**JOB NO.: TCS00491/09**

**DSD CONTRACT NO.: DC/2009/08**

**CONSTRUCTION OF YUEN LONG SOUTH BRANCH SEWERS AND EXPANSION OF HA TSUEN SEWAGE PUMPING STATION**

# 19TH ENVIRONMENTAL MONITORING & AUDIT MONTHLY REPORT – AUGUST 2011

**PREPARED FOR**

**CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG) COMPANY LIMITED**

## Quality Index

| Date | Reference No. | Prepared By | Certified By |
|---|---|---|---|
| 9 September 2011 | TCS00491/09/600/R0247v2 | Nicola Hon<br>(Environmental Consultant) | T.W. Tam<br>(Environmental Team Leader) |

| Version | Date | Description |
|---|---|---|
| 1 | 9 September 2011 | First submission |
| 2 | 12 September 2011 | Amended against IEC's comments on 9 September 2011 |
| | | |

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15 September 2011

By Post

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Hong Kong.

Your Ref:

Our Ref: EB000586-F/THW11-1483

For attention of: Mr. T. W. Tam

Dear Mr. Tam,

**Contract No.: DC/2009/08**
**Construction of Yuen Long South Branch Sewers and Expansion of Ha Tsuen Sewage Pumping Station**
**Monthly EM&A Report for Designated Project, August 2011 – IEC Verification**

With reference to ET's captioned report (ET's ref.: TCS00491/09/600/R0247v2 dated 12 September 2011) received on 12 September 2011, we have no comment and hereby verify the captioned report excluding the Landscape and Visual Impact section of the report.

We request the ET to submit the separate submission of Landscape and Visual Impact section of the report as soon as possible, for the completion of the captioned report.

Should there be any queries, please feel free to contact our William Law on 2911 2511.

Yours sincerely

F.C. TSANG
Independent Environmental Checker
HYDER CONSULTING LIMITED

FCT/WL/my

## EXECUTIVE SUMMARY

ES01. The China State Construction Engineering (Hong Kong) Limited (hereinafter "The Contractor") has been awarded by the Drainage Services Department (DSD) the Contract **DC/2009/08** *Construction of Yuen Long South Branch Sewers and Expansion of Ha Tsuen Sewage Pumping Station* (the Project) in October 2009.

ES01. For ease of reporting, it has been agreed among the Engineer's Representatives (ER, AECOM), Independent Environmental Checker (IEC, Hyder Consulting Limited), The Contractor (The China State Construction Engineering (Hong Kong) Limited), Environmental Team (Action-United Environmental Services and Consulting, ET) and Environmental Protection Department (EPD) that the EM&A report under the Project is split to the following two stand-alone parts:

- Expansion of the existing Ha Tsuen Sewage Pumping Station (under Environmental Permit No.EP-327/2009/A)
- Construction of a sewage pumping station near Shui Tsiu San Tsuen Road in Yuen Long South; and construction of about 9km of sewers and rising mains with diameter ranging from 200-1500mm in Yuen Long South and Ha Tsuen areas (without Environmental Permit).

ES02. This is the **19th** monthly EM&A Report – *Expansion of Ha Tsuen Sewage Pumping Station* (hereinafter 'this Report') for designated works under Environmental Permit No.EP327/2009A (hereinafter 'the EP'), covering a period from **1 to 31 August 2011** (hereinafter 'the Reporting Period').

### ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES03. Environmental monitoring activities under the EM&A program in this reporting month are summarized in the following table.

| Aspects | Environmental Monitoring Parameters / Inspection | Occasions |
|---|---|---|
| Air Quality | 1-hour Total Suspended Particulates (TSP) | **10** |
| | 24-hour Total Suspended Particulates (TSP) | **12** |
| Construction Noise | Leq (30min) Daytime | **10** |
| Water Quality | Dissolved Oxygen | **14** |
| | Turbidity | **14** |
| | Total Suspended Solids | **14** |
| Inspection / Audit | ET Weekly Environmental Site Inspection | **5** |

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

ES04. Breach of the air quality, construction noise and water quality in this reporting period is summarized in the following table.

| Environmental Aspects | 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 | Dissolved Oxygen | 0 | 0 | 0 | -- | -- |
| | Turbidity | 0 | 0 | 0 | -- | -- |
| | Suspended Solids | 0 | 0 | 0 | | |

*Note: NOE – Notification of Exceedance*

In this reporting period, no exceedance was recorded in water quality, air quality and noise quality. No NOE was issued and thus no follow up action was therefore required.

### ENVIRONMENTAL COMPLAINT

ES05. No environmental complaint was recorded / received in this reporting month. The statistics of environmental complaint are summarized in the following table.

| Reporting Period | Environmental Complaint Statistics | | |
|---|---|---|---|
| | Frequency | Cumulative | Complaint Nature |
| 1 – 31 August 2011 | 0 | 0 | NA |

### NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES06. No environmental summons and successful prosecutions were recorded in this reporting month. The statistics of environmental complaint are summarized in the following tables.

| Reporting Period | Environmental Summons Statistics | | |
|---|---|---|---|
| | Frequency | Cumulative | Complaint Nature |
| 1 – 31 August 2011 | 0 | 0 | NA |

| Reporting Period | Environmental Prosecution Statistics | | |
|---|---|---|---|
| | Frequency | Cumulative | Complaint Nature |
| 1 – 31 August 2011 | 0 | 0 | NA |

### REPORTING CHANGE

ES07. There are no reporting changes in this reporting month.

### SITE INSPECTION BY EXTERNAL PARTIES

ES08. In this reporting period, no site inspection was carried by EPD or AFCD.

### FUTURE KEY ISSUES

ES09. During wet season, muddy water or other water pollutants from site surface runoff into the local stream will be key environment issue. Therefore, water mitigation measures to prevent surface runoff into nearby water bodies should be paid on special attention. Moreover, mitigation measures to avoid dust emission from the construction site should be properly paid attention as recommended in the EIA and summarized in Mitigation Measure Implementation Schedule; and also with construction noise and other environmental issues stipulated in the Environmental Monitoring and Audit Manual.

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# 1. INTRODUCTION

## BACKGROUND

1.01 The China State Construction Engineering (Hong Kong) Limited (hereinafter "The Contractor") has been awarded by the Drainage Services Department (DSD) the Contract DC/2009/08 *Construction of Yuen Long South Branch Sewers and Expansion of Ha Tsuen Sewage Pumping Station* (the Project) in October 2009.

1.02 The Project involves construction of about 9km of sewers and rising mains with diameter ranging from 200-1500mm in Yuen Long South and Ha Tsuen areas, a sewage pumping station near Shui Tsiu San Tsuen Road in Yuen Long South, expansion of existing Ha Tsuen Sewage Pumping Station. The site layout plan is shown in ***Appendix A***.

1.03 The construction of expansion Ha Tsuen Sewage Pumping Station is under a statutory EIA (Register No. AEIAR-072/2003) study for "*Upgrading and expansion of San Wai Sewage Treatment Works and expansion of Ha Tsuen Pumping Station*" commissioned by the DSD. An Environmental Permit (No. EP-327/2009/A) for upgrading and expansion of Sewage Treatment Works at San Wai (excluded for the Project) and Ha Tsuen Sewage Pumping Station has been obtained by DSD in January 2009 for the relevant works.

1.04 According to the Section 25 of the Particular Specification (PS) and the Environmental Permit No. EP-327/2009/A, the scope of monitoring includes air quality, construction noise, water quality and environmental site audit. It should be undertaken in accordance with the Environmental Monitoring and Audit Manual as part of EIA report [AEIAR-072/2003] (hereafter "the EM&A Manual") by an independent Environmental Team (ET). Also, monitoring and audit works for landscaping and visual will be undertaken as part of the EM&A programme.

1.05 As the works of the Project has been commenced in different periods of time, the EM&A Report for the Project are split to two separate parts as follows:

(a) Expansion Ha Tsuen Sewage Pumping Station (under Environmental Permit No.EP-327/2009/A);

(b) Construction of sewers and rising mains with diameter ranging from 200-1500mm in Yuen Long South and Ha Tsuen areas and a sewage pumping station near Shui Tsiu San Tsuen Road in Yuen Long South (the works without Environmental Permit)

1.06 Action-United Environmental Services and Consulting (AUES) has been commissioned by the Contractor as the ET to implement the relevant EM&A program. As part of the project EM&A program, baseline monitoring was conducted between *22 December 2009* and *18 January 2010* to determine the ambient environmental conditions before the project commence any major construction works at Ha Tsuen Sewage Pumping Station and it had been verified by IEC and endorsed by EPD.

1.07 This is the **19th** monthly EM&A Report – *Expansion of Ha Tsuen Sewage Pumping Station* (hereinafter 'this Report') for designated works under Environmental Permit No.EP-327/2009 (hereinafter 'the EP'), covering a period from **1 to 31 August 2011** (hereinafter 'the Reporting Period').

## REPORT STRUCTURE

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

**SECTION 1** INTRODUCTION

**SECTION 2** PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

**SECTION 3** SUMMARY OF IMPACT MONITORING REQUIREMENTS

**SECTION 4** IMPACT MONITORING RESULTS

**SECTION 5** WASTE MANAGEMENT

# 2. PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

## PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE

2.01 Organization structure and contact details of the Contractor and relevant parties with respect to the on-site environmental management are shown in ***Appendix B***.

## CONSTRUCTION PROGRESS

2.02 The tentative master construction programs and a three month rolling construction programme are enclosed in ***Appendix C.*** Also, the major construction activities undertaken in this reporting month are listed below:

- Formwork, steel fixing and concreting of infrastructure construction below existing ground level

## SUMMARY OF ENVIRONMENTAL SUBMISSIONS

2.03 Summary of the relevant permits, licences, and/or notifications on environmental protection for this Project in this reporting month is presented in ***Table 2-1***.

**Table 2-1 Status of Environmental Licenses and Permits**

| Item | Description | License/Permit Status |
|---|---|---|
| 1 | Environmental Permit (EP-329/2009/A) | Updated on 1 June 2010 |
| 2 | Chemical waste Producer Registration<br>Registration No. 5213-511-C3570-01 | Issued on 13 Nov 2009 |
| 3 | Water Pollution Control Ordinance (Discharge License)<br>License No. WT00005671-2009 | Issued on 12 Jan 2010<br>Expiry date: 31 Jan 2015 |
| 4 | Billing Account for Disposal of Construction Waste (Account Number: 700947) | Issued on 7 October 2009 |

2.04 The baseline monitoring report - *Expansion of Ha Tsuen Sewage Pumping Station* (*Ref: TCS00491/09/600/R0023v6*) had been verified by IEC and endorsed by EPD.

# 3. SUMMARY OF IMPACT MONITORING REQUIREMENTS

3.01 The Environmental Monitoring and Audit requirements are set out in the EM&A Manual. Environmental issues such as air quality, construction noise and water quality were identified as the key issues during the construction phase of expansion of Ha Tsuen Pumping Station. Also, monitoring and audit works for landscaping and visual shall be undertaken as part of the EM&A programme.

### MONITORING PARAMETERS

3.02 According to the *EM&A Manual*, the environmental aspect implemented by ET has to be included air quality, construction noise and water quality, also the landscape and visual impact to be monitored by a competent landscape architect. The monitoring parameters are summarized in ***Table 3-1***.

**Table 3-1 Summary of Monitoring Parameters**

| Environmental Aspect | Parameters |
|---|---|
| Air Quality | • 1-hour Total Suspended Particulates (hereinafter '1-hr TSP'); and<br>• 24-hour Total Suspended Particulates (hereinafter '24-hr TSP'). |
| Construction Noise | • A-weighted equivalent continuous sound pressure level (30min) (hereinafter 'Leq(30min)' during the normal working hours; and<br>• A-weighted equivalent continuous sound pressure level (5min) (hereinafter 'Leq(5min)' for construction work during the restricted hours. |
| Water Quality – Local Stream Course | • In Situ Measurement - Dissolved Oxygen (DO) and Turbidity<br>• Laboratory Analysis - Suspended Solids (SS) |
| Water Quality – Effluent Discharge | • In Situ Measurement - pH value<br>• Laboratory Analysis - SS and Chemical oxygen demand (COD) |
| Landscape and Visual Resources | • Vegetation survey undertaken on an "area" basis to identify representative types and species composition;<br>• Assessment of landscape character; and<br>• Tree survey report.<br>• The inspection findings will be submitted separately. |

### MONITORING LOCATIONS

## Monitoring Location Stipulation in the EM&A Manual

3.03 According to *EM&A Manual* ***Sections 2.2.1.18, 3.4.1.1*** & ***4.4.1.4***, and Figures ***2.1***, ***2.2***, ***3.1***, ***3.2*** and ***4.2***, there are four air and noise monitoring stations and one water quality monitoring station identified as sensitivity receivers during construction phase of the Project. For the four designated air and noise monitoring locations, two are located within the San Wai STW and other two are within the existing Ha Tsuen Pumping Station. Also, a local stream course of water quality monitoring station is identified in Tin Shui Wai Nullah. Besides, the area of landscape and visual monitoring is recommended for the entire selected route and within compounds in accordance with *the EM&A Manual* ***Section 6.3.1.1.***

*Air Quality*

3.04 In order to identify and seek for the access for the air monitoring locations designated in the EM&A Manual, site inspection and the premises request about the monitoring locations have been carried out by the Contractor and ET. The designated monitoring location Yeung Chun Pui Care & Attention Home located at Sha Chau Lei Road has been identified, but the premise was granted by CEDD existing project CV/2008/03 for air quality monitoring. Also, the HVS installation at the other one designated air monitoring station Tin Shing Court, the premises is refused by the incorporated owners.

3.05 In this case, the alternative location Ho Tak Sum Primary School as one sensitive receiver mentioned in the EIA Report (Register No. AEIAR-072/2003) is proposed to be the replacement to undertake air quality monitoring during the expansion works of Ha Tsuen Sewage Pumping Station in accordance with the EM&A Manual Clauses 2.2.1.20. Simultaneously, air monitoring at the designated location Yeung Chun Pui Care & Attention Home is proposed to be performed. The proposal and recommendation is agreed by IEC and as endorsed by EPD. The monitoring stations are detailed to list in ***Table 3-2*** and illustrated in ***Appendix D.***

**Table 3-2 Air Quality Monitoring Stations**

| Monitoring Location ID | Identified Address | Remarks |
|---|---|---|
| AM1 | Ho Tak Sum Primary School | Replace the Designated Monitoring Station Tin Shing Court |
| AM2 | Yeung Chun Pui Care & Attention Home | Designated in the EM&A Manual |

3.06 The graphic of air monitoring stations are illustrated in ***Appendix D***.

*Construction Noise*

3.07 Similar to the air monitoring, the construction noise monitoring stations undertaken for EM&A programme is agreed by IEC and as endorsed by EPD. The detailed monitoring stations are listed in ***Table 3-3*** and shown in ***Appendix D***.

**Table 3-3 Construction Noise Monitoring Stations**

| Monitoring Location ID | Identified Address | Remarks |
|---|---|---|
| NM1 | Ho Tak Sum Primary School | Replace the Designated Monitoring Station Tin Shing Court |
| NM2 | Yeung Chun Pui Care & Attention Home | Designated in the EM&A Manual |

*Water Quality*

3.08 One designated location of a local stream course, Tin Shui Wai Nullah, is proposed to carry out water quality monitoring in accordance with the EM&A Manual. The designated sampling location R1 is located at the midpoint between two pedestrian flyovers athwart Tin Shui Wai Nullah, which are 320 meters apart, there is technical difficulty and safety is concerned. So, a new sampling point located at approximately 160m upstream of the R1 (hereinafter as R1b) was therefore proposed for the local stream impact monitoring. A proposal (submission ref.: TCS00491/09/300/L0080) has been verified by IEC and submitted to EPD with no further comments received.

3.09 The detailed monitoring station is listed in ***Table 3-4*** and show in ***Appendix D***.

**Table 3-4 Local Stream Water Quality Monitoring Station**

| Monitoring Location ID | Identified Address | Remarks |
|---|---|---|
| R1b | The athwart Tin Shui Wai Nullah pedestrian flyover | About 160 meters upstream from the designated location as stipulated in the EM&A Manual. Also, closer the existing Ha Tsuen Pumping Station |

3.10 According to the EM&A Manual Section 4.3.1.5, the effluent water quality monitoring are proposed to be carried out at representative discharge point(s) where effluent from the construction sites is discharged into the local water course after being treated in a wastewater treatment system.

*Landscape and Visual*

3.11 The selected route and area, frequency and requirements of landscape & visual monitoring is proposed by a competent landscape architect.

**MONITORING FREQUENCY**

3.12 According to the *EM&A Manual* Sections 2.2.1.27, 3.6 and 4.4.1.8, impact monitoring is covered air quality, noise and water quality of local stream course.

*Air Quality Monitoring*

Parameters: 1-hour TSP and 24-hour TSP.
Frequency: Once every six days for 24-hour TSP and three times every six days for 1-hour TSP.
Duration: Throughout the construction period.

*Noise Monitoring*

Parameters: One set of Leq(30min) as 6 consecutive Leq(5min) between 0700-1900 hours on normal weekdays.
Leq (5min), L10 and L90 during the construction undertaken during Restricted Hours (19:00 to 07:00 hours next of normal working day and full day of public holiday and Sunday)
Frequency: Once every six days during 0700-1900 hours on normal weekdays. Restricted Hour monitoring should depend on conditions stipulated in Construction Noise Permit.
Duration: Throughout the construction period.

*Water Quality Monitoring of Local Stream Course*

Parameters: DO, Turbidity and SS.
Frequency: 3 days per week.
Depths: mid-depth
Duration: Throughout the construction period and the interval between 2 sets of monitoring is not less than 36 hours

*Water Quality Monitoring of Effluent Discharge*

Parameters: pH, COD and SS.
Frequency: Depend on conditions stipulated in discharge license under **Section 20** of the ***Water Pollution Control Ordinance***.
Duration: Throughout the construction period

*Landscape and Visual Monitoring*

Parameters: Site inspection with broad scope of audit as listed in the EM&A Manuals
Frequency: Once every 2 weeks
Duration: Throughout the construction period

3.13 Post Project Monitoring will be performed at water quality monitoring local stream course. The requirements are same as baseline monitoring are presented below:

Parameters: DO, Turbidity and SS.
Frequency: 3 days per week.
Depths: mid-depth
Duration: 4 weeks and the interval between 2 sets of monitoring is not less than 36 hours upon completion of the construction activities

## MONITORING METHODOLOGY AND EQUIPMENT

### Air Quality

3.14 The air quality monitoring equipment for 1-hour and 24-hour TSP are listed in ***Table 3-5*** and the specification of equipment was submitted before the EM&A programme commencement.

**Table 3-5 Air Quality Monitoring Equipment**

| Equipment | Description |
|---|---|
| **1-hour TSP** | |
| Portable dust meter | TSI DustTrak Model 8520 / Sibata LD-3 Laser Dust Meter |
| **24-hour TSP** | |
| High Volume Air Sampler | Thermo Anderson GS 2310 HVS |
| Calibration Kit | TISCH Model TE-5025A |

*1-hour TSP*

3.15 The 1-hour TSP monitor is conducted either with a TSI Dust Track Aerosol Monitor Model 8520 or a Sibata LD-3 Laser Dust Meter which is a portable, battery-operated laser photometer. The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 90$^{o}$ light scattering. The 1-hour TSP monitor consists of the following:

(a.) A pump to draw sample aerosol through the optic chamber where TSP is measured;

(b.) A sheath air system isolates the aerosol in the chamber to keep the optics clean for maximum reliability; and

(c.) A built-in data logger compatible with Windows based program to facilitate data collection, analysis and reporting.

3.16 The 1-hour TSP meter is used within the valid period as follow manufacturer's Operation and Service Manual.

*24-hour TSP*

3.17 The equipment used for 24-hour TSP measurement is Thermo Andersen Model GS2310 TSP high volume air sampling system, which complied with EPA Code of Federal Regulation, Appendix B to Part 50. The High Volume Air Sampler (HVS) consists of the following:

(a.) An anodized aluminum shelter;

(b.) A 8"x10" stainless steel filter holder;

(c.) A blower motor assembly;

(d.) A continuous flow/pressure recorder;

(e.) A motor speed-voltage control/elapsed time indicator;

(f.) A 7-day mechanical timer; and

(g.) A power supply of 220V/50 Hz.

3.18 The HVS was operated and calibrated on a regular basis in accordance to the manufacturer's instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5025A). One point checking would be carried out in two-month interval while full point checking every six months.

3.19 24-hour TSP was collected by the ET on filters of HVS and quantified by a local HOKLAS accredited laboratory, ALS Technichem (HK) Pty Ltd (ALS), upon receipt of the samples. The ET kept all the sampled 24-hour TSP filters in normal air conditioned room conditions, i.e. 70% RH (Relative Humidity) and 25$^{o}$C, for six months prior to disposal.

### Noise

3.20 The equipment for noise monitoring is summarized in ***Table 3-6*** and the specification was submitted before the EM&A programme commencement**.**

**Table 3-6 Noise Monitoring Equipment**

| Equipment | Description |
|---|---|
| Integrating Sound Level Meter | B&K Type 2238 or 2236 |
| Calibrator | B&K Type 4231 |
| Portable Wind Speed Indicator | Testo Anemometer |

3.21 Sound level meters listed above comply with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications, as recommended in Technical Memorandum (TM) issued under the Noise Control Ordinance (NCO).

3.22 Noise measurements were taken in terms of the A-weighted equivalent sound pressure level ($L_{eq}$) measured in decibels (dB). Supplementary statistical results ($L_{10}$ and $L_{90}$) were also obtained for reference.

3.23 During the construction noise monitoring, all noise measurements were performed with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level ($L_{eq}$). $L_{eq(30min)}$ in six consecutive $L_{eq(5min)}$ measurements were used as the monitoring parameter for the time period between 0700-1900 hours on weekdays; and also $L_{eq(15min)}$ in three consecutive $L_{eq(5min)}$ measurements were used as monitoring parameter for other time periods (e.g. during restricted hours).

3.24 No noise extension cable was used to link the microphone with sound level meter for the measurement. The microphone was set about 1.2m height above ground and oriented such that it was pointed to the site with the microphone facing perpendicular to the line of sight. The windshield was fitted for all measurements. The monitoring locations AM1 and AM2 were normally set in a free field situation.

3.25 In prior of impact noise measurement, the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. The checking was performed before and after the noise measurement. Also, the wind speed was checked with a portable wind speed meter. No fog and rain were encountered during the noise measurement , and the wind speed and gusts were also below 5m/s and 10m/s respectively.

**Water quality of Local Stream Course**

3.26 The equipment for water monitoring is summarized in ***Table 3-7*** and the specifications were submitted before the EM&A programme commencement**.**

**Table 3-7 Water Quality Monitoring Equipment**

| Equipment | Model / Description |
|---|---|
| Water Sampler | Teflon bailer / bucket |
| Thermometer & DO meter | YSI 550A DO Meter |
| Turbidimeter | Hach 2100p |
| Sample Container | High density polythene bottles (provided by laboratory) |
| Storage Container | 'Willow' 33-litter plastic cool box |

3.27 Water quality monitoring was conducted at mid-depth of the water column.

*Dissolved Oxygen (DO)*

3.28 A portable YSI 550A DO Meter was used for in-situ DO measurement, which automates the measurements of temperature, dissolved oxygen and dissolved oxygen saturation simultaneously. The DO meter is capable of measuring DO in the range of 0 - 20 mg/L and 0 - 200 % saturation. Before each round of monitoring, the dissolved oxygen probe is calibrated by the wet bulb method with distilled water. Calibration of the equipment is performed by ALS on quarterly basis.

*Turbidity*

3.29 A portable Hach 2100p turbidity Meter was used for in-situ turbidity measurement. The turbidity meter is capable of measuring turbidity in the range of 0 – 1000 NTU. Calibration of the equipment is performed by ALS on quarterly basis.

*Suspended Solids (SS)*

3.30 SS will be determined by ALS upon receipt of the water samples using HOKLAS accredited analytical methods namely ALS Method EA-025.

*Water Sampler*

3.31 Water samples were collected by the ET using a plastic sampler, which has a volume of not less than 2 litres and can be sealed at both ends with cups to prevent metal contamination. The sampler was rinsed before collection with the sample to be taken. The water sample was collected at mid-depth level at the selected monitoring location for SS determination.

*Sample Container*

3.32 Water sample was contained in screw-cap PE (Poly-Ethylene) sampling bottle (1,000ml) to be provided by HOKLAS accredited laboratory ALS. Where appropriate, the sampling bottle was rinsed with the water to be contained in prior. Water sample was then transferred from the sampler to the sample bottles to 95% bottle capacity to allow possible volume expansion during delivery and storage.

*Sample Storage*

3.33 A 'Willow' 33-litter plastic cool box packed with ice was used to preserve the collected water samples prior to arrival at the laboratory. The water temperature of the cool box was maintained at a temperature as close to 4℃ as possible without being frozen. Samples were delivered to laboratory within 24 hours and analyzed within 2 days of delivery or within the holding time as advised by the laboratory.

**EQUIPMENT CALIBRATION**

3.34 Calibration of the HVS was 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.

3.35 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.

3.36 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.

3.37 All updated calibration certificates of the monitoring equipment used for the impact monitoring program in this Reporting Month are attached in ***Appendix E***.

**METEOROLOGICAL INFORMATION**

3.38 The meteorological information in this reporting month was downloaded from Lau Fau Shan Station of the Hong Kong Observatory (HKO) and presented in ***Appendix F***.

**DATA MANAGEMENT AND DATA QA/QC CONTROL**

3.39 The impact monitoring data are handled by the ET's systematic data recording and management, which complies with in-house Quality Management System. Standard Field Data Sheets (FDS) are used in the impact monitoring program.

3.40 The monitoring data recorded in the equipment e.g. 1-hour TSP meters and noise meters are downloaded directly from the equipment 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 or water quality in-situ measurement records are input directly into the computerized database and QA/QC checked by personnel other than those who input the data.

3.41 For monitoring activities that 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

3.42 According to the EM&A Manual, the air quality, construction noise and water quality criteria were set up, namely Action and Limit levels are listed in ***Tables 3-8, 3-9*** and ***3-10*** as below:-

**Table 3-8 Action and Limit Levels for Air Quality Monitoring**

| Monitoring Location | Action Level (μg /m$^3$) | | Limit Level (μg /m$^3$) | |
|---|---|---|---|---|
| | 1-hour | 24-hour | 1-hour | 24-hour |
| AM1 | 305 | 162 | > 500 | > 260 |
| AM2 | 310 | 190 | > 500 | > 260 |

**Table 3-9 Action and Limit Levels for Construction Noise**

| Monitoring Location | Action Level | Limit Level in dB(A) |
|---|---|---|
| | 0700-1900 hrs on normal weekdays | |
| NM1 | When one or more documented complaints are received | 70 dB(A) of Leq(30min) during normal hours from 0700 to 1900 hours on normal weekdays, reduced to 65 dB(A) during school examination periods |
| NM2 | | 70 dB(A) of Leq(30min) during normal hours from 0700 to 1900 hours on normal weekdays |

*Note: * Reduces to 65 dB(A) during the school examination periods.*

**Table 3-10 Action and Limit Levels for a Local Stream Water Quality Monitoring (R1b)**

| Parameter | Action Level | Limit Level |
|---|---|---|
| DO (mg/L) | 4.6 | 4 mg/L or 40% saturation at 15$^o$C |
| Turbidity (NTU) | 15.6 | 16.2 |
| SS (mg/L) | 31.5 | 31.9 |

3.43 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan enclosed in ***Appendix G***.

# 4. IMPACT MONITORING RESULTS

4.01 The monitoring activities undertaken in this reporting month is listed in ***Appendix H***. The monitoring results are presented in the following sub-sections.

## RESULTS OF AIR QUALITY MONITORING

4.02 In this reporting period, a total of **12** events of 24-hour TSP monitoring and **30** events of 1-hour TSP monitoring were undertaken and the results are summarized in ***Tables 4-1 and 4-2***. The 24-hour TSP raw data sheets are shown in ***Appendix I***. Also, the graphical plots for the 24-hour and 1-hour TSP monitoring result are shown in ***Appendix J***.

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

| Date | 24-hour TSP (μg/m³) | 1-hour TSP (μg/m³) | | | | |
|---|---|---|---|---|---|---|
| | | Date | Start Time | 1st hour measured | 2nd hour measured | 3rd hour measured |
| 2-Aug-11 | 19 | 4-Aug-11 | 09:39 | 81 | 93 | 82 |
| 8-Aug-11 | 19 | 10-Aug-11 | 09:46 | 76 | 62 | 73 |
| 13-Aug-11 | 25 | 16-Aug-11 | 09:16 | 71 | 91 | 84 |
| 19-Aug-11 | 20 | 22-Aug-11 | 09:19 | 71 | 76 | 81 |
| 25-Aug-11 | 52 | 27-Aug-11 | 09:18 | 101 | 95 | 80 |
| 31-Aug-11 | 50 | | | | | |
| Average (Range) | **31 (19-52)** | Average (Range) | | **81 (62-101)** | | |

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

| Date | 24-hour TSP (μg/m³) | 1-hour TSP (μg/m³) | | | | |
|---|---|---|---|---|---|---|
| | | Date | Start Time | 1st hour measured | 2nd hour measured | 3rd hour measured |
| 2-Aug-11 | 14 | 4-Aug-11 | 10:01 | 103 | 98 | 95 |
| 8-Aug-11 | 17 | 10-Aug-11 | 10:01 | 82 | 75 | 81 |
| 13-Aug-11 | 23 | 16-Aug-11 | 10:01 | 96 | 102 | 105 |
| 19-Aug-11 | 81 | 22-Aug-11 | 09:46 | 90 | 85 | 82 |
| 25-Aug-11 | 38 | 27-Aug-11 | 09:36 | 95 | 89 | 93 |
| 31-Aug-11 | 34 | | | | | |
| Average (Range) | **35 (14 – 81)** | Average (Range) | | **91 (75-105)** | | |

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

4.04 The meteorological data during the impact monitoring days are summarized in ***Appendix F***.

## RESULTS OF CONSTRUCTION NOISE MONITORING

4.05 The noise monitoring results conducted at the designated locations are summarized in ***Tables 4-3*** and ***4-4***. The sound level were set up in a free field situation and, therefore, a façade correction of +3 dB(A) was added according to acoustical principles and EPD guidelines.

**Table 4-3 Summary of Construction Noise Monitoring Results – NM1**

| Date | Start Time | 1st $Leq_{5min}$ | 2nd $Leq_{5min}$ | 3rd $Leq_{5min}$ | 4th $Leq_{5min}$ | 5th $Leq_{5min}$ | 6th $Leq_{5min}$ | $Leq_{30min}$ | Corrected* $Leq_{30min}$ |
|---|---|---|---|---|---|---|---|---|---|
| 4-Aug-11 | 09:53 | 61.6 | 60.2 | 61.3 | 61.8 | 59.4 | 59.8 | 60.8 | 63.8 |
| 10-Aug-11 | 09:48 | 61.8 | 62.2 | 59.4 | 61.7 | 60.4 | 60.8 | 61.2 | 64.2 |
| 16-Aug-11 | 10:31 | 61.8 | 60.2 | 60.1 | 63.3 | 62.4 | 65.2 | 62.5 | 65.5 |
| 22-Aug-11 | 09:56 | 60.2 | 63.3 | 61.8 | 61.8 | 60.7 | 56.4 | 61.2 | 64.2 |
| 27-Aug-11 | 09:51 | 60.8 | 62.7 | 61.2 | 61.7 | 60.6 | 59.3 | 61.2 | 64.2 |
| **Limit Level** | | - | | | | | | **> 70 dB(A)** | |

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

**Table 4-4 Summary of Construction Noise Monitoring Results – NM2**

| Date | Start Time | 1st $Leq_{5min}$ | 2nd $Leq_{5min}$ | 3rd $Leq_{5min}$ | 4th $Leq_{5min}$ | 5th $Leq_{5min}$ | 6th $Leq_{5min}$ | $Leq_{30min}$ | Corrected* $Leq_{30min}$ |
|---|---|---|---|---|---|---|---|---|---|
| 4-Aug-11 | 10:56 | 66.3 | 64.2 | 60.8 | 66.6 | 63.2 | 64.3 | 64.6 | 67.6 |
| 10-Aug-11 | 10:45 | 64.3 | 62.6 | 61.7 | 63.3 | 64.6 | 65.4 | 63.8 | 66.8 |
| 16-Aug-11 | 11:26 | 67.2 | 63.4 | 62.6 | 64.5 | 61.7 | 61.2 | 63.9 | 66.9 |
| 22-Aug-11 | 11:01 | 63.2 | 61.7 | 62.6 | 61.4 | 63.8 | 62.6 | 62.6 | 65.6 |
| 27-Aug-11 | 10:39 | 62.6 | 63.4 | 65.2 | 67.3 | 66.6 | 64.1 | 65.2 | 68.2 |
| **Limit Level** | | - | | | | | | **> 70 dB(A)** | |

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

4.06 It was noted that no noise complaint (which is an Action Level exceedance) was received. In view of the results shown in ***Tables 4-3*** and ***4-4,*** No Action/Limit level exceedance was recorded during the reporting month. No corrective action was therefore required. The graphical plot is shown in ***Appendix J***.

**RESULTS OF WATER QUALITY MONITORING – LOCAL STREAM COURSE**

4.07 In this Reporting Month, a total of **13** sampling days were performed for water quality monitoring at R1b of the local stream course, Tin Shui Wai Nullah. The monitoring results including in-situ measurements and laboratory testing results are provided in ***Appendix I***. The graphical plots are shown in ***Appendix J***.

4.08 Monitoring results of 3 key parameters: dissolved oxygen (DO), turbidity and suspended solids (SS) in this Reporting Month, are summarized in ***Table 4-5***.

**Table 4-5 Summaries of Water Quality Results – R1b**

| Sampling date | DO conc. (mg/L) | Turbidity (NTU) | SS (mg/L) |
|---|---|---|---|
| 1-Aug-11 | 6.4 | 11.2 | 7.0 |
| 4-Aug-11 | 7.6 | 11.1 | 16.0 |
| 6-Aug-11 | 7.5 | 8.4 | 19.0 |
| 8-Aug-11 | 8.3 | 10.2 | 17.0 |
| 10-Aug-11 | 9.0 | 12.3 | 25.0 |
| 13-Aug-11 | 7.5 | 7.6 | 6.0 |
| 16-Aug-11 | 6.3 | 12.8 | 17.0 |
| 18-Aug-11 | 7.6 | 10.9 | 26.0 |
| 20-Aug-11 | 5.0 | 11.6 | 17.0 |
| 22-Aug-11 | 4.6 | 10.5 | 17.0 |
| 24-Aug-11 | 4.8 | 10.6 | 17.0 |
| 27-Aug-11 | 5.4 | 10.6 | 17.0 |
| 29-Aug-11 | 7.4 | 12.0 | 17.0 |
| 31-Aug-11 | 8.3 | 12.9 | 15.0 |

4.09 In Reporting Period, no exceedance was recorded at water samples collected from location "R1b". No NOE was issued to relevant parties upon confirmation of the results. No corrective action was therefore required.

4.10 During the Reporting Period, field measurements showed that water temperature and pH value of the local stream are within 29.1℃ to 32.9℃, and 7.3 to 9.3 respectively. Although highest value 9.3 of pH is recorded on 20 August 2011, other measurement time is below 9.

**RESULTS OF LANDSCAPE AND VISUAL IMPACT**

4.11 The landscape and visual impacts monitoring results and findings will be submitted separately as a stand-alone document.

# 5. WASTE MANAGEMENT

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

## RECORDS OF WASTE QUANTITIES

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

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

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

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

| Type of Waste | Quantity | Disposal Location |
|---|---|---|
| C&D Materials (Inert) ($m^3$) | 0 | - |
| Reused in this Contract (Inert) ($m^3$) | 0 | - |
| Reused in other Projects (Inert) ($m^3$) | 0 | - |
| Disposal as Public Fill (Inert) ($m^3$) | 754 | Tuen Mun Area 38 |

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

| Type of Waste | Quantity | Disposal Location |
|---|---|---|
| Recycled Metal (kg) | 0 | - |
| Recycled Paper / Cardboard Packing (kg) | 0 | - |
| Recycled Plastic (kg) | 0 | - |
| Chemical Wastes (kg) | 0 | - |
| General Refuses ($m^3$) | 2 | NENT |

5.04 There was no site effluent or surface runoff discharged in this monthly period.

5.05 To control over the site performance on waste management, the Contractor shall ensure that all solid and liquid waste management works are in full compliance with the relevant license/permit requirements, such as the effluent discharge licence and the chemical waste producer registration. The Contractor is also reminded to implement the recommended environmental mitigation measures according to the EM&A Manual based on actual site conditions.

## 6. SITE INSPECTIONS

6.01 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 ET joined with the Contractor and ER to confirm the environmental performance. During this Reporting Period, the joint site inspection was undertaken on **2, 9, 16, 23 and 30 August 2011** to evaluate the site environmental performance. No non-compliance was noted.

6.02 Observations for the site inspections and monthly audit found at Ha Tsuen Pumping Station within this Reporting Period are summarized in ***Table 6-1*** and inspection checklists are attached in ***Appendix L***.

**Table 6-1 Site Observations in the Reporting Month**

| Date | Findings / Deficiencies | Follow-Up |
|---|---|---|
| 2 August 2011 | • Wheel washing facility was observed at entrance of Ha Tsuen Pumping Station. Proper wheel washing is reminded prior to exit of construction vehicles.<br>• Overgrown grass was observed along the site. Regular cutting is reminded as mosquito control measures. | Not required for reminders |
| 9 August 2011 | • Rain water was observed accumulated within the site, in particular on excavated site. Pre-treatment of the ponding water prior to discharge to water bodies is reminded.<br>• Overgrown grass was observed along the site. Regular cutting is reminded as mosquito control measures | Not required for reminders |
| 16 August 2011 | • Ha Tsuen Pumping Station: Groundwater was pumped to a sedimentation facility prior to treatment. Regular clearing of the accumulated sediment is reminded. | Not required for reminders |
| 23 August 2011 | • Pumping of groundwater ponding was observed along the site. Treatment of the groundwater prior to discharge is reminded.<br>• Ponding water was observed along the site. Mosquito control measures is reminded. | Not required for reminders |
| 30 August 2011 | • Ponding water was observed at Ha Tsuen Pumping Station. Mosquito control measures is reminded. | Not required for reminders |

# 7. ENVIRONMENTAL COMPLAINTS AND NON-COMPLIANCE

## ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

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

**Table 7-1 Statistical Summary of Environmental Complaints**

| Reporting Period | Environmental Complaint Statistics | | |
|---|---|---|---|
| | Frequency | Cumulative | Complaint Nature |
| Feb – Dec 2010 | 3 | 3 | Air(2)/Noise(1) |
| 01 Jan – 31 Mar 2011 | 0 | 3 | NA |
| 01 Apr – 30 June 2011 | 0 | 3 | NA |
| 01 July – 31 July 2011 | 0 | 3 | NA |
| 01 Aug – 31 Aug 2011 | 0 | 3 | NA |

**Table 7-2 Statistical Summary of Environmental Summons**

| Reporting Period | Environmental Complaint Statistics | | |
|---|---|---|---|
| | Frequency | Cumulative | Complaint Nature |
| Feb – Dec 2010 | 0 | 0 | NA |
| 01 Jan – 31 Mar 2011 | 0 | 0 | NA |
| 01 Apr – 30 June 2011 | 0 | 0 | NA |
| 01 July – 31 July 2011 | 0 | 0 | NA |
| 01 Aug – 31 Aug 2011 | 0 | 0 | NA |

**Table 7-3 Statistical Summary of Environmental Prosecution**

| Reporting Period | Environmental Complaint Statistics | | |
|---|---|---|---|
| | Frequency | Cumulative | Complaint Nature |
| Feb – Dec 2010 | 0 | 0 | NA |
| 01 Jan – 31 Mar 2011 | 0 | 0 | NA |
| 01 Apr – 30 June 2011 | 0 | 0 | NA |
| 01 July – 31 July 2011 | 0 | 0 | NA |
| 01 Aug – 31 Aug 2011 | 0 | 0 | NA |

## 8. IMPLEMENTATION STATUS OF MITIGATION MEASURES

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

**Dust Mitigation Measure**

(a) The contractor shall frequently clean and water the site to minimize fugitive dust emissions.
(b) Effective water sprays shall be used during the delivery ad handling of aggregate, and other similar materials, when dust is likely to be created and to dampen all sited material during dry and windy weather.
(c) Watering of exposed surfaces shall be exercised as often as possible depending on the circumstance.
(d) Areas within the site where there is regular movement of vehicles must be regularly watered as often as necessary for effective suppression of dust or as often as directed by the Engineer.
(e) Where dusty materials are being discharged to vehicle from a conveying system at a fixed transfer point, a three-sided roofed enclosure with a flexible curtain across the entry shall be provided. Exhausted fans shall be provided for this enclosure and vented to a suitable fabric filer system.
(f) The Contractor shall restrict all motorized vehicles within the site, excluding those on public roads, to a maximum speed of 5km per hour and confine haulage and delivery vehicles to designated roadways inside the site.
(g) Wheel washing facilities shall be installed and used by all vehicles leaving the site. No earth, mud, debris, dust and the like shall be deposited on public roads, water in wheel cleaning facility shall be changed at frequent intervals and sediments shall be removed regularly. The Contractor shall submit detailed proposals for the wheel cleaning facilities to the Engineer prior to construction of the facility. Such wheel washing facilities shall be usable prior to any earthworks excavating activity in the site.
(h) Any material dropped in the roads will need to be cleaned up immediately to prevent dust nuisance.

**Noise Mitigation Measure**

(a) During construction of the Project, temporary noise barriers should be used in order to reduce the noise impacts emanating from the construction sites on nearby Noise Sensitive Receivers (NSRs). The location of the temporary noise barriers should be along the site boundary of the expanded portion of Ha Tsuen Pumping Station.
(b) Noisy equipment and activities should be sited by the Contractor as far from close-proximity sensitive receivers as practical. Prolonged operation of noisy equipment close to dwellings and schools should be avoided.
(c) The Contractor should minimize construction noise exposure to the schools. Especially during examination periods, the Contractor should not carry out any construction activities. Activities shall be restricted to transit movements by construction vehicles during this period.
(d) Noisy plant or processes should be replaced by quieter alternatives where possible. Silenced diesel and gasoline generators and power units, as well as silenced and super-silenced air compressors should be used.
(e) Noisy activities should be scheduled to minimize exposure of nearby sensitive receivers to high levels of construction noise. For example, noisy activities can be scheduled for midday, or at times coinciding with periods of high background noise (such as during peak traffic hours).
(f) Idle equipment should be turned off or throttled down. Noisy equipment should be properly maintained and used no more often than is necessary.
(g) The power units of non-electric stationary plant and earth-moving plant should be quietened by vibration isolation and partial or full acoustic enclosures for individual noise-generating components.

(h) Construction activities should be planned so that parallel operation of several sets of equipment close to a given receiver is avoided, thus reducing the cumulative impacts between operations. The numbers of operating items of powered mechanical equipment should be minimized.

(i) Construction plant should be properly maintained (well-greased, damage and worn parts promptly replaced) and operated. Construction equipment often has silencing measures built in or added on, e.g. bulldozer silencers, compressor panels, and mufflers. Silencing measures should be properly maintained and utilized. Where possible, rubber or damping materials should be introduced between metal panels to avoid rattle and reverberation of noise.

(j) Equipment known to emit sound strongly in one direction, should where possible, be oriented so that the noise is directed away from nearby NSRs.

(k) Material stockpiles and other structures (such as site offices) should be effectively utilized, where practicable, to screen noise from on-site construction activities.

(l) The Contractor should devise, arrange methods of working and carry out the works in such manner as to minimize noise impacts on the surrounding environment, and should provide experienced personnel with suitable training to ensure that these measures are implemented properly.

**Water Quality Mitigation Measures**

(a) Exposed stockpiles should be covered with tarpaulin or impervious sheets before a rainstorm occurs;

(b) The exposed soil surfaces should also be properly protected to minimise dust emission;

(c) The stockpiles of materials should be placed in the locations away from the drainage channel so as to avoid releasing materials into the channel;

(d) Wheel washing facilities should be provided at site exits to ensure that earth, mud and debris would not be carried out of the works areas by vehicles;

(e) Provision of site drainage systems and treatment facilities would be required to minimize the water pollution;

(f) A discharge licence needs to be applied from EPD for discharging effluent from the construction site;

(g) The treated effluent quality is required to meet the requirements specified in the discharge licence;

(h) Provision of chemical toilets is required to collect sewage from workforce. The chemical toilets should be cleaned on a regular basis;

(i) Wastewater generated from kitchens should be discharged to public foul sewers or collected in a temporary storage tank if connection to public foul sewers is not feasible;

(j) A licensed waste collector should be employed to clean the chemical toilets and temporary storage tank on a regular basis;

(k) Illegal disposal of chemicals should be strictly prohibited;

(l) Registration as a chemical waste producer is required if chemical wastes are generated and need to be disposed of. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes;

(m) Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance should be used as a guideline for handing chemical wastes; and

(n) The impact from accidental spillage of chemicals can be effectively controlled through good management practices.

**Waste Mitigation Measures**

(a) 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;

(b) 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 workforce;
(c) Any unused chemicals or those with remaining functional capacity should be recycled;
(d) Prior to disposal of C&D waste, it is recommended that wood, steel and other metals be separated for re-use and/or recycling and inert waste utilised as fill material to minimise the quantity of waste to be disposed of to landfill;
(e) Proper storage and site practices to minimise the potential for damage or contamination of construction materials; and
(f) Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.

Landscape and Visual Mitigation Measures

(a) Prior to construction work the detailed tree survey should have been completed and, if appropriate, trees to be transplanted moved to their final positions.
(b) The transplants and existing trees to be retained should be properly protected from damage by stout hoarding positioned as directed by a qualified Landscape Architect.
(c) Hoarding will help screen the construction work from the view of passers by.
(d) Typically a minimum of 4 months should be allowed prior to construction to prepare trees for transplanting.
(e) During construction regular inspections of the retained and transplanted trees should be made to ensure the effectiveness of the hoarding.
(f) Any topsoil excavated in the course of the works shall be stored and protected on site for reuse for restoration and screen planting works.

8.02 The Contractor had been implementing the required environmental mitigation measures according to the Environmental Monitoring and Audit Manual subject to the site condition. Environmental mitigation measures generally implemented by the Contractor in this Reporting Period are summarized in ***Table 8-1***.

**Table 8-1 Environmental Mitigation Measures**

| Issues | Environmental Mitigation Measures |
|---|---|
| Water Quality | • Wastewater were appropriately treated by treatment facilities;<br>• Drainage channels were provided to convey run-off into the treatment facilities;<br>• Drainage systems were regularly and adequately maintained.<br>• De-silting facility was provided to treat the discharged water; also the treated water is reused for spraying the road surface;<br>• Exposed stockpiles and exposed soil surfaces were covered with tarpaulin or impervious sheets to minimise dust emission;<br>• The stockpiles of materials were placed in the locations away from the drainage channel so as to avoid releasing materials into the channel;<br>• Wheel washing facilities should has been provided at site exits to ensure that earth, mud and debris would not be carried out of the works areas by vehicles;<br>• Provision of site drainage systems and treatment facilities would be required to minimize the water pollution;<br>• A discharge licence was applied from EPD for discharging effluent from the construction site;<br>• A licensed waste collector have been applied from EPD;<br>• Illegal disposal of chemicals should be strictly prohibited; and<br>• Registration as a chemical waste producer have been applied from EPD |

| Issues | Environmental Mitigation Measures |
|---|---|
| Air Quality | • Regular watering to reduce dust emissions from all exposed site surface, particularly during dry weather;<br>• Frequent watering for particularly dusty construction areas and areas close to air sensitive receivers;<br>• Cover all excavated or stockpile of dusty material by impervious sheeting or sprayed with water to maintain the entire surface wet;<br>• Public roads around the site entrance/exit had been kept clean and free from dust;<br>• Tarpaulin covering of any dusty materials on a vehicle leaving the site;<br>• Water sprinkler system is provided at haul road to reduce dust emissions during the vehicles passing through the haul road'<br>• The vehicle speed within the site is limited to 5km/hr;<br>• Wheel washing facilities have been provided at the site exit |
| Noise | • Good site practices to limit noise emissions at the sources;<br>• Use of quite plant and working methods according to EP-329/2009;<br>• Use of site hoarding with noise barriers to screen noise at ground level of NSRs;<br>• Use of shrouds/temporary noise barriers to screen noise from relatively static PMEs according to EP-329/2009;<br>• Use of temporary noise barrier with surface density 7kg/$m^2$ to be assumed that the noise reduction is 10 dB(A) for stable plants and 5dB(A) for movable plant in accordance with approved EIA Report Appendix 4A Table 4A3.2;<br>• Idle equipment are turned off or throttled down;<br>• No construction works shall be undertaken during school examination period in the Ha Tsuen Pumping Station according to EP-329/2009; and<br>• Alternative use of plant items within one worksite, where practicable. |
| Waste and Chemical Management | • 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;<br>• Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner;<br>• 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<br>• Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.<br>• 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;<br>• 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 workforce;<br>• Any unused chemicals or those with remaining functional capacity should be recycled;<br>• Prior to disposal of C&D waste, it is recommended that wood, steel and other metals be separated for re-use and/or recycling and inert waste utilised as fill material to minimise the quantity of waste to be disposed of to landfill;<br>• Proper storage and site practices to minimise the potential for damage or contamination of construction materials; and<br>• Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. |
| Landscape and Visual | The landscape and visual impacts monitoring results and findings will be submitted in the stand-alone document. |
| General | • The site was generally kept tidy and clean. |

# 9. IMPACT FORCAST

## KEY ISSUES FOR THE COMING MONTH

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

- Implementation of dust suppression measures at all times;
- Potential wastewater quality impact due to surface runoff;
- Potential fugitive dust quality impact due from the dry/loose/exposure soil surface/dusty material;
- Disposal of empty engine oil containers within site area;
- Ensure dust suppression measures are implemented properly;
- Sediment catch-pits and silt removal facilities should be regularly maintained;
- Management of chemical wastes;
- Discharge of site effluent to the nearby nullah or storm drainage, stockpiling or disposal of materials, and any dredging or construction area at this area are prohibited;
- Follow-up of improvement on general waste management issues; and
- Implementation of construction noise preventative control measures.

# 10. CONCLUSIONS AND RECOMMENTATIONS

## CONCLUSIONS

10.01 This is the **19th** monthly EM&A report, covering the construction period from **1** to **31 August 2011** (the Reporting Period).

10.02 No 1-hour TSP and 24-hour monitoring results that triggered the Action or Limit Level was recorded in this Reporting Period.

10.03 No noise complaint (which is an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in this Reporting Period.

10.04 No Action/Limit Level exceedance was recorded for in Suspended Solids for the water quality monitoring during Reporting Period. The field measurements showed that water temperature and pH value of the local stream are within 29.1℃ to 32.9℃, and 7.3 to 9.3 respectively. Although highest value 9.3 of pH is recorded on 20 August 2011, other measurement time is below 9.

10.05 Due to no exceedance was found in the reporting period, no NOE or the associated corrective actions were therefore issued.

10.06 No documented complaint, notification of summons or successful prosecution was received.

10.07 The ET had carried out a site inspection on **2, 9, 16, 23 and 30 August 2011**. No non-compliance was observed during the inspections. In general, it was reminded that good housekeeping practice should be maintained; C&D waste or general refuse should be regularly disposed; beside, the accumulation of stagnant water should be removed to or applied larvidical oil to prevent mosquitoes breeding during wet season. The environmental performance of the Project was therefore considered satisfactory.

10.08 The landscape and visual impacts monitoring results and findings will be submitted separately as a stand-alone document. The Contractor is reminded that the landscape and visual impacts site audit shall be carried out by a competent landscape architect, as a member of ET to implement the EM&A programme.

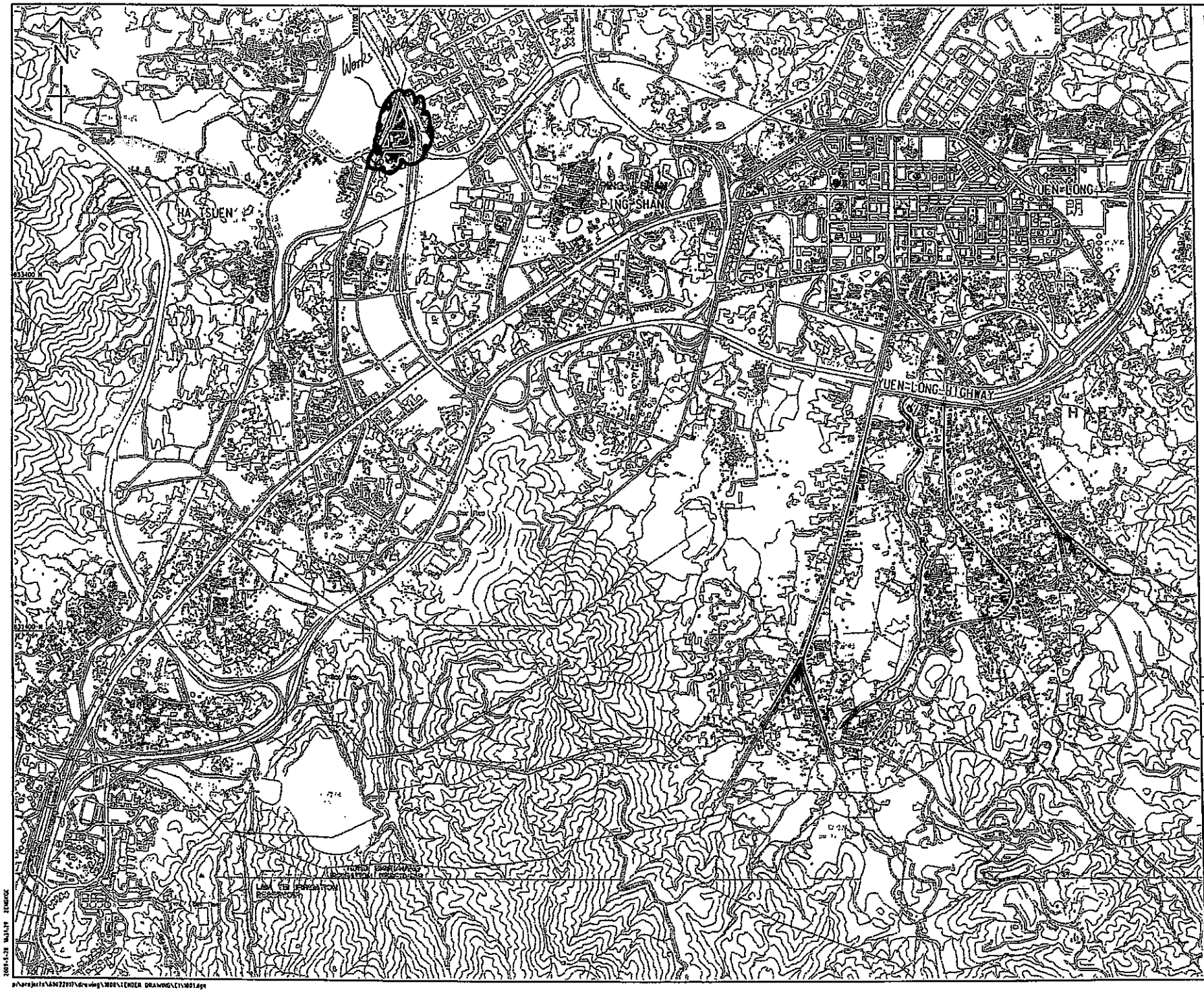
## RECOMMENDATIONS

10.09 During wet season, muddy water or other water pollutants from site surface runoff into the local stream will be key environment issue. Therefore, water mitigation measures to prevent surface runoff into nearby water bodies should be paid on special attention. Moreover, mitigation measures to avoid dust emission from the construction site should be properly paid attention as recommended in the EIA and summarized in Mitigation Measure Implementation Schedule; and also with construction noise and other environmental issues stipulated in the Environmental Monitoring and Audit Manual.

10.10 To control the site performance on waste management, the Contractor shall ensure that all solid and liquid waste management works are fully in compliance with the relevant license/permit requirements, such as the effluent discharge license and the chemical waste producer registration.

# Appendix A

# Site Layout Plan




| | | | |
|---|---|---|---|
| - | TENDER DRAWING | DSD/ACTS | 05.09 |

DRAINAGE SERVICES DEPARTMENT,
THE GOVERNMENT OF THE HONG KONG
SPECIAL ADMINISTRATIVE REGION

YUEN LONG AND KAM TIN SEWERAGE AND SEWAGE DISPOSAL - CONSTRUCTION OF YUEN LONG SOUTH BRANCH SEWERS AND EXPANSION OF HA TSUEN SEWAGE PUMPING STATION

# LOCATION PLAN

AECOM

DRG NO. 60022017/C1/1001

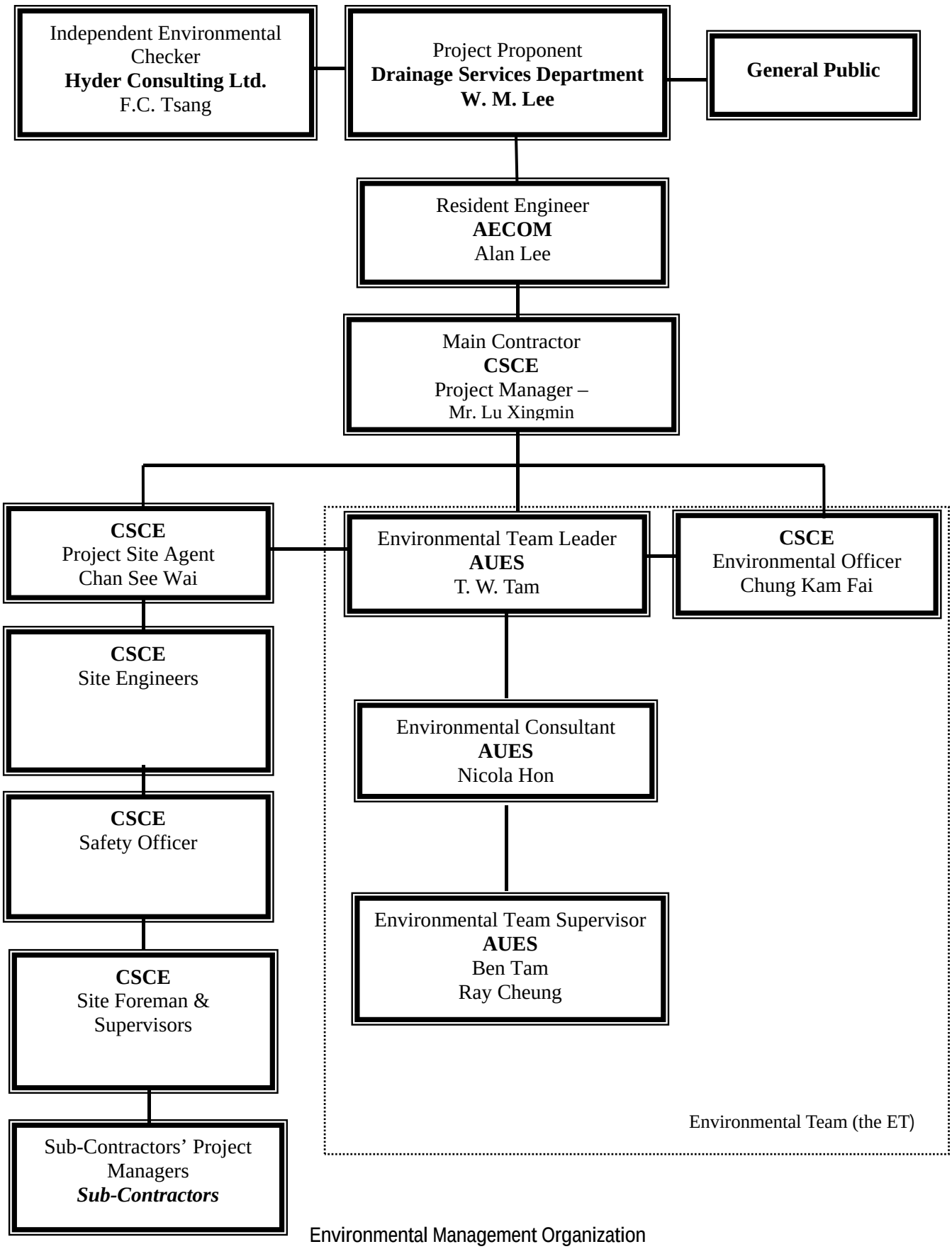
CONTRACT NO. DC/2009/08

SCALE AT A1 1 : 10000

METRES

# Appendix B

# On-site environmental management




Environmental Management Organization

## Contact Details of Key Personnel

| Organization | Project Role | Name of Key Staff | Tel No. | Fax No. |
|---|---|---|---|---|
| DSD | Employer | Mr. W. M. Lee | -- | 2827-8700 |
| AECOM | Engineer's Representative | Mr. Alan Lee | 9706 9568 | 2472 0132 |
| Hyder | Independent Environmental Checker | Dr. F C Tsang | 2911 2730 | 2805 5028 |
| CSCE | Project Manager | Mr. Lu Xingmin | 2472 0113 | 2472-0229 |
| CSCE | Site Agent | Mr. Chan See Wai | 2472 0113 | 2472-0229 |
| CSCE | Site Engineer | Mr. Poon Kwong Keung | 2472 0113 | 2472-0229 |
| CSCE | Environmental Officer | Chung Kam Fai | 2472 0113 | 2472-0229 |
| CSCE | Safety Officer | Mr. Ng Ka Po | 2472 0113 | 2472-0229 |
| 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*

*AECOM (Engineer) – AECOM*

*CSCE (Main Contractor) – China State Construction Engineering (Hong Kong) Ltd*

*Hyder (IEC) – Hyder Consulting Limited*

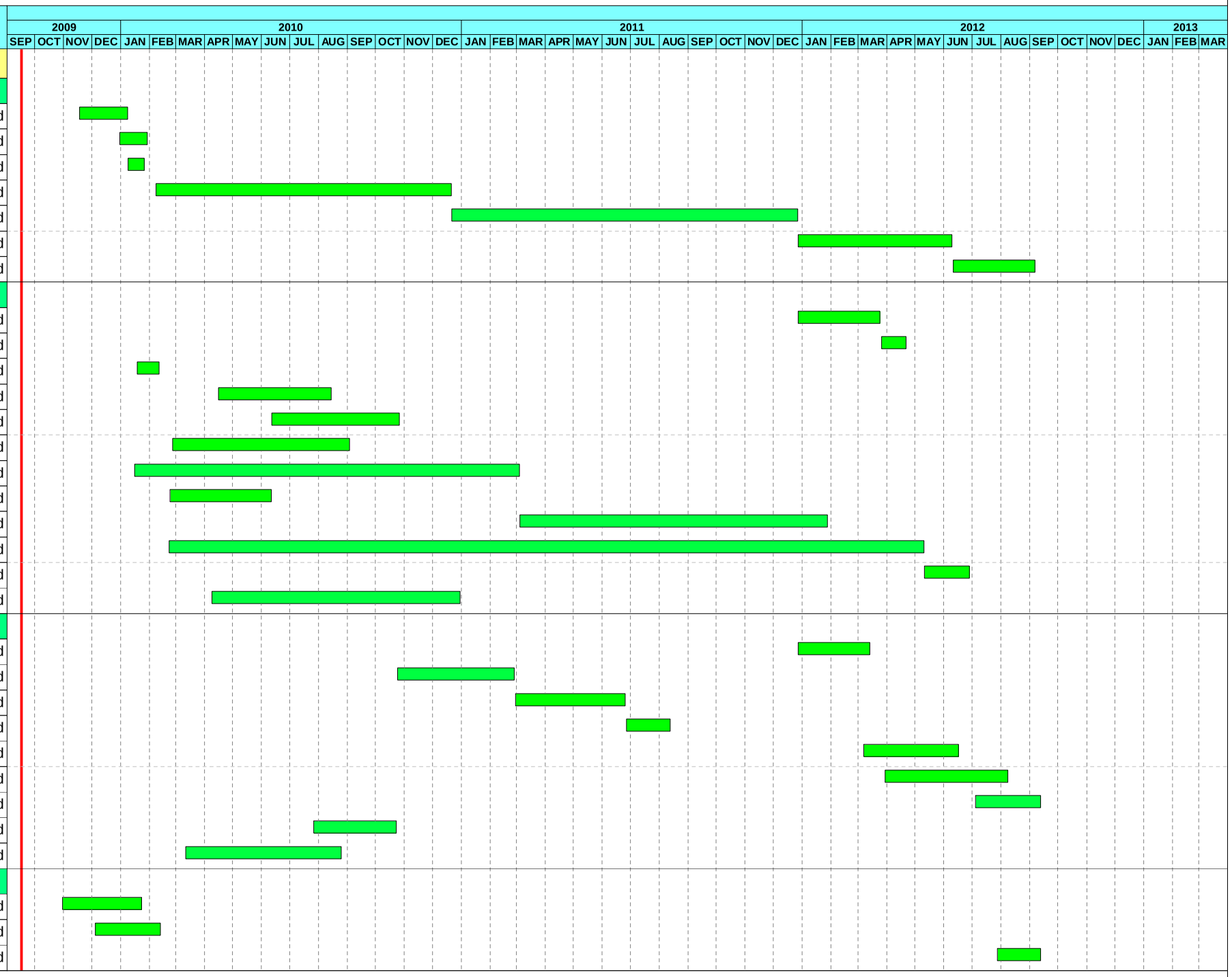
*AUES (ET) – Action-United Environmental Services & Consulting*

# Appendix C

# Master construction program

# Contract No. DC/2009/08
# Construction of Yuen Long South Branch Sewers and Expansion of HTS Pumping Station

| Activity ID | Description | Original Duration | Early Start | Early Finish | Total Float |
|---|---|---|---|---|---|
| **Ha Tsuen Area** | | | | | |
| Pumping Station | | | | | |
| H/200020 | Site investigation and report | 42 | 18NOV09 | 08JAN10 | 67d |
| H/200030 | Install acoustic screen | 25 | 31DEC09 | 29JAN10 | 154d |
| H/200040 | Installation of monitoring point | 15 | 09JAN10 | 26JAN10 | 157d |
| H/200050 | Prebored H-piles | 210 | 08FEB10 | 21DEC10 | 147d |
| H/200070 | Substructure | 252 * | 22DEC10 | 27DEC11 | 147d |
| H/201800 | Superstructure | 84 | 28DEC11 | 09JUN12 | 158d |
| H/202100 | Finishes | 75 | 11JUN12 | 06SEP12 | 158d |
| Rising Main | | | | | |
| H/300010 | Gang B: RM from station to extg valve chamber | 70 | 28DEC11 | 24MAR12 | 192d |
| H/300020 | Testing of RM bet station and extg valve chamber | 20 | 26MAR12 | 21APR12 | 192d |
| H/300200 | Trial pit to locate existing sleeve at nullah | 21 | 19JAN10 | 11FEB10 | 116d |
| H/300210 | Rising Main under existing nullah | 100 | 16APR10 | 14AUG10 | 133d |
| H/300400 | Rising Main bet ch274 to ch298 & washout chamber | 112 | 12JUN10 | 26OCT10 | 4d |
| H/300500 | Rising Main between ch0 to ch89 | 155 | 26FEB10 | 03SEP10 | 116d |
| H/300600 | Pipe jacking between ch385 to ch815 | 330 * | 16JAN10 | 04MAR11 | 96d |
| H/300665 | Pipe jacking between ch298 to ch385 | 88 | 23FEB10 | 11JUN10 | 4d |
| H/300800 | Gang A : RM between ch815 to ch1002 | 264 * | 05MAR11 | 28JAN12 | 96d |
| H/300900 | Gang A : RM between ch1002 to ch1585 | 651 * | 22FEB10 | 10MAY12 | 13d |
| H/301430 | Testing of RM bet ch1787 to extg valve chamber | 40 | 11MAY12 | 28JUN12 | 13d |
| H/302000 | Pipe jacking between ch 1585 to ch1787.2 | 219 * | 09APR10 | 30DEC10 | 359d |
| Road and Drain | | | | | |
| H/400020 | Concrete pipe between extension to FM17 | 60 | 28DEC11 | 13MAR12 | 153d |
| H/400030 | Sewage between FM17 to FM15 and manholes | 100 * | 25OCT10 | 26FEB11 | 169d |
| H/400050 | Concrete pipe between M1 to FM16 | 50 | 28FEB11 | 25JUN11 | 169d |
| H/400090 | Manhole M1 and sewage connection | 40 | 27JUN11 | 12AUG11 | 169d |
| H/400100 | Storm water drain | 36 | 07MAR12 | 16JUN12 | 153d |
| H/400110 | Power supply to pumping station | 60 | 30MAR12 | 08AUG12 | 153d |
| H/400115 | Roadworks | 60 * | 05JUL12 | 12SEP12 | 153d |
| H/400135 | Pipe jacking between FM16 to existing FM7 | 74 * | 27JUL10 | 23OCT10 | 169d |
| H/410010 | Pipe jacking between FM16 to FM15 | 89 * | 12MAR10 | 25AUG10 | 169d |
| Landscaping | | | | | |
| H/600110 | Tree transplant at HTSPS Extension | 70 | 31OCT09 | 23JAN10 | 7d |
| H/600120 | Tree transplant at Ping Ha Road | 70 | 05DEC09 | 12FEB10 | 158d |
| H/600130 | Landscaping finishes at HTSPS | 40 | 28JUL12 | 12SEP12 | 153d |




| | |
|---|---|
| Start date | 17SEP09 |
| Finish date | 02JUL15 |
| Run date | 05FEB10 |
| Project name | WP11 |
| Page number | 1A |
| c Primavera Systems, Inc. | |

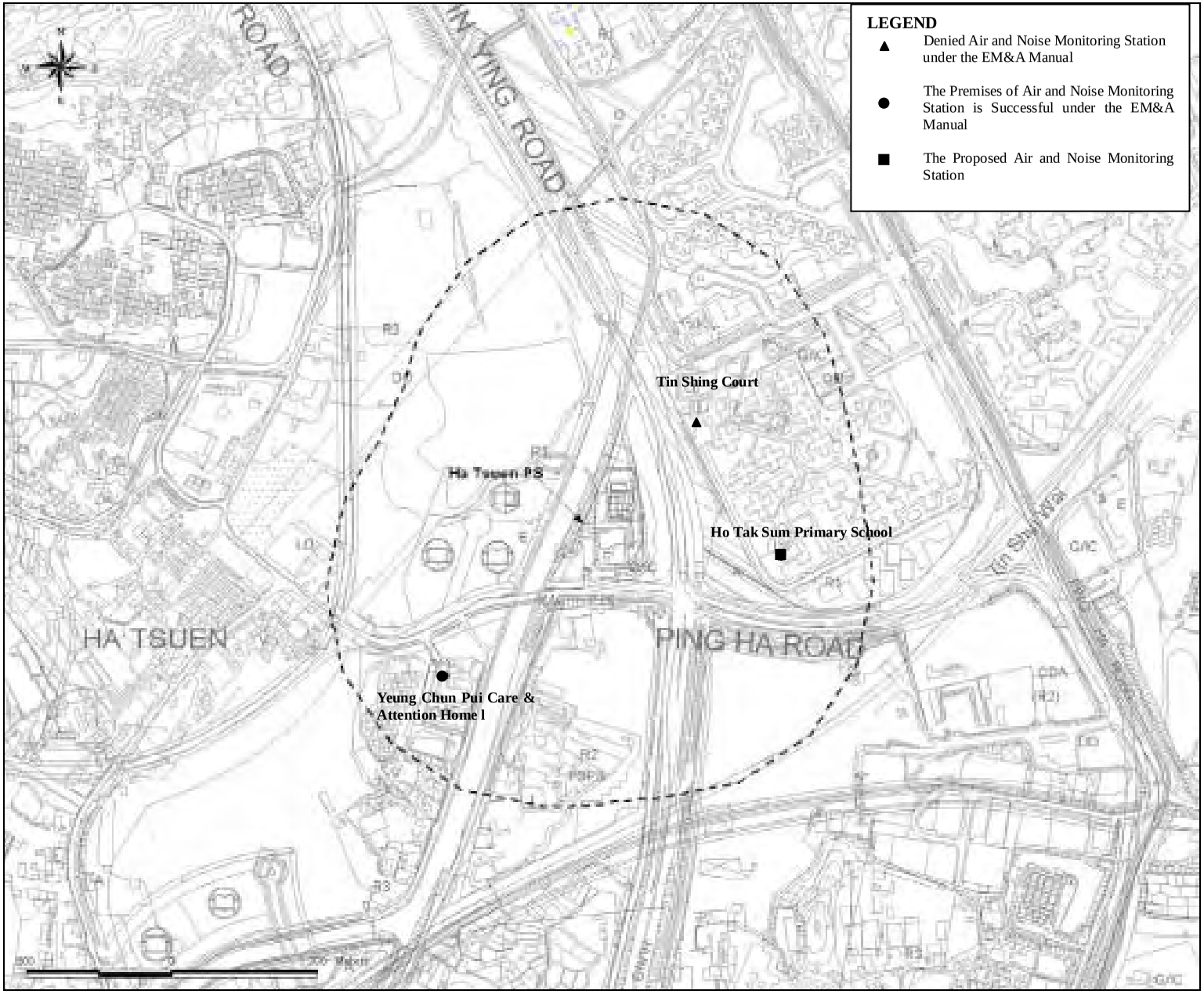
Early bar
Critical bar
Summary bar
Start milestone point
Finish milestone point

**Initial Works Programme - Rev 02 (Ha Tsuen Area)**

中國建築 CHINA STATE CONSTRUCTION

# Appendix D

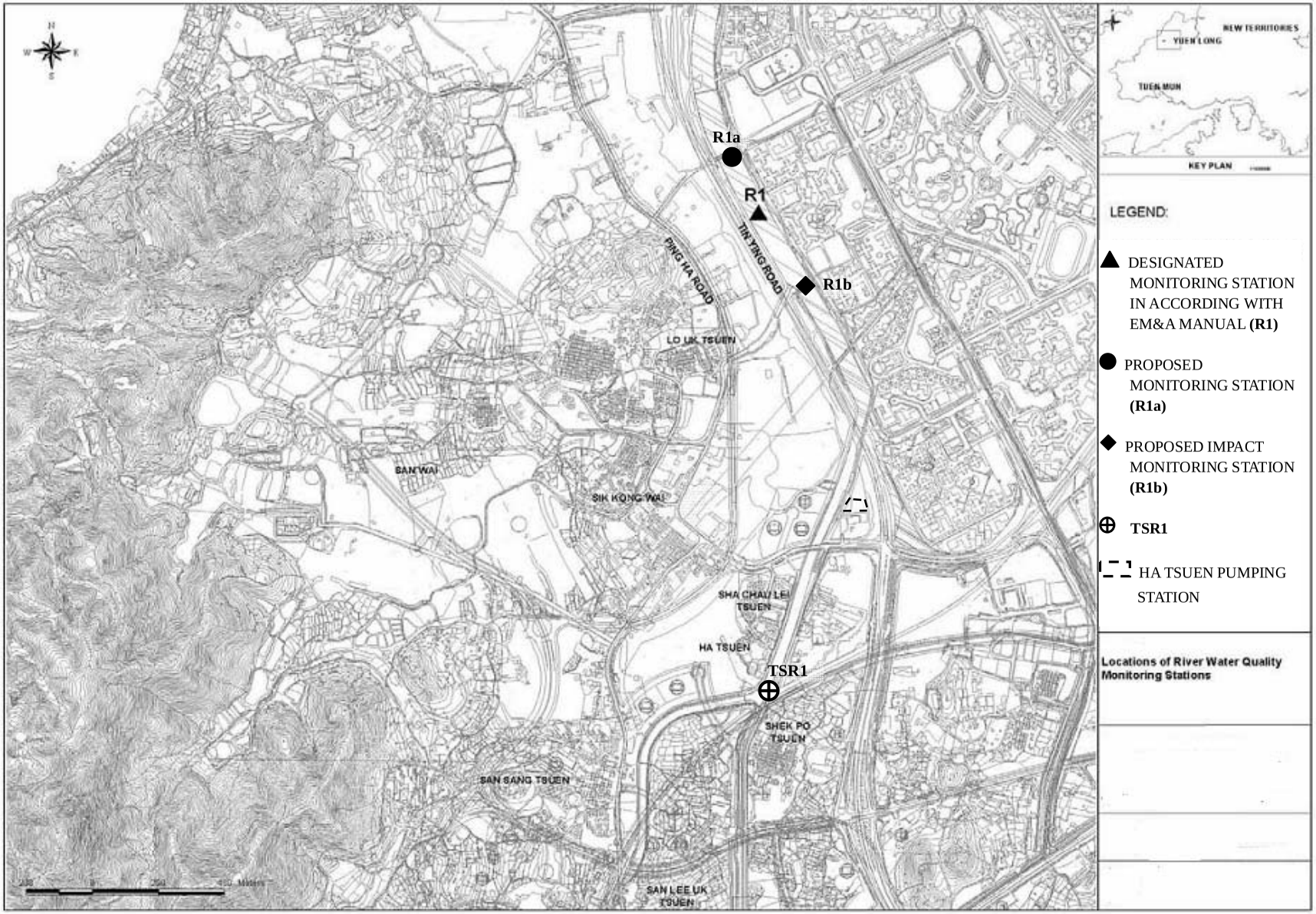
# Monitoring Location of EM&A Programme


LEGEND
Denied Air and Noise Monitoring Station under the EM&A Manual
The Premises of Air and Noise Monitoring Station is Successful under the EM&A Manual
The Proposed Air and Noise Monitoring Station
Tin Shing Court
Ha Tsuen PS
Ho Tak Sum Primary School
Yeung Chun Pui Care & Attention Home I
HA TSUEN
PING HA ROAD
IN YING ROAD

**DSD Contract No. DC/2009/08 – Construction of Yuen Long South Branch Sewers And Extension of Ha Tsuen Sewage Pumping Station**

**Proposed Water Quality Monitoring Location**

**AUES**



# Appendix E

# Calibration certificates

## Equipment Calibration Certificates List

| Items | Aspect | Description of Equipment | Date of Calibration | Date of Next Calibration |
|---|---|---|---|---|
| 1* | Air | Thermo Anderson Model GS2310 TSP high volume air sampling system (AM1 - Yeung Chun Pui Care & Attention Home) | 1 August 11 | 1 October 11 |
| 2* | | Thermo Anderson Model GS2310 TSP high volume air sampling system (AM2 - Ho Tak Sum Primary School) | 1 August 11 | 1 October 11 |
| 3* | | Calibration Kit TISCH Model TE-5025A Orifice ID 1941 and Rootsmeter S/N 0438320 | 2 Jun 11 | 2 Jun 12 |
| 4 | | TSI DustTrak Model 8520 (Serial Number 21060) | 2 Dec 10 | 2 Dec 11 |
| 5 | | TSI DustTrak Model 8520 (Serial Number 23080) | 2 Dec 10 | 2 Dec 11 |
| 6 | Noise | Bruel & Kjaer 4231 Acoustical Calibrator (Serial Number 2713428) | 19 Apr 11 | 19 Apr 12 |
| 7 | | Bruel & Kjaer 2238 Integrating Sound Level Meter (Serial Number 2285721) | 19 Apr 11 | 19 Apr 12 |
| 8 | Water | YSI 55 (Serial No. 97F0837AM) | 18 Jul 11 | 18 Oct 11 |
| 9 | | Extech pH Meter EC500 (Work Order: HK1116556) | 18 Jul 11 | 18 Oct 11 |
| 10 | | Turbidimeter HACH 2100q (Serial No. 1100C008499) | 13 Jun 11 | 13 Sep 11 |

Note: *Calibration certificates will only be provided when monitoring equipment is re-calibrated or new.

TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, 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 Rootsmeter 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) | ORFICE DIFF H2O (in.) |
|---|---|---|---|---|---|---|
| 1 | NA | NA | 1.00 | 1.4660 | 3.3 | 2.00 |
| 2 | NA | NA | 1.00 | 1.0410 | 6.4 | 4.00 |
| 3 | NA | NA | 1.00 | 0.9310 | 8.1 | 5.00 |
| 4 | NA | NA | 1.00 | 0.8830 | 8.9 | 5.50 |
| 5 | NA | NA | 1.00 | 0.7310 | 13.0 | 8.00 |

## DATA TABULATION

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

## CALCULATIONS

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

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

For subsequent flow rate calculations:

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

# TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Locatior Yeung Chun Pui Care & Attention Home
Location ID : AM2

Date of Calibration: 1-Aug-11
Next Calibration Date: 1-Oct-11
Technician: Ben Tam

## CONDITIONS

| | | | |
|---|---|---|---|
| Sea Level Pressure (hPa) | 1005.5 | Corrected Pressure (mm Hg) | 754.125 |
| Temperature (°C) | 29.5 | Temperature (K) | 303 |

## CALIBRATION ORIFICE

| | | | |
|---|---|---|---|
| Model-> | TISCH 5025A | Qstd Slope -> | 2.11693 |
| Rootsmeter S/N-> | 043832 | Qstd Intercept -> | -0.02568 |
| Calibration Date-> | 2-Jun-11 | Expiry Date-> | 2-Jun-12 |

## CALIBRATION

| Plate No. | H20 (L) (in) | H2O (R) (in) | H20 (in) | Qstd (m3/min) | I (chart) | IC corrected |
|---|---|---|---|---|---|---|
| 18 | 4.5 | 4.5 | 9.0 | 1.413 | 51 | 50.05 |
| 13 | 3.6 | 3.6 | 7.2 | 1.265 | 44 | 43.18 |
| 10 | 2.6 | 2.6 | 5.2 | 1.077 | 37 | 36.31 |
| 7 | 1.9 | 1.9 | 3.8 | 0.923 | 28 | 27.48 |
| 5 | 1.1 | 1.1 | 2.2 | 0.705 | 22 | 21.59 |

LINEAR REGRESSION

| | |
|---|---|
| Slope = | 41.0262 |
| Intercept = | -8.4504 |
| Corr. coeff. = | 0.9947 |

***Calculations :***

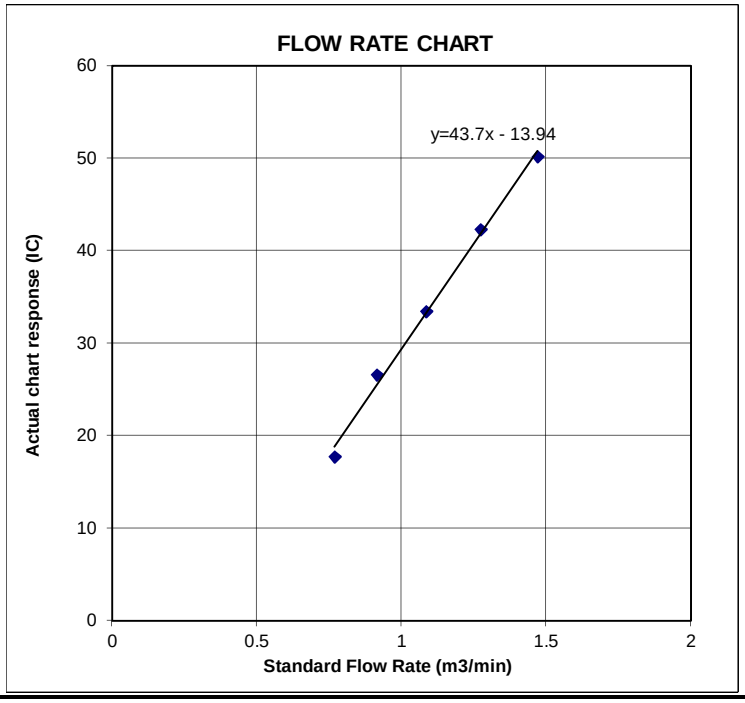
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
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 )[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

Locatior Lions Clubs International Ho Tak Sum Primary School
Location ID : AM1

Date of Calibration: 1-Aug-11
Next Calibration Date: 1-Oct-11
Technician: Ben Tam

## CONDITIONS

| | | | |
|---|---|---|---|
| Sea Level Pressure (hPa) | 1005.5 | Corrected Pressure (mm Hg) | 754.125 |
| Temperature (°C) | 29.5 | Temperature (K) | 303 |

## CALIBRATION ORIFICE

| | | | |
|---|---|---|---|
| Model-> | TISCH 5025A | Qstd Slope -> | 2.11693 |
| Rootsmeter S/N-> | 043832 | Qstd Intercept -> | -0.02568 |
| Calibration Date-> | 2-Jun-11 | Expiry Date-> | 2-Jun-12 |

## CALIBRATION

| Plate No. | H20 (L) (in) | H2O (R) (in) | H20 (in) | Qstd (m3/min) | I (chart) | IC corrected |
|---|---|---|---|---|---|---|
| 18 | 4.7 | 4.7 | 9.4 | 1.444 | 52 | 51.03 |
| 13 | 3.7 | 3.7 | 7.4 | 1.283 | 43 | 42.20 |
| 10 | 2.6 | 2.6 | 5.2 | 1.077 | 33 | 32.38 |
| 7 | 2.0 | 2.0 | 4 | 0.946 | 27 | 26.50 |
| 5 | 1.2 | 1.2 | 2.4 | 0.736 | 21 | 20.61 |

LINEAR REGRESSION

Slope = 43.5317
Intercept = -13.2182
Corr. coeff. = 0.9922

***Calculations :***

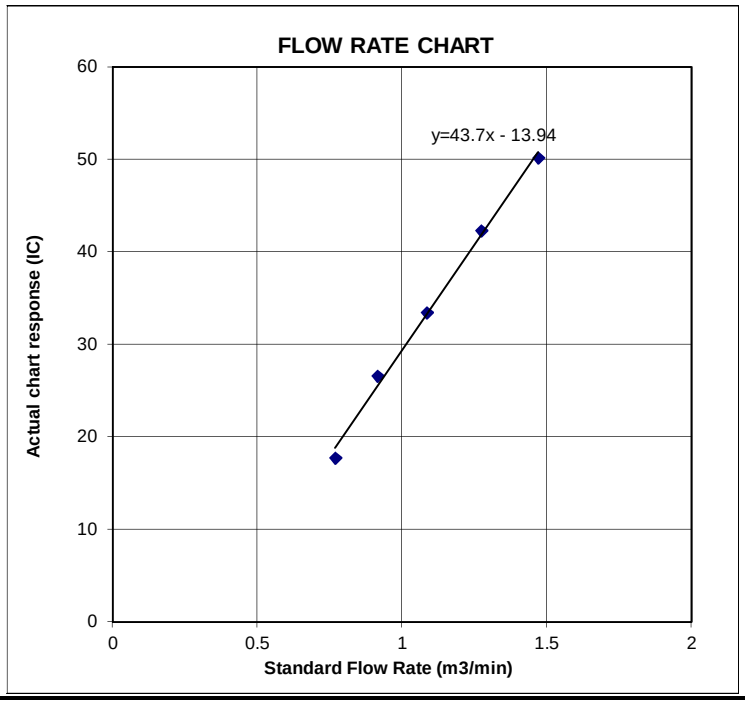
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
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 )[Sqrt(298/Tav)(Pav/760)]-b)

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



# Appendix F

# Meteorological information

## Meteorological Data Extracted from HKO during the Reporting Period

| Date | | Weather | | Lau Fau Shan Weather Station | | | |
|---|---|---|---|---|---|---|---|
| | | | Total Rainfall (mm) | Mean Air Temperature (°C) | Wind Speed (km/h) | Mean Relative Humidity (%) | Wind Direction |
| 1-Aug-11 | Mon | Fine and very hot | 0 | 28.9 | 11.2 | 76.5 | W |
| 2-Aug-11 | Tue | Fine and very hot. Light winds. | 0 | 29 | 13.5 | 75 | W |
| 3-Aug-11 | Wed | Fine and very hot. | 0 | 29.6 | 12.7 | 74 | W/SW |
| 4-Aug-11 | Thu | There will be a few showers | 0 | 29.7 | 16.2 | 74 | W |
| 5-Aug-11 | Fri | Very hot with sunny periods | 0 | 29.7 | 12 | 77.7 | W/SW |
| 6-Aug-11 | Sat | Light to moderate southwesterly winds. | 0 | 29.9 | 13 | 72.1 | W |
| 7-Aug-11 | Sun | Fine and very hot. Light winds. | 0 | 31.2 | 17.2 | 69 | S/SE |
| 8-Aug-11 | Mon | Fine and very hot. | 22.1 | 30.1 | 13.4 | 84 | S/SE |
| 9-Aug-11 | Tue | Light to moderate southerly winds. | 9.9 | 26.7 | 16 | 91 | SE |
| 10-Aug-11 | Wed | Cloudy with showers and a few squally thunderstorms. | 60.5 | 26.1 | 14.2 | 94.5 | S/SE |
| 11-Aug-11 | Thu | Fine and very hot. | 17.9 | 28.3 | 8 | 92 | S/SE |
| 12-Aug-11 | Fri | Light to moderate easterly winds. | 0 | 29.4 | 13.5 | 79.7 | S/SE |
| 13-Aug-11 | Sat | Very hot with sunny periods | 0 | 29.8 | 14 | 75 | S/SE |
| 14-Aug-11 | Sun | Fine and very hot. Light winds. | Trace | 30 | 14.7 | 72 | W |
| 15-Aug-11 | Mon | Mainly fine. | 0 | 29.8 | 14.9 | 77.5 | W |
| 16-Aug-11 | Tue | Moderate southeasterly winds. | 8.5 | 29.6 | 16.2 | 77.5 | W |
| 17-Aug-11 | Wed | Mainly fine. | 10.1 | 30 | 17.5 | 76.5 | S/SE |
| 18-Aug-11 | Thu | Very hot in the afternoon. | 0 | 29.9 | 8.7 | 71.7 | SE |
| 19-Aug-11 | Fri | Light to moderate easterly winds. | 0 | 29.9 | 8.5 | 73.5 | E/NE |
| 20-Aug-11 | Sat | Fine and very hot. | 3.7 | 28.9 | 12.1 | 78.5 | E/NE |
| 21-Aug-11 | Sun | Very hot with sunny periods | Trace | 27.5 | 14.5 | 85.5 | W/SW |
| 22-Aug-11 | Mon | Light to moderate northerly winds. | 1.4 | 29 | 12.7 | 82.2 | W |
| 23-Aug-11 | Tue | Mainly fine. | 0 | 29.5 | 12 | 80.5 | W |
| 24-Aug-11 | Wed | Fine and very hot. Light winds. | 3.9 | 29.9 | 16.5 | 77.5 | W |
| 25-Aug-11 | Thu | Light to moderate northerly winds. | 13.7 | 28.1 | 15 | 83.5 | E/NE |
| 26-Aug-11 | Fri | Mainly cloudy with a few showers and thunderstorms. | Trace | 29 | 10.1 | 80 | E/NE |
| 27-Aug-11 | Sat | A few showers | 5.2 | 30.1 | 9.5 | 75 | E/NE |
| 28-Aug-11 | Sun | Moderate west to northwesterly winds. | 0 | 30 | 17.2 | 66 | N/NW |
| 29-Aug-11 | Mon | Moderate southeasterly winds. | 0.2 | 30.2 | 19.5 | 63.2 | N/NW |
| 30-Aug-11 | Tue | Fine and very hot. Light winds. | 0 | 31.2 | 17 | 64 | W/NW |
| 31-Aug-11 | Wed | Fine and very hot. | 0 | 30.9 | 11 | 66.2 | N/NW |

Remark: The local wind speed was checked with a portable wind speed meter during the course of construction noise monitoring.

# Appendix G

# Event and Action Plan

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

| EVENT | ACTION | | | |
|---|---|---|---|---|
| | **ET** | **IEC** | **ER** | **CONTRACTOR** |
| Action level | 1. Notify IEC and Contractor;<br>2. Carry out investigation;<br>3. Report the results of investigation to the IEC and Contractor;<br>4. Discuss with the Contractor and formulate remedial measures ;<br>5. Increase monitoring frequency to check the effectiveness of mitigation measures. | 1. Review the analyzed results submitted by the ET;<br>2. Review the proposed remedial measures by the Contractor and advise the ER accordingly;<br>3. Supervise the implementation of remedial measures. | 1. Confirm receipt of notification in writing;<br>2. Notify Contractor;<br>3. Require Contractor to propose remedial measures for the analyzed noise problem;<br>4. Ensure mitigation measures are properly implemented. | 1. Submit noise mitigation proposal to IEC;<br>2. Implement noise mitigation proposals. |
| Limit level | 1. Notify IEC, ER, EPD & Contractor;<br>2. Identify source;<br>3. Repeat measurement to confirm findings;<br>4. Increase monitoring frequency;<br>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;<br>6. Inform IEC, ER and EPD the causes and actions taken for the exceedances;<br>7. Assess the effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;<br>8. If exceedance stops, cease additional monitoring. | 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;<br>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;<br>3. Supervise the implementation of remedial measures. | 1. Confirm receipt of notification in writing;<br>2. Notify Contractor;<br>3. Require Contractor to propose remedial measures for the analyzed noise problem;<br>4. Ensure mitigation measures are properly implemented;<br>5. If exceedances continue, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. | 1. Undertake immediate action to avoid further exceedance;<br>2. Submit proposals for remedial actions to IEC within 3 working days of notification;<br>3. Implement the agreed proposals;<br>4. Resubmit proposals if problem still not under control;<br>5. Stop the relevant portion of works as determined by ER, until the exceedance is abated. |

| Event | Action | | | |
|---|---|---|---|---|
| | **ET Leader** | **IEC** | **ER** | **Contractor** |
| Action Level being exceeded by one sampling day | 1. Repeat in-situ measurement to confirm findings;<br>2. Identify reasons for non-compliance and sources of impact;<br>3. Inform IEC and Contractor;<br>4. Check monitoring data, all plant, equipment and Contractor's working methods;<br>5. Discuss mitigation measures with IEC and Contractor;<br>6. Repeat measurement on next day of exceedance. | 1. Discuss with ET and Contractor on the mitigation measures;<br>2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly;<br>3. Assess the effectiveness of the implemented mitigation measures. | 1. Discuss with IEC on the proposed mitigation measures;<br>2. make agreement on the mitigation measures to be implemented;<br>3. Assess the effectiveness of the implemented mitigation measures. | 1. Inform the ER and confirm notification of the non-compliance in writing;<br>2. Rectify unacceptable practice;<br>3. Check all plant and equipment;<br>4. Consider changes of working methods;<br>5. Discuss with ET and IEC and propose mitigation measures to IEC and ER;<br>6. Implement the agreed mitigation measures. |
| Action Level being exceeded by more than two consecutive sampling days | 1. Repeat in-situ measurement to confirm findings;<br>2. Identify reasons for non-compliance and sources of impact;<br>3. Inform IEC and Contractor;<br>4. Check monitoring data, all plant, equipment and Contractor's working methods;<br>5. Discuss mitigation measures with IEC and Contractor;<br>6. Ensure mitigation measures are implemented;<br>7. Prepare to increase the monitoring frequency to daily;<br>8. Repeat measurement on next day of exceedance. | 1. Discuss with ET and Contractor on the mitigation measures;<br>2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly;<br>3. Assess the effectiveness of the implemented mitigation measures. | 1. Discuss with IEC on the proposed mitigation measures;<br>2. Make agreement on the mitigation measures to be implemented;<br>3. Assess the effectiveness of the implemented mitigation measures. | 1. Inform the ER and confirm notification of the non-compliance in writing;<br>2. Rectify unacceptable practice;<br>3. Check all plant and equipment;<br>4. Consider changes of working methods;<br>5. Discuss with ET and IEC and propose mitigation measures to IEC and ER within 3 working days;<br>6. Implement the agreed mitigation measures. |
| Limit Level being exceeded by one sampling day | 1. Repeat in-situ measurement to confirm findings;<br>2. Identify reasons for non-compliance and sources of impact;<br>3. Inform IEC, Contractor and EPD;<br>4. Check monitoring data, all plant, equipment and Contractor's working methods;<br>5. Discuss mitigation measures with IEC, ER and Contractor;<br>6. Ensure mitigation measures are implemented;<br>7. Increase the monitoring frequency to daily until no exceedance of Limit Level. | 1. Discuss with ET and Contractor on the mitigation measures;<br>2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly;<br>3. Assess the effectiveness of the implemented mitigation measures. | 1. Discuss with IEC, ET and Contractor on the proposed mitigation measures;<br>2. Request Contractor to critically review the working methods;<br>3. Make agreement on the mitigation measures to be implemented;<br>4. Assess the effectiveness of the implemented mitigation measures. | 1. Inform the ER and confirm notification of the non-compliance in writing;<br>2. Rectify unacceptable practice;<br>3. Check all plant and equipment;<br>4. Consider changes of working methods;<br>5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days;<br>6. Implement the agreed mitigation measures. |
| Limit Level being exceeded by more than two consecutive sampling days | 1. Repeat in-situ measurement to confirm findings;<br>2. Identify reasons for non-compliance and sources of impact;<br>3. Inform IEC, Contractor and EPD;<br>4. Check monitoring data, all plant, equipment and Contractor's working methods;<br>5. Discuss mitigation measures with IEC, ER and Contractor;<br>6. Ensure mitigation measures are implemented;<br>7. Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days. | 1. Discuss with ET and Contractor on the mitigation measures;<br>2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly;<br>3. Assess the effectiveness of the implemented mitigation measures. | 1. Discuss with IEC, ET and Contractor on the proposed mitigation measures;<br>2. Request Contractor to critically review the working methods;<br>3. Make agreement on the mitigation measures to be implemented;<br>4. Assess the effectiveness of the implemented mitigation measures;<br>5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit Level. | 1. Inform the ER and confirm notification of the non-compliance in writing;<br>2. Rectify unacceptable practice;<br>3. Check all plant and equipment;<br>4. Consider changes of working methods;<br>5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days;<br>6. Implement the agreed mitigation measures;<br>7. As directed by the ER, to slow down or to stop all or part of the marine work or construction activities. |

# Appendix H

# Monitoring Schedule in Reporting Month and Coming Month

## Monitoring Schedule for Reporting Period

| Date | | Dust Monitoring | | Noise Monitoring | Water Quality |
|---|---|---|---|---|---|
| | | 1-hour TSP | 24-hour TSP | | |
| Mon | 1-Aug-11 | | | | ■ |
| Tue | 2-Aug-11 | | ■ | | |
| Wed | 3-Aug-11 | | | | |
| Thu | 4-Aug-11 | ■ | | ■ | ■ |
| Fri | 5-Aug-11 | | | | |
| Sat | 6-Aug-11 | | | | ■ |
| Sun | 7-Aug-11 | | | | |
| Mon | 8-Aug-11 | | ■ | | ■ |
| Tue | 9-Aug-11 | | | | |
| Wed | 10-Aug-11 | ■ | | ■ | ■ |
| Thu | 11-Aug-11 | | | | |
| Fri | 12-Aug-11 | | | | |
| Sat | 13-Aug-11 | | ■ | | ■ |
| Sun | 14-Aug-11 | | | | |
| Mon | 15-Aug-11 | | | | |
| Tue | 16-Aug-11 | ■ | | ■ | ■ |
| Wed | 17-Aug-11 | | | | |
| Thu | 18-Aug-11 | | | | ■ |
| Fri | 19-Aug-11 | | ■ | | |
| Sat | 20-Aug-11 | | | | ■ |
| Sun | 21-Aug-11 | | | | |
| Mon | 22-Aug-11 | ■ | | ■ | ■ |
| Tue | 23-Aug-11 | | | | |
| Wed | 24-Aug-11 | | | | ■ |
| Thu | 25-Aug-11 | | ■ | | |
| Fri | 26-Aug-11 | | | | |
| Sat | 27-Aug-11 | ■ | | ■ | ■ |
| Sun | 28-Aug-11 | | | | |
| Mon | 29-Aug-11 | | | | ■ |
| Tue | 30-Aug-11 | | | | |
| Wed | 31-Aug-11 | | ■ | | ■ |

| | |
|---|---|
| ■ | Monitoring Day |
| | Sunday or Public Holiday |

## Monitoring Schedule for Coming Month

| Date | | Dust Monitoring | | Noise Monitoring | Water Quality |
|---|---|---|---|---|---|
| | | 1-hour TSP | 24-hour TSP | | |
| Thu | 1-Sep-11 | | | | |
| Fri | 2-Sep-11 | ■ | | ■ | ■ |
| Sat | 3-Sep-11 | | | | |
| Sun | 4-Sep-11 | | | | |
| Mon | 5-Sep-11 | | | | |
| Tue | 6-Sep-11 | | ■ | | ■ |
| Wed | 7-Sep-11 | | | | |
| Thu | 8-Sep-11 | ■ | | ■ | ■ |
| Fri | 9-Sep-11 | | | | |
| Sat | 10-Sep-11 | | | | ■ |
| Sun | 11-Sep-11 | | | | |
| Mon | 12-Sep-11 | | ■ | | ■ |
| Tue | 13-Sep-11 | | | | |
| Wed | 14-Sep-11 | ■ | | ■ | ■ |
| Thu | 15-Sep-11 | | | | |
| Fri | 16-Sep-11 | | | | ■ |
| Sat | 17-Sep-11 | | ■ | | |
| Sun | 18-Sep-11 | | | | |
| Mon | 19-Sep-11 | | | | |
| Tue | 20-Sep-11 | ■ | | ■ | ■ |
| Wed | 21-Sep-11 | | | | |
| Thu | 22-Sep-11 | | | | ■ |
| Fri | 23-Sep-11 | | ■ | | |
| Sat | 24-Sep-11 | | | | ■ |
| Sun | 25-Sep-11 | | | | |
| Mon | 26-Sep-11 | ■ | | ■ | ■ |
| Tue | 27-Sep-11 | | | | |
| Wed | 28-Sep-11 | | | | ■ |
| Thu | 29-Sep-11 | | ■ | | |
| Fri | 30-Sep-11 | | | | ■ |

| | |
|---|---|
| ■ | Monitoring Day |
| | Sunday or Public Holiday |

# Appendix I

# Results Data

**DSD Contract No DC/2009/08 – Construction of Yuen Long South Branch Sewers and Expansion of Ha Tsuen Sewage Pumping Station**

**Impact 24-Hour TSP Monitoring Results - AM1 (Lions Clubs International Ho Tak Sum Primary School)**

| DATE | SAMPLE NUMBER | ELAPSED TIME | | | MIN CHART READING | MAX CHART READING | AVG CHART READING | AVG TEMP (oC) | STANDARD | | | INITIAL FILTER WEIGHT (g) | FINAL FILTER WEIGHT (g) | WEIGHT DUST COLLECTED (g) | Dust 24-hr TSP in air (ug/m$^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | INITIAL | FINAL | (min) | | | | | AVG PRESS (hPa) | FLOW RATE (m3/min) | AIR VOLUME (std m3) | | | | |
| 2-Aug-11 | 24006 | 10031.58 | 10055.71 | 1447.80 | 34 | 38 | 36.0 | 29.5 | 1006.7 | 1.12 | 1624 | 2.8367 | 2.8682 | 0.0315 | 19 |
| 8-Aug-11 | 24007 | 10055.71 | 10079.97 | 1455.60 | 33 | 38 | 35.5 | 29.2 | 1004.3 | 1.11 | 1615 | 2.8265 | 2.8572 | 0.0307 | 19 |
| 13-Aug-11 | 23757 | 10079.97 | 10104.18 | 1452.60 | 32 | 37 | 34.5 | 29.6 | 1008.8 | 1.09 | 1581 | 2.804 | 2.844 | 0.0400 | 25 |
| 19-Aug-11 | 24115 | 10104.18 | 10128.21 | 1441.80 | 33 | 36 | 34.5 | 29.6 | 1010.9 | 1.09 | 1570 | 2.9064 | 2.9369 | 0.0305 | 20 |
| 25-Aug-11 | 23758 | 10128.21 | 10152.34 | 1447.80 | 34 | 36 | 35.0 | 28.6 | 1005.7 | 1.10 | 1592 | 2.988 | 3.0702 | 0.0822 | 52 |
| 31-Aug-11 | 24174 | 10152.34 | 10176.55 | 1452.60 | 33 | 37 | 35.0 | 30.6 | 999.3 | 1.09 | 1590 | 2.8767 | 2.956 | 0.0793 | 50 |

Action Level : 162 Limit Level : 260

**Impact 24-Hour TSP Monitoring Results - AM2 (Yeung Chun Pui Care & Attention Home)**

| DATE | SAMPLE NUMBER | ELAPSED TIME | | | MIN CHART READING | MAX CHART READING | AVG CHART READING | AVG TEMP (oC) | STANDARD | | | INITIAL FILTER WEIGHT (g) | FINAL FILTER WEIGHT (g) | WEIGHT DUST COLLECTED (g) | Dust 24-hr TSP in air (ug/m$^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | INITIAL | FINAL | (min) | | | | | AVG PRESS (hPa) | FLOW RATE (m3/min) | AIR VOLUME (std m3) | | | | |
| 2-Aug-11 | 24010 | 11625.49 | 11649.62 | 1447.80 | 34 | 37 | 35.5 | 29.5 | 1006.7 | 1.06 | 1538 | 2.833 | 2.8551 | 0.0221 | 14 |
| 8-Aug-11 | 24047 | 11649.62 | 11673.87 | 1455.00 | 33 | 38 | 35.5 | 29.2 | 1004.3 | 1.06 | 1544 | 2.7948 | 2.8202 | 0.0254 | 17 |
| 13-Aug-11 | 24036 | 11673.87 | 11697.98 | 1446.60 | 34 | 39 | 36.5 | 29.6 | 1008.8 | 1.09 | 1572 | 2.8436 | 2.879 | 0.0354 | 23 |
| 19-Aug-11 | 24046 | 11697.98 | 11722.13 | 1449.00 | 32 | 36 | 34.0 | 29.6 | 1010.9 | 1.03 | 1489 | 2.8078 | 2.9283 | 0.1205 | 81 |
| 25-Aug-11 | 24171 | 11722.13 | 11746.31 | 1450.80 | 33 | 37 | 35.0 | 28.6 | 1005.7 | 1.05 | 1524 | 2.912 | 2.9695 | 0.0575 | 38 |
| 31-Aug-11 | 24173 | 11746.31 | 11770.45 | 1448.40 | 32 | 38 | 35.0 | 30.6 | 999.3 | 1.05 | 1514 | 2.8868 | 2.9388 | 0.0520 | 34 |

Action Level : 190 Limit Level : 260

**DSD Contract No DC/2009/08**

**Construction of Yuen Long South Branch Sewers and Extension of Ha Tsuen Sewage Pumping Station**

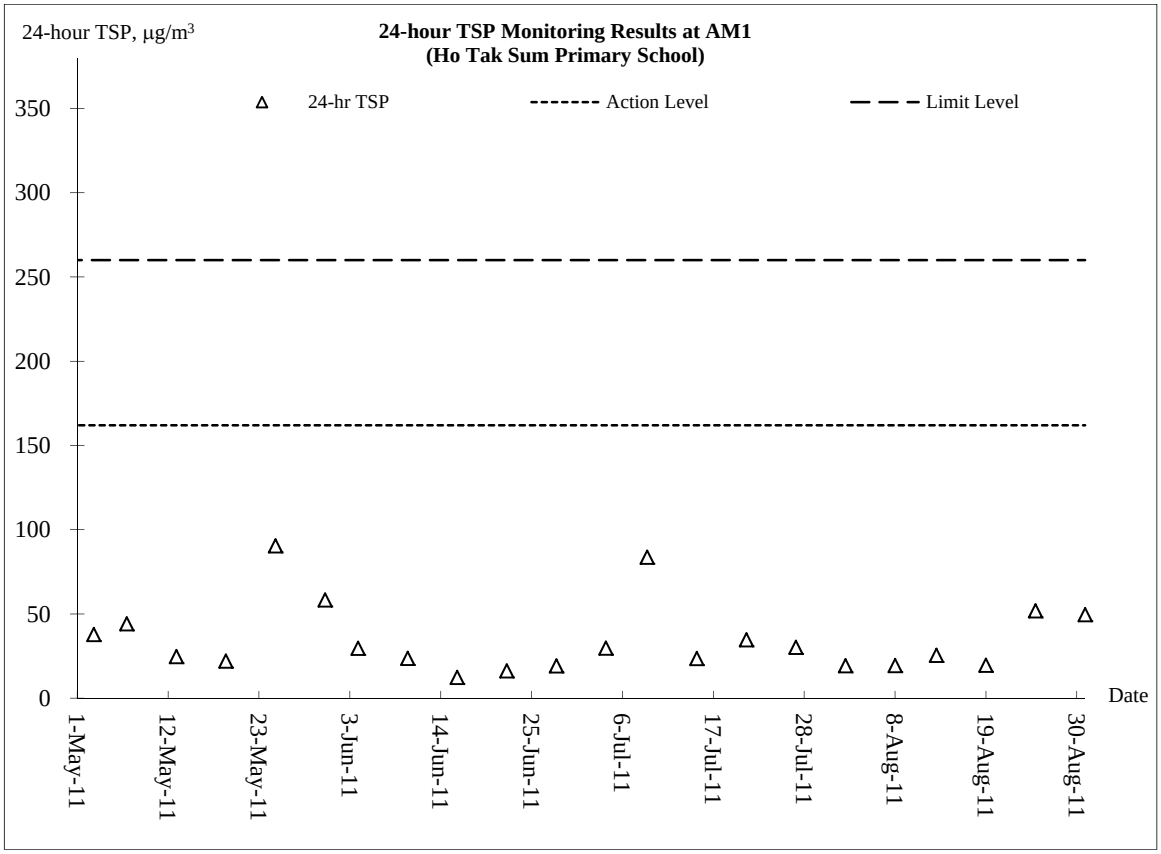
**Summary of Water Quality Monitoring Results - R1b**

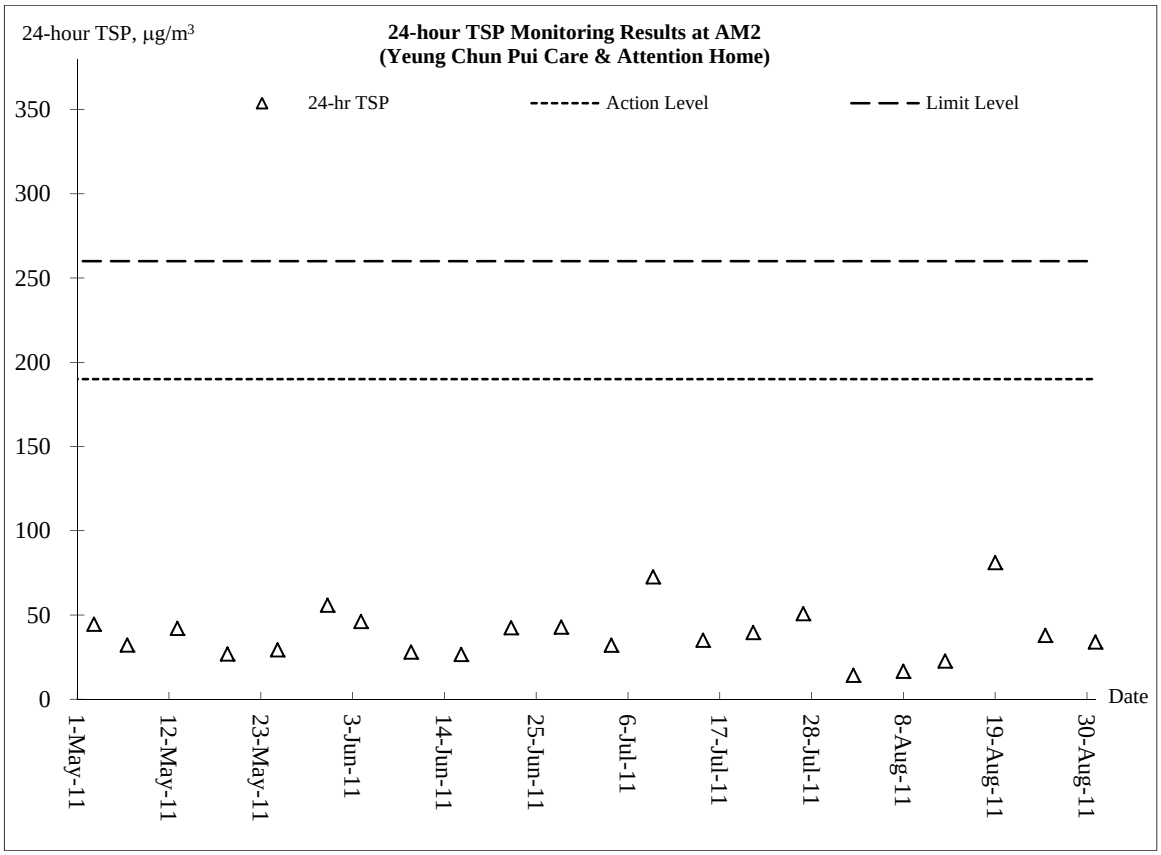
| Date | ACTION/ LIMIT | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location | | | DO (mg/L) | | DOS (%) | | Turbidity (NTU) | | pH | | SS | |
| R1b | | | ACT | 4.6 | | | ACT | 15.6 | ACT | | ACT | 31.5 |
| | | | LIM | 4 | | | LIM | 16.2 | LIM | | LIM | 31.9 |
| Date | 1-Aug-11 | | | | | | | | | | | | | |
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DOS (%) | | Turbidity (NTU) | | pH | | SS | |
| R1b | 11:03 | 0.60 | 31.8 | 31.8 | 6.54 | 6.4 | 78.3 | 77.7 | 11.6 | 11.2 | 8.54 | 8.5 | 7 | 7.0 |
| | | | 31.8 | | 6.29 | | 77.1 | | 10.7 | | 8.39 | | 7 | |
| Date | 4-Aug-11 | | | | | | | | | | | | | |
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DOS (%) | | Turbidity (NTU) | | pH | | SS | |
| R1b | 16:03 | 0.60 | 31.4 | 31.4 | 7.59 | 7.6 | 61.4 | 60.9 | 11.3 | 11.1 | 7.49 | 7.4 | 16 | 16.0 |
| | | | 31.4 | | 7.51 | | 60.3 | | 10.8 | | 7.31 | | 16 | |
| Date | 6-Aug-11 | | | | | | | | | | | | | |
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DOS (%) | | Turbidity (NTU) | | pH | | SS | |
| R1b | 11:09 | 0.60 | 31.8 | 31.8 | 7.58 | 7.5 | 82.3 | 82.0 | 8.4 | 8.4 | 7.54 | 7.6 | 19 | 19.0 |
| | | | 31.8 | | 7.34 | | 81.6 | | 8.4 | | 7.61 | | 19 | |
| Date | 8-Aug-11 | | | | | | | | | | | | | |
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DOS (%) | | Turbidity (NTU) | | pH | | SS | |
| R1b | 16:03 | 0.70 | 29.8 | 29.8 | 8.37 | 8.3 | 96.3 | 95.6 | 10.1 | 10.2 | 7.31 | 7.3 | 17 | 17.0 |
| | | | 29.8 | | 8.26 | | 94.8 | | 10.3 | | 7.26 | | 17 | |
| Date | 10-Aug-11 | | | | | | | | | | | | | |
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DOS (%) | | Turbidity (NTU) | | pH | | SS | |
| R1b | 16:19 | 0.60 | 29.1 | 29.1 | 9.06 | 9.0 | 99.7 | 99.0 | 12.6 | 12.3 | 7.56 | 7.5 | 25 | 25.0 |
| | | | 29.1 | | 8.93 | | 98.2 | | 11.9 | | 7.39 | | 25 | |
| Date | 13-Aug-11 | | | | | | | | | | | | | |
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DOS (%) | | Turbidity (NTU) | | pH | | SS | |
| R1b | 10:56 | 0.60 | 31.8 | 31.8 | 7.58 | 7.5 | 82.5 | 82.2 | 7.6 | 7.6 | 8.52 | 8.5 | 6 | 6.0 |
| | | | 31.8 | | 7.34 | | 81.9 | | 7.5 | | 8.39 | | 6 | |
| Date | 16-Aug-11 | | | | | | | | | | | | | |
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DOS (%) | | Turbidity (NTU) | | pH | | SS | |
| R1b | 16:31 | 0.50 | 32.9 | 32.9 | 6.57 | 6.3 | 81.9 | 79.4 | 13.2 | 12.8 | 7.56 | 7.5 | 17 | 17.0 |
| | | | 32.9 | | 6.08 | | 76.8 | | 12.4 | | 7.42 | | 17 | |
| Date | 18-Aug-11 | | | | | | | | | | | | | |
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DOS (%) | | Turbidity (NTU) | | pH | | SS | |
| R1b | 16:21 | 0.70 | 32.6 | 32.6 | 7.62 | 7.6 | 96.8 | 96.5 | 11.2 | 10.9 | 8.51 | 8.5 | 26 | 26.0 |
| | | | 32.6 | | 7.49 | | 96.2 | | 10.6 | | 8.46 | | 26 | |
| Date | 20-Aug-11 | | | | | | | | | | | | | |
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DOS (%) | | Turbidity (NTU) | | pH | | SS | |
| R1b | 15:12 | 0.70 | 32.9 | 32.9 | 5.19 | 5.0 | 65.2 | 62.4 | 11.8 | 11.6 | 9.33 | 9.3 | 17 | 17.0 |
| | | | 32.9 | | 4.88 | | 59.6 | | 11.3 | | 9.29 | | 17 | |
| Date | 22-Aug-11 | | | | | | | | | | | | | |
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DOS (%) | | Turbidity (NTU) | | pH | | SS | |
| R1b | 16:31 | 0.60 | 31.8 | 31.8 | 4.68 | 4.6 | 53.6 | 52.7 | 10.7 | 10.5 | 7.71 | 7.7 | 17 | 17.0 |
| | | | 31.8 | | 4.54 | | 51.8 | | 10.2 | | 7.62 | | 17 | |
| Date | 24-Aug-11 | | | | | | | | | | | | | |
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DOS (%) | | Turbidity (NTU) | | pH | | SS | |
| R1b | 16:03 | 0.70 | 31.2 | 31.2 | 4.78 | 4.8 | 56.4 | 57.1 | 10.8 | 10.6 | 7.59 | 7.5 | 17 | 17.0 |
| | | | 31.2 | | 4.75 | | 57.7 | | 10.4 | | 7.48 | | 17 | |
| Date | 27-Aug-11 | | | | | | | | | | | | | |
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DOS (%) | | Turbidity (NTU) | | pH | | SS | |
| R1b | 16:38 | 0.60 | 32.4 | 32.4 | 5.55 | 5.4 | 63.8 | 62.2 | 10.8 | 10.6 | 7.86 | 7.8 | 17 | 17.0 |
| | | | 32.4 | | 5.25 | | 60.6 | | 10.3 | | 7.79 | | 17 | |
| Date | 29-Aug-11 | | | | | | | | | | | | | |
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DOS (%) | | Turbidity (NTU) | | pH | | SS | |
| R1b | 15:08 | 0.70 | 32.5 | 32.5 | 7.52 | 7.4 | 81.9 | 81.1 | 12.3 | 12.0 | 7.42 | 7.4 | 17 | 17.0 |
| | | | 32.5 | | 7.28 | | 80.3 | | 11.6 | | 7.38 | | 17 | |
| Date | 31-Aug-11 | | | | | | | | | | | | | |
| Location | Time | Depth (m) | Temp (oC) | | DO (mg/L) | | DOS (%) | | Turbidity (NTU) | | pH | | SS | |
| R1b | 16:06 | 0.70 | 29.4 | 29.4 | 8.37 | 8.3 | 96.7 | 95.4 | 14.9 | 12.9 | 7.86 | 7.8 | 15 | 15.0 |
| | | | 29.4 | | 8.18 | | 94.1 | | 10.9 | | 7.76 | | 15 | |

# Appendix J

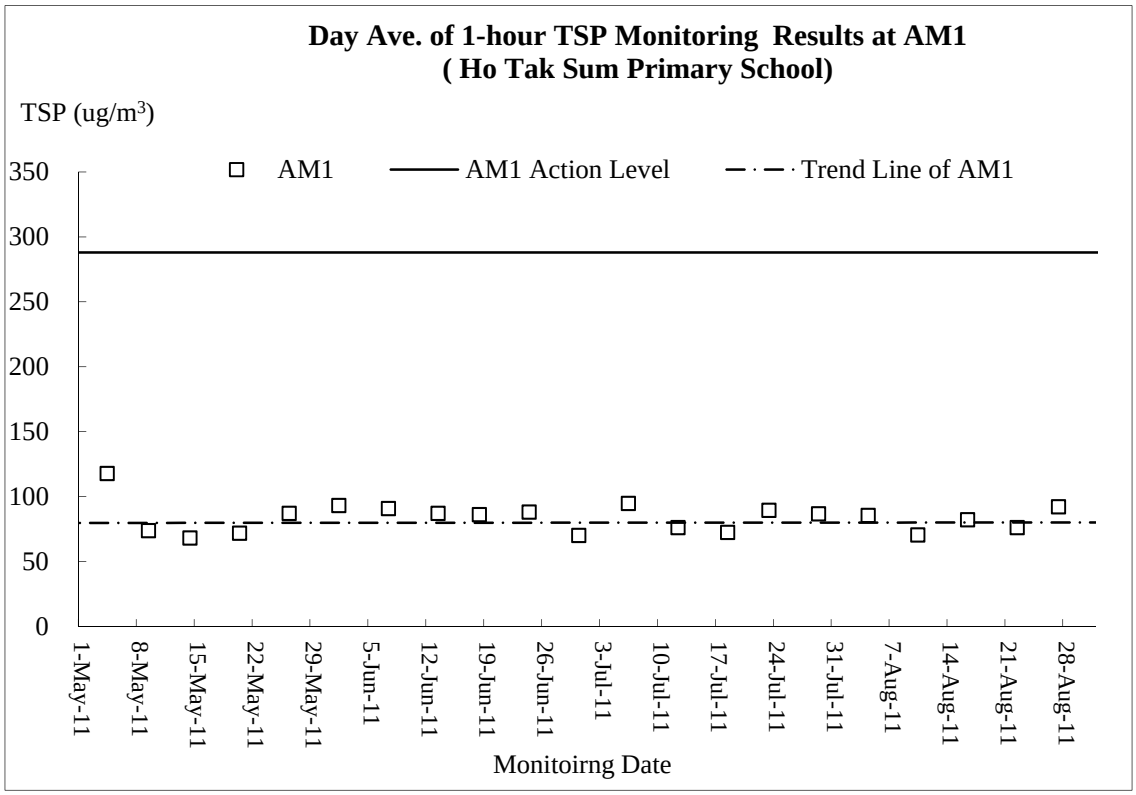
# Graphical plots

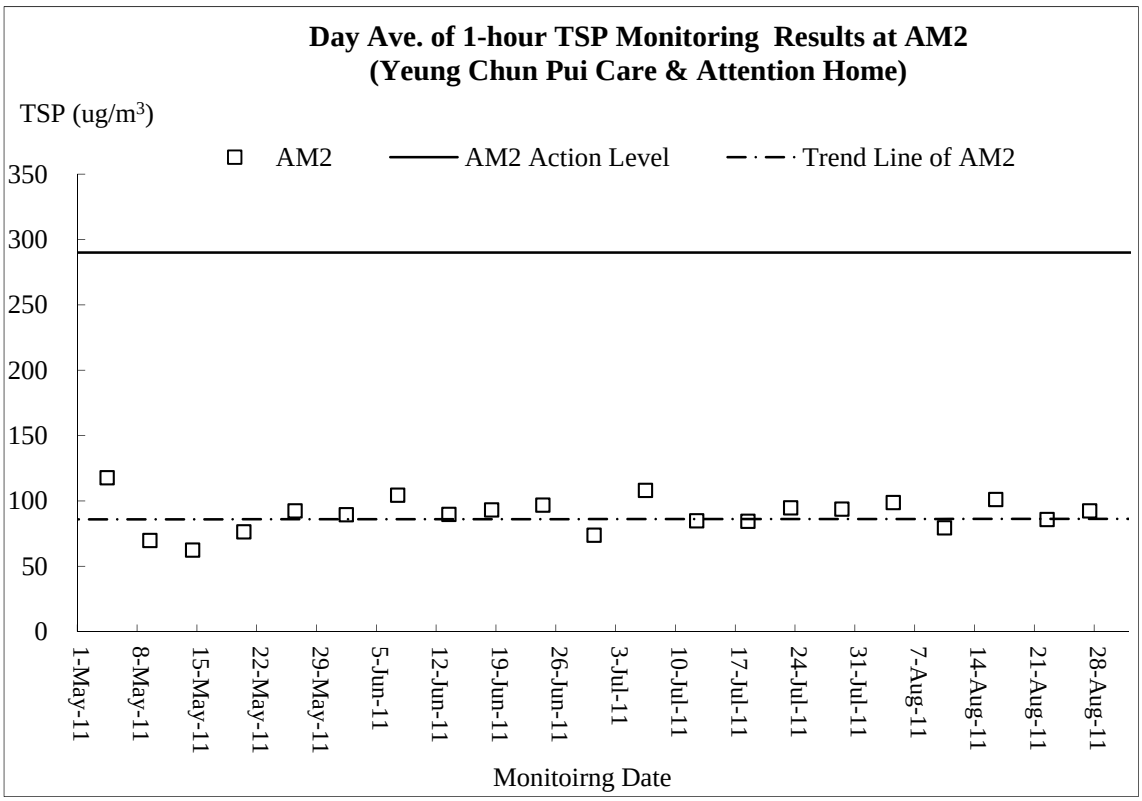
## Air Quality – 24-Hr TSP



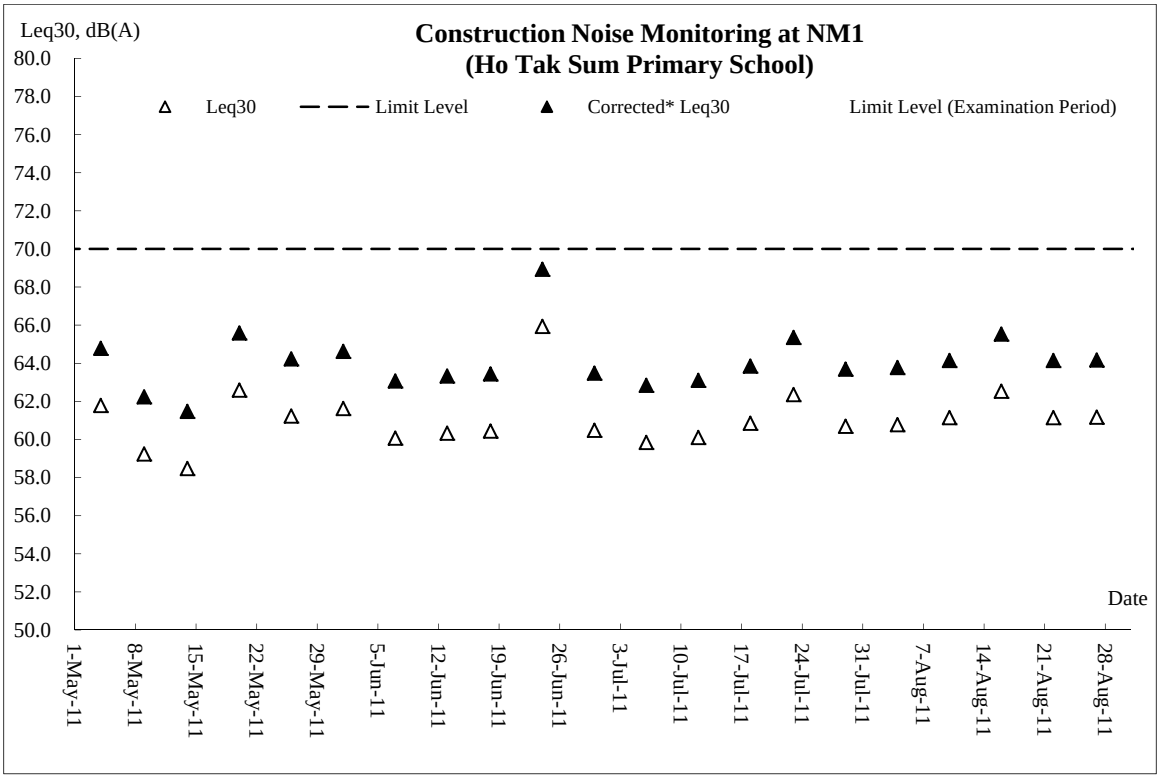



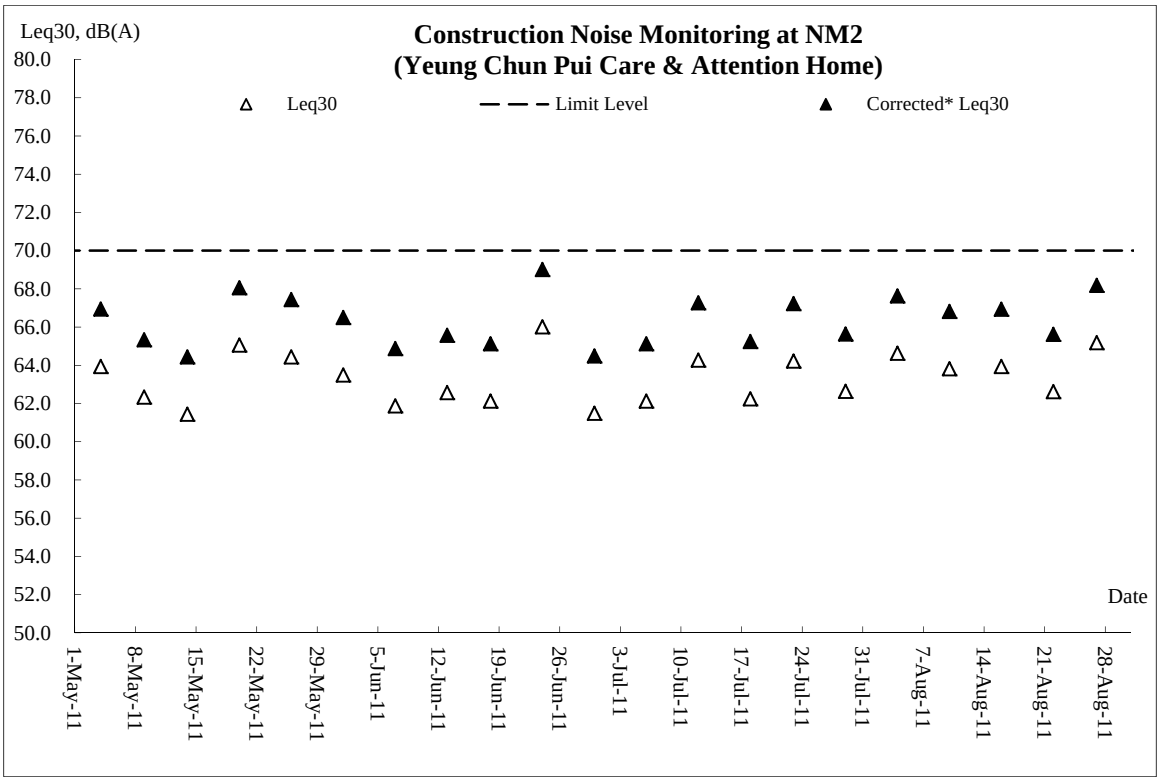
## Air Quality – 1 Hour TSP



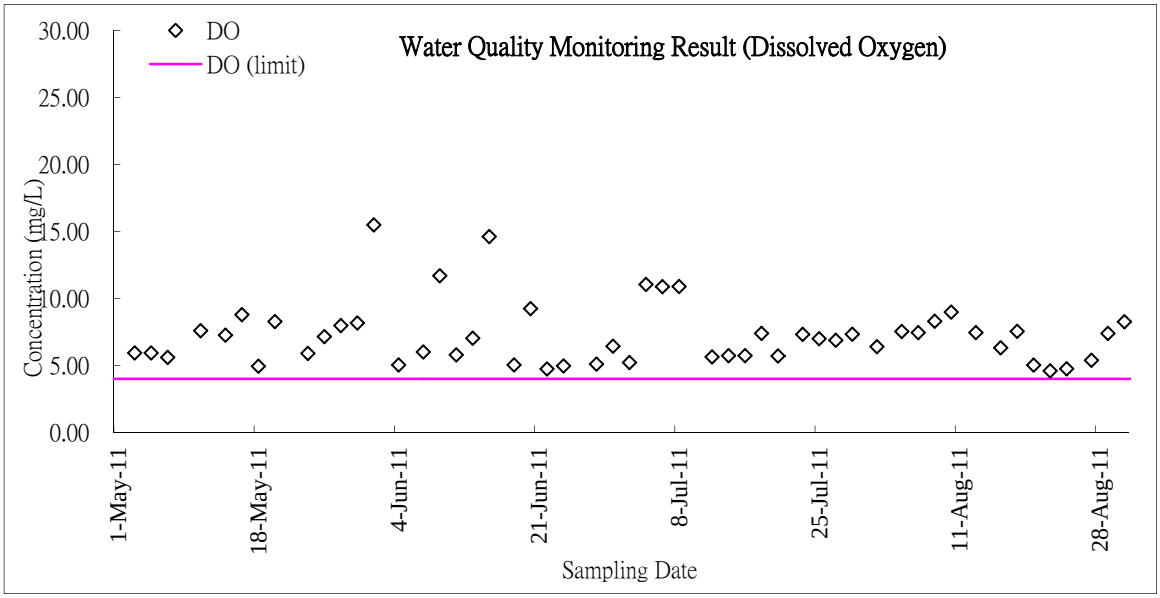



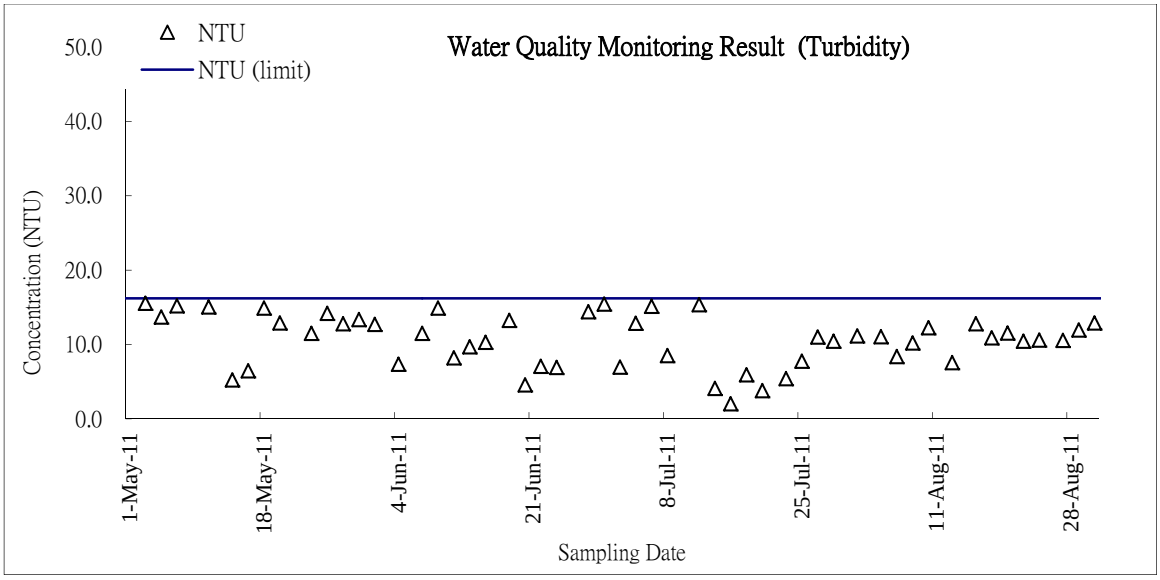
## Construction Noise

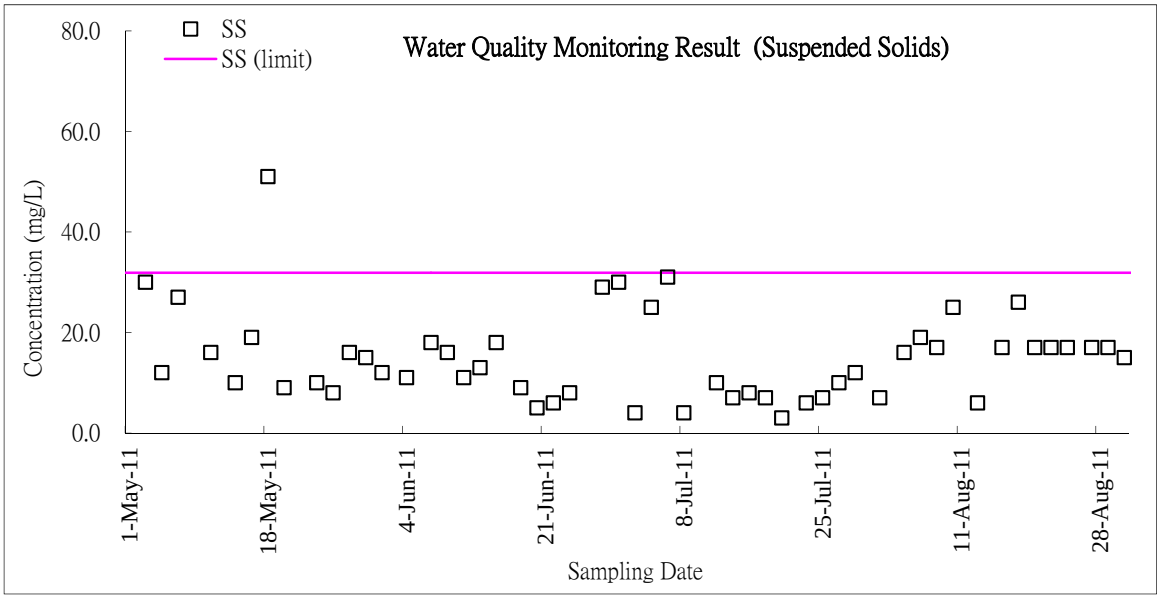


## Water Quality – Local Stream Course (R1b)



# Appendix K

# Monthly Summary Waste Flow Table

# Drainage Service Department
# Monthly Summary Waste Flow Table
# for Contract with Waste Management Plan under ETWB TCW No. 15/2003
# Reporting Year: 2011

## Contract No. *DC/2009/08*

*(To be submitted to C&D MM Coordinator of Respective Division/Region via Engineer's Representative before 15th of the following month)*

| Month | Actual Quantities of Inert C&D Materials Generated / Imported (in '000 $m^3$) | | | | | | Actual Quantities of Other C&D Materials / Wastes Generated | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total Quantities Generated | Broken Concrete (including rock for recycling into aggregates) | Reused in the Contract | Reused in Other Projects | Disposed as Public Fill | Imported C&D Material | Metal | Paper/ Cardboard Packaging | Plastic (bottles/containers, plastic sheets/ foams from package material) | Chemical Waste | Others (e.g. General Refuse etc.) |
| | [a+b+c+d) | (a) | (b) | (c) | (d) | | (in '000kg) | (in '000kg) | (in '000kg) | (in '000kg) | (in '000$m^3$) |
| January | 4.579 | 0 | 0 | 0 | 4.579 | 0 | 0 | 0 | 2.575 | 0 | 0.001 |
| February | 1.123 | 0 | 0 | 0 | 1.123 | 0 | 0 | 0 | 0 | 0 | 0.002 |
| March | 0.371 | 0 | 0 | 0 | 0.371 | 0 | 0 | 0 | 0 | 0 | 0.002 |
| April | 0.375 | 0 | 0 | 0 | 0.375 | 0 | 0 | 0 | 0 | 0 | 0.009 |
| May | 1.110 | 0 | 0 | 0 | 1.110 | 0 | 0 | 0 | 0 | 0.000 | 0 |
| June | 0.751 | 0 | 0 | 0 | 0.751 | 0 | 0 | 0 | 0 | 0 | 0.002 |
| Half-year total | 8.309 | 0 | 0 | 0 | 8.309 | 0 | 0 | 0 | 2.575 | 0 | 0.016 |
| July | 0.752 | 0 | 0 | 0 | 0.752 | 0 | 0 | 0 | 0 | 0 | 0.002 |
| August | 0.754 | 0 | 0 | 0 | 0.754 | 0 | 0 | 0 | 0 | 0 | 0.002 |
| September | | | | | | | | | | | |
| October | | | | | | | | | | | |
| November | | | | | | | | | | | |
| December | | | | | | | | | | | |
| Yearly Total | 9.815 | 0 | 0 | 0 | 9.815 | 0 | 0 | 0 | 2.575 | 0 | 0.020 |

# Appendix L

# Inspection Checklist

# Environmental Site Inspection Checklist (DC200908-020811)

AUES

| | | | |
|---|---|---|---|
| **Project:** | **DC/2009/08 Construction of Yuen Long South Branch Sewers and Expansion of Ha Tsuen PS** | **Inspected by** | |
| | | **RE's representative:** | K.P. Cheung |
| **Inspection** | | **IEC's representative:** | |
| **Date:** | 02 Aug 2011 | **ET's representative:** | Wong Fu Nam |
| **Time:** | 10:00 | **Contractor's representative:** | Chan Yau Pang |
| | | **Checklist No.** | DC200908-020811 |

**PART A: GENERAL INFORMATION** **Environmental Permit No.: N/A**

| | | | | |
|---|---|---|---|---|
| Weather: | ☑ Sunny | ☐ Fine | ☐ Cloudy | ☐ Rainy |
| Temperature: | 33 $^0$C | | | |
| Humidity: | ☐ High | ☑ Moderate | ☐ Low | |
| Wind: | ☐ Strong | ☐ Breeze | ☑ Light | ☐ Calm |

**PART B: SITE AUDIT**

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

| | | Not Observed | Yes | No | Follow up | Not Applicable | Photo/ Remarks |
|---|---|---|---|---|---|---|---|
| 1.23 | Is used bentonite recycled where appropriate? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 1.24 | Is the sediment laden runoff from the unpaved surface to avoid discharge into the nearby aquatic environments, mash lands and moat ponds? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 2: Air Quality*** | | | | | | | |
| 2.01 | Are there wheel washing facilities with high pressure jets provided at every vehicle exit point? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 2.02 | Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites? | ☐ | ☑ | ☐ | ☐ | ☐ | **Note 1** |
| 2.03 | Are the excavated materials or exposure soil surface sprayed with water during handling? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.04 | Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.05 | Is the exposed earth properly treated within six months after the last construction activities? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.06 | Are the access roads sprayed with water to maintain the entire road surface wet or paved and speed control (<15km/hr)? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.07 | Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.08 | Is the load on vehicles covered entirely by clean impervious sheeting? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.09 | Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.10 | Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.11 | Is dark smoke emission from plant/equipment avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.12 | Are de-bagging, batching and mixing processes carried out in sheltered areas (3-sided roofed enclosure) during the use of bagged cement? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.13 | Are site vehicles travelling within the speed limit (<15km/hour)? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.14 | Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.15 | Is open burning avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.16 | Are any materials dropped on the roads (Outside the site boundaries) had clean up immediately? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 3: Noise*** | | | | | | | |
| 3.01 | Are noisy equipment and activities positioned as far as practicable from the sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.02 | Is silenced equipment adopted? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.03 | Is idle equipment turned off or throttled down? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.04 | Are all plant and equipment well maintained and in good condition? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.05 | Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.06 | Are hand held breakers fitted with valid noise emission labels during operation? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 3.07 | Are air compressors fitted with valid noise emission labels during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.08 | Are flaps and panels of mechanical equipment closed during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.09 | Are Construction Noise Permit(s) applied for percussive piling works? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 3.10 | Are Construction Noise Permit(s) applied for general construction works during restricted hours? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 3.11 | Are valid Construction Noise Permit(s) posted at site entrances? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 4: Waste/Chemical Management*** | | | | | | | |
| 4.01 | Are receptacles available for general refuse collection? | ☐ | ☑ | ☐ | ☐ | ☐ | |

| | | Not Observed | Yes | No | Follow up | Not Applicable | Photo/ Remarks |
|---|---|---|---|---|---|---|---|
| 4.02 | Is general refuse sorting or recycling implemented? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.03 | Is general refuse disposed of properly and regularly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.04 | Is the Contractor registered as a chemical waste producer? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.05 | Are the chemical waste containers properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.06 | Are the chemical wastes stored in proper storage areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.07 | Is the chemical waste storage area properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.08 | Is the chemical waste storage area used for storage of chemical waste only? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.09 | Are incompatible chemical wastes stored in different areas? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.10 | Are the chemical wastes disposed of by licensed collectors? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.11 | Are trip tickets for chemical wastes disposal available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.12 | Are chemical/fuel storage areas bunded? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.13 | Are designated areas identified for storage and sorting of construction wastes? | ☐ | ☐ | ☐ | ☑ | ☐ | |
| 4.14 | Are construction wastes sorted on site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.15 | Are construction wastes reused? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.16 | Are construction wastes disposed of properly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.17 | Are site hoardings and signboards made of durable materials instead of timber? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.18 | Is trip ticket system implemented for the disposal of construction wastes and records available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.19 | Are appropriate procedures followed if contaminated material exists? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.20 | Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 5: Landscape & Visual*** | | | | | | | |
| 5.01 | Are retained and transplanted trees in health condition? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 5.02 | Are retained and transplanted trees properly protected? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 5.03 | Are surgery works carried out for the damaged trees? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.04 | Is damage to trees outside site boundary due to construction activities avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 5.05 | Is the night-time lighting controlled to minimize glare to sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 6: Others*** | | | | | | | |
| 6.01 | Are relevant Environmental Permits posted at all vehicle site entrances/exits? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 6.02 | Is mosquito control measures adequately implemented? | ☐ | ☑ | ☐ | ☐ | ☐ | **Note 2** |

**Remarks**

***Follow up of last Site Inspection:***

| | |
|---|---|
| Not required for reminders. | |
| | |

***Observations recorded in this Site Inspection: (26-07-2011)***

| | |
|---|---|
| Note 1: Wheel washing facility was observed at entrance of Ha Tsuen Pumping Station. Proper wheel washing is reminded prior to exit of construction vehicles.<br>Note 2: Overgrown grass was observed along the site. Regular cutting is reminded as mosquito control measures. | |
| | |

| ***RE's representative*** | ***IEC's representative*** | ***ET's representative*** | ***Contractor's representative*** |
|---|---|---|---|
| ( ) | ( ) | ( Wong Fu Nam ) | ( ) |

# Environmental Site Inspection Checklist (DC200908-090811)

AUES

| | | | |
|---|---|---|---|
| **Project:** | **DC/2009/08 Construction of Yuen Long South Branch Sewers and Expansion of Ha Tsuen PS** | **Inspected by** | |
| | | **RE's representative:** | K.P. Cheung |
| **Inspection** | | **IEC's representative:** | |
| **Date:** | 09 Aug 2011 | **ET's representative:** | Wong Fu Nam |
| **Time:** | 10:00 | **Contractor's representative:** | Chan Yau Pang/ Jason Chung |
| | | **Checklist No.** | DC200908-090811 |

**PART A: GENERAL INFORMATION** **Environmental Permit No.: N/A**

| | | | | |
|---|---|---|---|---|
| Weather: | ☑ Sunny | ☐ Fine | ☐ Cloudy | ☐ Rainy |
| Temperature: | 33 $^0$C | | | |
| Humidity: | ☐ High | ☑ Moderate | ☐ Low | |
| Wind: | ☐ Strong | ☐ Breeze | ☑ Light | ☐ Calm |

**PART B: SITE AUDIT**

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

| | | Not Observed | Yes | No | Follow up | Not Applicable | Photo/ Remarks |
|---|---|---|---|---|---|---|---|
| 1.23 | Is used bentonite recycled where appropriate? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 1.24 | Is the sediment laden runoff from the unpaved surface to avoid discharge into the nearby aquatic environments, mash lands and moat ponds? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 2: Air Quality*** | | | | | | | |
| 2.01 | Are there wheel washing facilities with high pressure jets provided at every vehicle exit point? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 2.02 | Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.03 | Are the excavated materials or exposure soil surface sprayed with water during handling? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.04 | Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.05 | Is the exposed earth properly treated within six months after the last construction activities? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.06 | Are the access roads sprayed with water to maintain the entire road surface wet or paved and speed control (<15km/hr)? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.07 | Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.08 | Is the load on vehicles covered entirely by clean impervious sheeting? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.09 | Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.10 | Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.11 | Is dark smoke emission from plant/equipment avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.12 | Are de-bagging, batching and mixing processes carried out in sheltered areas (3-sided roofed enclosure) during the use of bagged cement? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.13 | Are site vehicles travelling within the speed limit (<15km/hour)? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.14 | Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.15 | Is open burning avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.16 | Are any materials dropped on the roads (Outside the site boundaries) had clean up immediately? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 3: Noise*** | | | | | | | |
| 3.01 | Are noisy equipment and activities positioned as far as practicable from the sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.02 | Is silenced equipment adopted? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.03 | Is idle equipment turned off or throttled down? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.04 | Are all plant and equipment well maintained and in good condition? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.05 | Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.06 | Are hand held breakers fitted with valid noise emission labels during operation? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 3.07 | Are air compressors fitted with valid noise emission labels during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.08 | Are flaps and panels of mechanical equipment closed during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.09 | Are Construction Noise Permit(s) applied for percussive piling works? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 3.10 | Are Construction Noise Permit(s) applied for general construction works during restricted hours? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 3.11 | Are valid Construction Noise Permit(s) posted at site entrances? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 4: Waste/Chemical Management*** | | | | | | | |
| 4.01 | Are receptacles available for general refuse collection? | ☐ | ☑ | ☐ | ☐ | ☐ | |

| | | Not Observed | Yes | No | Follow up | Not Applicable | Photo/ Remarks |
|---|---|---|---|---|---|---|---|
| 4.02 | Is general refuse sorting or recycling implemented? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.03 | Is general refuse disposed of properly and regularly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.04 | Is the Contractor registered as a chemical waste producer? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.05 | Are the chemical waste containers properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.06 | Are the chemical wastes stored in proper storage areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.07 | Is the chemical waste storage area properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.08 | Is the chemical waste storage area used for storage of chemical waste only? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.09 | Are incompatible chemical wastes stored in different areas? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.10 | Are the chemical wastes disposed of by licensed collectors? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.11 | Are trip tickets for chemical wastes disposal available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.12 | Are chemical/fuel storage areas bunded? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.13 | Are designated areas identified for storage and sorting of construction wastes? | ☐ | ☐ | ☐ | ☑ | ☐ | |
| 4.14 | Are construction wastes sorted on site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.15 | Are construction wastes reused? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.16 | Are construction wastes disposed of properly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.17 | Are site hoardings and signboards made of durable materials instead of timber? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.18 | Is trip ticket system implemented for the disposal of construction wastes and records available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.19 | Are appropriate procedures followed if contaminated material exists? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.20 | Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 5: Landscape & Visual*** | | | | | | | |
| 5.01 | Are retained and transplanted trees in health condition? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 5.02 | Are retained and transplanted trees properly protected? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 5.03 | Are surgery works carried out for the damaged trees? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.04 | Is damage to trees outside site boundary due to construction activities avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 5.05 | Is the night-time lighting controlled to minimize glare to sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 6: Others*** | | | | | | | |
| 6.01 | Are relevant Environmental Permits posted at all vehicle site entrances/exits? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 6.02 | Is mosquito control measures adequately implemented? | ☐ | ☑ | ☐ | ☐ | ☐ | **Note 2** |

**Remarks**

***Follow up of last Site Inspection:***

| | |
|---|---|
| Not required for reminders. | |
| | |

***Observations recorded in this Site Inspection: (26-07-2011)***

| | |
|---|---|
| Note 1: Rain water was observed accumulated within the site, in particular on excavated site. Pre-treatment of the ponding water prior to discharge to water bodies is reminded.<br>Note 2: Overgrown grass was observed along the site. Regular cutting is reminded as mosquito control measures. | |
| | |

| ***RE's representative*** | ***IEC's representative*** | ***ET's representative*** | ***Contractor's representative*** |
|---|---|---|---|
| | |  | |
| ( ) | ( ) | ( Wong Fu Nam ) | ( ) |

# Environmental Site Inspection Checklist (DC200908-16082011)

AUES

| | | | |
|---|---|---|---|
| **Project:** | **DC/2009/08 Construction of Yuen Long South Branch Sewers and Expansion of Ha Tsuen PS** | **Inspected by** | |
| | | **RE's representative:** | K.P. Cheung |
| **Inspection** | | **IEC's representative:** | William Law |
| **Date:** | 16 Aug 2011 | **ET's representative:** | Wong Fu Nam |
| **Time:** | 10:00 | **Contractor's representative:** | Chan Yau Pang/ Jason Chung |
| | | **Checklist No.** | DC200908-090811 |

**PART A: GENERAL INFORMATION** **Environmental Permit No.: N/A**

| | | | | |
|---|---|---|---|---|
| Weather: | ☐ Sunny | ☑ Fine | ☐ Cloudy | ☐ Rainy |
| Temperature: | 31 $^0$C | | | |
| Humidity: | ☐ High | ☑ Moderate | ☐ Low | |
| Wind: | ☐ Strong | ☐ Breeze | ☑ Light | ☐ Calm |

**PART B: SITE AUDIT**

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

| | | Not Observed | Yes | No | Follow up | Not Applicable | Photo/ Remarks |
|---|---|---|---|---|---|---|---|
| 1.23 | Is used bentonite recycled where appropriate? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 1.24 | Is the sediment laden runoff from the unpaved surface to avoid discharge into the nearby aquatic environments, mash lands and moat ponds? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 2: Air Quality*** | | | | | | | |
| 2.01 | Are there wheel washing facilities with high pressure jets provided at every vehicle exit point? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 2.02 | Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.03 | Are the excavated materials or exposure soil surface sprayed with water during handling? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.04 | Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.05 | Is the exposed earth properly treated within six months after the last construction activities? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.06 | Are the access roads sprayed with water to maintain the entire road surface wet or paved and speed control (<15km/hr)? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.07 | Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.08 | Is the load on vehicles covered entirely by clean impervious sheeting? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.09 | Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.10 | Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.11 | Is dark smoke emission from plant/equipment avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.12 | Are de-bagging, batching and mixing processes carried out in sheltered areas (3-sided roofed enclosure) during the use of bagged cement? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.13 | Are site vehicles travelling within the speed limit (<15km/hour)? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.14 | Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.15 | Is open burning avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.16 | Are any materials dropped on the roads (Outside the site boundaries) had clean up immediately? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 3: Noise*** | | | | | | | |
| 3.01 | Are noisy equipment and activities positioned as far as practicable from the sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.02 | Is silenced equipment adopted? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.03 | Is idle equipment turned off or throttled down? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.04 | Are all plant and equipment well maintained and in good condition? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.05 | Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.06 | Are hand held breakers fitted with valid noise emission labels during operation? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 3.07 | Are air compressors fitted with valid noise emission labels during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.08 | Are flaps and panels of mechanical equipment closed during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.09 | Are Construction Noise Permit(s) applied for percussive piling works? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 3.10 | Are Construction Noise Permit(s) applied for general construction works during restricted hours? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 3.11 | Are valid Construction Noise Permit(s) posted at site entrances? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 4: Waste/Chemical Management*** | | | | | | | |
| 4.01 | Are receptacles available for general refuse collection? | ☐ | ☑ | ☐ | ☐ | ☐ | |

| | | Not Observed | Yes | No | Follow up | Not Applicable | Photo/ Remarks |
|---|---|---|---|---|---|---|---|
| 4.02 | Is general refuse sorting or recycling implemented? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.03 | Is general refuse disposed of properly and regularly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.04 | Is the Contractor registered as a chemical waste producer? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.05 | Are the chemical waste containers properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.06 | Are the chemical wastes stored in proper storage areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.07 | Is the chemical waste storage area properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.08 | Is the chemical waste storage area used for storage of chemical waste only? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.09 | Are incompatible chemical wastes stored in different areas? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.10 | Are the chemical wastes disposed of by licensed collectors? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.11 | Are trip tickets for chemical wastes disposal available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.12 | Are chemical/fuel storage areas bunded? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.13 | Are designated areas identified for storage and sorting of construction wastes? | ☐ | ☐ | ☐ | ☑ | ☐ | |
| 4.14 | Are construction wastes sorted on site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.15 | Are construction wastes reused? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.16 | Are construction wastes disposed of properly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.17 | Are site hoardings and signboards made of durable materials instead of timber? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.18 | Is trip ticket system implemented for the disposal of construction wastes and records available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.19 | Are appropriate procedures followed if contaminated material exists? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.20 | Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 5: Landscape & Visual*** | | | | | | | |
| 5.01 | Are retained and transplanted trees in health condition? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 5.02 | Are retained and transplanted trees properly protected? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 5.03 | Are surgery works carried out for the damaged trees? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.04 | Is damage to trees outside site boundary due to construction activities avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 5.05 | Is the night-time lighting controlled to minimize glare to sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 6: Others*** | | | | | | | |
| 6.01 | Are relevant Environmental Permits posted at all vehicle site entrances/exits? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 6.02 | Is mosquito control measures adequately implemented? | ☐ | ☑ | ☐ | ☐ | ☐ | **Note 2** |

**Remarks**

***Follow up of last Site Inspection:***

| | |
|---|---|
| 1. Not required for reminders. | |
| 2. Grass was observed dead or dried. | |

***Observations recorded in this Site Inspection: (26-07-2011)***

| | |
|---|---|
| Note 1: Ha Tsuen Pumping Station: Groundwater was pumped to a sedimentation facility prior to treatment. Regular clearing of the accumulated sediment is reminded.<br>Note 2: Shui Tsiu Tsuen Pumping Station: Construction waste were observed scattered within the site. Regular clearing is reminded. | |
| | |

| ***RE's representative*** | ***IEC's representative*** | ***ET's representative*** | ***Contractor's representative*** |
|---|---|---|---|
| ( ) | ( ) | ( Wong Fu Nam ) | ( ) |

# Environmental Site Inspection Checklist (DC200908-23082011)

AUES

| | | | |
|---|---|---|---|
| **Project:** | **DC/2009/08 Construction of Yuen Long South Branch Sewers and Expansion of Ha Tsuen PS** | **Inspected by** | |
| | | **RE's representative:** | K.P. Cheung |
| **Inspection** | | **IEC's representative:** | William Law |
| **Date:** | 23 Aug 2011 | **ET's representative:** | Wong Fu Nam |
| **Time:** | 10:00 | **Contractor's representative:** | Chan Yau Pang/ Jason Chung |
| | | **Checklist No.** | DC200908-23082011 |

**PART A: GENERAL INFORMATION** **Environmental Permit No.: N/A**

| | | | | |
|---|---|---|---|---|
| Weather: | ☐ Sunny | ☑ Fine | ☐ Cloudy | ☐ Rainy |
| Temperature: | 33 $^0$C | | | |
| Humidity: | ☐ High | ☑ Moderate | ☐ Low | |
| Wind: | ☐ Strong | ☐ Breeze | ☑ Light | ☐ Calm |

**PART B: SITE AUDIT**

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

| | | Not Observed | Yes | No | Follow up | Not Applicable | Photo/ Remarks |
|---|---|---|---|---|---|---|---|
| 1.23 | Is used bentonite recycled where appropriate? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 1.24 | Is the sediment laden runoff from the unpaved surface to avoid discharge into the nearby aquatic environments, mash lands and moat ponds? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 2: Air Quality*** | | | | | | | |
| 2.01 | Are there wheel washing facilities with high pressure jets provided at every vehicle exit point? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 2.02 | Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.03 | Are the excavated materials or exposure soil surface sprayed with water during handling? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.04 | Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.05 | Is the exposed earth properly treated within six months after the last construction activities? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.06 | Are the access roads sprayed with water to maintain the entire road surface wet or paved and speed control (<15km/hr)? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.07 | Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.08 | Is the load on vehicles covered entirely by clean impervious sheeting? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.09 | Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.10 | Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.11 | Is dark smoke emission from plant/equipment avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.12 | Are de-bagging, batching and mixing processes carried out in sheltered areas (3-sided roofed enclosure) during the use of bagged cement? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.13 | Are site vehicles travelling within the speed limit (<15km/hour)? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.14 | Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.15 | Is open burning avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.16 | Are any materials dropped on the roads (Outside the site boundaries) had clean up immediately? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 3: Noise*** | | | | | | | |
| 3.01 | Are noisy equipment and activities positioned as far as practicable from the sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.02 | Is silenced equipment adopted? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.03 | Is idle equipment turned off or throttled down? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.04 | Are all plant and equipment well maintained and in good condition? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.05 | Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.06 | Are hand held breakers fitted with valid noise emission labels during operation? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 3.07 | Are air compressors fitted with valid noise emission labels during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.08 | Are flaps and panels of mechanical equipment closed during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.09 | Are Construction Noise Permit(s) applied for percussive piling works? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 3.10 | Are Construction Noise Permit(s) applied for general construction works during restricted hours? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 3.11 | Are valid Construction Noise Permit(s) posted at site entrances? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 4: Waste/Chemical Management*** | | | | | | | |
| 4.01 | Are receptacles available for general refuse collection? | ☐ | ☑ | ☐ | ☐ | ☐ | |

| | | Not Observed | Yes | No | Follow up | Not Applicable | Photo/ Remarks |
|---|---|---|---|---|---|---|---|
| 4.02 | Is general refuse sorting or recycling implemented? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.03 | Is general refuse disposed of properly and regularly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.04 | Is the Contractor registered as a chemical waste producer? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.05 | Are the chemical waste containers properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.06 | Are the chemical wastes stored in proper storage areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.07 | Is the chemical waste storage area properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.08 | Is the chemical waste storage area used for storage of chemical waste only? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.09 | Are incompatible chemical wastes stored in different areas? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.10 | Are the chemical wastes disposed of by licensed collectors? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.11 | Are trip tickets for chemical wastes disposal available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.12 | Are chemical/fuel storage areas bunded? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.13 | Are designated areas identified for storage and sorting of construction wastes? | ☐ | ☐ | ☐ | ☑ | ☐ | |
| 4.14 | Are construction wastes sorted on site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.15 | Are construction wastes reused? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.16 | Are construction wastes disposed of properly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.17 | Are site hoardings and signboards made of durable materials instead of timber? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.18 | Is trip ticket system implemented for the disposal of construction wastes and records available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.19 | Are appropriate procedures followed if contaminated material exists? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.20 | Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 5: Landscape & Visual*** | | | | | | | |
| 5.01 | Are retained and transplanted trees in health condition? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 5.02 | Are retained and transplanted trees properly protected? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 5.03 | Are surgery works carried out for the damaged trees? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.04 | Is damage to trees outside site boundary due to construction activities avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 5.05 | Is the night-time lighting controlled to minimize glare to sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 6: Others*** | | | | | | | |
| 6.01 | Are relevant Environmental Permits posted at all vehicle site entrances/exits? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 6.02 | Is mosquito control measures adequately implemented? | ☐ | ☑ | ☐ | ☐ | ☐ | **Note 2** |

**Remarks**

***Follow up of last Site Inspection:***

| | |
|---|---|
| 1. Not required for reminders. | |
| 2. Scattered construction waste was not observed . | |

***Observations recorded in this Site Inspection: (26-07-2011)***

| | |
|---|---|
| Note 1: Pumping of groundwater ponding was observed along the site. Treatment of the groundwater prior to discharge is reminded.<br>Note 2: Ponding water was observed along the site. Mosquito control measures is reminded. | |
| | |

| ***RE's representative*** | ***IEC's representative*** | ***ET's representative*** | ***Contractor's representative*** |
|---|---|---|---|
| ( ) | ( ) | ( Wong Fu Nam ) | ( ) |

# Environmental Site Inspection Checklist (DC200908-30082011)

AUES

| | | | |
|---|---|---|---|
| **Project:** | **DC/2009/08 Construction of Yuen Long South Branch Sewers and Expansion of Ha Tsuen PS** | **Inspected by** | |
| | | **RE's representative:** | K.P. Cheung |
| **Inspection** | | **IEC's representative:** | William Law |
| **Date:** | 30 Aug 2011 | **ET's representative:** | Wong Fu Nam |
| **Time:** | 10:00 | **Contractor's representative:** | Chan Yau Pang/ Jason Chung |
| | | **Checklist No.** | DC200908-23082011 |

**PART A: GENERAL INFORMATION** **Environmental Permit No.: N/A**

| | | | | |
|---|---|---|---|---|
| Weather: | ☐ Sunny | ☑ Fine | ☐ Cloudy | ☐ Rainy |
| Temperature: | 33 $^0$C | | | |
| Humidity: | ☐ High | ☑ Moderate | ☐ Low | |
| Wind: | ☐ Strong | ☐ Breeze | ☑ Light | ☐ Calm |

**PART B: SITE AUDIT**

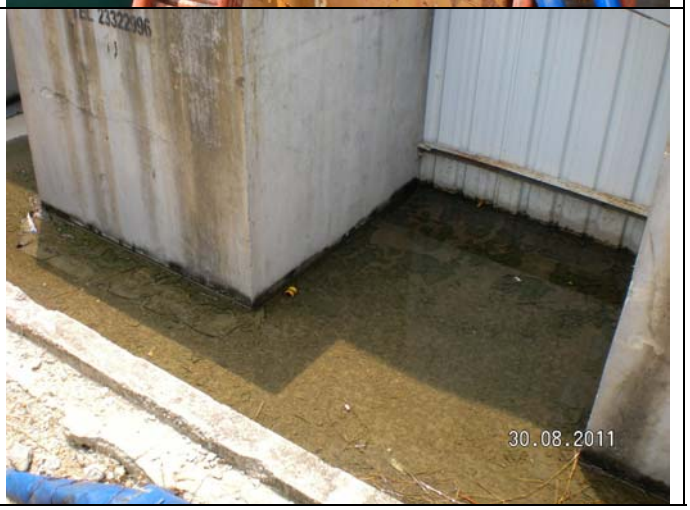
| | | Not Observed | Yes | No | Follow up | Not Applicable | Photo/ Remarks |
|---|---|---|---|---|---|---|---|
| ***Section 1: Water Quality*** | | | | | | | |
| 1.01 | Is an effluent discharge license obtained for the Project? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.02 | Is the effluent discharged in accordance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

| | | Not Observed | Yes | No | Follow up | Not Applicable | Photo/ Remarks |
|---|---|---|---|---|---|---|---|
| 1.23 | Is used bentonite recycled where appropriate? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 1.24 | Is the sediment laden runoff from the unpaved surface to avoid discharge into the nearby aquatic environments, mash lands and moat ponds? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 2: Air Quality*** | | | | | | | |
| 2.01 | Are there wheel washing facilities with high pressure jets provided at every vehicle exit point? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 2.02 | Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.03 | Are the excavated materials or exposure soil surface sprayed with water during handling? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.04 | Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.05 | Is the exposed earth properly treated within six months after the last construction activities? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.06 | Are the access roads sprayed with water to maintain the entire road surface wet or paved and speed control (<15km/hr)? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.07 | Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.08 | Is the load on vehicles covered entirely by clean impervious sheeting? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.09 | Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.10 | Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.11 | Is dark smoke emission from plant/equipment avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.12 | Are de-bagging, batching and mixing processes carried out in sheltered areas (3-sided roofed enclosure) during the use of bagged cement? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.13 | Are site vehicles travelling within the speed limit (<15km/hour)? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.14 | Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.15 | Is open burning avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.16 | Are any materials dropped on the roads (Outside the site boundaries) had clean up immediately? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 3: Noise*** | | | | | | | |
| 3.01 | Are noisy equipment and activities positioned as far as practicable from the sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.02 | Is silenced equipment adopted? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.03 | Is idle equipment turned off or throttled down? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.04 | Are all plant and equipment well maintained and in good condition? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.05 | Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.06 | Are hand held breakers fitted with valid noise emission labels during operation? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 3.07 | Are air compressors fitted with valid noise emission labels during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.08 | Are flaps and panels of mechanical equipment closed during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.09 | Are Construction Noise Permit(s) applied for percussive piling works? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 3.10 | Are Construction Noise Permit(s) applied for general construction works during restricted hours? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 3.11 | Are valid Construction Noise Permit(s) posted at site entrances? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 4: Waste/Chemical Management*** | | | | | | | |
| 4.01 | Are receptacles available for general refuse collection? | ☐ | ☑ | ☐ | ☐ | ☐ | |

| | | Not Observed | Yes | No | Follow up | Not Applicable | Photo/ Remarks |
|---|---|---|---|---|---|---|---|
| 4.02 | Is general refuse sorting or recycling implemented? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.03 | Is general refuse disposed of properly and regularly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.04 | Is the Contractor registered as a chemical waste producer? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.05 | Are the chemical waste containers properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.06 | Are the chemical wastes stored in proper storage areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.07 | Is the chemical waste storage area properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.08 | Is the chemical waste storage area used for storage of chemical waste only? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.09 | Are incompatible chemical wastes stored in different areas? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.10 | Are the chemical wastes disposed of by licensed collectors? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.11 | Are trip tickets for chemical wastes disposal available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.12 | Are chemical/fuel storage areas bunded? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.13 | Are designated areas identified for storage and sorting of construction wastes? | ☐ | ☐ | ☐ | ☑ | ☐ | |
| 4.14 | Are construction wastes sorted on site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.15 | Are construction wastes reused? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.16 | Are construction wastes disposed of properly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.17 | Are site hoardings and signboards made of durable materials instead of timber? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.18 | Is trip ticket system implemented for the disposal of construction wastes and records available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.19 | Are appropriate procedures followed if contaminated material exists? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.20 | Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 5: Landscape & Visual*** | | | | | | | |
| 5.01 | Are retained and transplanted trees in health condition? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 5.02 | Are retained and transplanted trees properly protected? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 5.03 | Are surgery works carried out for the damaged trees? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.04 | Is damage to trees outside site boundary due to construction activities avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 5.05 | Is the night-time lighting controlled to minimize glare to sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 6: Others*** | | | | | | | |
| 6.01 | Are relevant Environmental Permits posted at all vehicle site entrances/exits? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 6.02 | Is mosquito control measures adequately implemented? | ☐ | ☑ | ☐ | ☐ | ☐ | **Note 2** |

**Remarks**

***Follow up of last Site Inspection:***

| | |
|---|---|
| 1. Not required for reminders. |   |
| 2. Not required for reminders. |   |

***Observations recorded in this Site Inspection: (26-07-2011)***

| | |
|---|---|
| Note 1: Treatment tank at Shui Tsiu Sun Tsuen Pumping Station was observed idle. Mosquito control measures is reminded to prevent mosquito breeding.<br>Note 2: Ponding water was observed at Ha Tsuen Pumping Station. Mosquito control measures is reminded. | |
| | |

| ***RE's representative*** | ***IEC's representative*** | ***ET's representative*** | ***Contractor's representative*** |
|---|---|---|---|
| ( ) | ( ) | ( Wong Fu Nam ) | ( ) |