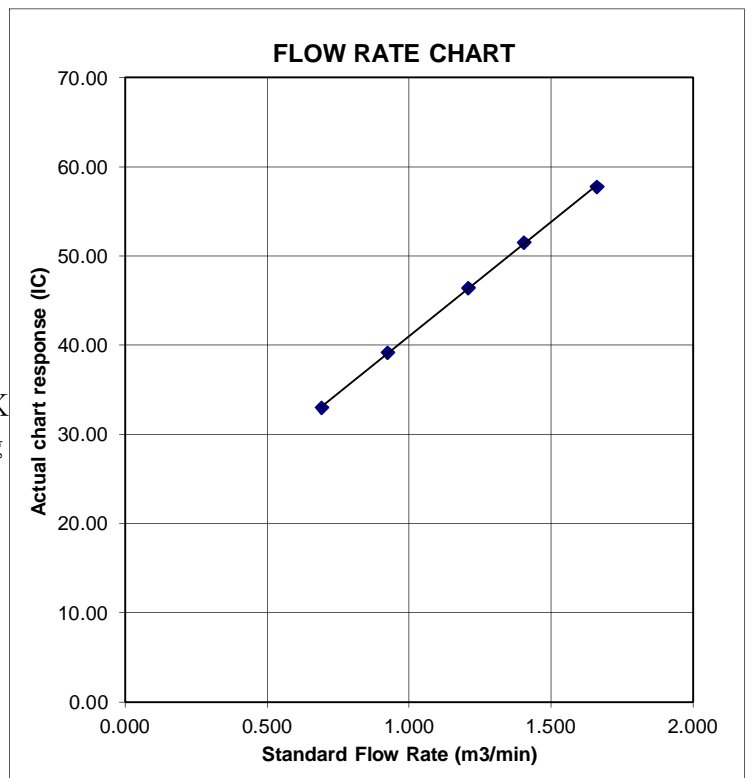
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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

For subsequent calculation of sampler flow:

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

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



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

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

Date of Calibration: 3-Jan-12
 Next Calibration Date: 29-Feb-12
 Technician: Mr. Ben Tam

CONDITIONS

| | | | |
|--------------------------|--------|----------------------------|-------|
| Sea Level Pressure (hPa) | 1020.4 | Corrected Pressure (mm Hg) | 765.3 |
| Temperature (°C) | 17.0 | Temperature (K) | 290 |

CALIBRATION ORIFICE

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

CALIBRATION

| Plate No. | H2O (L) (in) | H2O (R) (in) | H2O (in) | Qstd (m3/min) | I (chart) | IC corrected | LINEAR REGRESSION |
|-----------|--------------|--------------|----------|---------------|-----------|--------------|--|
| 18 | 5 | 5 | 10 | 1.532 | 57 | 58.78 | Slope = 32.9338 Intercept = 8.3816 Corr. coeff. = 0.9999 |
| 13 | 4 | 4 | 8 | 1.371 | 52 | 53.62 | |
| 10 | 3 | 3 | 6 | 1.189 | 46 | 47.43 | |
| 7 | 1.7 | 1.7 | 3.4 | 0.898 | 37 | 38.15 | |
| 5 | 0.9 | 0.9 | 1.8 | 0.657 | 29 | 29.90 | |

Calculations :

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

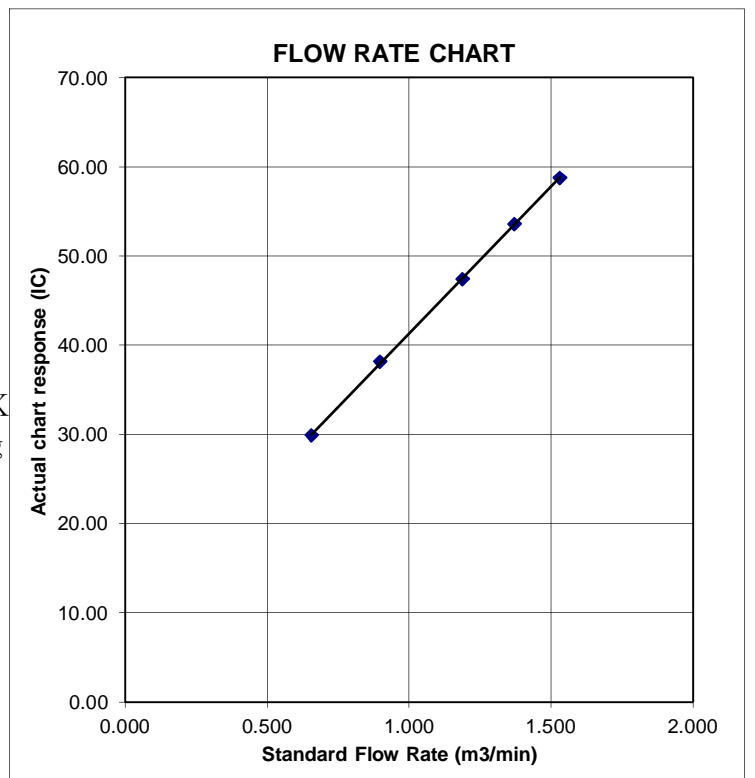
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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

For subsequent calculation of sampler flow:

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

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



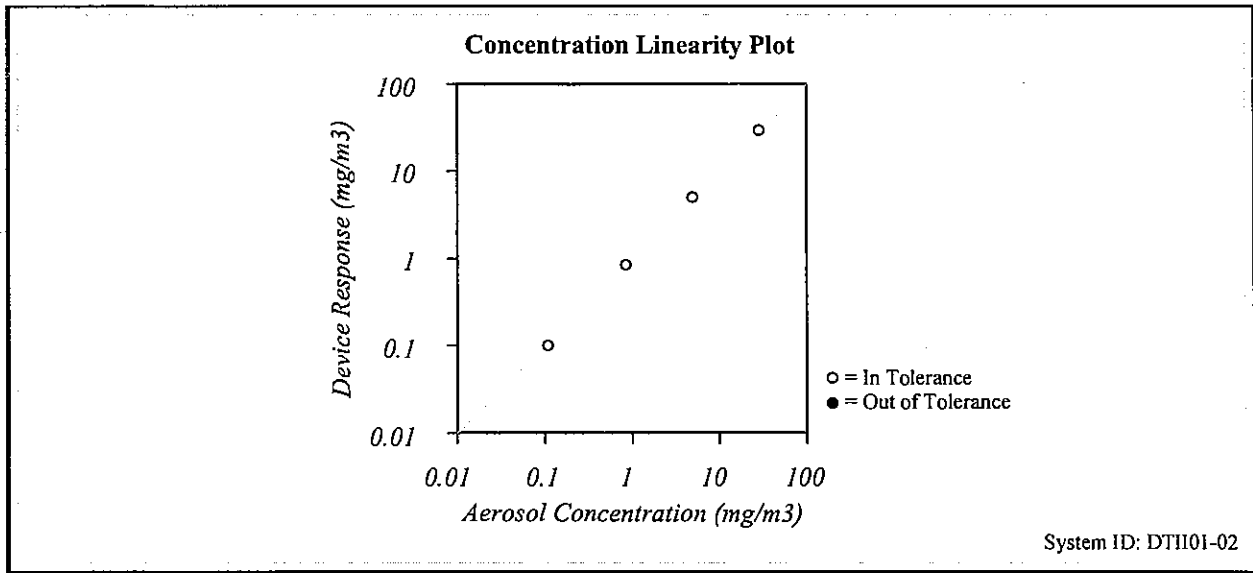


CERTIFICATE OF CALIBRATION AND TESTING

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

| | | | | |
|-----------------------|---------------|------------|---------------|-------|
| Environment Condition | | | Model | 8520 |
| Temperature | 73.8 (23.2) | °F (°C) | Serial Number | 23080 |
| Relative Humidity | 14 | %RH | | |
| Barometric Pressure | 29.41 (995.9) | inHg (hPa) | | |

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



| Zero Stability Results | | | |
|--------------------------|--------------------------|--------------------------|------------|
| Average: | Minimum: | Maximum: | Time: |
| 0.000 :mg/m ³ | 0.000 :mg/m ³ | 0.001 :mg/m ³ | 4:00 :hrs. |

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

| Measurement Variable | System ID | Last Cal. | Cal. Due | Measurement Variable | System ID | Last Cal. | Cal. Due |
|----------------------|-----------|-----------|----------|----------------------|-----------|-----------|----------|
| Barometric Pressure | E003733 | 01-15-11 | 02-15-12 | Temperature | E002873 | 11-24-10 | 11-24-11 |
| Humidity | E002873 | 11-24-10 | 11-24-11 | DC Voltage | E003314 | 01-05-11 | 01-05-12 |
| DC Voltage | E003315 | 01-05-11 | 01-05-12 | Photometer | E003319 | 01-27-11 | 07-27-11 |
| Microbalance | E001324 | 01-04-11 | 01-04-12 | Flow and Temperature | E003769 | 06-15-10 | 06-15-11 |
| Pressure | E003511 | 11-12-10 | 11-12-11 | | | | |

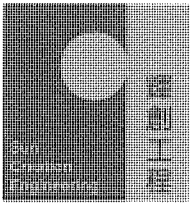
[Signature]

 Calibrated

Final Function Check

February 1, 2011

 Date



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C112202

Calibration Report

ITEM TESTED

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

TEST CONDITIONS

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

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 18 April 2011

JOB NO. : IC11-0947

TEST RESULTS

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

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

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

Tested by :


L L Cheung

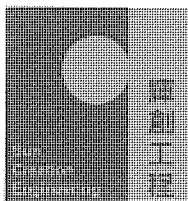
Date : 19 April 2011

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

Calibration and Testing Laboratory of Sun Creation Engineering Limited

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

Page 1 of 4



Calibration Report

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

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

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

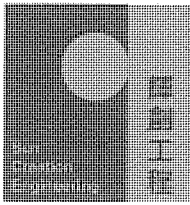
| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|-----------------------------|
| Range (dB) | Parameter | Frequency Weighting | Time Weighting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

6.1.2 Linearity

| UUT Setting | | | | Applied Value | | UUT Reading (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|
| Range (dB) | Parameter | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | |
| 50 - 130 | L _{AFP} | A | F | 94.00 | 1 | 94.0 (Ref.) |
| | | | | 104.00 | | 104.0 |
| | | | | 114.00 | | 114.0 |

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

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



Calibration Report

6.2 Time Weighting

6.2.1 Continuous Signal

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

6.2.2 Tone Burst Signal (2 kHz)

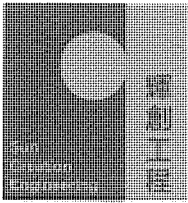
| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|--------------------|---------------------|----------------|---------------|----------------|------------------|-----------------------------|
| Range (dB) | Parameter | Frequency Weighting | Time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

6.3 Frequency Weighting

6.3.1 A-Weighting

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

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



Calibration Report

6.3.2 C-Weighting

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|----------|------------------|-----------------------------|
| Range (dB) | Parameter | Frequency Weighting | Time Weighting | Level (dB) | Freq. | | |
| 50 - 130 | L _{CFP} | C | F | 94.00 | 31.5 Hz | 91.1 | -3.0 ± 1.5 |
| | | | | | 63 Hz | 93.2 | -0.8 ± 1.5 |
| | | | | | 125 Hz | 93.8 | -0.2 ± 1.0 |
| | | | | | 250 Hz | 94.0 | 0.0 ± 1.0 |
| | | | | | 500 Hz | 94.0 | 0.0 ± 1.0 |
| | | | | | 1 kHz | 94.0 | Ref. |
| | | | | | 2 kHz | 93.8 | -0.2 ± 1.0 |
| | | | | | 4 kHz | 93.2 | -0.8 ± 1.0 |
| | | | | | 8 kHz | 90.9 | -3.0 (+1.5 ; -3.0) |
| | | | | | 12.5 kHz | 87.8 | -6.2 (+3.0 ; -6.0) |

6.4 Time Averaging

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

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

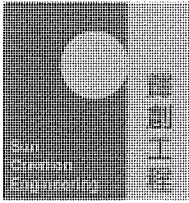
- Uncertainties of Applied Value :
 - 94 dB : 31.5 Hz - 125 Hz : ± 0.40 dB
 - 250 Hz - 500 Hz : ± 0.30 dB
 - 1 kHz : ± 0.20 dB
 - 2 kHz : ± 0.40 dB
 - 4 kHz : ± 0.50 dB
 - 8 kHz : ± 0.70 dB
 - 12.5 kHz : ± 1.20 dB
 - 104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
 - 114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
 - Burst equivalent level : ± 0.2 dB (Ref. 110 dB continuous sound level)

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

Note :

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

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



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C112201

Certificate of Calibration

This is to certify that the equipment

Description : Acoustical Calibrator (EQ082)

Manufacturer : Bruel & Kjaer

Model No. : 4231

Serial No. : 2713428

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

The equipment is supplied by

Co. Name : Action-United Environmental Services and Consulting

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

Date of Issue : 19 April 2011

Certified by :

K C Lee

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

Calibration and Testing Laboratory of Sun Creation Engineering Limited

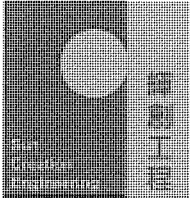
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C112201

Calibration Report

ITEM TESTED

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

TEST CONDITIONS

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

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 18 April 2011

JOB NO. : IC11-0947

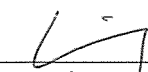
TEST RESULTS

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

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

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

Tested by :


L L Cheung

Date : 19 April 2011

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

Calibration and Testing Laboratory of Sun Creation Engineering Limited

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

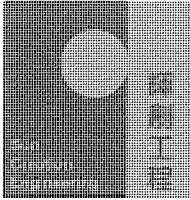
Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com

Page 1 of 2



Calibration Report

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

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

4. Test procedure : MA100N.

5. Results :

- 5.1 Sound Level Accuracy

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

- 5.2 Frequency Accuracy

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

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

Note :

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



ALS Technichem (HK) Pty Ltd

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

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

WORK ORDER: HK1127006
LABORATORY: HONG KONG
DATE RECEIVED: 16/11/2011
DATE OF ISSUE: 25/11/2011

PROJECT: --

COMMENTS

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

Scope of Test: Dissolved Oxygen, pH, Salinity and Temperature
Description: YSI Professional Plus
Brand Name: YSI
Model No.: YSI Professional Plus
Serial No.: 10G101946
Equipment No.: --
Date of Calibration: 16 November, 2011

NOTES

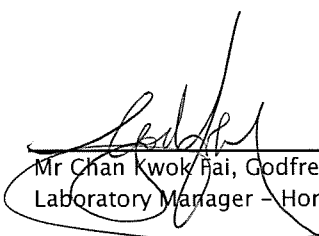
This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

Address

ALS Technichem (HK) Pty Ltd
11/F Chung Shun Knitting Centre
1-3 Wing Yip Street
Kwai Chung
HONG KONG

Phone: 852-2610 1044
Fax: 852-2610 2021
Email: hongkong@alsglobal.com


Mr Chan Kwok Hai, Godfrey
Laboratory Manager - Hong Kong

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Page 1 of 2

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

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1127006
Date of Issue: 25/11/2011
Client: ACTION UNITED ENVIRO SERVICES



Description: YSI Professional Plus
Brand Name: YSI
Model No.: YSI Professional Plus
Serial No.: 10G101946
Equipment No.: --
Date of Calibration: 16 November, 2011

Date of next Calibration: 16 February, 2012

Parameters:

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

| Expected Reading (mg/L) | Displayed Reading (mg/L) | Tolerance (mg/L) |
|-------------------------|--------------------------|------------------|
| 6.04 | 5.98 | -0.06 |
| 6.85 | 6.83 | -0.02 |
| 7.76 | 7.80 | 0.04 |
| Tolerance Limit (±mg/L) | | 0.20 |

pH Value

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

| Expected Reading (pH Unit) | Displayed Reading (pH Unit) | Tolerance (pH unit) |
|----------------------------|-----------------------------|---------------------|
| 4.0 | 4.13 | 0.13 |
| 7.0 | 7.05 | 0.05 |
| 10.0 | 9.90 | -0.10 |
| Tolerance Limit (±unit) | | 0.20 |

Salinity

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

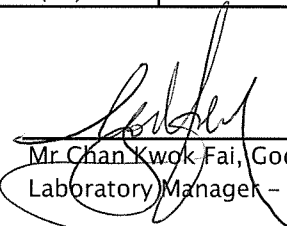
| Expected Reading (g/L) | Displayed Reading (g/L) | Tolerance (%) |
|------------------------|-------------------------|---------------|
| 0.00 | 0.00 | -- |
| 10.00 | 9.50 | -5.0 |
| 20.00 | 19.21 | -4.0 |
| 30.00 | 28.58 | -4.7 |
| Tolerance Limit (±%) | | 10.0 |

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical

Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

| Reading of Ref. thermometer (°C) | Displayed Reading (°C) | Tolerance (°C) |
|----------------------------------|------------------------|----------------|
| 11.0 | 11.0 | 0.0 |
| 24.5 | 24.0 | -0.5 |
| 33.0 | 33.0 | 0.0 |
| Tolerance Limit (°C) | | 2.0 |



 Mr Chan Kwok-Fai, Godfrey
 Laboratory Manager – Hong Kong



ALS Technichem (HK) Pty Ltd

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

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

WORK ORDER: HK1129081
LABORATORY: HONG KONG
DATE RECEIVED: 09/12/2011
DATE OF ISSUE: 16/12/2011

PROJECT: --

COMMENTS

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

Scope of Test: Dissolved Oxygen, pH, Salinity, Temperature and Turbidity
Description: YSI Sonde
Brand Name: YSI
Model No.: YSI 6820 / 650MDS
Serial No.: 02J0912/02K0788 AA
Equipment No.: --
Date of Calibration: 16 December, 2011

NOTES

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

ISSUING LABORATORY: HONG KONG

Address

ALS Technichem (HK) Pty Ltd
11/F Chung Shun Knitting Centre
1-3 Wing Yip Street
Kwai Chung
HONG KONG

Phone: 852-2610 1044
Fax: 852-2610 2021
Email: hongkong@alsglobal.com


Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

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Page 1 of 3

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1129081
 Date of Issue: 16/12/2011
 Client: ACTION UNITED ENVIRO SERVICES



Description: YSI Sonde
 Brand Name: YSI
 Model No.: YSI 6820 / 650MDS
 Serial No.: 02J0912/02K0788 AA
 Equipment No.: --
 Date of Calibration: 16 December, 2011

Date of next Calibration: 16 March, 2012

Parameters:

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

| Expected Reading (mg/L) | Displayed Reading (mg/L) | Tolerance (mg/L) |
|-------------------------------|--------------------------|------------------|
| 5.70 | 5.83 | 0.13 |
| 6.91 | 7.05 | 0.14 |
| 8.00 | 8.08 | 0.08 |
| Tolerance Limit (\pm mg/L) | | 0.20 |

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

| Expected Reading (pH Unit) | Displayed Reading (pH Unit) | Tolerance (pH unit) |
|-------------------------------|-----------------------------|---------------------|
| 4.0 | 3.95 | -0.05 |
| 7.0 | 6.95 | -0.05 |
| 10.0 | 9.92 | -0.08 |
| Tolerance Limit (\pm unit) | | 0.20 |

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

| Expected Reading (ppt) | Displayed Reading (ppt) | Tolerance (%) |
|----------------------------|-------------------------|---------------|
| 0 | 0.00 | -- |
| 10 | 10.05 | 0.5 |
| 20 | 20.10 | 0.5 |
| 30 | 30.89 | 3.0 |
| Tolerance Limit (\pm %) | | 10.0 |

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

| Reading of Ref. thermometer ($^{\circ}$ C) | Displayed Reading ($^{\circ}$ C) | Tolerance ($^{\circ}$ C) |
|---|-----------------------------------|---------------------------|
| 11.0 | 10.80 | -0.2 |
| 22.0 | 21.40 | -0.6 |
| 32.0 | 31.83 | -0.2 |
| Tolerance Limit ($^{\circ}$ C) | | 2.0 |


 Mr Chan Kwok Fai, Godfrey
 Laboratory Manager - Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1129081
Date of Issue: 16/12/2011
Client: ACTION UNITED ENVIRO SERVICES



Description: YSI Sonde
Brand Name: YSI
Model No.: YSI 6820 / 650MDS
Serial No.: 02J0912/02K0788 AA
Equipment No.: --
Date of Calibration: 16 December, 2011

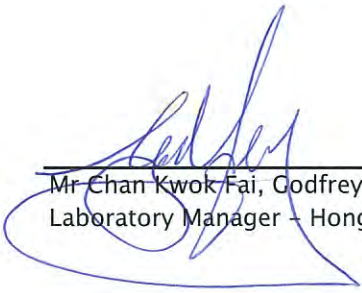
Date of next Calibration: 16 March, 2012

Parameters:

Turbidity

Method Ref: APHA 21st Ed. 2130B

| Expected Reading (NTU) | Displayed Reading (NTU) | Tolerance (%) |
|------------------------|-----------------------------|---------------|
| 0 | 0.6 | -- |
| 4 | 4.3 | 7.5 |
| 10 | 10.0 | 0.0 |
| 20 | 21.5 | 7.5 |
| 50 | 50.9 | 1.8 |
| 100 | 99.4 | -0.6 |
| | Tolerance Limit ($\pm\%$) | 10.0 |


Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong



Hong Kong Accreditation Service
香港認可處

Certificate of Accreditation
認可證書

This is to certify that
特此證明

ALS TECHNICHEM (HK) PTY LIMITED

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

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

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

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

Environmental Testing
環境測試

This laboratory is accredited in accordance with the recognised International Standard ISO / IEC 17025 : 2005.
本實驗所乃根據公認的國際標準 ISO / IEC 17025 : 2005 獲得認可。

This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (see joint IAF-ILAC-ISO Communiqué).
這項認可資格演示在指定範疇所需的技術能力及實驗所質量管理體系的運作
(見國際認可論壇、國際實驗所認可合作組織及國際標準化組織的聯合公報)。

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

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

Registration Number : **HOKLAS 066**
註冊號碼：

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



Appendix F

Event/Action Plan

Air Quality

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

Construction Noise

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

Water Quality

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

Appendix G

Monitoring Data Sheet

24-hour TSP Monitoring Data Sheet

Air Quality Monitoring - 24-hour TSP Monitoring data sheet

| DATE | SAMPLE NUMBER | ELAPSED TIME | | | CHART READING | | | AVG TEMP (oC) | STANDARD | | | INITIAL FILTER WEIGHT (g) | FINAL FILTER WEIGHT (g) | WEIGHT DUST COLLECTED (g) | DUST 24-hour TSP IN AIR (ug/m ³) |
|---|---------------|--------------|----------|--------------|---------------|-----|------|---------------|-----------------|--------------------|---------------------|---------------------------|-------------------------|---------------------------|--|
| | | INITIAL | FINAL | ACTUAL (min) | MIN | MAX | AVG | | AVG PRESS (hPa) | FLOW RATE (m3/min) | AIR VOLUME (std m3) | | | | |
| 24-hour TSP Monitoring Results - AM1 | | | | | | | | | | | | | | | |
| 5-Jan-12 | 24496 | 11475.53 | 11499.12 | 1415.40 | 32 | 34 | 33.0 | 11 | 1023.4 | 0.78 | 1100 | 2.8498 | 2.9271 | 0.0773 | 70 |
| 11-Jan-12 | 24426 | 11499.12 | 11522.91 | 1427.40 | 32 | 36 | 34.0 | 16 | 1023.7 | 0.80 | 1141 | 2.8221 | 2.9615 | 0.1394 | 122 |
| 17-Jan-12 | 24514 | 11522.91 | 11546.77 | 1431.60 | 32 | 36 | 34.0 | 16.5 | 1014.8 | 0.79 | 1136 | 2.7772 | 2.8077 | 0.0305 | 27 |
| 27-Jan-12 | 24477 | 11546.77 | 11570.48 | 1422.60 | 31 | 35 | 33.0 | 14.7 | 1016.6 | 0.77 | 1091 | 2.8261 | 2.8951 | 0.0690 | 63 |
| 24-hour TSP Monitoring Results - AM2 | | | | | | | | | | | | | | | |
| 5-Jan-12 | 24492 | 9984.97 | 10008.9 | 1435.80 | 32 | 34 | 33.0 | 11 | 1023 | 0.72 | 1039 | 2.8654 | 2.9327 | 0.0673 | 65 |
| 11-Jan-12 | 24494 | 10008.9 | 10033.87 | 1498.20 | 37 | 39 | 38.0 | 16 | 1023.7 | 0.91 | 1367 | 2.8608 | 3.0898 | 0.2290 | 168 |
| 17-Jan-12 | 24515 | 10032.87 | 10056.42 | 1413.00 | 32 | 35 | 33.5 | 16.5 | 1014.8 | 0.73 | 1025 | 2.7827 | 2.8325 | 0.0498 | 49 |
| 27-Jan-12 | 24516 | 10056.42 | 10080.33 | 1434.60 | 33 | 36 | 34.5 | 14.7 | 1016.6 | 0.77 | 1106 | 2.7797 | 2.8466 | 0.0669 | 61 |
| 24-hour TSP Monitoring Results - AM3 | | | | | | | | | | | | | | | |
| 5-Jan-12 | 24493 | 5540.95 | 5564.71 | 1425.60 | 32 | 34 | 33.0 | 11 | 1023.4 | 0.83 | 1180 | 2.8536 | 2.9391 | 0.0855 | 72 |
| 11-Jan-12 | 24471 | 5564.71 | 5588.5 | 1427.40 | 34 | 36 | 35.0 | 16 | 1023.7 | 0.91 | 1302 | 2.8483 | 3.079 | 0.2307 | 177 |
| 17-Jan-12 | 24510 | 5588.5 | 5612.27 | 1426.20 | 33 | 36 | 34.5 | 16.5 | 1014.8 | 0.88 | 1253 | 2.7718 | 2.8575 | 0.0857 | 68 |
| 27-Jan-12 | 24519 | 5612.27 | 5636.12 | 1431.00 | 33 | 35 | 34.0 | 14.7 | 1016.6 | 0.86 | 1232 | 2.7758 | 2.9218 | 0.1460 | 119 |

Marine Water Quality Monitoring Data Sheet

Contract No. DC/2009/13

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



Sok Kwu Wan

Date 4-Jan-12

| Date / Time | Location | Tide* | Co-ordinates | | Water Depth m | Sampling Depth m | Temp °C | DO Conc mg/L | DO Saturation % | Turbidity NTU | Salinity ppt | pH unit | SS mg/l |
|----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
| | | | East | North | | | | | | | | | |
| 2012/1/4 9:56 | W1 | ME | 832961 | 807751 | 2.4 | 1.200 | 13.50 | 6.26 | 87.9 | 4.1 | 29.50 | 7.80 | 3.7 |
| | | | | | | 1.200 | 13.50 | 6.13 | 88.8 | 4.4 | 29.00 | 7.90 | |
| 2012/1/4 9:41 | W2 | ME | 832608 | 807981 | 12.5 | 1.000 | 13.60 | 6.43 | 86.8 | 4.3 | 30.10 | 8.00 | 2.9 |
| | | | | | | 1.000 | 13.60 | 6.42 | 86.7 | 4.5 | 30.90 | 7.90 | |
| | | | | | | 6.250 | 13.50 | 6.26 | 85.2 | 4.7 | 32.80 | 8.20 | 2.6 |
| | | | | | | 6.250 | 13.50 | 6.16 | 85.8 | 4.7 | 32.40 | 8.00 | |
| | | | | | | 11.500 | 13.20 | 5.92 | 83.6 | 4.5 | 33.10 | 8.30 | 3.6 |
| 11.500 | 13.20 | 5.92 | 83.2 | 4.3 | 32.90 | 8.20 | | | | | | | |
| 2012/1/4 9:28 | W3 | ME | 832034 | 807890 | 12.7 | 1.000 | 13.60 | 6.26 | 85.8 | 3.7 | 28.40 | 7.90 | 4.1 |
| | | | | | | 1.000 | 13.60 | 6.27 | 88.6 | 4.4 | 28.50 | 7.90 | |
| | | | | | | 6.350 | 13.50 | 6.16 | 83.2 | 5.4 | 30.80 | 8.00 | 5.5 |
| | | | | | | 6.350 | 13.50 | 6.02 | 85.6 | 6.3 | 30.60 | 7.90 | |
| | | | | | | 11.700 | 13.40 | 5.96 | 81.8 | 6.1 | 31.20 | 8.00 | 6.0 |
| 11.700 | 13.40 | 5.92 | 81.9 | 4.9 | 31.80 | 8.00 | | | | | | | |
| 2012/1/4 10:16 | C1 | ME | 833694 | 808183 | 13.2 | 1.000 | 13.50 | 6.42 | 83.6 | 4.8 | 30.20 | 8.10 | 2.0 |
| | | | | | | 1.000 | 13.50 | 6.43 | 83.8 | 5.4 | 30.80 | 8.10 | |
| | | | | | | 6.600 | 13.30 | 6.26 | 82.1 | 5.6 | 29.20 | 8.00 | 5.0 |
| | | | | | | 6.600 | 13.30 | 6.26 | 82.0 | 6.2 | 29.30 | 8.00 | |
| | | | | | | 12.200 | 13.00 | 5.99 | 79.1 | 4.8 | 31.80 | 7.90 | 2.7 |
| 12.200 | 13.10 | 5.96 | 79.2 | 6.1 | 31.20 | 8.00 | | | | | | | |
| 2012/1/4 9:10 | C2 | ME | 831445 | 807762 | 10.9 | 1.000 | 13.50 | 6.16 | 80.3 | 4.3 | 29.30 | 7.90 | 3.8 |
| | | | | | | 1.000 | 13.50 | 6.24 | 82.4 | 4.4 | 28.90 | 7.90 | |
| | | | | | | 5.450 | 13.40 | 6.03 | 80.2 | 5.1 | 30.40 | 8.00 | 5.1 |
| | | | | | | 5.450 | 13.40 | 6.02 | 81.4 | 5.3 | 31.20 | 8.00 | |
| | | | | | | 9.900 | 13.20 | 5.92 | 79.9 | 6.3 | 32.30 | 8.00 | 0.9 |
| 9.900 | 13.20 | 5.96 | 79.8 | 5.5 | 30.30 | 8.00 | | | | | | | |
| 2012/1/4 10:32 | C3 | ME | 832214 | 808876 | 13.6 | 1.000 | 13.60 | 6.24 | 88.3 | 5.5 | 29.40 | 7.90 | 5.2 |
| | | | | | | 1.000 | 13.70 | 6.21 | 88.4 | 4.7 | 29.50 | 7.80 | |
| | | | | | | 6.800 | 13.60 | 6.02 | 86.2 | 4.4 | 32.40 | 7.90 | 2.4 |
| | | | | | | 6.800 | 13.50 | 6.01 | 86.4 | 3.8 | 32.50 | 8.00 | |
| | | | | | | 12.600 | 13.40 | 5.96 | 83.4 | 6.0 | 33.80 | 7.80 | 2.0 |
| 12.600 | 13.40 | 5.93 | 83.9 | 6.3 | 33.40 | 7.90 | | | | | | | |
| 2012/1/4 13:36 | W1 | MF | 832972 | 807759 | 2.8 | 1.400 | 14.10 | 6.78 | 80.7 | 4.2 | 31.80 | 7.80 | 4.5 |
| | | | | | | 1.400 | 14.00 | 6.82 | 82.1 | 4.1 | 32.40 | 7.80 | |
| 2012/1/4 13:29 | W2 | MF | 832614 | 807995 | 13.1 | 1.000 | 14.00 | 6.31 | 83.3 | 4.4 | 32.30 | 7.90 | 4.1 |
| | | | | | | 1.000 | 13.90 | 6.32 | 84.4 | 5.2 | 32.60 | 7.90 | |
| | | | | | | 6.550 | 13.80 | 6.53 | 80.3 | 5.5 | 30.40 | 8.00 | 2.7 |
| | | | | | | 6.550 | 13.80 | 6.51 | 80.2 | 3.7 | 30.30 | 7.90 | |
| | | | | | | 12.100 | 13.60 | 6.54 | 79.2 | 4.5 | 31.90 | 8.00 | 4.8 |
| 12.100 | 13.60 | 6.59 | 79.3 | 4.9 | 31.80 | 7.90 | | | | | | | |
| 2012/1/4 13:22 | W3 | MF | 832036 | 807894 | 12.8 | 1.000 | 14.10 | 6.32 | 84.2 | 4.3 | 29.10 | 7.90 | 3.5 |
| | | | | | | 1.000 | 14.10 | 6.42 | 84.1 | 4.4 | 29.30 | 8.00 | |
| | | | | | | 6.400 | 14.00 | 6.56 | 80.2 | 5.4 | 30.40 | 8.00 | 5.9 |
| | | | | | | 6.400 | 13.90 | 6.57 | 80.1 | 4.1 | 30.30 | 7.90 | |
| | | | | | | 11.800 | 13.50 | 6.32 | 79.9 | 3.7 | 30.30 | 8.00 | 3.3 |
| 11.800 | 13.60 | 6.26 | 79.2 | 4.5 | 31.40 | 7.90 | | | | | | | |
| 2012/1/4 13:52 | C1 | MF | 833725 | 808188 | 13.6 | 1.000 | 14.00 | 6.51 | 85.2 | 4.4 | 30.30 | 7.80 | 4.4 |
| | | | | | | 1.000 | 14.00 | 6.52 | 85.3 | 5.2 | 30.20 | 7.80 | |
| | | | | | | 6.800 | 13.90 | 6.36 | 83.6 | 6.3 | 31.40 | 7.80 | 2.4 |
| | | | | | | 6.800 | 13.80 | 6.36 | 83.9 | 5.5 | 31.80 | 7.80 | |
| | | | | | | 12.600 | 13.50 | 6.35 | 81.1 | 5.8 | 32.80 | 7.80 | 4.6 |
| 12.600 | 13.50 | 6.64 | 82.4 | 4.9 | 32.30 | 7.90 | | | | | | | |
| 2012/1/4 13:09 | C2 | MF | 831449 | 807762 | 10.6 | 1.000 | 13.90 | 7.02 | 81.2 | 4.2 | 30.30 | 7.90 | 9.7 |
| | | | | | | 1.000 | 13.90 | 6.92 | 81.1 | 4.7 | 29.40 | 8.00 | |
| | | | | | | 5.300 | 13.50 | 6.84 | 80.1 | 5.1 | 31.40 | 7.90 | 3.4 |
| | | | | | | 5.300 | 13.50 | 6.81 | 80.2 | 4.3 | 31.30 | 7.90 | |
| | | | | | | 9.600 | 13.50 | 6.83 | 78.8 | 4.4 | 32.30 | 8.00 | 4.0 |
| 9.600 | 13.50 | 6.12 | 78.1 | 2.8 | 32.40 | 7.90 | | | | | | | |
| 2012/1/4 14:20 | C3 | MF | 832219 | 808877 | 13.2 | 1.000 | 13.90 | 6.76 | 83.6 | 4.5 | 30.80 | 7.90 | 3.6 |
| | | | | | | 1.000 | 13.90 | 6.26 | 83.8 | 5.5 | 30.60 | 7.90 | |
| | | | | | | 6.600 | 13.70 | 7.02 | 82.1 | 5.4 | 31.90 | 7.80 | 4.0 |
| | | | | | | 6.600 | 13.70 | 7.03 | 82.8 | 4.3 | 31.20 | 7.90 | |
| | | | | | | 12.200 | 13.50 | 6.79 | 80.8 | 5.0 | 32.40 | 8.20 | 3.5 |
| 12.200 | 13.60 | 6.79 | 80.1 | 4.7 | 32.30 | 8.10 | | | | | | | |

MF- Mid Flood Tide

ME- Mid Ebb tide

Contract No. DC/2009/13

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



Sok Kwu Wan

Date 6-Jan-12

| Date / Time | Location | Tide* | Co-ordinates | | Water Depth m | Sampling Depth m | Temp °C | DO Conc mg/L | DO Saturation % | Turbidity NTU | Salinity ppt | pH unit | SS mg/l |
|----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
| | | | East | North | | | | | | | | | |
| 2012/1/6 10:38 | W1 | ME | 832949 | 807742 | 2.5 | 1.250 | 13.60 | 6.74 | 90.2 | 4.2 | 30.88 | 8.20 | 2.7 |
| | | | | | | 1.250 | 13.50 | 6.77 | 90.9 | 3.8 | 32.44 | 8.10 | |
| 2012/1/6 10:23 | W2 | ME | 832594 | 807981 | 12.6 | 1.000 | 13.40 | 6.96 | 94.4 | 4.2 | 32.24 | 8.20 | 0.9 |
| | | | | | | 1.000 | 13.40 | 6.79 | 95.5 | 4.6 | 31.43 | 8.10 | |
| | | | | | | 6.300 | 13.20 | 6.84 | 93.8 | 3.5 | 30.96 | 8.10 | 1.4 |
| | | | | | | 6.300 | 13.20 | 6.83 | 92.1 | 3.9 | 31.51 | 8.40 | |
| | | | | | | 11.600 | 13.30 | 6.75 | 90.1 | 4.7 | 32.16 | 8.20 | 1.6 |
| | | | | | | 11.600 | 13.10 | 6.74 | 89.4 | 5.5 | 30.09 | 8.30 | |
| 2012/1/6 10:12 | W3 | ME | 832038 | 807899 | 12.4 | 1.000 | 13.70 | 6.84 | 96.3 | 4.0 | 30.31 | 8.20 | 1.8 |
| | | | | | | 1.000 | 13.60 | 6.83 | 96.8 | 3.1 | 32.48 | 8.40 | |
| | | | | | | 6.200 | 13.60 | 6.67 | 94.1 | 4.0 | 31.85 | 8.20 | 3.4 |
| | | | | | | 6.200 | 13.40 | 6.59 | 94.7 | 3.9 | 32.19 | 8.00 | |
| | | | | | | 11.400 | 13.20 | 6.72 | 90.9 | 4.8 | 30.24 | 8.10 | 2.1 |
| | | | | | | 11.400 | 13.30 | 6.81 | 91.8 | 3.9 | 31.49 | 8.20 | |
| 2012/1/6 10:56 | C1 | ME | 833721 | 808164 | 13.1 | 1.000 | 13.60 | 6.80 | 92.7 | 3.2 | 30.27 | 8.20 | 2.9 |
| | | | | | | 1.000 | 13.60 | 6.75 | 93.4 | 3.2 | 29.48 | 8.20 | |
| | | | | | | 6.550 | 13.40 | 6.54 | 90.2 | 5.2 | 30.96 | 8.30 | 2.1 |
| | | | | | | 6.550 | 13.30 | 6.65 | 90.4 | 5.5 | 31.51 | 8.40 | |
| | | | | | | 12.100 | 13.40 | 6.32 | 89.1 | 4.5 | 32.16 | 8.30 | 3.0 |
| | | | | | | 12.100 | 13.30 | 6.54 | 88.7 | 4.9 | 30.09 | 8.20 | |
| 2012/1/6 9:58 | C2 | ME | 831456 | 807749 | 10.9 | 1.000 | 13.60 | 7.02 | 96.5 | 3.8 | 30.31 | 8.10 | 0.9 |
| | | | | | | 1.000 | 13.70 | 6.96 | 95.4 | 3.6 | 32.48 | 8.20 | |
| | | | | | | 5.450 | 13.70 | 6.72 | 94.9 | 3.9 | 31.85 | 8.20 | 1.2 |
| | | | | | | 5.450 | 13.60 | 6.88 | 93.8 | 2.7 | 32.19 | 8.20 | |
| | | | | | | 9.900 | 13.60 | 6.59 | 94.1 | 4.1 | 30.24 | 8.30 | 4.2 |
| | | | | | | 9.900 | 13.50 | 6.57 | 93.2 | 2.3 | 31.49 | 8.00 | |
| 2012/1/6 11:09 | C3 | ME | 832224 | 808879 | 13.4 | 1.000 | 13.50 | 7.02 | 95.9 | 3.2 | 32.24 | 8.30 | 3.0 |
| | | | | | | 1.000 | 13.40 | 7.09 | 94.2 | 3.6 | 31.48 | 8.20 | |
| | | | | | | 6.700 | 13.60 | 7.26 | 90.2 | 4.5 | 30.11 | 8.20 | 2.8 |
| | | | | | | 6.700 | 13.40 | 7.14 | 88.6 | 4.6 | 32.12 | 8.40 | |
| | | | | | | 12.400 | 13.30 | 6.85 | 87.9 | 4.9 | 31.87 | 8.10 | 2.6 |
| | | | | | | 12.400 | 13.20 | 6.96 | 86.1 | 3.9 | 30.75 | 8.30 | |
| 2012/1/6 14:42 | W1 | MF | 832944 | 807757 | 2.4 | 1.200 | 13.60 | 6.88 | 89.4 | 4.2 | 30.02 | 8.10 | 2.0 |
| | | | | | | 1.200 | 13.50 | 6.76 | 92.6 | 3.9 | 31.82 | 8.20 | |
| 2012/1/6 14:36 | W2 | MF | 832625 | 807992 | 12.1 | 1.000 | 13.80 | 6.80 | 96.7 | 5.3 | 30.03 | 8.20 | 1.7 |
| | | | | | | 1.000 | 13.60 | 6.82 | 96.8 | 5.2 | 31.28 | 8.40 | |
| | | | | | | 6.050 | 13.50 | 6.56 | 94.1 | 3.0 | 32.45 | 8.20 | 2.3 |
| | | | | | | 6.050 | 13.40 | 6.57 | 94.6 | 3.8 | 31.99 | 8.40 | |
| | | | | | | 11.100 | 13.40 | 6.75 | 90.9 | 5.0 | 32.07 | 8.40 | 2.0 |
| | | | | | | 11.100 | 13.30 | 6.58 | 91.2 | 5.5 | 33.00 | 8.10 | |
| 2012/1/6 14:23 | W3 | MF | 832067 | 807914 | 12.5 | 1.000 | 13.80 | 6.81 | 96.1 | 4.3 | 30.27 | 8.10 | 4.9 |
| | | | | | | 1.000 | 13.70 | 6.76 | 96.8 | 4.1 | 31.96 | 8.20 | |
| | | | | | | 6.250 | 13.60 | 6.70 | 96.7 | 3.4 | 31.88 | 8.10 | 5.3 |
| | | | | | | 6.250 | 13.50 | 6.61 | 95.4 | 3.9 | 32.98 | 8.30 | |
| | | | | | | 11.500 | 13.50 | 6.38 | 94.3 | 4.1 | 31.87 | 8.20 | 2.4 |
| | | | | | | 11.500 | 13.40 | 6.44 | 92.8 | 4.9 | 30.96 | 8.10 | |
| 2012/1/6 14:54 | C1 | MF | 833704 | 808190 | 13.6 | 1.000 | 13.70 | 6.88 | 94.6 | 4.4 | 31.96 | 8.10 | 4.4 |
| | | | | | | 1.000 | 13.70 | 6.81 | 94.1 | 4.4 | 30.18 | 8.20 | |
| | | | | | | 6.800 | 13.60 | 6.70 | 90.8 | 3.1 | 30.04 | 8.30 | 1.7 |
| | | | | | | 6.800 | 13.60 | 6.58 | 90.1 | 3.2 | 31.96 | 8.20 | |
| | | | | | | 12.600 | 13.10 | 6.56 | 88.7 | 4.9 | 32.18 | 8.20 | 2.8 |
| | | | | | | 12.600 | 13.20 | 6.40 | 89.4 | 4.3 | 32.44 | 8.40 | |
| 2012/1/6 14:11 | C2 | MF | 831471 | 807769 | 10.6 | 1.000 | 13.60 | 6.84 | 97.2 | 3.2 | 30.21 | 8.10 | 2.9 |
| | | | | | | 1.000 | 13.80 | 6.79 | 98.6 | 3.8 | 31.96 | 8.30 | |
| | | | | | | 5.300 | 13.90 | 6.88 | 96.4 | 4.3 | 32.48 | 8.30 | 3.0 |
| | | | | | | 5.300 | 13.80 | 6.75 | 95.1 | 3.7 | 31.22 | 8.40 | |
| | | | | | | 9.600 | 13.50 | 6.70 | 90.8 | 4.6 | 30.96 | 8.30 | 0.8 |
| | | | | | | 9.600 | 13.60 | 6.64 | 92.4 | 3.5 | 32.27 | 8.00 | |
| 2012/1/6 15:06 | C3 | MF | 832944 | 808851 | 12.9 | 1.000 | 13.70 | 6.78 | 2.8 | 5.2 | 30.24 | 8.30 | 1.8 |
| | | | | | | 1.000 | 13.60 | 6.71 | 91.4 | 4.3 | 30.95 | 8.20 | |
| | | | | | | 6.450 | 13.40 | 6.24 | 90.9 | 3.4 | 31.56 | 8.30 | 2.1 |
| | | | | | | 6.450 | 13.50 | 6.28 | 91.2 | 2.3 | 32.68 | 8.10 | |
| | | | | | | 11.900 | 13.10 | 6.19 | 88.5 | 4.4 | 31.85 | 8.10 | 3.5 |
| | | | | | | 11.900 | 13.00 | 6.46 | 87.7 | 5.0 | 32.46 | 8.00 | |

MF- Mid Flood Tide
ME- Mid Ebb tide

Contract No. DC/2009/13

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



Sok Kwu Wan

Date 10-Jan-12

| Date / Time | Location | Tide* | Co-ordinates | | Water Depth m | Sampling Depth m | Temp °C | DO Conc mg/L | DO Saturation % | Turbidity NTU | Salinity ppt | pH unit | SS mg/l |
|-----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
| | | | East | North | | | | | | | | | |
| 2012/1/10 13:43 | W1 | ME | 832949 | 807741 | 2.6 | 1.300 | 17.00 | 6.83 | 85.6 | 3.9 | 32.09 | 8.30 | 3.8 |
| | | | | | | 1.300 | 16.90 | 6.74 | 86.7 | 4.2 | 32.22 | 8.40 | |
| 2012/1/10 13:36 | W2 | ME | 832609 | 807995 | 13.6 | 1.000 | 17.00 | 6.99 | 98.4 | 2.6 | 32.09 | 8.30 | 3.3 |
| | | | | | | 1.000 | 17.10 | 6.95 | 98.3 | 3.5 | 33.82 | 8.40 | |
| | | | | | | 6.800 | 17.10 | 6.59 | 96.1 | 4.8 | 31.45 | 8.20 | 3.7 |
| | | | | | | 6.800 | 17.00 | 6.84 | 95.4 | 3.7 | 32.28 | 8.20 | |
| | | | | | | 12.600 | 16.90 | 6.61 | 90.3 | 5.7 | 32.46 | 8.00 | 6.6 |
| | | | | | | 12.600 | 16.80 | 6.68 | 92.8 | 4.5 | 30.78 | 8.30 | |
| 2012/1/10 13:21 | W3 | ME | 832036 | 807904 | 13.4 | 1.000 | 17.20 | 7.09 | 99.8 | 5.3 | 30.24 | 8.30 | 2.8 |
| | | | | | | 1.000 | 17.20 | 7.14 | 98.4 | 4.8 | 32.78 | 8.20 | |
| | | | | | | 6.700 | 16.90 | 6.96 | 95.1 | 0.9 | 32.53 | 8.20 | 4.6 |
| | | | | | | 6.700 | 16.80 | 7.02 | 96.3 | 3.4 | 31.96 | 8.10 | |
| | | | | | | 12.400 | 16.80 | 6.88 | 9.2 | 3.9 | 32.84 | 8.30 | 2.7 |
| 12.400 | 16.70 | 6.70 | 91.9 | 5.0 | 31.70 | 8.20 | | | | | | | |
| 2012/1/10 12:49 | C1 | ME | 833708 | 808179 | 13.6 | 1.000 | 17.20 | 6.90 | 99.0 | 2.7 | 32.55 | 8.30 | 2.7 |
| | | | | | | 1.000 | 17.20 | 6.91 | 97.2 | 4.3 | 32.59 | 8.20 | |
| | | | | | | 6.800 | 17.00 | 6.78 | 89.4 | 3.6 | 32.65 | 8.20 | 6.4 |
| | | | | | | 6.800 | 17.10 | 6.77 | 90.1 | 3.8 | 31.64 | 8.10 | |
| | | | | | | 12.600 | 17.00 | 6.60 | 88.7 | 3.4 | 32.28 | 8.10 | 9.8 |
| | | | | | | 12.600 | 16.90 | 6.45 | 86.3 | 4.7 | 30.09 | 8.20 | |
| 2012/1/10 13:10 | C2 | ME | 831451 | 807762 | 10.7 | 1.000 | 17.10 | 7.19 | 101.3 | 2.9 | 30.21 | 8.30 | 1.2 |
| | | | | | | 1.000 | 17.20 | 7.08 | 100.8 | 3.5 | 32.24 | 8.20 | |
| | | | | | | 5.350 | 17.00 | 6.84 | 96.5 | 3.8 | 32.65 | 8.30 | 1.8 |
| | | | | | | 5.350 | 17.00 | 6.92 | 97.2 | 4.5 | 31.50 | 8.10 | |
| | | | | | | 9.700 | 16.90 | 6.77 | 94.6 | 4.6 | 31.99 | 8.10 | 2.2 |
| | | | | | | 9.700 | 16.90 | 6.80 | 93.1 | 4.3 | 32.84 | 8.20 | |
| 2012/1/10 12:34 | C3 | ME | 832218 | 808876 | 13.8 | 1.000 | 17.00 | 6.94 | 92.4 | 4.3 | 33.26 | 8.20 | 2.8 |
| | | | | | | 1.000 | 17.00 | 6.95 | 93.8 | 5.6 | 32.94 | 8.30 | |
| | | | | | | 6.900 | 16.70 | 6.61 | 84.6 | 3.8 | 31.15 | 8.30 | 3.2 |
| | | | | | | 6.900 | 16.80 | 6.59 | 83.1 | 4.8 | 32.38 | 8.30 | |
| | | | | | | 12.800 | 16.90 | 6.44 | 80.3 | 2.7 | 31.59 | 8.40 | 3.2 |
| | | | | | | 12.800 | 16.90 | 6.78 | 81.2 | 3.8 | 31.65 | 8.20 | |
| 2012/1/10 17:37 | W1 | MF | 832980 | 807719 | 2.5 | 1.250 | 16.70 | 6.96 | 96.2 | 3.8 | 32.26 | 8.40 | 4.7 |
| | | | | | | 1.250 | 16.80 | 6.80 | 94.4 | 4.1 | 31.43 | 8.50 | |
| 2012/1/10 17:27 | W2 | MF | 832608 | 807994 | 12.7 | 1.000 | 16.90 | 6.78 | 96.2 | 3.7 | 33.19 | 8.30 | 3.8 |
| | | | | | | 1.000 | 16.70 | 6.77 | 94.9 | 4.8 | 32.07 | 8.30 | |
| | | | | | | 6.350 | 16.70 | 6.54 | 88.1 | 4.5 | 31.74 | 8.20 | 3.4 |
| | | | | | | 6.350 | 16.80 | 6.54 | 89.2 | 2.6 | 32.58 | 8.10 | |
| | | | | | | 11.700 | 16.50 | 6.58 | 87.6 | 4.6 | 33.36 | 8.40 | 3.8 |
| | | | | | | 11.700 | 16.70 | 6.65 | 85.1 | 3.9 | 31.54 | 8.50 | |
| 2012/1/10 17:14 | W3 | MF | 832061 | 807900 | 12.8 | 1.000 | 16.80 | 6.54 | 98.40 | 3.3 | 33.02 | 8.40 | 1.7 |
| | | | | | | 1.000 | 16.70 | 6.78 | 99.70 | 4.3 | 32.48 | 8.50 | |
| | | | | | | 6.400 | 16.80 | 6.62 | 102.30 | 3.6 | 31.01 | 8.20 | 2.6 |
| | | | | | | 6.400 | 16.60 | 6.49 | 100.80 | 4.6 | 32.08 | 8.30 | |
| | | | | | | 11.800 | 16.60 | 6.34 | 95.10 | 3.0 | 33.41 | 8.30 | 1.8 |
| 11.800 | 16.60 | 6.51 | 94.80 | 4.4 | 32.56 | 8.40 | | | | | | | |
| 2012/1/10 17:48 | C1 | MF | 833692 | 808176 | 13.4 | 1.000 | 16.90 | 7.09 | 96.70 | 2.5 | 32.95 | 8.40 | 2.4 |
| | | | | | | 1.000 | 16.80 | 6.98 | 98.20 | 3.7 | 31.13 | 8.30 | |
| | | | | | | 6.700 | 16.60 | 6.88 | 89.10 | 4.4 | 32.88 | 8.30 | 4.5 |
| | | | | | | 6.700 | 16.60 | 6.81 | 88.10 | 3.8 | 31.26 | 8.20 | |
| | | | | | | 12.400 | 16.60 | 6.79 | 79.60 | 4.3 | 30.48 | 8.30 | 2.4 |
| | | | | | | 12.400 | 16.50 | 6.74 | 81.30 | 4.4 | 33.50 | 8.30 | |
| 2012/1/10 17:01 | C2 | MF | 831457 | 807753 | 12.7 | 1.000 | 17.20 | 6.84 | 99.4 | 3.5 | 30.31 | 8.20 | 3.6 |
| | | | | | | 1.000 | 17.10 | 6.79 | 98.3 | 3.5 | 31.48 | 8.30 | |
| | | | | | | 6.350 | 17.20 | 6.59 | 96.2 | 3.3 | 32.24 | 8.40 | 2.7 |
| | | | | | | 6.350 | 17.00 | 6.48 | 97.1 | 4.2 | 31.09 | 8.20 | |
| | | | | | | 11.700 | 16.90 | 6.62 | 95.3 | 4.9 | 32.20 | 8.40 | 4.1 |
| | | | | | | 11.700 | 16.90 | 6.51 | 96.1 | 3.8 | 32.21 | 8.20 | |
| 2012/1/10 18:06 | C3 | MF | 832214 | 808853 | 13.6 | 1.000 | 16.70 | 7.02 | 95.3 | 4.9 | 31.24 | 8.20 | 1.4 |
| | | | | | | 1.000 | 16.70 | 6.85 | 94.1 | 3.6 | 32.46 | 8.20 | |
| | | | | | | 6.800 | 16.50 | 6.65 | 90.9 | 4.5 | 32.28 | 8.30 | 5.5 |
| | | | | | | 6.800 | 16.50 | 6.79 | 88.4 | 2.9 | 31.15 | 8.40 | |
| | | | | | | 12.600 | 16.30 | 6.65 | 90.1 | 3.6 | 32.07 | 8.40 | 6.3 |
| | | | | | | 12.600 | 16.50 | 6.48 | 93.8 | 3.6 | 31.11 | 8.30 | |

MF- Mid Flood Tide
ME- Mid Ebb tide

Contract No. DC/2009/13

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



Sok Kwu Wan

Date 12-Jan-12

| Date / Time | Location | Tide* | Co-ordinates | | Water Depth m | Sampling Depth m | Temp °C | DO Conc mg/L | DO Saturation % | Turbidity NTU | Salinity ppt | pH unit | SS mg/l |
|-----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
| | | | East | North | | | | | | | | | |
| 2012/1/12 14:36 | W1 | ME | 832975 | 807728 | 2.6 | 1.300 | 16.50 | 6.94 | 92.1 | 4.2 | 32.88 | 8.40 | 6.0 |
| | | | | | | 1.300 | 16.60 | 6.77 | 91.6 | 4.3 | 30.84 | 8.30 | |
| 2012/1/12 14:13 | W2 | ME | 832608 | 807994 | 12.9 | 1.000 | 16.60 | 6.80 | 98.1 | 4.2 | 32.00 | 8.30 | 9.3 |
| | | | | | | 1.000 | 16.60 | 6.72 | 99.4 | 4.9 | 31.46 | 8.30 | |
| | | | | | | 6.450 | 16.40 | 6.54 | 97.2 | 4.9 | 32.21 | 8.20 | 6.7 |
| | | | | | | 6.450 | 16.40 | 6.39 | 96.8 | 5.3 | 32.19 | 8.30 | |
| | | | | | | 11.900 | 16.30 | 6.21 | 90.1 | 4.0 | 31.15 | 8.20 | |
| 11.900 | 16.30 | 6.09 | 91.9 | 4.1 | 32.48 | 8.10 | 6.8 | | | | | | |
| 2012/1/12 13:59 | W3 | ME | 832036 | 807901 | 12.7 | 1.000 | 16.70 | 6.92 | 98.5 | 3.2 | 32.28 | 8.30 | 6.6 |
| | | | | | | 1.000 | 16.70 | 6.79 | 97.6 | 5.3 | 30.94 | 8.30 | |
| | | | | | | 6.350 | 16.50 | 6.85 | 96.3 | 5.8 | 32.20 | 8.40 | 4.3 |
| | | | | | | 6.350 | 16.50 | 6.65 | 98.8 | 4.3 | 33.36 | 8.40 | |
| | | | | | | 11.700 | 16.40 | 6.48 | 92.4 | 5.2 | 31.14 | 8.40 | |
| 11.700 | 16.40 | 6.21 | 93.1 | 5.0 | 32.08 | 8.40 | 6.0 | | | | | | |
| 2012/1/12 14:51 | C1 | ME | 833695 | 808186 | 13.6 | 1.000 | 16.60 | 6.79 | 99.2 | 4.1 | 32.28 | 8.20 | 5.3 |
| | | | | | | 1.000 | 16.60 | 6.78 | 96.1 | 5.8 | 31.19 | 8.10 | |
| | | | | | | 6.800 | 16.40 | 6.84 | 92.4 | 4.2 | 32.24 | 8.20 | 6.5 |
| | | | | | | 6.800 | 16.40 | 6.69 | 93.4 | 5.5 | 31.08 | 8.10 | |
| | | | | | | 12.600 | 16.30 | 6.54 | 94.6 | 5.0 | 31.86 | 8.30 | |
| 12.600 | 16.30 | 6.59 | 90.9 | 4.3 | 32.24 | 8.40 | 7.5 | | | | | | |
| 2012/1/12 13:43 | C2 | ME | 831468 | 807758 | 11.2 | 1.000 | 16.80 | 6.84 | 100.9 | 4.0 | 30.31 | 8.20 | 4.2 |
| | | | | | | 1.000 | 16.90 | 6.77 | 102.4 | 4.4 | 32.49 | 8.10 | |
| | | | | | | 5.600 | 16.60 | 6.59 | 99.7 | 3.8 | 32.68 | 8.00 | 8.5 |
| | | | | | | 5.600 | 16.60 | 6.61 | 94.9 | 4.6 | 30.14 | 8.20 | |
| | | | | | | 10.200 | 16.40 | 6.24 | 90.8 | 4.3 | 32.23 | 8.20 | |
| 10.200 | 16.50 | 6.38 | 92.5 | 4.7 | 31.11 | 8.20 | 4.7 | | | | | | |
| 2012/1/12 15:14 | C3 | ME | 832218 | 808891 | 13.7 | 1.000 | 16.50 | 6.80 | 97.7 | 4.1 | 32.14 | 8.30 | 7.3 |
| | | | | | | 1.000 | 16.60 | 6.81 | 96.8 | 5.2 | 31.48 | 8.40 | |
| | | | | | | 6.850 | 16.30 | 6.75 | 90.3 | 5.5 | 30.08 | 8.30 | 8.6 |
| | | | | | | 6.850 | 16.40 | 6.74 | 89.1 | 4.0 | 32.65 | 8.40 | |
| | | | | | | 12.700 | 16.30 | 6.59 | 86.4 | 3.3 | 32.46 | 8.40 | |
| 12.700 | 16.30 | 6.58 | 83.8 | 5.7 | 30.99 | 8.10 | 6.5 | | | | | | |
| 2012/1/12 8:49 | W1 | MF | 832949 | 807754 | 2.4 | 1.200 | 16.50 | 6.88 | 88.1 | 3.8 | 32.20 | 8.40 | 4.4 |
| | | | | | | 1.200 | 16.40 | 6.84 | 86.5 | 4.0 | 33.33 | 8.50 | |
| 2012/1/12 8:43 | W2 | MF | 832602 | 807965 | 13.6 | 1.000 | 16.50 | 6.97 | 90.9 | 3.9 | 30.62 | 8.30 | 7.3 |
| | | | | | | 1.000 | 16.60 | 6.96 | 90.8 | 4.2 | 31.24 | 8.20 | |
| | | | | | | 6.800 | 16.40 | 6.59 | 92.5 | 4.6 | 33.48 | 8.30 | 5.7 |
| | | | | | | 6.800 | 16.30 | 6.40 | 90.1 | 1.8 | 34.62 | 8.20 | |
| | | | | | | 12.600 | 16.20 | 6.25 | 88.3 | 5.7 | 32.56 | 8.40 | |
| 12.600 | 16.30 | 6.21 | 87.6 | 2.9 | 30.90 | 8.30 | 4.3 | | | | | | |
| 2012/1/12 8:31 | W3 | MF | 832034 | 807905 | 13.3 | 1.000 | 16.70 | 6.90 | 95.1 | 4.2 | 33.69 | 8.10 | 4.3 |
| | | | | | | 1.000 | 16.60 | 6.80 | 96.3 | 2.1 | 32.21 | 8.30 | |
| | | | | | | 6.650 | 16.50 | 6.75 | 90.1 | 5.8 | 31.19 | 8.30 | 4.5 |
| | | | | | | 6.650 | 16.40 | 6.65 | 88.4 | 4.7 | 32.08 | 8.20 | |
| | | | | | | 12.300 | 16.30 | 6.38 | 87.2 | 3.2 | 32.72 | 8.20 | |
| 12.300 | 16.30 | 6.25 | 89.5 | 4.7 | 31.21 | 8.20 | 3.4 | | | | | | |
| 2012/1/12 9:06 | C1 | MF | 833695 | 808196 | 13.8 | 1.000 | 16.30 | 6.99 | 96.6 | 4.8 | 32.01 | 8.30 | 6.4 |
| | | | | | | 1.000 | 16.30 | 6.98 | 95.1 | 5.0 | 31.79 | 8.40 | |
| | | | | | | 6.900 | 16.20 | 6.70 | 90.9 | 3.2 | 32.08 | 8.20 | 3.4 |
| | | | | | | 6.900 | 16.20 | 6.72 | 89.9 | 5.0 | 32.72 | 8.30 | |
| | | | | | | 12.800 | 16.20 | 6.38 | 80.6 | 3.9 | 30.64 | 8.20 | |
| 12.800 | 16.00 | 6.36 | 82.4 | 3.2 | 32.48 | 8.10 | 9.8 | | | | | | |
| 2012/1/12 8:19 | C2 | MF | 831459 | 807754 | 11.8 | 1.000 | 16.60 | 6.92 | 97.2 | 3.6 | 30.31 | 8.10 | 4.6 |
| | | | | | | 1.000 | 16.50 | 6.76 | 96.3 | 4.4 | 32.78 | 8.00 | |
| | | | | | | 5.900 | 16.40 | 6.88 | 98.4 | 5.6 | 31.96 | 8.20 | 6.7 |
| | | | | | | 5.900 | 16.40 | 6.75 | 95.1 | 3.8 | 32.88 | 8.10 | |
| | | | | | | 10.800 | 16.30 | 6.65 | 92.9 | 4.7 | 30.99 | 8.20 | |
| 10.800 | 16.30 | 6.44 | 92.4 | 5.3 | 31.48 | 8.20 | 6.6 | | | | | | |
| 2012/1/12 9:21 | C3 | MF | 832214 | 808885 | 13.9 | 1.000 | 16.50 | 6.96 | 92.5 | 4.6 | 32.26 | 8.10 | 4.9 |
| | | | | | | 1.000 | 16.50 | 6.90 | 96.3 | 5.0 | 30.67 | 8.20 | |
| | | | | | | 6.950 | 16.40 | 6.59 | 90.3 | 4.3 | 32.65 | 8.10 | 4.9 |
| | | | | | | 6.950 | 16.40 | 6.65 | 88.0 | 4.2 | 32.72 | 8.30 | |
| | | | | | | 12.900 | 16.20 | 6.21 | 85.1 | 4.0 | 30.64 | 8.30 | |
| 12.900 | 13.30 | 6.28 | 83.6 | 3.3 | 32.48 | 8.40 | 4.1 | | | | | | |

MF- Mid Flood Tide
ME- Mid Ebb tide

Contract No. DC/2009/13

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



Sok Kwu Wan

Date 14-Jan-12

| Date / Time | Location | Tide* | Co-ordinates | | Water Depth m | Sampling Depth m | Temp °C | DO Conc mg/L | DO Saturation % | Turbidity NTU | Salinity ppt | pH unit | SS mg/l |
|-----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
| | | | East | North | | | | | | | | | |
| 2012/1/14 15:38 | W1 | ME | 832990 | 807718 | 2.6 | 1.300 | 16.70 | 6.46 | 80.4 | 4.0 | 32.95 | 8.30 | 3.8 |
| | | | | | | 1.300 | 16.70 | 6.48 | 79.5 | 4.1 | 33.45 | 8.20 | |
| 2012/1/14 15:27 | W2 | ME | 832608 | 807995 | 12.9 | 1.000 | 16.90 | 6.47 | 79.7 | 3.2 | 32.21 | 8.30 | 2.2 |
| | | | | | | 1.000 | 16.80 | 6.39 | 78.7 | 4.6 | 30.94 | 8.40 | |
| | | | | | | 6.450 | 16.60 | 6.30 | 74.8 | 4.5 | 32.56 | 8.40 | 5.8 |
| | | | | | | 6.450 | 16.80 | 6.19 | 74.4 | 5.7 | 30.09 | 8.50 | |
| | | | | | | 11.900 | 16.50 | 6.15 | 73.7 | 5.0 | 32.59 | 8.50 | |
| 11.900 | 16.60 | 6.17 | 74.8 | 4.1 | 31.45 | 8.40 | 2.5 | | | | | | |
| 2012/1/14 15:08 | W3 | ME | 832036 | 807905 | 12.8 | 1.000 | 17.00 | 6.55 | 80.8 | 4.8 | 31.38 | 8.20 | 6.5 |
| | | | | | | 1.000 | 17.20 | 6.54 | 80.8 | 4.2 | 32.26 | 8.30 | |
| | | | | | | 6.400 | 16.90 | 6.32 | 78.0 | 3.3 | 30.45 | 8.40 | 2.4 |
| | | | | | | 6.400 | 16.90 | 6.46 | 77.6 | 4.3 | 31.51 | 8.40 | |
| | | | | | | 11.800 | 16.70 | 6.26 | 77.0 | 3.2 | 32.26 | 8.30 | |
| 11.800 | 16.70 | 6.30 | 77.9 | 4.4 | 33.76 | 8.50 | 6.8 | | | | | | |
| 2012/1/14 15:53 | C1 | ME | 833701 | 808196 | 13.6 | 1.000 | 16.90 | 6.44 | 79.5 | 4.0 | 32.20 | 8.30 | 2.6 |
| | | | | | | 1.000 | 16.90 | 6.45 | 80.3 | 5.2 | 31.14 | 8.20 | |
| | | | | | | 6.800 | 16.80 | 6.30 | 78.7 | 4.7 | 31.90 | 8.40 | 6.4 |
| | | | | | | 6.800 | 16.90 | 6.13 | 77.9 | 3.5 | 32.25 | 8.40 | |
| | | | | | | 12.600 | 16.70 | 6.14 | 77.2 | 3.7 | 33.45 | 8.50 | |
| 12.600 | 16.70 | 6.09 | 77.8 | 4.2 | 33.59 | 8.30 | 2.0 | | | | | | |
| 2012/1/14 14:52 | C2 | ME | 831457 | 807765 | 10.7 | 1.000 | 17.00 | 6.48 | 82.9 | 2.7 | 30.86 | 8.10 | 5.3 |
| | | | | | | 1.000 | 17.10 | 6.47 | 82.5 | 3.9 | 31.45 | 8.30 | |
| | | | | | | 5.350 | 16.80 | 6.39 | 82.5 | 5.5 | 32.23 | 8.30 | 6.9 |
| | | | | | | 5.350 | 16.70 | 6.46 | 82.9 | 4.2 | 31.44 | 8.30 | |
| | | | | | | 9.700 | 16.70 | 6.32 | 81.1 | 3.0 | 32.55 | 8.40 | |
| 9.700 | 16.60 | 6.39 | 80.7 | 3.8 | 30.96 | 8.50 | 1.9 | | | | | | |
| 2012/1/14 16:16 | C3 | ME | 832218 | 808859 | 13.9 | 1.000 | 16.60 | 6.38 | 80.8 | 4.7 | 32.61 | 8.40 | 7.0 |
| | | | | | | 1.000 | 16.80 | 6.46 | 80.8 | 5.5 | 31.56 | 8.30 | |
| | | | | | | 6.950 | 16.80 | 6.16 | 77.1 | 4.2 | 31.64 | 8.20 | 1.8 |
| | | | | | | 6.950 | 16.40 | 6.03 | 78.7 | 5.2 | 32.26 | 8.40 | |
| | | | | | | 12.900 | 16.70 | 6.05 | 77.8 | 3.3 | 31.17 | 8.50 | |
| 12.900 | 16.60 | 5.99 | 78.2 | 3.6 | 32.08 | 8.40 | 5.6 | | | | | | |
| 2012/1/14 10:13 | W1 | MF | 832958 | 807714 | 2.5 | 1.250 | 16.60 | 6.30 | 80.2 | 4.2 | 30.57 | 8.30 | 1.9 |
| | | | | | | 1.250 | 16.50 | 6.12 | 78.7 | 3.6 | 31.68 | 8.40 | |
| 2012/1/14 9:46 | W2 | MF | 832600 | 807997 | 13.1 | 1.000 | 16.80 | 6.57 | 82.5 | 3.7 | 32.83 | 8.30 | 10.5 |
| | | | | | | 1.000 | 16.90 | 6.49 | 80.8 | 2.9 | 31.45 | 8.40 | |
| | | | | | | 6.550 | 16.80 | 6.51 | 80.7 | 2.9 | 30.66 | 8.40 | 2.9 |
| | | | | | | 6.550 | 16.70 | 6.47 | 80.8 | 4.1 | 31.56 | 8.20 | |
| | | | | | | 12.100 | 16.50 | 6.39 | 78.0 | 4.5 | 33.38 | 8.40 | |
| 12.100 | 16.50 | 6.38 | 78.1 | 3.6 | 34.64 | 8.30 | 7.1 | | | | | | |
| 2012/1/14 9:28 | W3 | MF | 832036 | 807899 | 12.7 | 1.000 | 16.80 | 6.38 | 83.5 | 4.4 | 32.64 | 8.30 | 6.0 |
| | | | | | | 1.000 | 16.90 | 6.32 | 82.9 | 5.3 | 30.79 | 8.20 | |
| | | | | | | 6.350 | 16.80 | 6.48 | 82.5 | 4.7 | 30.44 | 8.20 | 2.5 |
| | | | | | | 6.350 | 16.80 | 6.47 | 82.7 | 4.5 | 32.24 | 8.30 | |
| | | | | | | 11.700 | 16.60 | 6.15 | 81.6 | 2.8 | 31.48 | 8.30 | |
| 11.700 | 16.70 | 6.16 | 81.6 | 3.2 | 32.46 | 8.40 | 4.7 | | | | | | |
| 2012/1/14 10:26 | C1 | MF | 833695 | 808186 | 13.7 | 1.000 | 17.10 | 6.32 | 82.9 | 3.0 | 32.55 | 8.40 | 2.2 |
| | | | | | | 1.000 | 17.20 | 6.43 | 83.5 | 3.8 | 31.66 | 8.40 | |
| | | | | | | 6.850 | 16.80 | 6.25 | 81.6 | 4.8 | 30.67 | 8.30 | 5.0 |
| | | | | | | 6.850 | 16.90 | 6.20 | 80.8 | 4.2 | 31.78 | 8.30 | |
| | | | | | | 12.700 | 16.60 | 6.23 | 77.8 | 3.3 | 32.85 | 8.20 | |
| 12.700 | 16.60 | 6.27 | 78.7 | 3.6 | 33.66 | 8.30 | 2.8 | | | | | | |
| 2012/1/14 9:16 | C2 | MF | 831459 | 807757 | 10.6 | 1.000 | 17.00 | 6.45 | 82.9 | 2.2 | 30.31 | 8.10 | 3.9 |
| | | | | | | 1.000 | 17.10 | 6.47 | 82.5 | 3.3 | 32.26 | 8.30 | |
| | | | | | | 5.300 | 16.90 | 6.33 | 82.5 | 4.4 | 31.48 | 8.30 | 1.0 |
| | | | | | | 5.300 | 16.90 | 6.25 | 82.7 | 2.9 | 32.13 | 8.30 | |
| | | | | | | 9.600 | 16.90 | 6.15 | 81.6 | 3.8 | 33.39 | 8.40 | |
| 9.600 | 16.80 | 6.19 | 81.8 | 4.7 | 30.86 | 8.20 | 5.0 | | | | | | |
| 2012/1/14 10:43 | C3 | MF | 832214 | 808859 | 13.6 | 1.000 | 17.40 | 6.47 | 79.6 | 4.5 | 30.69 | 8.40 | 2.6 |
| | | | | | | 1.000 | 17.30 | 6.48 | 80.5 | 3.7 | 31.48 | 8.40 | |
| | | | | | | 6.800 | 17.00 | 6.37 | 80.5 | 4.2 | 32.25 | 8.30 | 7.9 |
| | | | | | | 6.800 | 16.80 | 6.20 | 78.7 | 5.4 | 31.57 | 8.20 | |
| | | | | | | 12.600 | 16.90 | 6.25 | 78.0 | 2.9 | 32.86 | 8.40 | |
| 12.600 | 16.60 | 6.05 | 77.6 | 4.4 | 31.68 | 8.30 | 2.8 | | | | | | |

MF- Mid Flood Tide
ME- Mid Ebb tide

Contract No. DC/2009/13

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



Sok Kwu Wan

Date 16-Jan-12

| Date / Time | Location | Tide* | Co-ordinates | | Water Depth m | Sampling Depth m | Temp °C | DO Conc mg/L | DO Saturation % | Turbidity NTU | Salinity ppt | pH unit | SS mg/l |
|-----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
| | | | East | North | | | | | | | | | |
| 2012/1/16 17:37 | W1 | ME | 832961 | 807719 | 2.5 | 1.250 | 17.10 | 6.90 | 95.6 | 3.2 | 32.81 | 8.30 | 2.3 |
| | | | | | | 1.250 | 17.00 | 6.95 | 94.9 | 3.5 | 32.55 | 8.30 | |
| 2012/1/16 17:28 | W2 | ME | 832602 | 807994 | 16.1 | 1.000 | 17.30 | 6.90 | 99.8 | 3.2 | 33.96 | 8.20 | 1.8 |
| | | | | | | 1.000 | 17.20 | 6.94 | 99.8 | 3.8 | 32.19 | 8.30 | |
| | | | | | | 8.050 | 17.20 | 6.85 | 95.3 | 3.5 | 33.25 | 8.40 | 2.9 |
| | | | | | | 8.050 | 17.10 | 6.76 | 94.2 | 5.7 | 30.38 | 8.40 | |
| | | | | | | 15.100 | 17.10 | 6.64 | 93.8 | 4.0 | 34.18 | 8.50 | 2.5 |
| | | | | | | 15.100 | 17.10 | 6.65 | 97.6 | 2.2 | 32.45 | 8.40 | |
| 2012/1/16 17:17 | W3 | ME | 832036 | 807903 | 15.8 | 1.000 | 17.30 | 7.09 | 98.5 | 4.3 | 32.26 | 8.30 | 2.6 |
| | | | | | | 1.000 | 17.20 | 6.86 | 97.3 | 3.7 | 32.19 | 8.40 | |
| | | | | | | 7.900 | 17.20 | 6.85 | 96.1 | 4.7 | 33.23 | 8.40 | 2.0 |
| | | | | | | 7.900 | 17.10 | 6.75 | 95.9 | 2.5 | 30.38 | 8.30 | |
| | | | | | | 14.800 | 17.10 | 6.65 | 90.4 | 3.3 | 34.18 | 8.30 | 1.4 |
| | | | | | | 14.800 | 17.00 | 6.61 | 92.4 | 4.8 | 32.45 | 8.10 | |
| 2012/1/16 17:48 | C1 | ME | 833693 | 808176 | 15.7 | 1.000 | 17.30 | 7.03 | 98.5 | 3.4 | 30.31 | 8.40 | 1.2 |
| | | | | | | 1.000 | 17.20 | 7.02 | 97.3 | 3.1 | 32.28 | 8.30 | |
| | | | | | | 7.850 | 17.20 | 6.96 | 96.1 | 3.7 | 32.86 | 8.30 | 2.0 |
| | | | | | | 7.850 | 17.30 | 6.84 | 95.9 | 4.4 | 33.14 | 8.20 | |
| | | | | | | 14.700 | 17.10 | 6.85 | 90.4 | 2.7 | 31.45 | 8.10 | 2.5 |
| | | | | | | 14.700 | 17.10 | 6.61 | 92.4 | 4.5 | 32.58 | 8.20 | |
| 2012/1/16 17:02 | C2 | ME | 831457 | 807758 | 12.6 | 1.000 | 17.20 | 7.14 | 100.9 | 2.9 | 30.31 | 8.40 | 1.3 |
| | | | | | | 1.000 | 17.30 | 7.08 | 99.8 | 2.7 | 33.85 | 8.30 | |
| | | | | | | 6.300 | 17.10 | 6.86 | 97.6 | 4.4 | 32.45 | 8.30 | 1.5 |
| | | | | | | 6.300 | 17.20 | 6.94 | 96.3 | 4.1 | 32.81 | 8.40 | |
| | | | | | | 11.600 | 17.10 | 6.70 | 95.4 | 3.2 | 33.69 | 8.20 | 1.7 |
| | | | | | | 11.600 | 17.10 | 6.65 | 93.8 | 3.5 | 33.46 | 8.20 | |
| 2012/1/16 18:13 | C3 | ME | 832219 | 808878 | 16.2 | 1.000 | 17.20 | 7.09 | 99.7 | 4.9 | 31.59 | 8.30 | 1.8 |
| | | | | | | 1.000 | 17.30 | 6.95 | 99.6 | 4.8 | 33.55 | 8.30 | |
| | | | | | | 8.100 | 17.30 | 6.81 | 95.3 | 2.4 | 32.64 | 8.40 | 2.2 |
| | | | | | | 8.100 | 17.20 | 6.76 | 96.4 | 5.0 | 34.70 | 8.40 | |
| | | | | | | 15.200 | 17.30 | 6.55 | 92.8 | 4.2 | 31.43 | 8.40 | 1.7 |
| | | | | | | 15.200 | 17.10 | 6.54 | 91.4 | 4.5 | 33.69 | 8.20 | |
| 2012/1/16 11:46 | W1 | MF | 832961 | 807751 | 2.5 | 1.250 | 17.40 | 6.81 | 97.90 | 3.8 | 32.66 | 8.50 | 3.9 |
| | | | | | | 1.250 | 17.20 | 6.70 | 96.50 | 3.8 | 31.65 | 8.40 | |
| 2012/1/16 11:39 | W2 | MF | 832594 | 807994 | 15.6 | 1.000 | 17.20 | 6.94 | 98.10 | 4.3 | 33.45 | 8.20 | 3.0 |
| | | | | | | 1.000 | 17.10 | 6.96 | 98.30 | 3.9 | 31.45 | 8.30 | |
| | | | | | | 7.800 | 17.30 | 6.85 | 96.40 | 2.9 | 30.69 | 8.40 | 2.3 |
| | | | | | | 7.800 | 17.20 | 6.81 | 95.10 | 4.3 | 32.26 | 8.30 | |
| | | | | | | 14.600 | 17.20 | 6.64 | 93.10 | 4.1 | 31.45 | 8.20 | 4.3 |
| | | | | | | 14.600 | 17.10 | 6.65 | 92.50 | 3.2 | 33.56 | 8.20 | |
| 2012/1/16 11:27 | W3 | MF | 832039 | 807890 | 15.9 | 1.000 | 17.10 | 6.96 | 99.60 | 4.0 | 31.45 | 8.30 | 2.1 |
| | | | | | | 1.000 | 17.10 | 6.81 | 99.40 | 2.9 | 33.68 | 8.10 | |
| | | | | | | 7.950 | 17.20 | 6.83 | 96.70 | 3.4 | 32.29 | 8.30 | 6.1 |
| | | | | | | 7.950 | 17.30 | 6.85 | 96.30 | 4.2 | 30.96 | 8.20 | |
| | | | | | | 14.900 | 17.10 | 6.67 | 95.40 | 4.3 | 31.19 | 8.20 | 4.3 |
| | | | | | | 14.900 | 17.20 | 6.68 | 95.60 | 4.7 | 32.18 | 8.40 | |
| 2012/1/16 12:15 | C1 | MF | 833698 | 808187 | 15.8 | 1.000 | 17.30 | 6.93 | 99.60 | 3.3 | 33.86 | 8.30 | 0.7 |
| | | | | | | 1.000 | 17.20 | 6.92 | 99.70 | 3.4 | 32.25 | 8.20 | |
| | | | | | | 7.900 | 17.20 | 6.59 | 98.10 | 4.1 | 33.45 | 8.40 | 0.6 |
| | | | | | | 7.900 | 17.10 | 6.65 | 98.40 | 2.9 | 32.94 | 8.20 | |
| | | | | | | 14.800 | 17.10 | 6.38 | 97.20 | 4.5 | 31.46 | 8.40 | 2.0 |
| | | | | | | 14.800 | 17.20 | 6.46 | 96.50 | 3.6 | 32.59 | 8.40 | |
| 2012/1/16 11:15 | C2 | MF | 831459 | 807757 | 12.4 | 1.000 | 17.10 | 7.03 | 99.40 | 2.9 | 30.48 | 8.30 | 3.6 |
| | | | | | | 1.000 | 17.20 | 6.86 | 98.10 | 3.0 | 31.46 | 8.30 | |
| | | | | | | 6.200 | 17.00 | 6.75 | 98.60 | 3.0 | 32.53 | 8.40 | 2.3 |
| | | | | | | 6.200 | 17.00 | 6.43 | 96.70 | 3.0 | 33.67 | 8.20 | |
| | | | | | | 11.400 | 17.00 | 6.65 | 95.10 | 3.5 | 33.68 | 8.20 | 2.1 |
| | | | | | | 11.400 | 16.90 | 6.65 | 94.80 | 3.6 | 33.49 | 8.40 | |
| 2012/1/16 12:32 | C3 | MF | 832218 | 808883 | 15.4 | 1.000 | 17.30 | 6.86 | 99.40 | 3.0 | 30.35 | 8.30 | 0.9 |
| | | | | | | 1.000 | 17.30 | 6.81 | 98.40 | 2.8 | 31.58 | 8.30 | |
| | | | | | | 7.700 | 17.20 | 6.63 | 98.60 | 4.5 | 32.64 | 8.40 | <0.5 |
| | | | | | | 7.700 | 17.30 | 6.65 | 97.20 | 4.5 | 33.88 | 8.30 | |
| | | | | | | 14.400 | 17.10 | 6.55 | 97.10 | 5.7 | 32.25 | 8.40 | 1.0 |
| | | | | | | 14.400 | 17.20 | 6.59 | 95.90 | 4.6 | 31.59 | 8.40 | |

MF- Mid Flood Tide
ME- Mid Ebb tide

Contract No. DC/2009/13

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



Sok Kwu Wan

Date 18-Jan-12

| Date / Time | Location | Tide* | Co-ordinates | | Water Depth m | Sampling Depth m | Temp °C | DO Conc mg/L | DO Saturation % | Turbidity NTU | Salinity ppt | pH unit | SS mg/l |
|-----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
| | | | East | North | | | | | | | | | |
| 2012/1/18 8:34 | W1 | ME | 832983 | 807756 | 2.7 | 1.350 | 20.40 | 6.71 | 93.8 | 4.1 | 32.28 | 8.30 | 5.3 |
| | | | | | | 1.350 | 20.50 | 6.84 | 92.6 | 3.8 | 31.96 | 8.20 | |
| 2012/1/18 8:26 | W2 | ME | 832594 | 807990 | 12.6 | 1.000 | 20.40 | 6.95 | 101.9 | 3.4 | 32.23 | 8.20 | 4.8 |
| | | | | | | 1.000 | 20.30 | 6.99 | 100.6 | 4.3 | 32.45 | 8.20 | |
| | | | | | | 6.300 | 20.40 | 6.81 | 95.3 | 2.9 | 31.48 | 8.30 | 4.0 |
| | | | | | | 6.300 | 20.30 | 6.70 | 96.4 | 4.0 | 30.59 | 8.20 | |
| | | | | | | 11.600 | 20.20 | 6.91 | 90.1 | 3.1 | 31.86 | 8.30 | 3.2 |
| | | | | | | 11.600 | 20.20 | 6.65 | 88.6 | 2.2 | 31.58 | 8.20 | |
| 2012/1/18 8:19 | W3 | ME | 832034 | 807903 | 12.4 | 1.000 | 20.40 | 6.96 | 100.1 | 2.9 | 33.84 | 8.20 | 4.8 |
| | | | | | | 1.000 | 20.40 | 6.80 | 99.4 | 3.1 | 31.45 | 8.20 | |
| | | | | | | 6.200 | 20.20 | 6.61 | 95.6 | 3.1 | 32.81 | 8.30 | 4.3 |
| | | | | | | 6.200 | 20.20 | 6.54 | 94.8 | 2.9 | 32.29 | 8.30 | |
| | | | | | | 11.400 | 20.00 | 6.34 | 90.3 | 4.7 | 31.16 | 8.20 | 6.7 |
| | | | | | | 11.400 | 20.00 | 6.39 | 92.6 | 5.2 | 30.98 | 8.20 | |
| 2012/1/18 8:49 | C1 | ME | 833704 | 808186 | 14.2 | 1.000 | 20.40 | 7.09 | 100.6 | 3.3 | 33.96 | 8.30 | 5.0 |
| | | | | | | 1.000 | 20.30 | 7.02 | 95.3 | 4.2 | 32.96 | 8.40 | |
| | | | | | | 7.100 | 20.20 | 6.90 | 92.9 | 2.8 | 32.48 | 8.40 | 4.7 |
| | | | | | | 7.100 | 20.20 | 6.91 | 89.1 | 3.9 | 30.99 | 8.40 | |
| | | | | | | 13.200 | 20.00 | 6.84 | 85.4 | 3.1 | 31.45 | 8.20 | 3.6 |
| | | | | | | 13.200 | 20.00 | 6.77 | 83.8 | 2.3 | 32.23 | 8.30 | |
| 2012/1/18 8:02 | C2 | ME | 831459 | 807758 | 10.9 | 1.000 | 20.30 | 6.94 | 102.3 | 2.2 | 30.31 | 8.20 | 4.0 |
| | | | | | | 1.000 | 20.30 | 6.88 | 100.6 | 2.8 | 32.21 | 8.30 | |
| | | | | | | 5.450 | 20.20 | 6.74 | 99.4 | 3.9 | 32.48 | 8.30 | 6.0 |
| | | | | | | 5.450 | 20.10 | 6.69 | 98.3 | 3.2 | 33.08 | 8.30 | |
| | | | | | | 9.900 | 20.10 | 6.51 | 96.1 | 2.9 | 31.96 | 8.30 | 6.7 |
| | | | | | | 9.900 | 20.00 | 6.38 | 95.4 | 2.0 | 32.28 | 8.20 | |
| 2012/1/18 9:17 | C3 | ME | 832218 | 808871 | 14.6 | 1.000 | 20.30 | 7.19 | 97.9 | 3.9 | 32.23 | 8.40 | 5.5 |
| | | | | | | 1.000 | 20.40 | 7.12 | 96.3 | 3.2 | 32.62 | 8.30 | |
| | | | | | | 7.300 | 20.10 | 6.87 | 90.1 | 2.2 | 30.96 | 8.40 | 5.1 |
| | | | | | | 7.300 | 20.20 | 6.86 | 89.6 | 4.1 | 33.18 | 8.40 | |
| | | | | | | 13.600 | 20.10 | 6.56 | 83.1 | 3.9 | 31.28 | 8.20 | 4.3 |
| | | | | | | 13.600 | 20.00 | 6.70 | 84.4 | 3.9 | 32.45 | 8.20 | |
| 2012/1/18 13:33 | W1 | MF | 832980 | 807759 | 2.8 | 1.400 | 20.40 | 6.82 | 89.6 | 3.2 | 32.09 | 8.30 | 1.7 |
| | | | | | | 1.400 | 20.30 | 6.84 | 88.4 | 3.9 | 30.96 | 8.20 | |
| 2012/1/18 13:53 | W2 | MF | 832596 | 807991 | 13.9 | 1.000 | 20.30 | 6.92 | 100.9 | 4.2 | 30.48 | 8.10 | 3.7 |
| | | | | | | 1.000 | 20.30 | 6.89 | 101.6 | 3.2 | 31.18 | 8.20 | |
| | | | | | | 6.950 | 20.20 | 6.51 | 95.3 | 3.3 | 32.49 | 8.30 | 4.1 |
| | | | | | | 6.950 | 20.30 | 6.57 | 94.8 | 4.3 | 32.24 | 8.30 | |
| | | | | | | 12.900 | 20.00 | 6.24 | 90.4 | 2.3 | 33.40 | 8.40 | 6.4 |
| | | | | | | 12.900 | 20.10 | 6.38 | 88.1 | 4.1 | 33.36 | 8.20 | |
| 2012/1/18 13:44 | W3 | MF | 832029 | 807900 | 13.8 | 1.000 | 20.40 | 6.96 | 100.4 | 3.4 | 33.86 | 8.30 | 3.2 |
| | | | | | | 1.000 | 20.40 | 6.94 | 99.7 | 4.2 | 31.19 | 8.20 | |
| | | | | | | 6.900 | 20.20 | 6.83 | 96.7 | 4.0 | 33.46 | 8.20 | 4.3 |
| | | | | | | 6.900 | 20.20 | 6.72 | 95.3 | 3.3 | 33.36 | 8.10 | |
| | | | | | | 12.800 | 20.00 | 6.53 | 92.6 | 4.1 | 32.41 | 8.20 | 3.6 |
| | | | | | | 12.800 | 20.10 | 6.65 | 91.6 | 3.9 | 30.28 | 8.40 | |
| 2012/1/18 13:21 | C1 | MF | 833702 | 808194 | 14.6 | 1.000 | 20.30 | 6.88 | 96.4 | 3.2 | 32.20 | 8.30 | 4.3 |
| | | | | | | 1.000 | 20.30 | 6.95 | 97.2 | 4.5 | 30.31 | 8.10 | |
| | | | | | | 7.300 | 20.20 | 6.59 | 92.3 | 4.5 | 31.49 | 8.30 | 4.6 |
| | | | | | | 7.300 | 20.10 | 6.64 | 90.1 | 0.5 | 31.18 | 8.20 | |
| | | | | | | 13.600 | 20.00 | 6.23 | 88.1 | 3.3 | 31.48 | 8.20 | 3.5 |
| | | | | | | 13.600 | 20.00 | 6.37 | 87.6 | 4.1 | 32.28 | 8.30 | |
| 2012/1/18 12:39 | C2 | MF | 831459 | 807757 | 11.2 | 1.000 | 20.30 | 7.18 | 102.3 | 2.2 | 30.32 | 8.40 | 3.2 |
| | | | | | | 1.000 | 20.30 | 7.02 | 100.6 | 3.9 | 31.18 | 8.40 | |
| | | | | | | 5.600 | 20.20 | 7.02 | 95.4 | 3.1 | 31.48 | 8.30 | 4.4 |
| | | | | | | 5.600 | 20.20 | 7.01 | 96.3 | 3.3 | 32.28 | 8.40 | |
| | | | | | | 10.200 | 20.00 | 6.84 | 92.3 | 2.5 | 32.83 | 8.30 | 5.2 |
| | | | | | | 10.200 | 20.10 | 6.92 | 90.4 | 4.8 | 30.48 | 8.30 | |
| 2012/1/18 13:02 | C3 | MF | 832214 | 808856 | 15.1 | 1.000 | 20.40 | 6.90 | 95.1 | 3.9 | 32.16 | 8.10 | 5.9 |
| | | | | | | 1.000 | 20.40 | 6.85 | 96.4 | 4.5 | 30.48 | 8.40 | |
| | | | | | | 7.550 | 20.20 | 6.66 | 90.6 | 4.4 | 32.40 | 8.30 | 2.8 |
| | | | | | | 7.550 | 20.20 | 6.72 | 88.1 | 3.2 | 33.36 | 8.30 | |
| | | | | | | 14.100 | 20.00 | 6.19 | 83.4 | 4.3 | 31.44 | 8.20 | 1.9 |
| | | | | | | 14.100 | 20.10 | 6.26 | 82.6 | 3.9 | 32.28 | 8.30 | |

MF- Mid Flood Tide
ME- Mid Ebb tide

Contract No. DC/2009/13

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



Sok Kwu Wan

Date 20-Jan-12

| Date / Time | Location | Tide* | Co-ordinates | | Water Depth m | Sampling Depth m | Temp °C | DO Conc mg/L | DO Saturation % | Turbidity NTU | Salinity ppt | pH unit | SS mg/l |
|-----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
| | | | East | North | | | | | | | | | |
| 2012/1/20 10:59 | W1 | ME | 832990 | 807751 | 2.8 | 1.400 | 18.50 | 6.94 | 99.6 | 3.9 | 32.49 | 8.40 | 5.5 |
| | | | | | | 1.400 | 18.50 | 6.95 | 99.4 | 4.1 | 30.55 | 8.20 | |
| 2012/1/20 10:46 | W2 | ME | 832608 | 707976 | 13.4 | 1.000 | 18.50 | 7.04 | 102.4 | 3.3 | 31.48 | 8.40 | 4.2 |
| | | | | | | 1.000 | 18.50 | 7.15 | 100.1 | 2.8 | 32.54 | 8.30 | |
| | | | | | | 6.700 | 18.40 | 6.90 | 100.9 | 3.5 | 32.21 | 8.30 | 6.2 |
| | | | | | | 6.700 | 18.40 | 6.91 | 98.6 | 3.8 | 33.96 | 8.40 | |
| | | | | | | 12.400 | 18.30 | 6.85 | 99.4 | 4.8 | 33.36 | 8.30 | 4.7 |
| | | | | | | 12.400 | 18.30 | 6.82 | 97.1 | 4.4 | 32.09 | 8.30 | |
| 2012/1/20 10:40 | W3 | ME | 832031 | 807907 | 13.4 | 1.000 | 18.60 | 7.11 | 102.3 | 5.4 | 29.48 | 8.30 | 8.9 |
| | | | | | | 1.000 | 18.70 | 7.15 | 103.6 | 3.3 | 32.45 | 8.30 | |
| | | | | | | 6.700 | 18.70 | 6.88 | 101.9 | 4.4 | 30.88 | 8.20 | 5.0 |
| | | | | | | 6.700 | 18.30 | 6.90 | 102.3 | 4.3 | 32.01 | 8.30 | |
| | | | | | | 12.400 | 18.40 | 6.66 | 98.4 | 3.0 | 33.94 | 8.20 | 7.4 |
| | | | | | | 12.400 | 18.20 | 6.59 | 99.4 | 4.5 | 32.18 | 8.20 | |
| 2012/1/20 10:13 | C1 | ME | 833694 | 808197 | 13.9 | 1.000 | 18.60 | 6.96 | 100.2 | 3.0 | 29.48 | 8.30 | 4.4 |
| | | | | | | 1.000 | 18.40 | 6.98 | 103.1 | 3.0 | 32.45 | 8.10 | |
| | | | | | | 6.950 | 18.30 | 6.72 | 97.8 | 3.7 | 30.88 | 8.30 | 4.5 |
| | | | | | | 6.950 | 18.30 | 6.70 | 96.5 | 4.4 | 32.01 | 8.30 | |
| | | | | | | 12.900 | 18.20 | 6.65 | 94.1 | 4.8 | 33.94 | 8.30 | 5.9 |
| | | | | | | 12.900 | 18.30 | 6.64 | 92.9 | 4.6 | 32.18 | 8.40 | |
| 2012/1/20 10:30 | C2 | ME | 831459 | 807758 | 12.6 | 1.000 | 18.60 | 7.09 | 98.6 | 3.8 | 32.29 | 8.20 | 4.5 |
| | | | | | | 1.000 | 18.50 | 7.14 | 99.4 | 4.4 | 30.48 | 8.20 | |
| | | | | | | 6.300 | 18.50 | 6.84 | 90.1 | 3.5 | 30.78 | 8.30 | 6.2 |
| | | | | | | 6.300 | 18.50 | 6.80 | 92.4 | 5.6 | 32.29 | 8.30 | |
| | | | | | | 11.600 | 18.30 | 6.65 | 88.6 | 3.7 | 31.65 | 8.20 | 5.2 |
| | | | | | | 11.600 | 18.30 | 6.61 | 89.4 | 4.4 | 30.45 | 8.20 | |
| 2012/1/20 9:58 | C3 | ME | 832214 | 808881 | 14.6 | 1.000 | 18.70 | 7.26 | 102.3 | 3.3 | 30.31 | 8.10 | 7.6 |
| | | | | | | 1.000 | 18.60 | 7.19 | 103.6 | 2.8 | 33.91 | 8.20 | |
| | | | | | | 7.300 | 18.50 | 7.09 | 100.8 | 3.7 | 32.28 | 8.20 | 3.7 |
| | | | | | | 7.300 | 18.60 | 7.02 | 97.6 | 4.4 | 32.24 | 8.20 | |
| | | | | | | 13.600 | 18.40 | 6.84 | 95.1 | 3.8 | 30.18 | 8.20 | 11.2 |
| | | | | | | 13.600 | 18.40 | 6.96 | 96.3 | 4.4 | 32.29 | 8.30 | |
| 2012/1/20 14:52 | W1 | MF | 832988 | 807754 | 2.5 | 1.250 | 18.70 | 6.94 | 90.2 | 4.4 | 33.11 | 8.30 | 7.1 |
| | | | | | | 1.250 | 18.70 | 6.96 | 93.1 | 3.5 | 32.24 | 8.40 | |
| 2012/1/20 14:39 | W2 | MF | 832601 | 807991 | 13.9 | 1.000 | 18.80 | 7.18 | 94.2 | 3.0 | 33.28 | 8.20 | 8.5 |
| | | | | | | 1.000 | 18.70 | 7.14 | 93.8 | 3.5 | 32.24 | 8.30 | |
| | | | | | | 6.950 | 18.50 | 6.88 | 89.4 | 3.7 | 31.45 | 8.20 | 6.3 |
| | | | | | | 6.950 | 18.50 | 6.75 | 88.5 | 2.9 | 33.38 | 8.40 | |
| | | | | | | 12.900 | 18.80 | 6.65 | 87.2 | 4.8 | 32.59 | 8.30 | 7.4 |
| | | | | | | 12.900 | 18.80 | 6.54 | 89.2 | 4.4 | 31.19 | 8.40 | |
| 2012/1/20 14:22 | W3 | MF | 832038 | 807902 | 13.6 | 1.000 | 18.80 | 7.14 | 95.8 | 3.7 | 32.52 | 8.20 | 6.6 |
| | | | | | | 1.000 | 18.80 | 7.15 | 96.7 | 4.7 | 33.03 | 8.50 | |
| | | | | | | 6.800 | 18.60 | 6.95 | 92.1 | 4.9 | 31.59 | 8.20 | 7.4 |
| | | | | | | 6.800 | 18.70 | 6.94 | 92.9 | 5.4 | 32.15 | 8.20 | |
| | | | | | | 12.600 | 18.50 | 6.79 | 90.7 | 4.0 | 32.26 | 8.10 | 4.5 |
| | | | | | | 12.600 | 18.40 | 6.77 | 90.8 | 3.0 | 31.19 | 8.50 | |
| 2012/1/20 15:17 | C1 | MF | 833702 | 808184 | 14.2 | 1.000 | 18.60 | 7.01 | 100.4 | 3.0 | 33.04 | 8.20 | 6.8 |
| | | | | | | 1.000 | 18.60 | 6.84 | 102.4 | 2.9 | 31.44 | 8.30 | |
| | | | | | | 7.100 | 18.50 | 6.81 | 99.5 | 3.7 | 32.55 | 8.20 | 4.9 |
| | | | | | | 7.100 | 18.50 | 6.77 | 95.9 | 4.1 | 32.25 | 8.30 | |
| | | | | | | 13.200 | 18.30 | 6.59 | 96.4 | 2.8 | 33.92 | 8.30 | 9.4 |
| | | | | | | 13.200 | 18.30 | 6.56 | 95.2 | 5.0 | 31.59 | 8.30 | |
| 2012/1/20 14:09 | C2 | MF | 831456 | 807749 | 12.1 | 1.000 | 18.90 | 7.24 | 102.8 | 3.7 | 30.49 | 8.40 | 5.0 |
| | | | | | | 1.000 | 18.60 | 7.19 | 99.5 | 4.0 | 33.02 | 8.30 | |
| | | | | | | 6.050 | 18.40 | 6.99 | 95.9 | 4.8 | 32.21 | 8.40 | 3.9 |
| | | | | | | 6.050 | 18.70 | 7.09 | 96.7 | 3.5 | 32.26 | 8.40 | |
| | | | | | | 11.100 | 18.50 | 6.81 | 95.2 | 4.4 | 30.45 | 8.40 | 24.7 |
| | | | | | | 11.100 | 18.40 | 6.92 | 95.4 | 5.0 | 32.24 | 8.50 | |
| 2012/1/20 15:38 | C3 | MF | 832222 | 808890 | 14.9 | 1.000 | 18.90 | 7.09 | 102.3 | 3.3 | 30.31 | 8.20 | 17.0 |
| | | | | | | 1.000 | 18.80 | 7.17 | 101.9 | 3.0 | 30.09 | 8.40 | |
| | | | | | | 7.450 | 18.70 | 7.02 | 101.4 | 3.6 | 32.48 | 8.10 | 3.9 |
| | | | | | | 7.450 | 18.70 | 6.94 | 102.9 | 4.4 | 32.25 | 8.20 | |
| | | | | | | 13.900 | 18.50 | 6.98 | 100.2 | 1.9 | 31.41 | 8.20 | 4.6 |
| | | | | | | 13.900 | 18.50 | 6.72 | 100.6 | 3.9 | 33.02 | 8.20 | |

MF- Mid Flood Tide
ME- Mid Ebb tide

Contract No. DC/2009/13

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



Sok Kwu Wan

Date 27-Jan-12

| Date / Time | Location | Tide* | Co-ordinates | | Water Depth m | Sampling Depth m | Temp °C | DO Conc mg/L | DO Saturation % | Turbidity NTU | Salinity ppt | pH unit | SS mg/l |
|-----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
| | | | East | North | | | | | | | | | |
| 2012/1/27 15:08 | W1 | ME | 832961 | 807746 | 2.8 | 1.400 | 18.60 | 6.94 | 98.3 | 3.9 | 32.28 | 8.40 | 3.8 |
| | | | | | | 1.400 | 18.50 | 6.92 | 97.6 | 4.2 | 32.69 | 8.30 | |
| 2012/1/27 14:51 | W2 | ME | 832600 | 807991 | 15.1 | 1.000 | 18.70 | 6.96 | 100.3 | 4.0 | 32.09 | 8.30 | 4.9 |
| | | | | | | 1.000 | 18.60 | 6.88 | 99.4 | 4.2 | 32.28 | 8.20 | |
| | | | | | | 7.550 | 18.50 | 6.53 | 99.8 | 3.8 | 33.88 | 8.30 | 4.7 |
| | | | | | | 7.550 | 18.50 | 6.50 | 98.1 | 4.7 | 31.11 | 8.10 | |
| | | | | | | 14.100 | 18.40 | 6.48 | 93.9 | 4.3 | 33.12 | 8.30 | 4.6 |
| | | | | | | 14.100 | 18.40 | 6.37 | 94.8 | 5.3 | 32.18 | 8.20 | |
| 2012/1/27 14:37 | W3 | ME | 832031 | 807904 | 14.9 | 1.000 | 18.70 | 7.04 | 101.2 | 3.4 | 32.48 | 8.30 | 4.7 |
| | | | | | | 1.000 | 18.70 | 7.11 | 100.9 | 4.9 | 32.18 | 8.30 | |
| | | | | | | 7.450 | 18.50 | 6.85 | 99.4 | 5.3 | 31.15 | 8.40 | 4.4 |
| | | | | | | 7.450 | 18.50 | 6.80 | 97.2 | 3.5 | 33.59 | 8.30 | |
| | | | | | | 13.900 | 18.30 | 6.74 | 96.2 | 1.7 | 31.44 | 8.30 | 3.7 |
| | | | | | | 13.900 | 18.30 | 6.79 | 95.1 | 3.9 | 30.96 | 8.20 | |
| 2012/1/27 15:19 | C1 | ME | 833708 | 808179 | 15.6 | 1.000 | 18.70 | 6.90 | 99.4 | 5.2 | 30.44 | 8.30 | 3.2 |
| | | | | | | 1.000 | 18.70 | 7.07 | 98.9 | 2.7 | 33.48 | 8.30 | |
| | | | | | | 7.800 | 18.50 | 6.76 | 93.6 | 3.9 | 32.28 | 8.20 | 5.4 |
| | | | | | | 7.800 | 18.50 | 6.65 | 92.7 | 3.9 | 30.96 | 8.30 | |
| | | | | | | 14.600 | 18.30 | 6.38 | 89.2 | 4.4 | 31.45 | 8.20 | 5.3 |
| | | | | | | 14.600 | 18.30 | 6.54 | 87.6 | 3.8 | 33.38 | 8.40 | |
| 2012/1/27 14:18 | C2 | ME | 831454 | 807746 | 13.7 | 1.000 | 18.60 | 7.18 | 102.7 | 3.2 | 30.32 | 8.30 | 6.6 |
| | | | | | | 1.000 | 18.60 | 7.24 | 100.4 | 3.1 | 30.48 | 8.30 | |
| | | | | | | 6.850 | 18.40 | 6.96 | 96.3 | 4.3 | 32.24 | 8.40 | 4.8 |
| | | | | | | 6.850 | 18.40 | 6.72 | 96.2 | 4.2 | 32.15 | 8.40 | |
| | | | | | | 12.700 | 18.20 | 6.82 | 96.8 | 2.4 | 33.96 | 8.30 | 10.8 |
| | | | | | | 12.700 | 18.20 | 6.79 | 95.6 | 4.7 | 33.88 | 8.40 | |
| 2012/1/27 15:37 | C3 | ME | 832214 | 808882 | 15.5 | 1.000 | 18.70 | 7.07 | 102.7 | 4.9 | 32.28 | 8.30 | 6.0 |
| | | | | | | 1.000 | 18.50 | 7.18 | 100.6 | 3.9 | 32.14 | 8.40 | |
| | | | | | | 7.750 | 18.40 | 6.99 | 97.6 | 4.9 | 30.15 | 8.30 | 6.6 |
| | | | | | | 7.750 | 18.40 | 6.96 | 93.1 | 4.3 | 30.48 | 8.30 | |
| | | | | | | 14.500 | 18.20 | 6.88 | 92.6 | 3.5 | 32.14 | 8.40 | 5.3 |
| | | | | | | 14.500 | 18.30 | 6.81 | 90.1 | 5.0 | 31.57 | 8.50 | |
| 2012/1/27 9:37 | W1 | MF | 832991 | 807746 | 2.7 | 1.350 | 18.80 | 6.93 | 96.40 | 4.3 | 30.96 | 8.40 | 6.1 |
| | | | | | | 1.350 | 18.50 | 6.98 | 95.10 | 3.8 | 30.11 | 8.30 | |
| 2012/1/27 9:29 | W2 | MF | 832604 | 807994 | 14.9 | 1.000 | 18.70 | 7.02 | 100.90 | 5.3 | 32.28 | 8.40 | 4.1 |
| | | | | | | 1.000 | 18.70 | 7.14 | 99.80 | 3.2 | 30.96 | 8.30 | |
| | | | | | | 7.450 | 18.60 | 6.88 | 95.30 | 4.2 | 31.14 | 8.30 | 5.5 |
| | | | | | | 7.450 | 18.60 | 6.86 | 92.60 | 3.8 | 32.28 | 8.30 | |
| | | | | | | 13.900 | 18.50 | 6.73 | 89.40 | 3.5 | 31.19 | 8.20 | 10.3 |
| | | | | | | 13.900 | 18.40 | 6.69 | 88.30 | 4.8 | 31.44 | 8.20 | |
| 2012/1/27 9:18 | W3 | MF | 832039 | 807920 | 14.6 | 1.000 | 18.60 | 7.09 | 100.30 | 3.5 | 32.21 | 8.30 | 4.0 |
| | | | | | | 1.000 | 18.50 | 7.14 | 99.40 | 4.9 | 30.44 | 8.40 | |
| | | | | | | 7.300 | 18.60 | 6.90 | 95.30 | 4.3 | 32.49 | 8.30 | 4.0 |
| | | | | | | 7.300 | 18.40 | 6.92 | 96.10 | 3.3 | 31.48 | 8.40 | |
| | | | | | | 13.600 | 18.40 | 6.63 | 92.40 | 4.9 | 30.09 | 8.40 | 5.7 |
| | | | | | | 13.600 | 18.30 | 6.74 | 93.80 | 4.0 | 32.24 | 8.40 | |
| 2012/1/27 9:52 | C1 | MF | 833698 | 808164 | 15.3 | 1.000 | 18.60 | 7.18 | 96.10 | 4.6 | 32.24 | 8.20 | 3.9 |
| | | | | | | 1.000 | 18.70 | 7.25 | 95.40 | 3.4 | 33.99 | 8.20 | |
| | | | | | | 7.650 | 18.60 | 6.73 | 94.90 | 3.4 | 30.48 | 8.20 | 4.5 |
| | | | | | | 7.650 | 18.60 | 6.94 | 92.10 | 4.1 | 32.08 | 8.10 | |
| | | | | | | 14.300 | 18.30 | 6.59 | 88.60 | 5.2 | 32.44 | 8.30 | 4.2 |
| | | | | | | 14.300 | 18.30 | 6.78 | 88.90 | 3.2 | 30.41 | 8.50 | |
| 2012/1/27 9:03 | C2 | MF | 831459 | 807757 | 13.8 | 1.000 | 18.70 | 7.18 | 102.30 | 3.2 | 30.36 | 8.20 | 3.5 |
| | | | | | | 1.000 | 18.70 | 7.02 | 101.90 | 3.5 | 32.28 | 8.20 | |
| | | | | | | 6.900 | 18.50 | 7.24 | 95.90 | 4.2 | 32.28 | 8.30 | 3.0 |
| | | | | | | 6.900 | 18.50 | 6.96 | 96.40 | 4.6 | 32.36 | 8.30 | |
| | | | | | | 12.800 | 18.20 | 6.81 | 93.80 | 5.3 | 31.18 | 8.30 | 3.0 |
| | | | | | | 12.800 | 18.20 | 6.72 | 92.10 | 3.9 | 31.92 | 8.30 | |
| 2012/1/27 10:13 | C3 | MF | 832219 | 808871 | 15.6 | 1.000 | 18.60 | 7.07 | 100.30 | 3.9 | 32.48 | 8.30 | 1.9 |
| | | | | | | 1.000 | 18.60 | 7.19 | 99.60 | 4.2 | 32.16 | 8.30 | |
| | | | | | | 7.800 | 18.50 | 7.02 | 96.30 | 4.4 | 33.38 | 8.30 | 3.4 |
| | | | | | | 7.800 | 18.50 | 7.04 | 94.80 | 5.0 | 31.44 | 8.40 | |
| | | | | | | 14.600 | 18.20 | 6.88 | 90.30 | 3.2 | 32.44 | 8.40 | 4.8 |
| | | | | | | 14.600 | 18.20 | 6.90 | 89.20 | 3.9 | 32.28 | 8.40 | |

MF- Mid Flood Tide
ME- Mid Ebb tide

Contract No. DC/2009/13

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



Sok Kwu Wan

Date 30-Jan-12

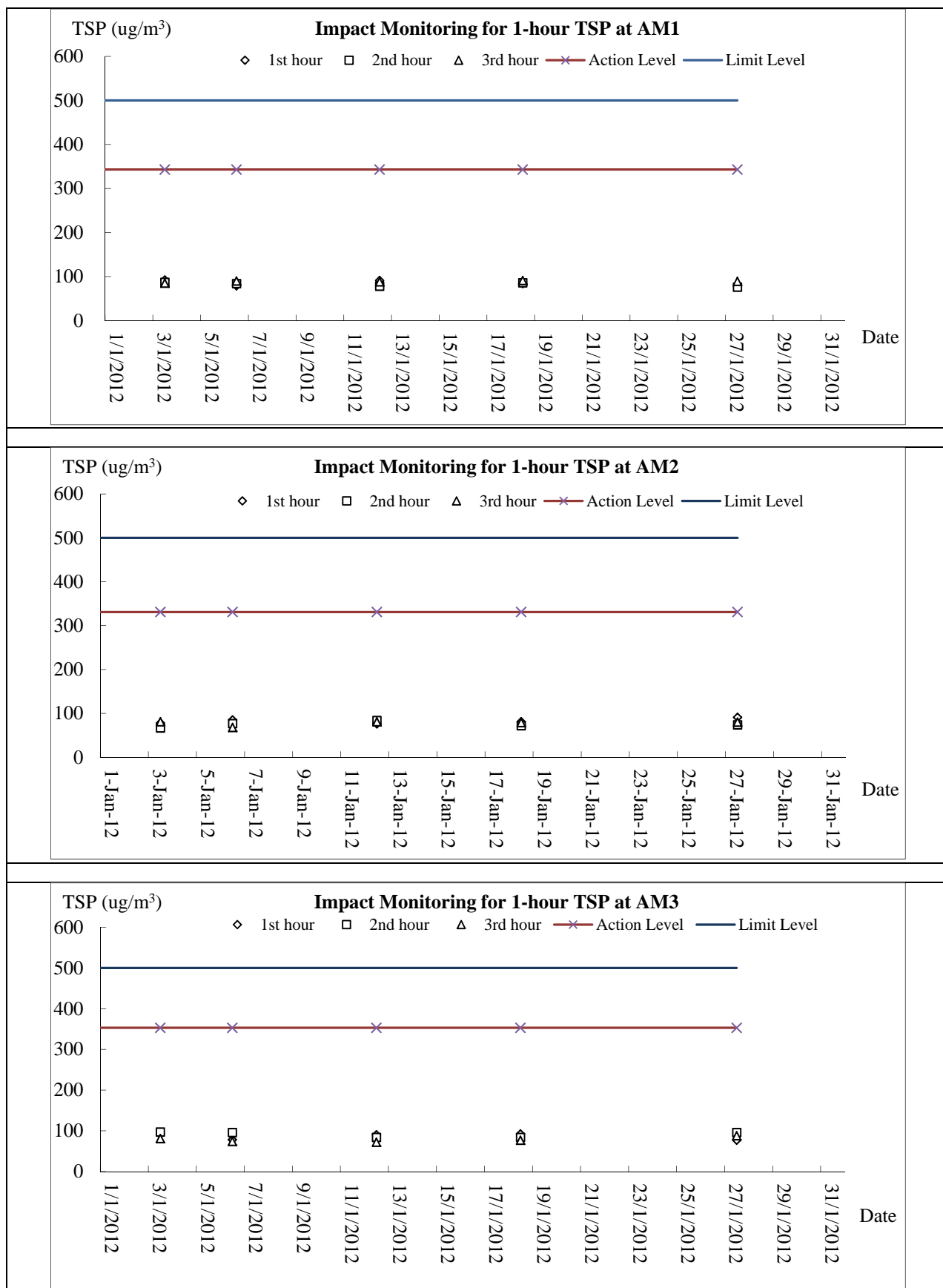
| Date / Time | Location | Tide* | Co-ordinates | | Water Depth m | Sampling Depth m | Temp °C | DO Conc mg/L | DO Saturation % | Turbidity NTU | Salinity ppt | pH unit | SS mg/l |
|-----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
| | | | East | North | | | | | | | | | |
| 2012/1/30 16:57 | W1 | ME | 832964 | 807758 | 2.3 | 1.150 | 15.80 | 6.90 | 95.3 | 4.2 | 33.59 | 8.40 | 9.7 |
| | | | | | | 1.150 | 15.70 | 6.99 | 96.1 | 4.0 | 33.51 | 8.40 | |
| 2012/1/30 16:48 | W2 | ME | 832600 | 807998 | 14.6 | 1.000 | 15.80 | 6.94 | 102.8 | 4.0 | 32.09 | 8.40 | 6.2 |
| | | | | | | 1.000 | 15.80 | 6.96 | 101.1 | 4.6 | 32.28 | 8.50 | |
| | | | | | | 7.300 | 15.70 | 6.63 | 96.8 | 4.5 | 32.48 | 8.30 | 3.3 |
| | | | | | | 7.300 | 15.80 | 6.74 | 97.2 | 4.2 | 30.46 | 8.40 | |
| | | | | | | 13.600 | 15.80 | 6.59 | 90.1 | 4.5 | 30.15 | 8.30 | 4.7 |
| | | | | | | 13.600 | 15.90 | 6.65 | 93.8 | 4.5 | 31.50 | 8.40 | |
| 2012/1/30 16:32 | W3 | ME | 832031 | 807890 | 14.7 | 1.000 | 15.90 | 7.03 | 103.8 | 5.9 | 32.28 | 8.30 | 0.8 |
| | | | | | | 1.000 | 15.80 | 7.09 | 100.4 | 5.6 | 32.59 | 8.30 | |
| | | | | | | 7.350 | 15.80 | 6.88 | 95.6 | 4.5 | 32.48 | 8.40 | 5.1 |
| | | | | | | 7.350 | 15.80 | 6.96 | 96.3 | 5.3 | 33.68 | 8.40 | |
| | | | | | | 13.700 | 15.80 | 6.72 | 92.6 | 5.2 | 31.11 | 8.40 | <0.5 |
| | | | | | | 13.700 | 15.90 | 6.77 | 91.1 | 5.6 | 30.15 | 8.40 | |
| 2012/1/30 17:12 | C1 | ME | 833702 | 808194 | 14.1 | 1.000 | 15.70 | 6.94 | 101.3 | 6.1 | 30.44 | 8.40 | 4.1 |
| | | | | | | 1.000 | 15.90 | 6.95 | 100.0 | 5.6 | 32.08 | 8.40 | |
| | | | | | | 7.050 | 15.80 | 6.70 | 95.3 | 4.2 | 32.48 | 8.40 | 2.6 |
| | | | | | | 7.050 | 15.90 | 6.72 | 96.1 | 6.4 | 33.15 | 8.50 | |
| | | | | | | 13.100 | 15.80 | 6.65 | 89.6 | 5.4 | 30.41 | 8.40 | 4.5 |
| | | | | | | 13.100 | 15.90 | 6.64 | 88.4 | 4.8 | 30.59 | 8.40 | |
| 2012/1/30 16:14 | C2 | ME | 831454 | 807759 | 12.6 | 1.000 | 15.70 | 7.26 | 102.4 | 4.2 | 30.38 | 8.40 | 2.3 |
| | | | | | | 1.000 | 15.70 | 7.02 | 101.9 | 5.2 | 33.18 | 8.30 | |
| | | | | | | 6.300 | 15.80 | 7.14 | 99.8 | 5.4 | 31.45 | 8.40 | 2.2 |
| | | | | | | 6.300 | 15.70 | 7.18 | 99.1 | 5.0 | 32.15 | 8.40 | |
| | | | | | | 11.600 | 15.70 | 6.83 | 94.6 | 5.7 | 31.51 | 8.50 | 3.7 |
| | | | | | | 11.600 | 18.60 | 6.90 | 95.3 | 5.4 | 31.55 | 8.40 | |
| 2012/1/30 17:39 | C3 | ME | 832220 | 808872 | 14.9 | 1.000 | 15.90 | 7.02 | 102.1 | 5.1 | 32.17 | 8.50 | 2.6 |
| | | | | | | 1.000 | 15.90 | 7.09 | 101.3 | 5.0 | 32.62 | 8.40 | |
| | | | | | | 7.450 | 15.90 | 6.94 | 100.4 | 5.9 | 31.96 | 8.40 | 4.9 |
| | | | | | | 7.450 | 15.80 | 6.96 | 99.3 | 6.7 | 31.43 | 8.30 | |
| | | | | | | 13.900 | 18.60 | 6.78 | 98.1 | 4.4 | 32.45 | 8.40 | 1.3 |
| | | | | | | 13.900 | 18.50 | 6.76 | 95.3 | 5.8 | 32.50 | 8.40 | |
| 2012/1/30 10:18 | W1 | MF | 832955 | 807754 | 2.2 | 1.100 | 18.90 | 6.95 | 102.6 | 4.4 | 32.28 | 8.40 | 4.3 |
| | | | | | | 1.100 | 18.90 | 7.09 | 101.4 | 4.0 | 32.59 | 8.30 | |
| 2012/1/30 10:11 | W2 | MF | 832604 | 807997 | 13.4 | 1.000 | 18.90 | 7.09 | 97.2 | 4.5 | 33.45 | 8.30 | 4.9 |
| | | | | | | 1.000 | 18.90 | 7.02 | 98.9 | 4.8 | 32.45 | 8.30 | |
| | | | | | | 6.700 | 18.80 | 6.94 | 95.1 | 4.3 | 32.28 | 8.20 | 3.4 |
| | | | | | | 6.700 | 18.80 | 6.95 | 94.0 | 4.5 | 30.18 | 8.40 | |
| | | | | | | 12.400 | 18.50 | 6.56 | 88.3 | 4.4 | 30.08 | 8.30 | 3.1 |
| | | | | | | 12.400 | 18.60 | 6.51 | 89.4 | 3.5 | 30.22 | 8.30 | |
| 2012/1/30 9:51 | W3 | MF | 832034 | 807896 | 12.9 | 1.000 | 18.70 | 7.15 | 102.4 | 6.3 | 31.28 | 8.30 | 3.4 |
| | | | | | | 1.000 | 18.80 | 7.11 | 101.5 | 4.4 | 32.28 | 8.40 | |
| | | | | | | 6.450 | 18.50 | 7.09 | 100.3 | 4.5 | 30.45 | 8.30 | 3.0 |
| | | | | | | 6.450 | 18.50 | 7.03 | 99.4 | 5.8 | 33.18 | 8.40 | |
| | | | | | | 11.900 | 18.40 | 6.88 | 96.3 | 5.6 | 32.23 | 8.20 | 9.1 |
| | | | | | | 11.900 | 18.40 | 6.81 | 94.2 | 6.8 | 33.44 | 8.30 | |
| 2012/1/30 10:37 | C1 | MF | 833700 | 808192 | 13.9 | 1.000 | 18.80 | 7.09 | 100.3 | 5.2 | 32.14 | 8.40 | 1.5 |
| | | | | | | 1.000 | 18.80 | 7.02 | 102.6 | 5.0 | 31.44 | 8.30 | |
| | | | | | | 6.950 | 18.70 | 6.94 | 99.6 | 4.6 | 30.02 | 8.30 | 5.2 |
| | | | | | | 6.950 | 18.70 | 6.95 | 97.9 | 5.8 | 32.20 | 8.40 | |
| | | | | | | 12.900 | 18.50 | 6.56 | 94.1 | 6.4 | 31.17 | 8.40 | 2.5 |
| | | | | | | 12.900 | 18.50 | 6.51 | 95.2 | 4.1 | 32.11 | 8.40 | |
| 2012/1/30 9:32 | C2 | MF | 831459 | 807756 | 12.7 | 1.000 | 18.90 | 7.15 | 102.3 | 4.5 | 30.38 | 8.30 | 6.2 |
| | | | | | | 1.000 | 18.90 | 7.11 | 101.4 | 6.0 | 30.05 | 8.30 | |
| | | | | | | 6.350 | 18.50 | 7.09 | 100.5 | 5.3 | 32.45 | 8.30 | 4.0 |
| | | | | | | 6.350 | 18.50 | 7.03 | 99.4 | 5.4 | 31.58 | 8.20 | |
| | | | | | | 11.700 | 18.20 | 6.88 | 95.4 | 5.9 | 31.14 | 8.20 | 5.5 |
| | | | | | | 11.700 | 18.20 | 6.81 | 96.5 | 5.1 | 32.24 | 8.30 | |
| 2012/1/30 10:59 | C3 | MF | 832224 | 808869 | 13.8 | 1.000 | 18.90 | 7.24 | 103.6 | 5.3 | 32.74 | 8.30 | 4.3 |
| | | | | | | 1.000 | 18.90 | 7.22 | 101.1 | 2.5 | 32.18 | 8.40 | |
| | | | | | | 6.900 | 18.60 | 7.01 | 98.2 | 4.0 | 32.56 | 8.30 | 5.0 |
| | | | | | | 6.900 | 18.60 | 7.02 | 97.7 | 5.0 | 30.26 | 8.40 | |
| | | | | | | 12.800 | 18.20 | 7.09 | 95.6 | 5.6 | 33.68 | 8.30 | 4.6 |
| | | | | | | 12.800 | 18.30 | 6.98 | 94.2 | 6.2 | 31.48 | 8.30 | |

MF- Mid Flood Tide
ME- Mid Ebb tide

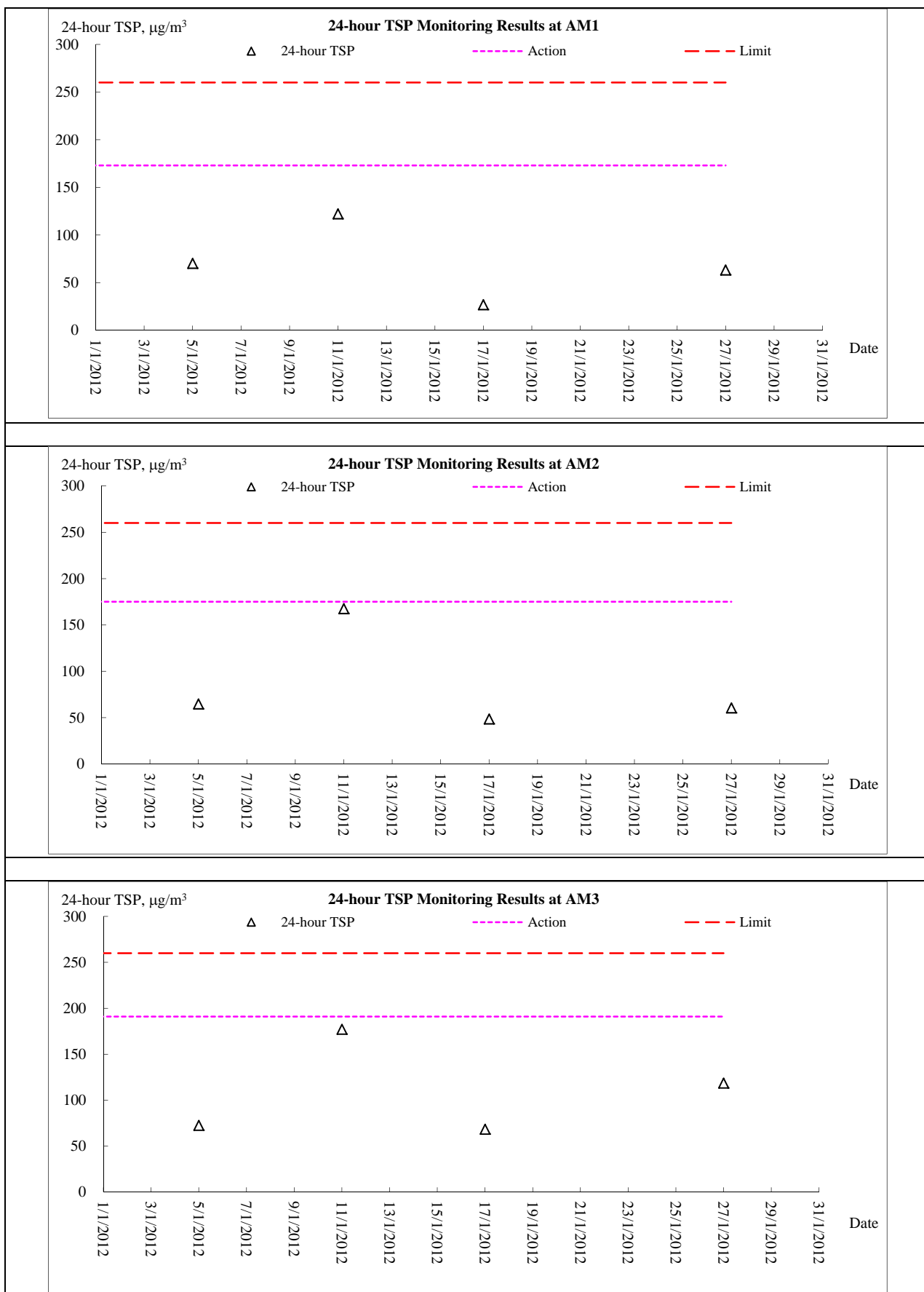
Appendix H

Graphical Plots of Monitoring Results

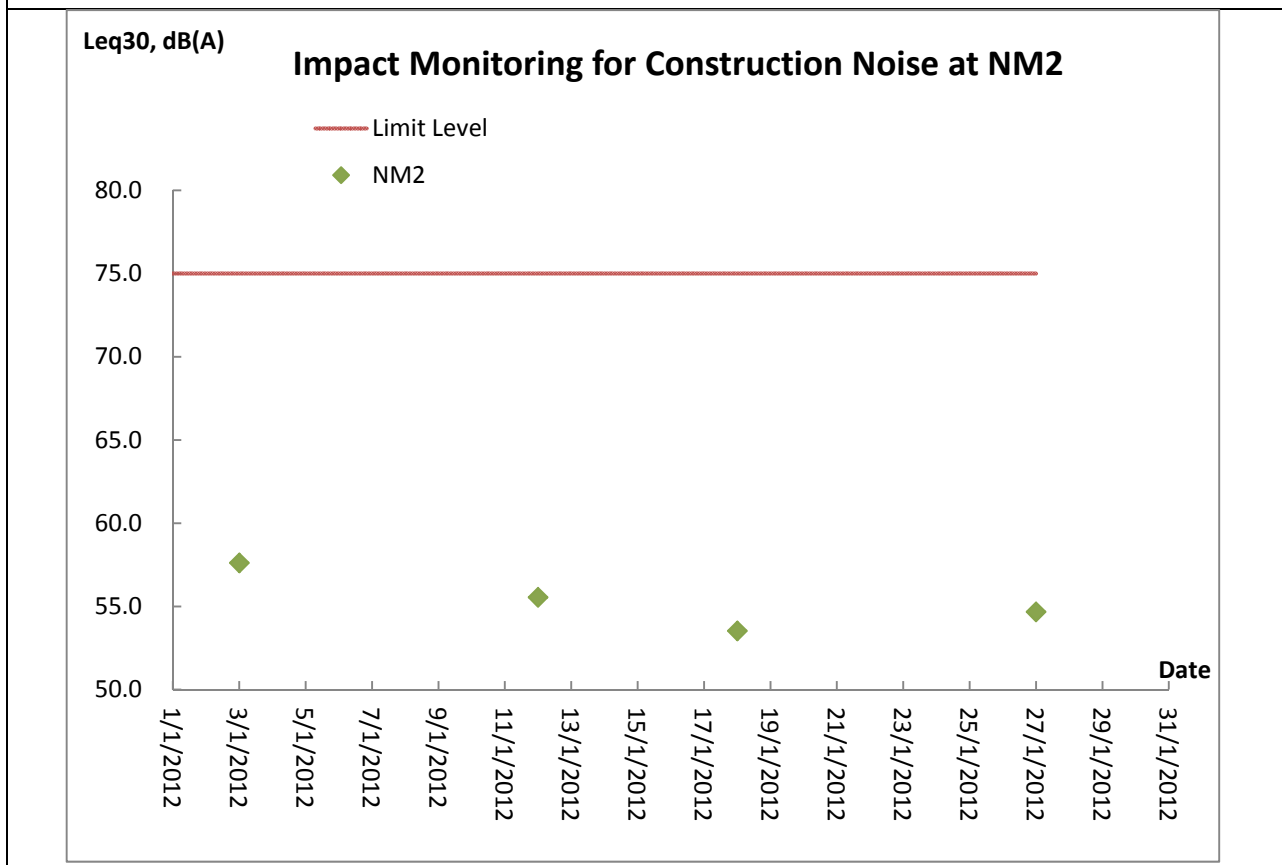
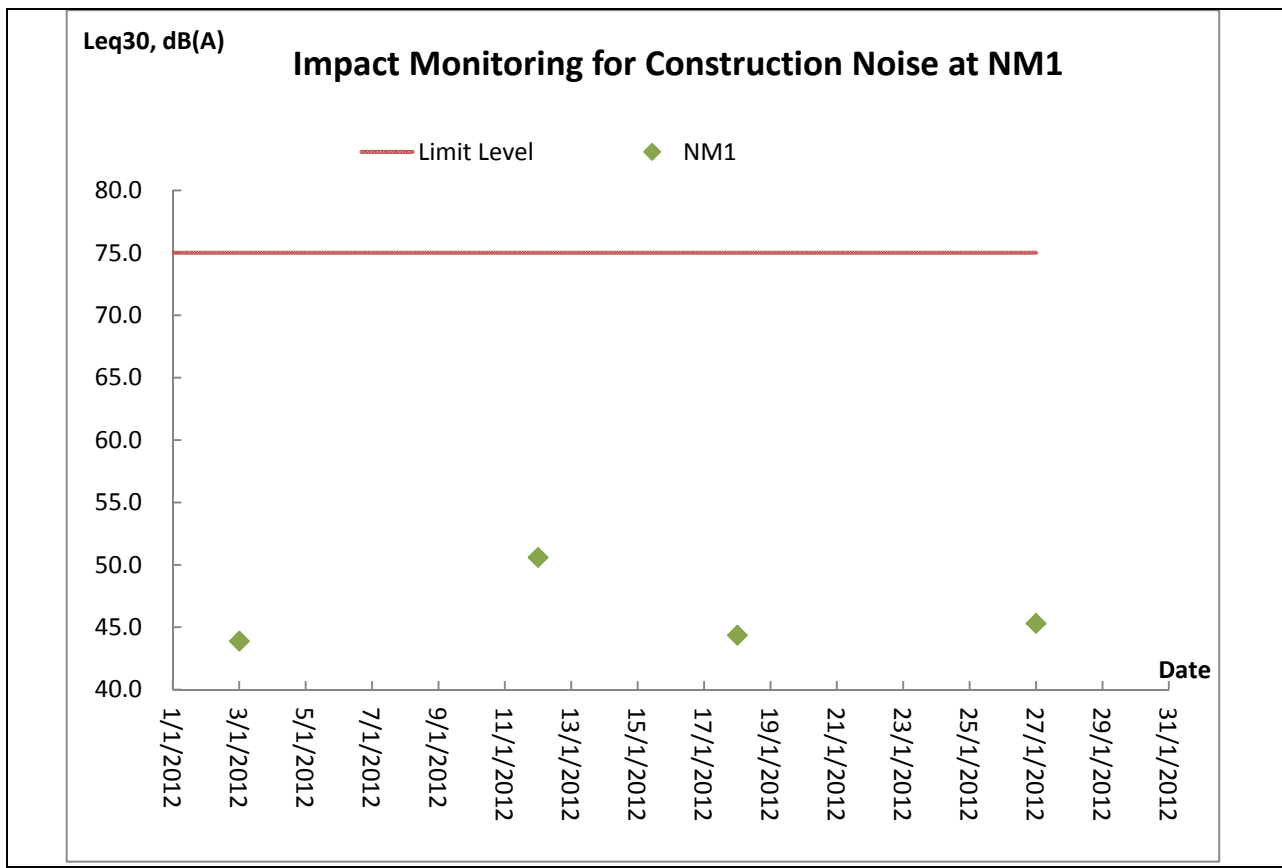
Air Quality Monitoring – 1 hour TSP Monitoring

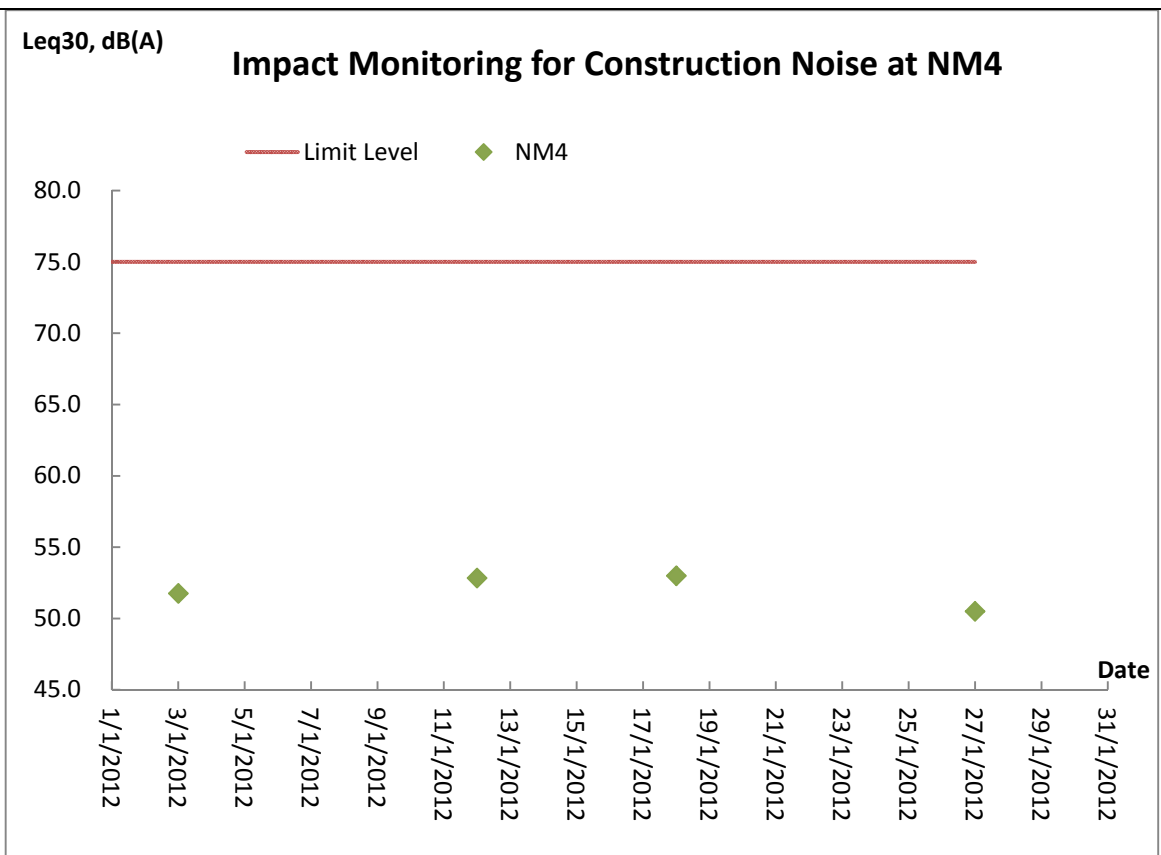
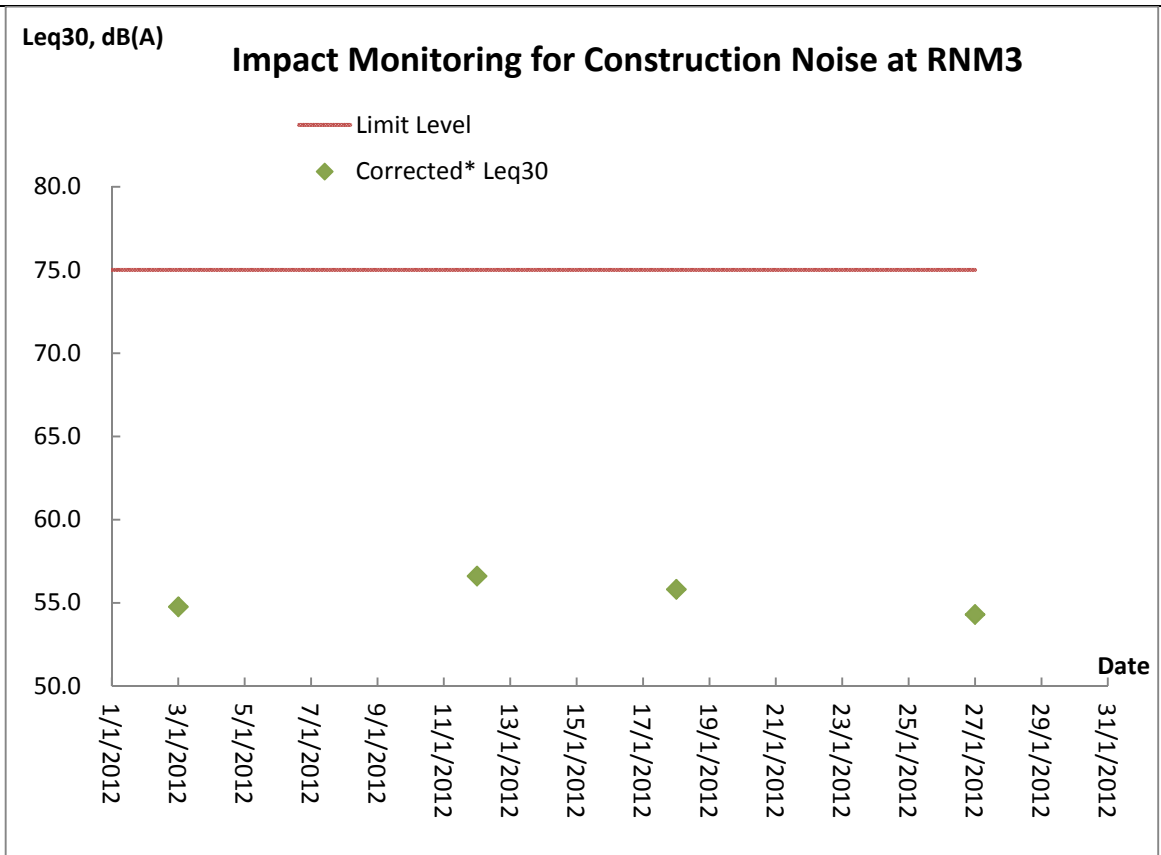


Air Quality Monitoring – 24 hour TSP Monitoring

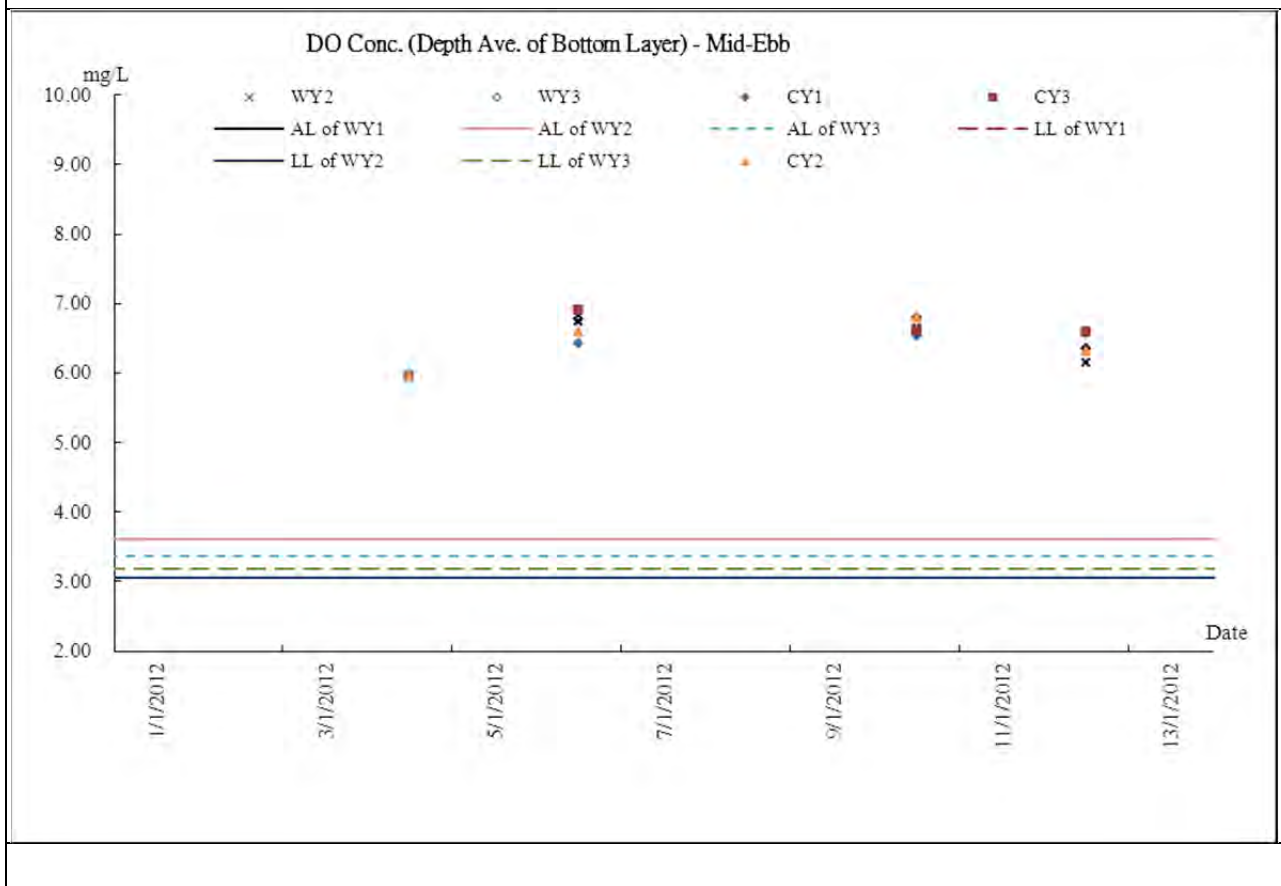
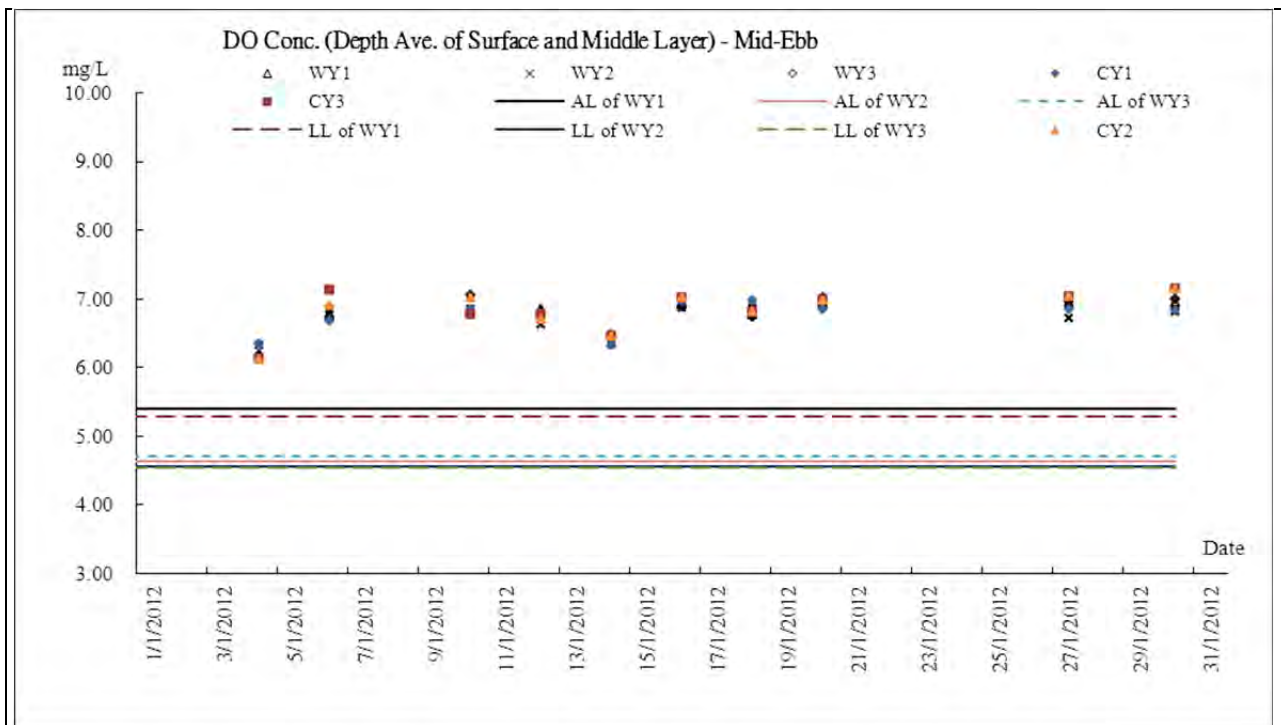


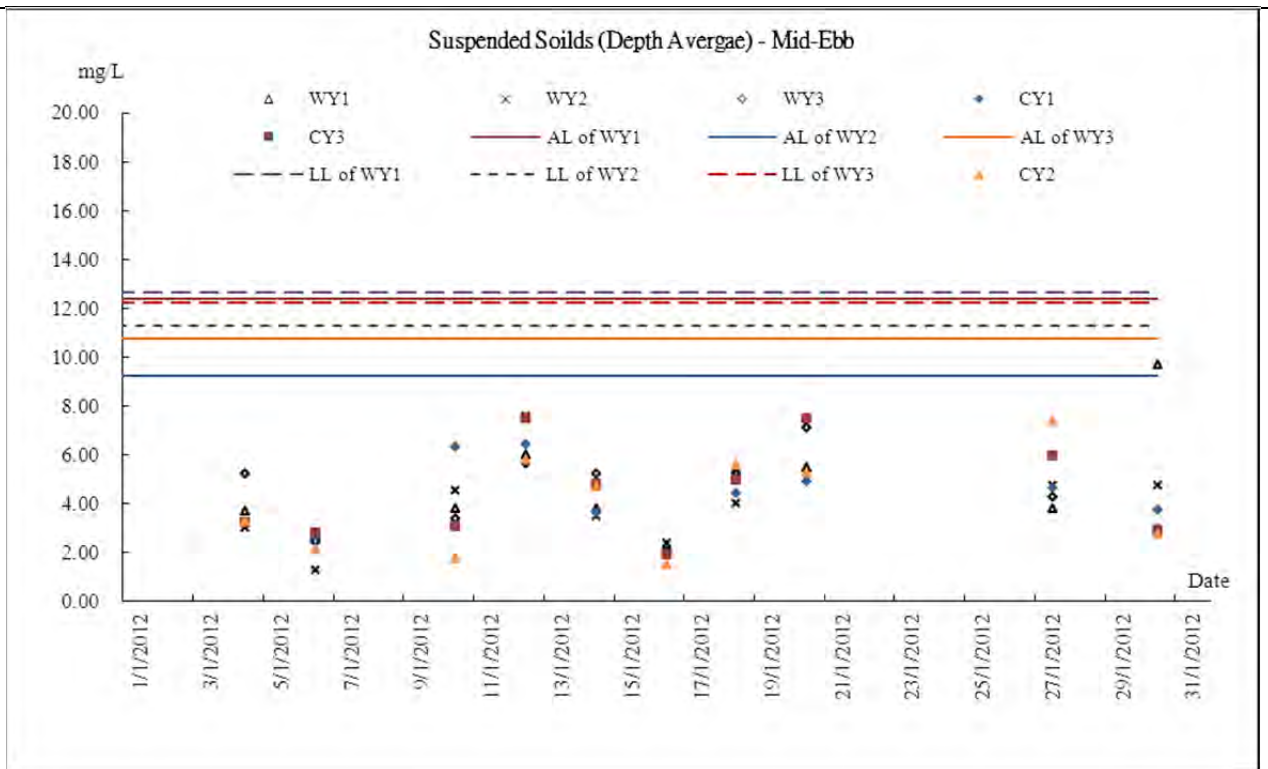
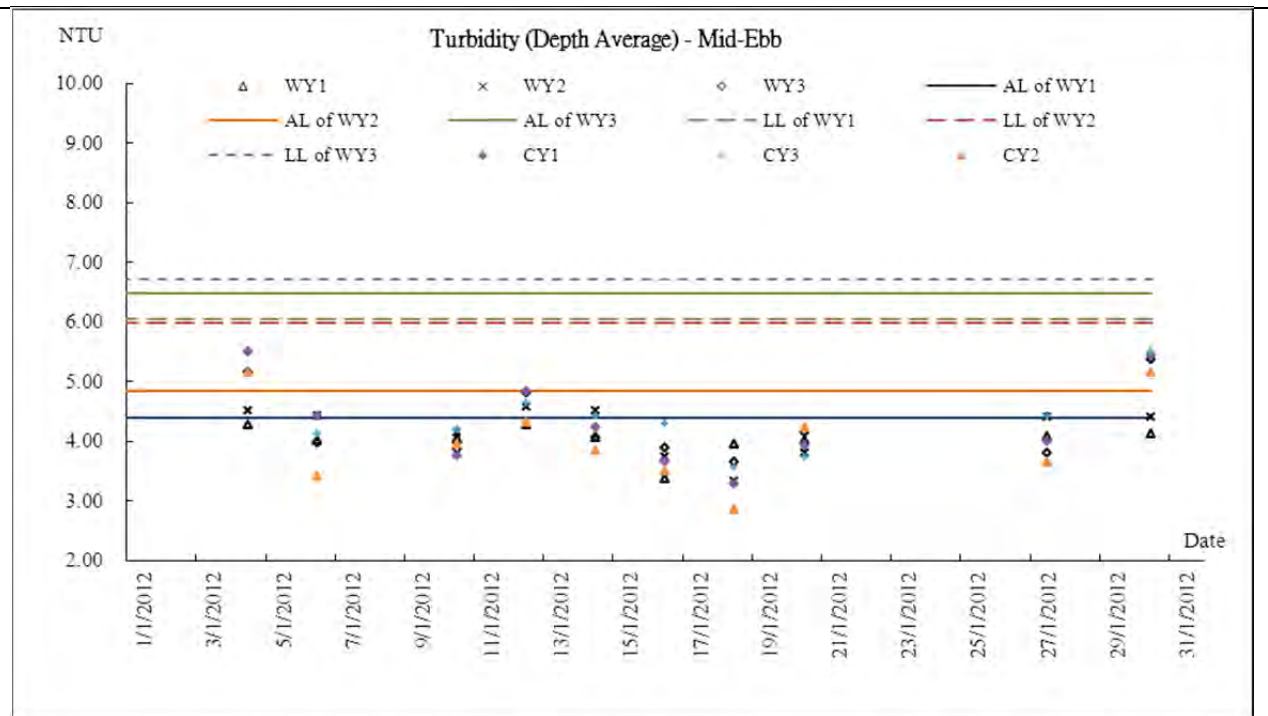
Construction Noise Monitoring



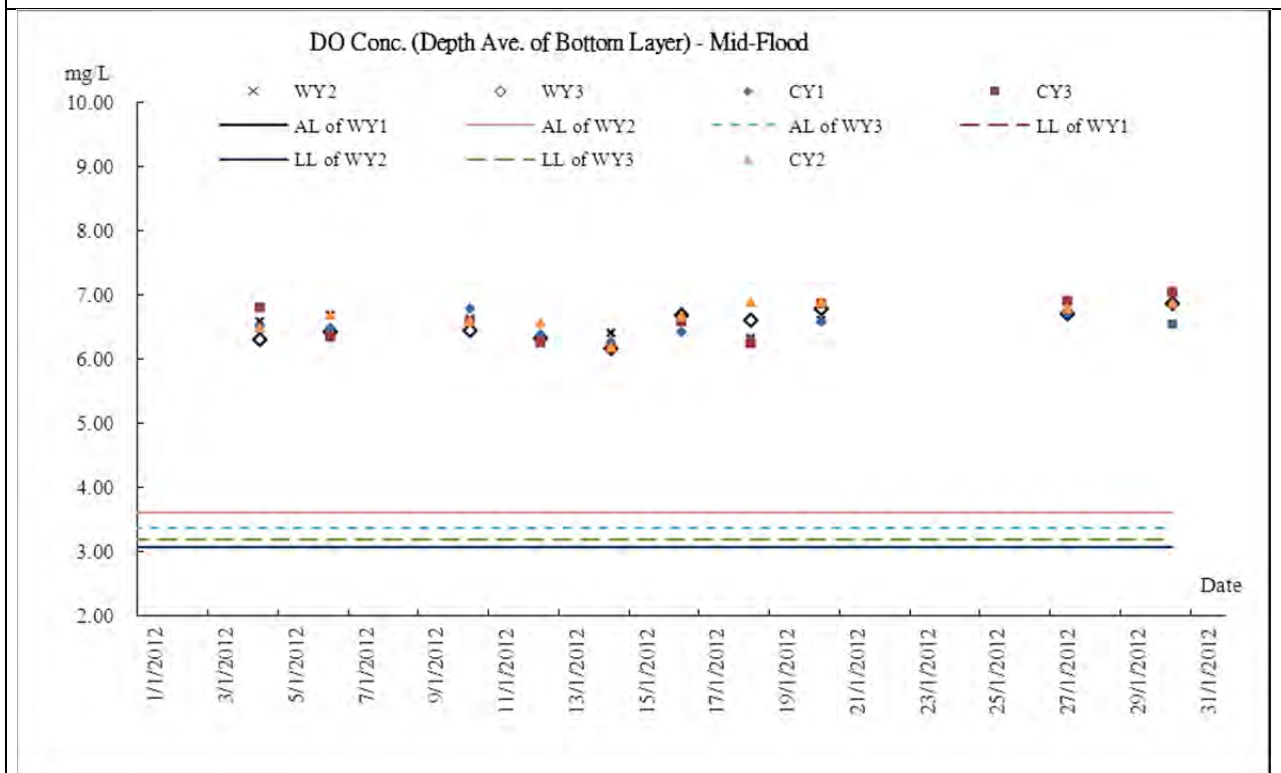
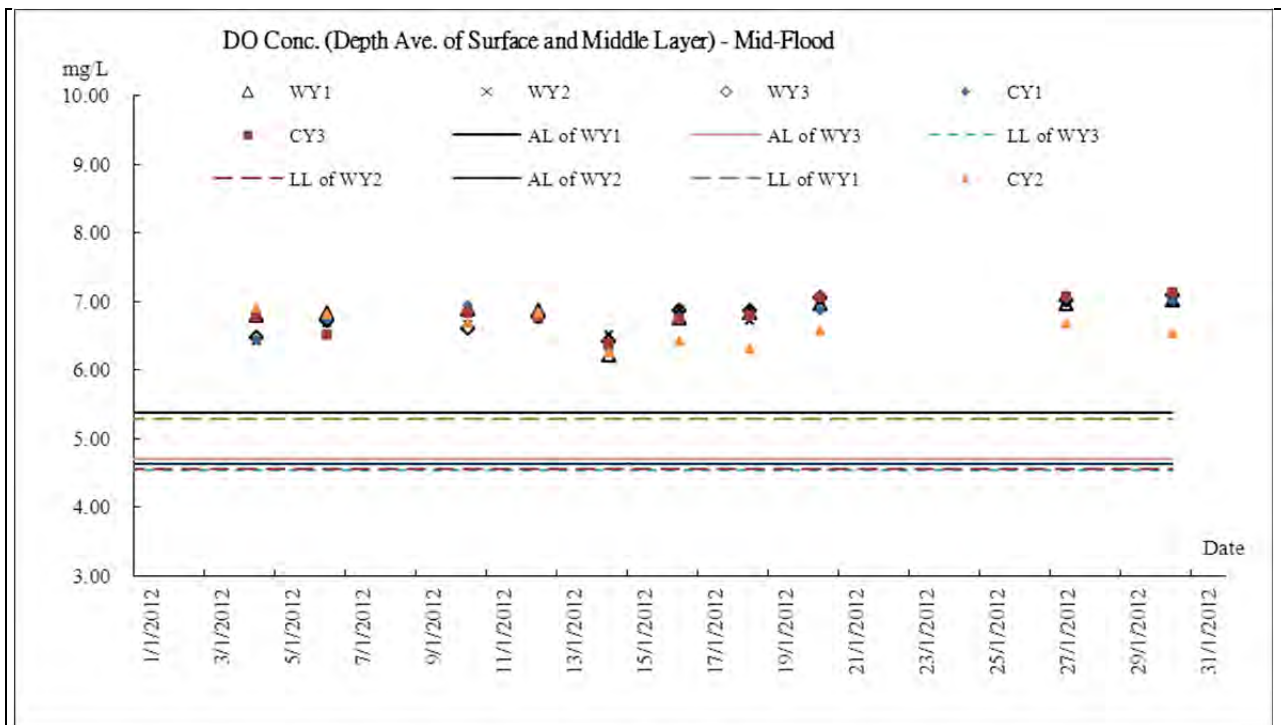


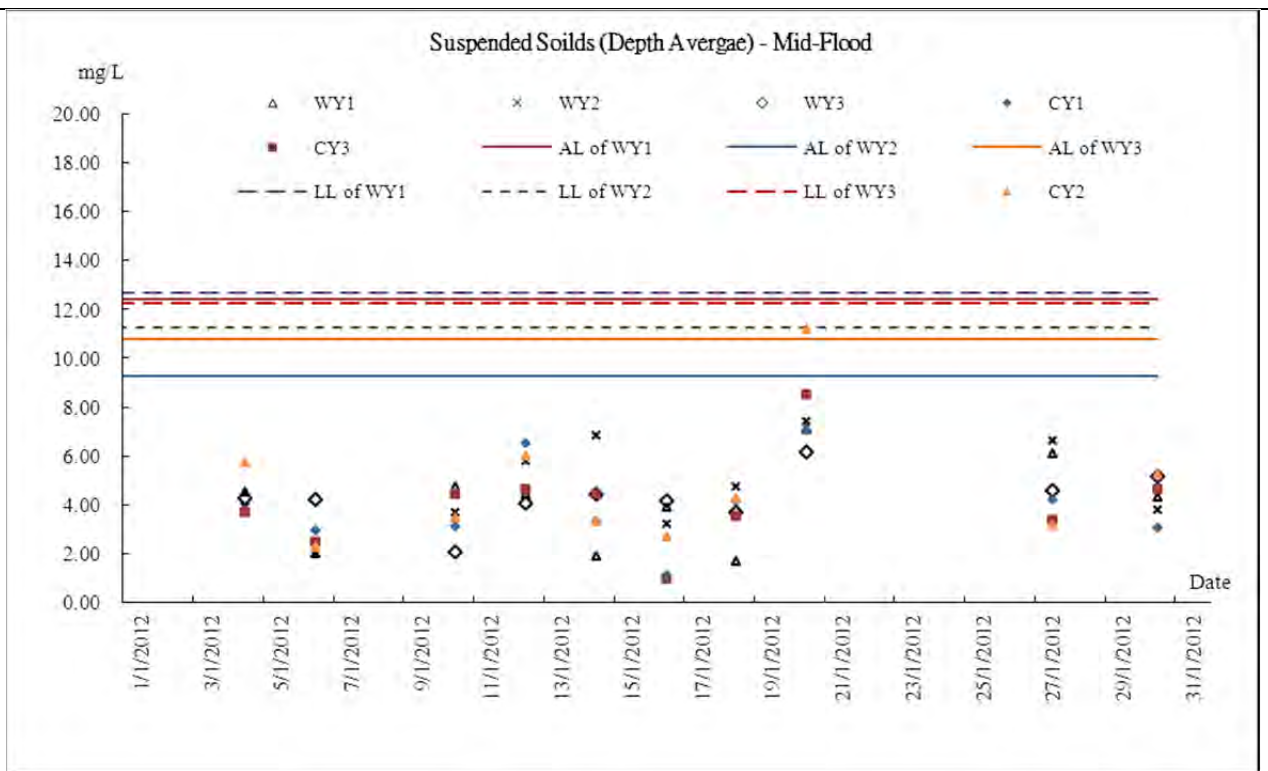
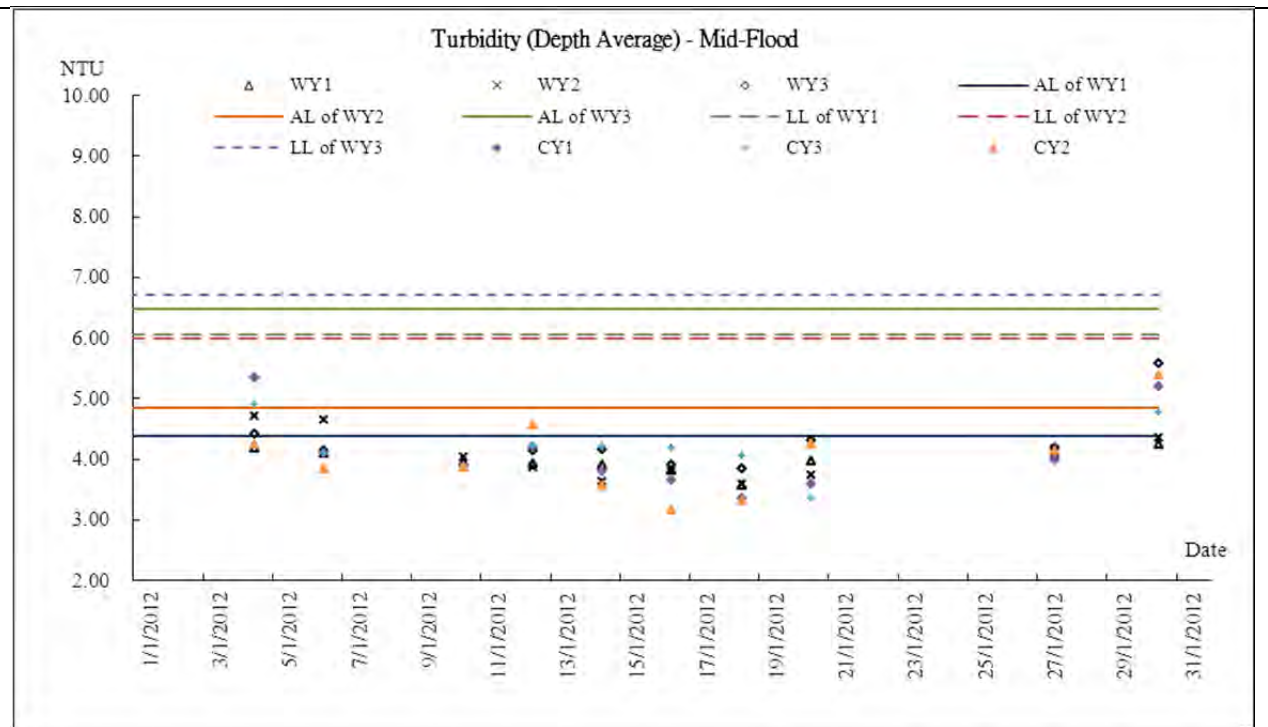
Marine Water Quality Monitoring - Mid-Ebb Tide





Marine Water Quality Monitoring - Mid-Flood Tide





Appendix I

Meteorological Information

Meteorological Data Extracted from HKO during the Reporting Period

| Date | | Weather |
|-----------|-----|--|
| 1-Jan-12 | Sun | Holiday |
| 2-Jan-12 | Mon | Holiday |
| 3-Jan-12 | Tue | Cloudy |
| 4-Jan-12 | Wed | Fresh northerly winds |
| 5-Jan-12 | Thu | Cloudy and misty. |
| 6-Jan-12 | Fri | Mainly fine |
| 7-Jan-12 | Sat | Mainly fine and dry. |
| 8-Jan-12 | Sun | Mainly fine and dry. |
| 9-Jan-12 | Mon | Cloudy |
| 10-Jan-12 | Tue | Moderate north to northeasterly winds. |
| 11-Jan-12 | Wed | Cloudy and misty. |
| 12-Jan-12 | Thu | Moderate north to northeasterly winds. |
| 13-Jan-12 | Fri | Mainly fine and dry. |
| 14-Jan-12 | Sat | Moderate north to northeasterly winds. |
| 15-Jan-12 | Sun | Moderate easterly winds. |
| 16-Jan-12 | Mon | Mainly fine and dry. |
| 17-Jan-12 | Tue | Cloudy. |
| 18-Jan-12 | Wed | Moderate northeasterly winds. |
| 19-Jan-12 | Thu | Cloudy and cold |
| 20-Jan-12 | Fri | Cool |
| 21-Jan-12 | Sat | Cloudy and misty. |
| 22-Jan-12 | Sun | Holiday |
| 23-Jan-12 | Mon | Holiday |
| 24-Jan-12 | Tue | Holiday |
| 25-Jan-12 | Wed | Holiday |
| 26-Jan-12 | Thu | Cloudy and misty. |
| 27-Jan-12 | Fri | Cloudy and misty. |
| 28-Jan-12 | Sat | Moderate easterly winds. |
| 29-Jan-12 | Sun | Moderate north to northeasterly winds. |
| 30-Jan-12 | Mon | Cloudy. |
| 31-Jan-12 | Tue | Mainly fine and dry. |

Appendix J
Monthly Summary Waste Flow Table

Monthly Summary Waste Flow Table for January 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 | 32.454 | 9.690 | 0.030 | 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 | 3.311 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 22.530 | 5.090 |
| Total | 10.430 | 36.854 | 0.160 | 0.407 | 0.740 | 1.059 | 0.000 | 35.765 | 9.690 | 0.030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 229.400 | 51.780 |
| | 47.284 | | 0.567 | | 1.799 | | 35.765 | | 9.720 | | 0.000 | | 0.000 | | 0.000 | | 0.000 | | 0.000 | | 281.180 | |

Remark: Assume 1.0 m³ vehicle dump load = 1.6 tonnes C&D materials

YSW: Yung Shue Wan

SKW: Sok Kwu Wan

Appendix K

Weekly Site Inspection Checklist

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

 Date: 06 Jan 2012

Inspected by _____
 ETL/ ET's Representative: FN Wong
 RE's Representative: Jacky Poon
 Contractor's Representative: Edwin Leung
 IEC's Representative: Seline Leung
 Time: 9:30 a.m.

Environmental Permit No. EP-281/2007A

PART A: GENERAL INFORMATION
 Weather: Sunny Fine Cloudy Rainy
 Temperature: 15 °C
 Humidity: High Moderate Low
 Wind: Strong Breeze Light Calm

Area Inspected
 1 Sok Kwu Wan

PART B: SITE AUDIT

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

| Note: | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable | Not Obs. | Yes | No | Follow Up | N/A | Photo/Remarks |
|-------------------------------|---|--------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|---------------|
| 1.23 | Is used bentonite recycled where appropriate? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 1.24 | Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m ³ capacities for sedimentation. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 1.25 | No excavation is undertaken in the settlement area. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
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| 1.30 | Is open stockpiles well covered by impermeable sheet? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Section 2: Air Quality | | | | | | | |
| 2.01 | Are there wheel washing facilities with high pressure jets provided at every vehicle exit point? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
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| 2.10 | Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
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| Section 3: Noise | | | | | | | |
| 3.01 | Are noisy equipment and activities positioned as far as practicable from the sensitive receivers? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
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| 3.05 | Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.06 | Are hand held breakers fitted with valid noise emission labels during operation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.07 | Are air compressors fitted with valid noise emission labels during operation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

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

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

(Sok Kwu Wan)

Remarks:



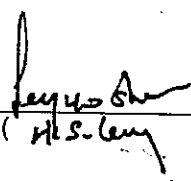

Findings of Site Inspection: (06 Jan 2012): Follow up:

- ① A generator without drip tray was observed within the site. (Position E)
Drip tray is required to avoid contamination of soil or water, or removal of the equipment from the site is reminded.
- ② Oil drum without drip tray was observed on the site of HDD working platform. Drip tray is required.

① Drip tray was not required as the generator was removed from the site.

② Drip tray was provided.

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

| IEC's representative | RE's representative | EO's representative | ET's representative | Contractor's representative |
|---|---|---|---|-----------------------------|
|  (Selina Leung) |  (Jacky Poon) |  (H.S. Leung) |  (F.W. Wong) | () |

Page

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

Inspected by Sok Kwu Wan Checklist No. TCS512A
 ETL/ ET's Representative: Ray Cheung
 RE's Representative: Joseph Ho
 Contractor's Representative: Jacky Poon
 IEC's Representative: Edwin Leung

Date: 10-1-2012

Time: 2pm

PART A: GENERAL INFORMATION
 Weather: Sunny Fine Cloudy Rainy
 Temperature: 18 °C
 Humidity: High Moderate Low
 Wind: Strong Breeze Light Calm

Environmental Permit No. EP-282/2007A

Area Inspected
 1 Yung Shue Wan

PART B: SITE AUDIT

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

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| 2.09 | Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.10 | Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
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| 3.04 | Are all plant and equipment well maintained and in good condition? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.05 | Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.06 | Are hand held breakers fitted with valid noise emission labels during operation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.07 | Are air compressors fitted with valid noise emission labels during operation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.08 | Are flaps and panels of mechanical equipment closed during operation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

| Note: | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable | Not Obs. | Yes | No | Follow Up | N/A | Photo/Remarks |
|---|---|--------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|---------------|
| 3.09 | Are Construction Noise Permit(s) applied for percussive piling works? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.10 | Are Construction Noise Permit(s) applied for general construction works during restricted hours? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.11 | Are valid Construction Noise Permit(s) posted at site entrances? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.12 | Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures). | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.13 | Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 3.14 | Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Section 4: Waste/Chemical Management | | | | | | | |
| 4.01 | Waste Management Plan had been submit to Engineer for approval. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.02 | Are receptacles available for general refuse collection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.03 | Is general refuse sorting or recycling implemented? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.04 | Is general refuse disposed of properly and regularly? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.05 | Is the Contractor registered as a chemical waste producer? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.06 | Are the chemical waste containers and storage area properly labelled? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.07 | Are the chemical wastes stored in proper storage areas? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.08 | Is the chemical container or equipment provided with drip tray? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.09 | Is the chemical waste storage area used for storage of chemical waste only? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.10 | Are incompatible chemical wastes stored in different areas? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.11 | Are the chemical wastes disposed of by licensed collectors? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.12 | Are trip tickets for chemical wastes disposal available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.13 | Are chemical/fuel storage areas bounded? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.14 | Are designated areas identified for storage and sorting of construction wastes? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.15 | Are construction wastes sorted (inert and non-inert) on site? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.16 | Are construction wastes reused? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.17 | Are construction wastes disposed of properly? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.18 | Are site hoardings and signboards made of durable materials instead of timber? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.19 | Is trip ticket system implemented for the disposal of construction wastes and records available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.20 | Are appropriate procedures followed if contaminated material exists? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.21 | Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.22 | Site cleanliness and appropriate waste management training had provided for the site workers. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.23 | Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Section 5: Landscape & Visual | | | | | | | |
| 5.01 | Are retained and transplanted trees in health condition? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

| Note: Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable | | Not Obs. | Yes | No | Follow Up | N/A | Photo/Remarks |
|--|---|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|---|
| 5.02 | Are retained and transplanted trees properly protected? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Refer to Monthly EM&A report - Appendix M |
| 5.03 | Are surgery works carried out for the damaged trees? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.04 | Is damage to trees outside site boundary due to construction activities avoided? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.05 | Is the night-time lighting controlled to minimize glare to sensitive receivers? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Section 7: Others | | | | | | | |
| 7.01 | Are relevant Environmental Permits posted at all vehicle site entrances/exits? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7.02 | Are the warning sign or larvicidal oil record shown clearly at the construction site? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

(Yung Shue Wan) Sok Kwan Wan

Remarks

Findings of Site Inspection (10-1-2022): Follow up:

Remark 1:
Silt curtain needed to be repaired
and re-position to restore the water
protection function

(Bay 2)

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

() (Sacky Poon) (Ray Cheung) (H.S. Wong) ()

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

 Date: 17-1-2012

Inspected by _____
 ETL/ ET's Representative: Roy Cheung
 RE's Representative: Joseph N.C.
 Contractor's Representative: K/S/O / Edwin Leung
 IEC's Representative: NA.
 Time: 2pm

Environmental Permit No.

EP- 281/2007A

PART A: GENERAL INFORMATION
 Weather: Sunny Fine Cloudy Rainy
 Temperature: 17 °C
 Humidity: High Moderate Low
 Wind: Strong Breeze Light Calm

Area Inspected
 1 Sok Kwu Wan

PART B: SITE AUDIT

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

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

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

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

(Sok Kwu Wan)

Remarks:

Findings of Site Inspection: (17-1-2012):

Follow up: 31-1-2012

Regular maintenance for silt curtain was reminded especially before rainstorm weather.

Item has been inspected and rectified.

Remark:
 - Lavalier to be placed to stagnant water at pumping station 2 and 1 (SW-Ram) (grid)
 Joseph

Ray

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

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

Joseph

Ray

[Signature]

() (Joseph) (Ray) () ()
 Chow.

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

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

Checklist No. TCS512B-
Ray Cheung
Joseph Ng
Edwin Leung

Date: 31-1-2012

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

Weather: Sunny Fine Cloudy Rainy

Temperature: _____ °C

Humidity: High Moderate Low

Wind: Strong Breeze Light Calm

Area Inspected
 1 Sok Kwu Wan

PART B: SITE AUDIT

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

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

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

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

(Sok Kwu Wan)

Remarks:

Findings of Site Inspection: (31-1-2012): Follow up:

No environmental issue observed during site inspection.

NIL

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

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

Joseph

Ray

Henry

()

(Joseph NG Rowle)

(Ray Chang)

(H.S. Leung)

()

Appendix L

Implementation Schedule of Mitigation Measures

Implementation Schedule of Air Quality Measures

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

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

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

N/A Not applicable

Implementation Schedule of Noise Measures

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

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

* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.
 ** D=Design, C=Construction, O=Operation
 N/A Not applicable

Implementation Schedule of Water Quality Control Measures

| EIA Ref | EM&A Ref | Environmental Protection Measures* | Location (duration /completion of measures) | Implementation Agent | Implementation Stages** | | | Relevant Legislation and Guidelines |
|---------------------------|----------|---|---|----------------------|-------------------------|---|---|-------------------------------------|
| | | | | | D | C | O | |
| Construction Phase | | | | | | | | |
| 5.77 | 4.35 | No-dig method using Horizontal Directional Drilling (HDD) would be used for the installation of outfall pipe of about 480 m from shore to minimize the potential water quality impacts arising from the dredging works required for the submarine outfall construction. Silt curtains will be installed around the exit area of the pilot drill. | Marine works site / During construction of submarine outfall | Contractor | | √ | | |
| 5.73 – 5.78 | 4.36 | Dredging Works Implementation of following measures during the dredging works: <ul style="list-style-type: none"> dredging should be undertaken using closed grab dredgers with a maximum total production rate of 55m³/hr; deployment of 2-layer silt curtains with the first layer enclosing the grab and the second layer at around 50m from the dredging area while dredging works are in progress; dredging operation should be undertaken during ebb tide only; all vessels should be sized such that adequate clearance (i.e. minimum clearance of 0.6m) is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; all pipe leakages should be repaired promptly and plant should not be operated with leaking pipes; excess material should be cleaned from the decks and exposed fittings of barges before the vessel is moved; adequate freeboard (i.e. minimum of 200mm) should be maintained on barges to ensure that decks are not washed by wave action; all barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material; loading of barges should be controlled to prevent splashing of dredged material to the surrounding water, and barges should not be filled to a level which will cause the overflow of materials or polluted water during loading or transportation; and | Marine works site and at the identified water sensitive receivers/ During construction | Contractor | | √ | | |

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

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

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

N/A Not applicable

Implementation Schedule of Sediment Contamination Mitigation Measures

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

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

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

N/A Not applicable

Implementation Schedule of Solid Waste Management Measures

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

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

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

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

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

N/A Not applicable

Implementation Schedule of Ecological Impact Measures

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

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

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

N/A Not applicable

Implementation Schedule of Fisheries Impact Measures

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

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

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

N/A Not applicable

Implementation Schedule of Landscape and Visual Impact Measures

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

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

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

N/A Not applicable

Appendix M

Tree Inspection Report

經緯園藝有限公司

Melofield Nursery & Landscape Contractor Ltd

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

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

Contract No. DC/2009/13

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

Sok Kwu Wan

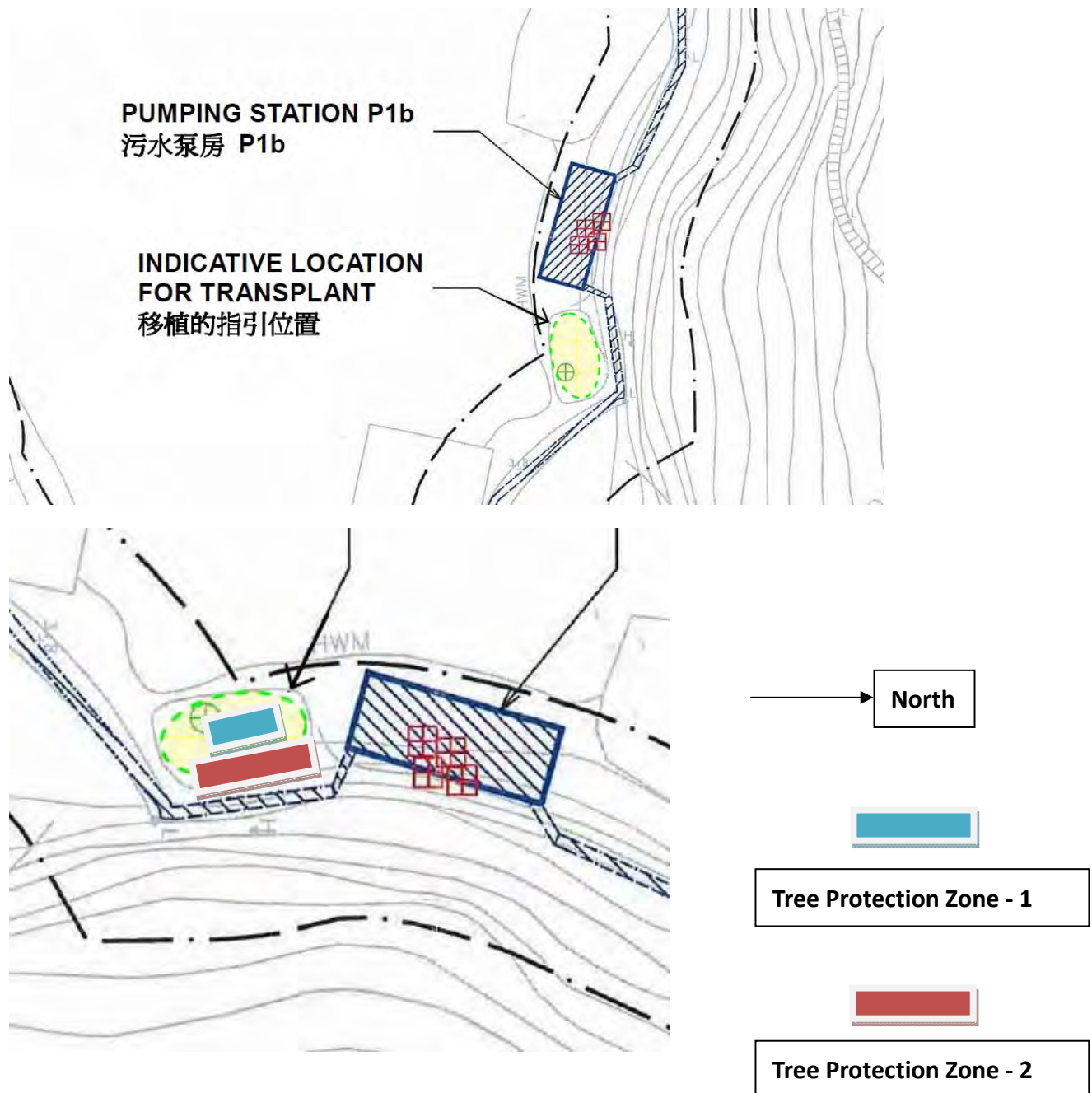
Tree Inspection Report for *Celtis timorensis*

Inspection Date : 31-01-2012



1. Introduction

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



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

2. Summary of Inspection

| | |
|---|--|
| Date of Inspection | 31 January 2012, around 14:30 |
| Location | A soil ground adjacent to the Pumping Station P1b Chung Mei, at Sok Kwu Wan, Lamma Island. |
| Weather | Cloudy, the vegetations are located under the shade of existing tall trees. |
| The labeled <i>Celtis timorensis</i> under Tree Protection Zone 2 | CT_1A, CT_2A, CT_3A, CT_4A, CT_5A, CT_6A & CT_7A, |

3. Proposed Inspection Schedule

| Month | Actual / proposed Inspection Date |
|-----------------|-----------------------------------|
| July, 2011 | 14 and 25 July 2011 |
| August, 2011 | 9 and 26 August 2011 |
| September, 2011 | 5 and 23 September 2011 |
| October, 2011 | 10 and 24 October 2011 |
| November, 2011 | 8 November 2011 |
| December, 2011 | 14 and 30 December 2011 |
| January 2012 | 31 January 2012 |

4. Summary of Inspection Result


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

Inspection parameters or criteria


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

5. Description of Inspection Results:


Tree ID: CT_1A

| | |
|---|---|
|  | <p>Current Status: Very Poor</p> <p>Justification: Leaves were dry. The bark was also dry. No significant improvement in health. The plant was very weak.</p> |
|---|---|

Tree ID:CT_2A

| | |
|---|---|
|  | <p>Current Status: Very Poor</p> <p>Justification: Leaves were dry. The bark was also dry. No significant improvement in health. The plant was very weak.</p> |
|---|---|

Tree ID: CT_3A

| | |
|---|---|
|  | <p>Current Status: Very Poor</p> <p>Justification: Leaves were dry. The bark was also dry. Some improvement in health. The plant was weak but it was growing.</p> |
|---|---|

Tree ID: CT_4A



Current Status: Very Poor

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

Tree ID: CT_5A



Current Status: Good

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

Tree ID: CT_6A



Current Status: Good

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

Tree ID: CT_7A



Current Status: Very Poor

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

Overall Condition

In the Tree Protection Zone 2, the condition of CT_1A-7A was generally poor. The health of CT5A and CT6A were found satisfactory. Regular watering and weeding will be carried out during dry weather. They may better recover under this warm and rainy weather. Some newly grown green leaves were found eaten by insects. Remove any insect found on the plant physically to prevent the bud attacked by leaf-feeding insect. No pesticide should be used when the plants are weak.

Considering the condition of CT1A to CT4A, CT_7A were in very poor condition, compensatory of additional *Celtis timorensis* is proposed and will be carried out in the coming warm weather season for better growing.