

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

44<sup>TH</sup> ENVIRONMENTAL MONITORING & AUDIT  
MONTHLY REPORT – SEPTEMBER 2013

PREPARED FOR

CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG)  
COMPANY LIMITED

### Quality Index

Date	Reference No.	Prepared By	Certified By
16 October 2013	TCS00491/09/600/R0499v2	 Nicola Hon (Environmental Consultant)	 T.W. Tam (Environmental Team Leader)

Version	Date	Description
1	8 October 2013	First submission
2	16 October 2013	Amended against IEC's comments on 15 October 2013

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17 October 2013

**By Email**

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**Your Ref:**

**Our Ref:** EB000586-F/THW13-14153

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, September 2013 – IEC Verification**

With reference to ET's captioned report (ET's ref.: TCS00491/09/600/R0499v2) received on 16 October 2013, 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 the undersigned on 2911 2744.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'F.C. Tsang', written in a cursive style.

F.C. TSANG  
Independent Environmental Checker  
HYDER CONSULTING LIMITED

FCT/my

## EXECUTIVE SUMMARY

ES01. This is the **44<sup>th</sup>** Monthly Environmental Monitoring and Audit (EM&A) Report for the designated work of Project under Environmental Permit No.EP-327/2009/A (hereinafter ‘the EP’), covering a period from **1 to 30 September 2013** (hereinafter ‘the Reporting Period’).

## ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES02. Environmental monitoring activities under the EM&A programme in this Reporting Period are summarized in the following table.

Aspects	Environmental Monitoring Parameters / Inspection	Occasions
Air Quality	1-hour Total Suspended Particulates (TSP)	<b>36</b>
	24-hour Total Suspended Particulates (TSP)	<b>10</b>
Construction Noise	L <sub>eq(30min)</sub> Daytime	<b>12</b>
Water Quality	Dissolved Oxygen	<b>13</b>
	Turbidity	<b>13</b>
	Suspended Solids	<b>13</b>
Inspection / Audit	ET Weekly Environmental Site Inspection	<b>4</b>

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

ES03. In this reporting period, no exceedance was recorded in air quality, noise and water quality monitoring. The summary of breach of environmental performance is shown below.

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	L <sub>eq(30min)</sub> 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

## SITE INSPECTION

ES04. Regular environmental site inspections had been carried out by ET joined with the Contractor and ER on **3, 10, 18 and 24 September 2013**. No non-compliance was observed during the inspections.

## ENVIRONMENTAL COMPLAINT

ES05. No environmental complaint was recorded / received in this Reporting Period.

## NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES06. No environmental summons and successful prosecutions were recorded in this Reporting Period.

## REPORTING CHANGE

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

## RECOMMENDATIONS

ES08. Since dry season is approaching, special attention should be paid to the dust mitigation measures to avoid fugitive dust emissions from loose soil surface or haul road. Nevertheless, mitigation measures implemented to control the surface runoff including wheel wash facilities,

covering of the loose soil surface or stockpile with tarpaulin sheet, etc., should be properly maintained to prevent any muddy or sandy runoff from the loose soil surface overflow on the site boundary.

- ES09. Other environmental issues such as construction noise as well as waste management, as stipulated in the Environmental Monitoring and Audit Manual should be implemented and maintained, as appropriate.

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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 expansion of 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 Sewage 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 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 of 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 44<sup>th</sup> Monthly EM&A Report – *Expansion of Ha Tsuen Sewage Pumping Station* (hereinafter ‘this Report’) for designated works of the Project under Environmental Permit No.EP-327/2009/A (hereinafter ‘the EP’), covering a period from **1 to 30 September 2013**.

### 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
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<b>SECTION 8</b>	IMPLEMENTATION STATUS OF MITIGATION MEASURES
<b>SECTION 9</b>	IMPACT FORECAST
<b>SECTION 10</b>	CONCLUSIONS AND RECOMMENDATIONS



## 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 program is enclosed in [Appendix C](#). Also, the major construction activities undertaken in this reporting month are listed below:
- Sewerage works and cable drawpit

### 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-327/2009/A)	Updated on 1 June 2010
2	Chemical Waste Producer Registration Registration No. 5213-511-C3570-01	Issued on 13 Nov 2009
3	Water Pollution Control Ordinance (Discharge License) License No. WT00005671-2009	Issued on 12 Jan 2010 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 Sewage 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 EM&A implemented by ET has to include air quality, construction noise and water quality; the landscape and visual impact shall 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	<ul style="list-style-type: none"> <li>1-hour Total Suspended Particulates (hereinafter '1-hr TSP'); and</li> <li>24-hour Total Suspended Particulates (hereinafter '24-hr TSP').</li> </ul>
Construction Noise	<ul style="list-style-type: none"> <li>A-weighted equivalent continuous sound pressure level (30min) (hereinafter '<math>L_{eq(30min)}</math>') during the normal working hours; and</li> <li>A-weighted equivalent continuous sound pressure level (5min) (hereinafter '<math>L_{eq(5min)}</math>') for construction work during the restricted hours.</li> </ul>
Water Quality – Local Stream Course	<ul style="list-style-type: none"> <li>In Situ Measurement - Dissolved Oxygen (DO) and Turbidity</li> <li>Laboratory Analysis - Suspended Solids (SS)</li> </ul>
Water Quality – Effluent Discharge	<ul style="list-style-type: none"> <li>In Situ Measurement - pH value</li> <li>Laboratory Analysis - SS and Chemical oxygen demand (COD)</li> </ul>
Landscape and Visual Resources	<ul style="list-style-type: none"> <li>Vegetation survey undertaken on an "area" basis to identify representative types and species composition;</li> <li>Assessment of landscape character; and</li> <li>Tree survey report (The inspection findings will be submitted separately).</li> </ul>

#### 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 quality and noise monitoring stations and one water quality monitoring station identified as sensitive receivers during construction phase of the Project. For the four designated air quality and noise monitoring stations, two are located within the San Wai STW and other two are within the existing Ha Tsuen Sewage 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 quality 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 access to premises at the other designated air quality monitoring station at Tin Shing Court was 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) was 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 quality monitoring at the designated location Yeung Chun Pui Care & Attention Home was proposed to be performed. The proposal and recommendation was agreed by IEC and as endorsed by EPD.

- 3.06 As requested by the occupants of Yeung Chun Pui Care & Attention Home (AM2) due to safety reasons, the High Volume Air Sampler (HVS) for AM2 was relocated to a nearby location on 27 October 2011. Details of the relocation were given in the October 2011 Monthly EM&A Report.
- 3.07 As reported to the RE and IEC on 16 October 2012, the power supply for the HVS at AM2 was disconnected since the office that provides the electric support has been dismantled. A new location AM2(a) was therefore proposed. The proposal of new location AM2(a) has been formally submit to EPD on 14 November 2012 prior agreement by the RE and IEC. No further comments were received from EPD regards on the proposal.
- 3.08 Details of monitoring stations are presented 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(a)	Site Office opposite to the original location Yeung Chun Pui Care & Attention Home	Replace the Designated Monitoring Station Yeung Chun Pui Care & Attention Home

#### Construction Noise

- 3.09 Similar to the air quality monitoring, the construction noise monitoring stations undertaken for EM&A programme is agreed by IEC and as endorsed by EPD.
- 3.10 Details of the monitoring stations are presented 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

- 3.11 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 are technical difficulty and safety issue to sample at R1. So, a new sampling point located at approximately 160m upstream of the R1 (hereinafter as R1b) was therefore proposed for the local stream water quality impact monitoring and was verified by IEC, without comment from EPD.
- 3.12 Details of the monitoring station are presented in **Table 3-4** and shown 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 m upstream from the designated location as stipulated in the EM&A Manual and is closer to the existing Ha Tsuen Sewage Pumping Station

- 3.13 According to the EM&A Manual Section 4.3.1.5, the effluent water quality monitoring should 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

- 3.14 The inspection area would be around the works area at Ha Tsuen Sewage Pumping Station. During construction regular inspections of the retained and transplanted trees should be made to ensure the effectiveness of the hoarding.

**MONITORING FREQUENCY**

- 3.15 According to the EM&A Manual Sections 2.2.1.27, 3.6 and 4.4.1.8, impact monitoring covers 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  $L_{eq(30min)}$  as 6 consecutive  $L_{eq(5min)}$  between 0700-1900 hours on normal weekdays.

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

Frequency: Once 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 Manual

Frequency: Once every 2 weeks

Duration: Throughout the construction period

- 3.16 Post-project monitoring will be performed at water quality monitoring station of the local stream course. The requirements that 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

- 3.17 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
<b>1-hour TSP</b>	
Portable dust meter	TSI DustTrak Aerosol Monitor Model 8520
<b>24-hour TSP</b>	
High Volume Air Sampler	Thermo Anderson GS 2310 HVS
Calibration Kit	TISCH Model TE-5025A

##### 1-hour TSP

- 3.18 The 1-hour TSP monitoring is conducted with a portable dust meter, brand named, TSI DustTrak Aerosol Monitor Model 8520 which is a portable, battery-operated laser photometer. The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 90° light scattering. The 1-hour TSP monitor consists of the following:

- A pump to draw sample aerosol through the optic chamber where TSP is measured;
- A sheath air system isolates the aerosol in the chamber to keep the optics clean for maximum reliability; and
- A built-in data logger compatible with Windows based program to facilitate data collection, analysis and reporting.

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

##### 24-hour TSP

- 3.20 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:

- An anodized aluminum shelter;
- A 8"x10" stainless steel filter holder;
- A blower motor assembly;
- A continuous flow/pressure recorder;
- A motor speed-voltage control/elapsed time indicator;
- A 7-day mechanical timer; and
- A power supply of 220V/50 Hz.

- 3.21 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.

- 3.22 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 room conditions for six months before disposal.

### Noise

- 3.23 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
Calibrator	B&K Type 4231
Portable Wind Speed Indicator	Testo Anemometer

- 3.24 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 issued under the Noise Control Ordinance (NCO).
- 3.25 Noise measurements were taken in terms of the A-weighted equivalent continuous sound pressure level ( $L_{eq}$ ) measured in decibels (dB). Supplementary statistical results ( $L_{10}$  and  $L_{90}$ ) were also obtained for reference.
- 3.26 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).
- 3.27 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 NM1 and NM2 were normally set in a free field situation.
- 3.28 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

- 3.29 The equipment for water quality 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 SONDE 6820
Turbidimeter	YSI SONDE 6820
Sample Container	High density polythene bottles (provided by laboratory)
Storage Container	'Willow' 33-litter plastic cool box

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

### Dissolved Oxygen (DO) and Turbidity

A multiple meter, brand named YSI SONDE 6820 were used for in-situ DO measurement, which



automates the measurements of temperature, dissolved oxygen, dissolved oxygen saturation, pH, salinity and turbidity simultaneously. The multiple meter is capable of measuring DO in the range of 0 - 20 mg/L. Before each round of monitoring, the multiple meter, is calibrated by the wet bulb method with distilled water. Calibration of the equipment is performed by ALS on quarterly basis.

#### Suspended Solids (SS)

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

#### Water Sampler

- 3.32 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

- 3.33 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

- 3.34 A 'Willow' 33-liter 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°C 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**

- 3.35 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.
- 3.36 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.
- 3.37 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.
- 3.38 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**

- 3.39 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**

- 3.40 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.
- 3.41 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.

- 3.42 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

- 3.43 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 ( $\mu\text{g}/\text{m}^3$ )		Limit Level ( $\mu\text{g}/\text{m}^3$ )	
	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 $L_{eq(30min)}$ 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 $L_{eq(30min)}$ 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°C
Turbidity (NTU)	15.6	16.2
SS (mg/L)	31.5	31.9

- 3.44 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 impact monitoring schedule for air quality, noise and water quality in this Reporting Period is shown 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 **10** events of 24-hour TSP monitoring and **36** 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 ( $\mu\text{g}/\text{m}^3$ )	1-hour TSP ( $\mu\text{g}/\text{m}^3$ )				
		Date	Start Time	1 <sup>st</sup> hour measured	2 <sup>nd</sup> hour measured	3 <sup>rd</sup> hour measured
4-Sep-13	11	2-Sep-13	09:15	37	39	41
10-Sep-13	27	7-Sep-13	09:18	103	93	105
16-Sep-13	20	13-Sep-13	14:18	58	64	65
21-Sep-13	30	19-Sep-13	09:26	133	118	100
27-Sep-13	39	25-Sep-13	09:15	104	98	100
		30-Sep-13	10:00	108	111	106
Average (Range)	<b>25</b> <b>(11-39)</b>	Average (Range)		<b>88</b> <b>(37 –133)</b>		

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

Date	24-hour TSP ( $\mu\text{g}/\text{m}^3$ )	1-hour TSP ( $\mu\text{g}/\text{m}^3$ )				
		Date	Start Time	1 <sup>st</sup> hour measured	2 <sup>nd</sup> hour measured	3 <sup>rd</sup> hour measured
4-Sep-13	24	2-Sep-13	10:19	46	43	41
10-Sep-13	47	7-Sep-13	10:28	97	59	85
16-Sep-13	69	13-Sep-13	14:02	66	79	80
21-Sep-13	80	19-Sep-13	10:39	103	84	82
27-Sep-13	78	25-Sep-13	10:58	100	101	98
		30-Sep-13	11:01	119	114	112
Average (Range)	<b>60</b> <b>(24-80)</b>	Average (Range)		<b>84</b> <b>(41 – 119)</b>		

- 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 graphical plots of the monitoring results are shown in [Appendix J](#). The sound level were measured 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	1 <sup>st</sup> $L_{eq}(5\text{min})$	2 <sup>nd</sup> $L_{eq}(5\text{min})$	3 <sup>rd</sup> $L_{eq}(5\text{min})$	4 <sup>th</sup> $L_{eq}(5\text{min})$	5 <sup>th</sup> $L_{eq}(5\text{min})$	6 <sup>th</sup> $L_{eq}(5\text{min})$	$L_{eq}(30\text{min})$	Corrected* $L_{eq}(30\text{min})$
2-Sep-13	09:18	57.8	58.5	64.2	62.8	61.6	63.6	62	65
7-Sep-13	10:10	59.8	60.7	61.2	60.6	62.2	59.3	61	64
13-Sep-13	14:49	58.1	57.9	57.8	57.3	59.9	60.3	59	62
19-Sep-13	10:13	66.2	64.8	63.5	60.5	62.0	61.8	64	67

Date	Start Time	1 <sup>st</sup> L <sub>eq</sub> (5min)	2 <sup>nd</sup> L <sub>eq</sub> (5min)	3 <sup>rd</sup> L <sub>eq</sub> (5min)	4 <sup>th</sup> L <sub>eq</sub> (5min)	5 <sup>th</sup> L <sub>eq</sub> (5min)	6 <sup>th</sup> L <sub>eq</sub> (5min)	L <sub>eq</sub> (30min)	Corrected* L <sub>eq</sub> (30min)
25-Sep-13	10:16	63.1	61.8	61.1	62.3	60.9	61.8	62	65
30-Sep-13	10:13	58.9	60.0	59.9	59.7	59.2	62.4	60	63
<b>Limit Level</b>		<b>-</b>						<b>70 dB(A)</b>	

(\*) 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	1 <sup>st</sup> L <sub>eq</sub> (5min)	2 <sup>nd</sup> L <sub>eq</sub> (5min)	3 <sup>rd</sup> L <sub>eq</sub> (5min)	4 <sup>th</sup> L <sub>eq</sub> (5min)	5 <sup>th</sup> L <sub>eq</sub> (5min)	6 <sup>th</sup> L <sub>eq</sub> (5min)	L <sub>eq</sub> (30min)	Corrected* L <sub>eq</sub> (30min)
2-Sep-13	10:20	58.9	57.0	57.1	57.3	59.2	58.8	58	61
7-Sep-13	11:19	59.3	60.8	62.0	61.2	61.6	61.8	61	64
13-Sep-13	13:51	60.4	61.2	60.1	60.7	59.8	59.5	60	63
19-Sep-13	11:19	66.4	64.4	63.4	60.4	61.4	61.7	63	66
25-Sep-13	11:17	61.4	60.5	61.5	61.6	60.6	60.8	61	64
30-Sep-13	11:21	61.7	61.0	61.6	62.3	61.1	60.7	61	64
<b>Limit Level</b>		<b>-</b>						<b>70 dB(A)</b>	

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

- 4.06 In this Reporting Period, no noise complaint (which is an Action Level exceedance) was received. As shown in [Tables 4-3](#) and [4-4](#), no Limit level exceedance was recorded and no corrective action was therefore required. The graphical plots of the monitoring results are shown in [Appendix J](#).

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

- 4.07 In this Reporting Period, 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 of the monitoring results are shown in [Appendix J](#).
- 4.08 Monitoring results of 3 key parameters: dissolved oxygen (DO), turbidity and suspended solids (SS) in this Reporting Period, 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)
2-Sep-13	6.4	14.8	6.0
5-Sep-13	5.4	14.0	24.0
7-Sep-13	6.0	10.6	10.0
9-Sep-13	5.9	12.6	13.0
11-Sep-13	6.9	9.5	6.0
13-Sep-13	6.9	10.0	19.0
17-Sep-13	4.6	8.0	15.0
19-Sep-13	5.1	7.3	8.0
21-Sep-13	4.7	9.9	15.0
23-Sep-13	5.3	10.7	8.0
25-Sep-13	6.9	11.3	11.0
27-Sep-13	6.0	14.5	11.0
30-Sep-13	4.7	4.3	20.0

- 4.09 During the Reporting Period, field measurements showed that water temperature and pH value of the local stream are within **24.2°C** to **29.7°C** and **6.8** to **8.6** respectively.
- 4.10 In Reporting Period, no exceedance of water quality monitoring recorded at water samples collected from location “R1b”. No NOE was therefore issued and no corrective measures recommended.

**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.

**RESULTS OF EFFLUENT MONITORING**

- 4.12 Monitoring of effluent quality should follow the requirements specified in Section 4.3 of the approved EM&A Manual. A discharge license under Water Pollution Control Ordinance has been obtained by the Contractor upon commencement of the Project. The licensee shall perform self-monitoring as and when required by the Authority.
- 4.13 Since no effluent discharge was made in this Reporting Period, no effluent quality monitoring was carried out by the Contractor.

## 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 <sup>3</sup> )	0	-
Reused in this Contract (Inert) (m <sup>3</sup> )	0	-
Reused in other Projects (Inert) (m <sup>3</sup> )	0	-
Disposal as Public Fill (Inert) (m <sup>3</sup> )	823	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 <sup>3</sup> )	1	NENT

- 5.04 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 license 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 **3, 10, 18 and 24 September 2013** 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 Sewage 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 Status
3 September 2013	- Dusty access road was observed inside Ha Tsuen Sewage Pumping Station, the Contractor should implement dust suppressive measures.	No dusty access road was observed in Ha Tsuen Sewage Pumping Station on 10 September 2013.
10 September 2013	No adverse environmental impact was observed during site inspection	N.A.
18 September 2013	<ul style="list-style-type: none"> <li>- Free standing chemical container was observed in Ha Tsuen Sewage Pumping Station, the Contractor should provide drip tray underneath or remove them after used.</li> <li>- Uncovered gravel was observed at Ha Tsuen Sewage Pumping Station, the Contractor should cover it with impervious sheet to minimize dust impact.</li> </ul>	<ul style="list-style-type: none"> <li>- Free standing chemical containers in Ha Tsuen Sewage Pumping Station were removed on 24 September 2013.</li> <li>- Uncovered gravel in Ha Tsuen Sewage Pumping Station was removed on 24 September 2013.</li> </ul>
24 September 2013	- Stockpile of construction waste was observed in Ha Tsuen Sewage Pumping Station, the Contractor should dispose the waste on regular basis.	- Stockpile of construction waste was cleaned on 8 October 2013.

## 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)
Jan – Dec 2011	0	3	NA
Jan – Dec 2012	0	3	NA
Jan –Aug 2013	0	3	NA
Sep 2013	0	3	NA

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

Reporting Period	Environmental Summon Statistics		
	Frequency	Cumulative	Complaint Nature
Feb – Dec 2010	0	0	NA
Jan – Dec 2011	0	0	NA
Jan – Dec 2012	0	0	NA
Jan –Aug 2013	0	0	NA
Sep 2013	0	0	NA

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

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
Feb – Dec 2010	0	0	NA
Jan – Dec 2011	0	0	NA
Jan – Dec 2012	0	0	NA
Jan –Aug 2013	0	0	NA
Sep 2013	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 and 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 filter 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 Sewage 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 minimize 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 handling 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 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 as fill material to minimize the quantity of waste to be disposed of to landfill;
- (e) Proper storage and site practices to minimize the potential for damage or contamination of construction materials; and
- (f) Plan and stock construction materials carefully to minimize 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 screening 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**

<b>Issues</b>	<b>Environmental Mitigation Measures</b>
Water Quality	<ul style="list-style-type: none"> <li>• Wastewater were appropriately treated by treatment facilities;</li> <li>• Drainage channels were provided to convey run-off into the treatment facilities;</li> <li>• Drainage systems were regularly and adequately maintained.</li> <li>• De-silting facility was provided to treat the discharged water; also the treated water was reused for spraying the road surface;</li> <li>• Exposed stockpiles and exposed soil surfaces were covered with tarpaulin or impervious sheets to minimize dust emission;</li> <li>• The stockpiles of materials were placed in the locations away from the drainage channel so as to avoid releasing materials into the channel;</li> <li>• Wheel washing facilities has been provided at site exits to ensure that earth, mud and debris would not be carried out of the works areas by vehicles;</li> <li>• A discharge licence was issued by EPD for discharging effluent from the construction site;</li> <li>• A licensed waste collector have been applied from EPD; and</li> <li>• Illegal disposal of chemicals should be strictly prohibited.</li> </ul>

Issues	Environmental Mitigation Measures
Air Quality	<ul style="list-style-type: none"> <li>Regular watering to reduce dust emissions from all exposed site surface, particularly during dry weather;</li> <li>Frequent watering for particularly dusty construction areas and areas close to air sensitive receivers;</li> <li>Cover all excavated or stockpile of dusty material by impervious sheeting or sprayed with water to maintain the entire surface wet;</li> <li>Public roads around the site entrance/exit had been kept clean and free from dust;</li> <li>Tarpaulin covering of any dusty materials on a vehicle leaving the site;</li> <li>Water sprinkler system was provided at haul road to reduce dust emissions during the vehicles passing through the haul road;</li> <li>The vehicle speed within the site is limited to 5km/hr; and</li> <li>Wheel washing facilities have been provided at the site exit.</li> </ul>
Noise	<ul style="list-style-type: none"> <li>Good site practices to limit noise emissions at the sources;</li> <li>Use of quiet plant and working methods according to EP-327/2009/A;</li> <li>Use of site hoarding with noise barriers to screen noise at ground level of NSRs;</li> <li>Use of shrouds/temporary noise barriers to screen noise from relatively static PMEs according to EP-327/2009/A;</li> <li>Use of temporary noise barrier with surface density <math>7\text{kg/m}^2</math> 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;</li> <li>Idle equipment are turned off or throttled down;</li> <li>No construction works shall be undertaken during school examination period in the Ha Tsuen Sewage Pumping Station according to EP-327/2009/A; and</li> <li>Alternative use of plant items within one worksite, where practicable.</li> </ul>
Waste and Chemical Management	<ul style="list-style-type: none"> <li>Excavated material was reused on site as far as possible to minimize off-site disposal. Scrap metals or abandoned equipment was recycled if possible;</li> <li>Waste arising was kept to a minimum and be handled, transported and disposed of in a suitable manner;</li> <li>The Contractor adopted a trip ticket system for the disposal of C&amp;D materials to any designed public filling facility and/ or landfill;</li> <li>Chemical waste was handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes;</li> <li>Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;</li> <li>To encourage collection of aluminium cans by individual collectors, separate bins were provided to segregate this waste from other general refuse generated by the workforce;</li> <li>Any unused chemicals or those with remaining functional capacity were recycled;</li> <li>Prior to disposal of C&amp;D waste, wood, steel and other metals were separated for re-use and recycling and inert waste as fill material to minimize the quantity of waste to be disposed of to landfill;</li> <li>Proper storage and site practices to minimize the potential for damage or contamination of construction materials; and</li> <li>Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.</li> </ul>
Landscape and Visual	<ul style="list-style-type: none"> <li>Hoarding was erected around site boundary properly;</li> <li>The transplanted tree and landscaping plants were kept in regular inspection;</li> <li>All preserved trees were protected and fenced off properly;</li> <li>No construction activities were carried out in the protection zone of the preserved trees.</li> </ul>
General	<ul style="list-style-type: none"> <li>The site was generally kept tidy and clean.</li> </ul>

## 9. IMPACT FORECAST

### 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 impact due to surface runoff;
- Potential fugitive dust impact 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 in the nullah are prohibited;
- Follow-up of improvement on general waste management issues; and
- Implementation of construction noise preventative control measures.

## 10. CONCLUSIONS AND RECOMMENDATIONS

### CONCLUSIONS

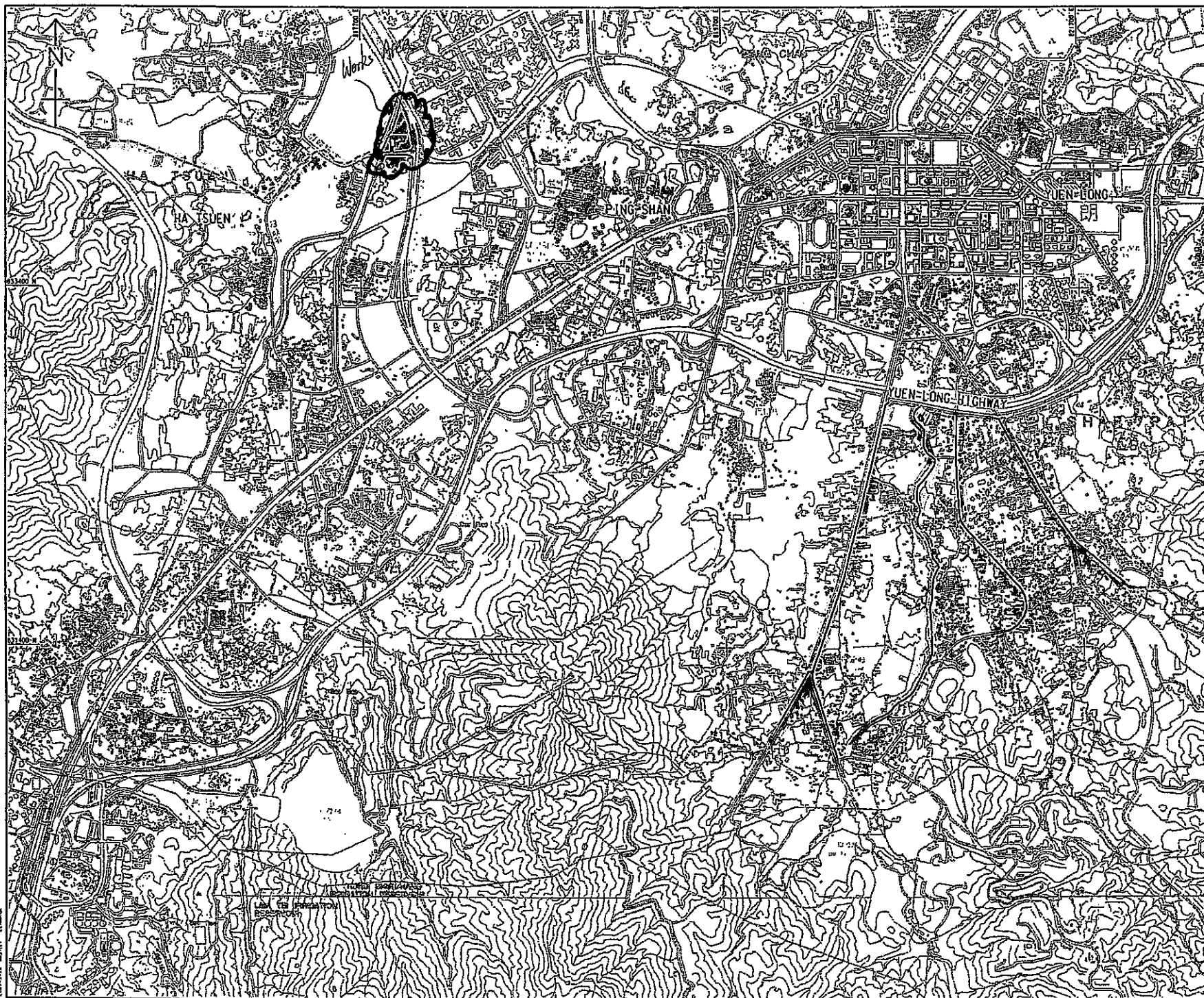
- 10.01 This is the **44<sup>th</sup>** Monthly EM&A Report for the designated work of the Project, covering the construction period from **1** to **30 September 2013**.
- 10.02 No 1-hour TSP and 24-hour TSP monitoring results that triggered the Action or Limit Level was recorded in this Reporting Period.
- 10.03 No noise complaint (which is an Action Level exceedance) was received and no construction noise measurement results exceeded the Limit Level were recorded in this Reporting Period.
- 10.04 No Action/Limit Level exceedance was recorded for the water quality monitoring during Reporting Period.
- 10.05 No effluent quality monitoring was carried out by the Contractor in this Reporting Period.
- 10.06 No documented complaint, notification of summons or successful prosecution was received.
- 10.07 Regular environmental site inspections had been carried out by ET joined with the Contractor and ER on **3, 10, 18 and 24 September 2013**. No non-compliance was observed during the inspections. Overall, 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 dry season, special attention should be paid to the dust mitigation measures to avoid fugitive dust emissions from loose soil surface or haul road. Nevertheless, mitigation measures implemented to control the surface runoff including wheel wash facilities, covering of the loose soil surface or stockpile with tarpaulin sheet, etc., should be properly maintained to prevent any muddy or sandy runoff from the loose soil surface overflow on the site boundary.
- 10.10 Other environmental issues such as construction noise as well as waste management, as stipulated in the Environmental Monitoring and Audit Manual should be implemented and maintained, as appropriate.
- 10.11 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**



# LEGEND:

- SEWERAGE PIPE
- RISING MAIN
- SEWER PUMPING STATION

1	TENDER DRAWING	05/01/2017	05-09
2	REVISION		

**D** 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 SEWER PUMPING STATION

LOCATION PLAN

AECOM

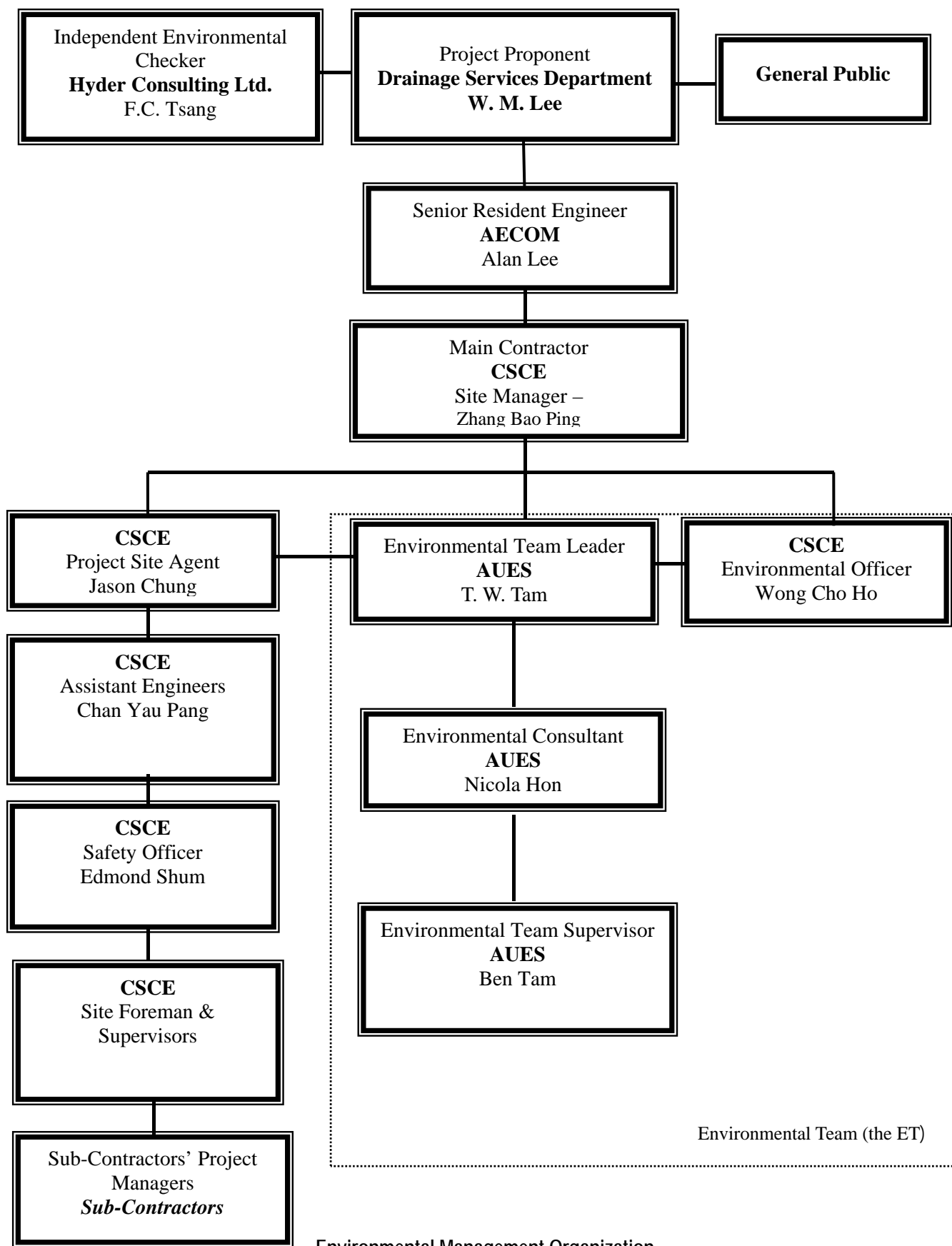
DWG NO. 60022017/C1/1001

DATE	05/01/2017	SCALE	1:10000
BY	05/01/2017	DATE	05/01/2017
BY	05/01/2017	DATE	05/01/2017
BY	05/01/2017	DATE	05/01/2017

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## **Appendix B**

### **On-site environmental management**





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	Senior Resident Engineer	Mr. Alan Lee	9706 9568	2472 0132
Hyder	Independent Environmental Checker	Dr. F C Tsang	2911 2744	2805 5028
CSCE	Site Manager	Mr. Zhang Bao Ping	2472 0113	2472-0229
CSCE	Site Agent	Mr. Jason Chung	2472 0113	2472-0229
CSCE	Site Engineer	Mr. Michael Kan	2472 0113	2472-0229
CSCE	Environmental Officer	Mr. Wong Cho Ho	2472 0113	2472-0229
CSCE	Safety Officer	Mr. Edmond Sham	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	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**

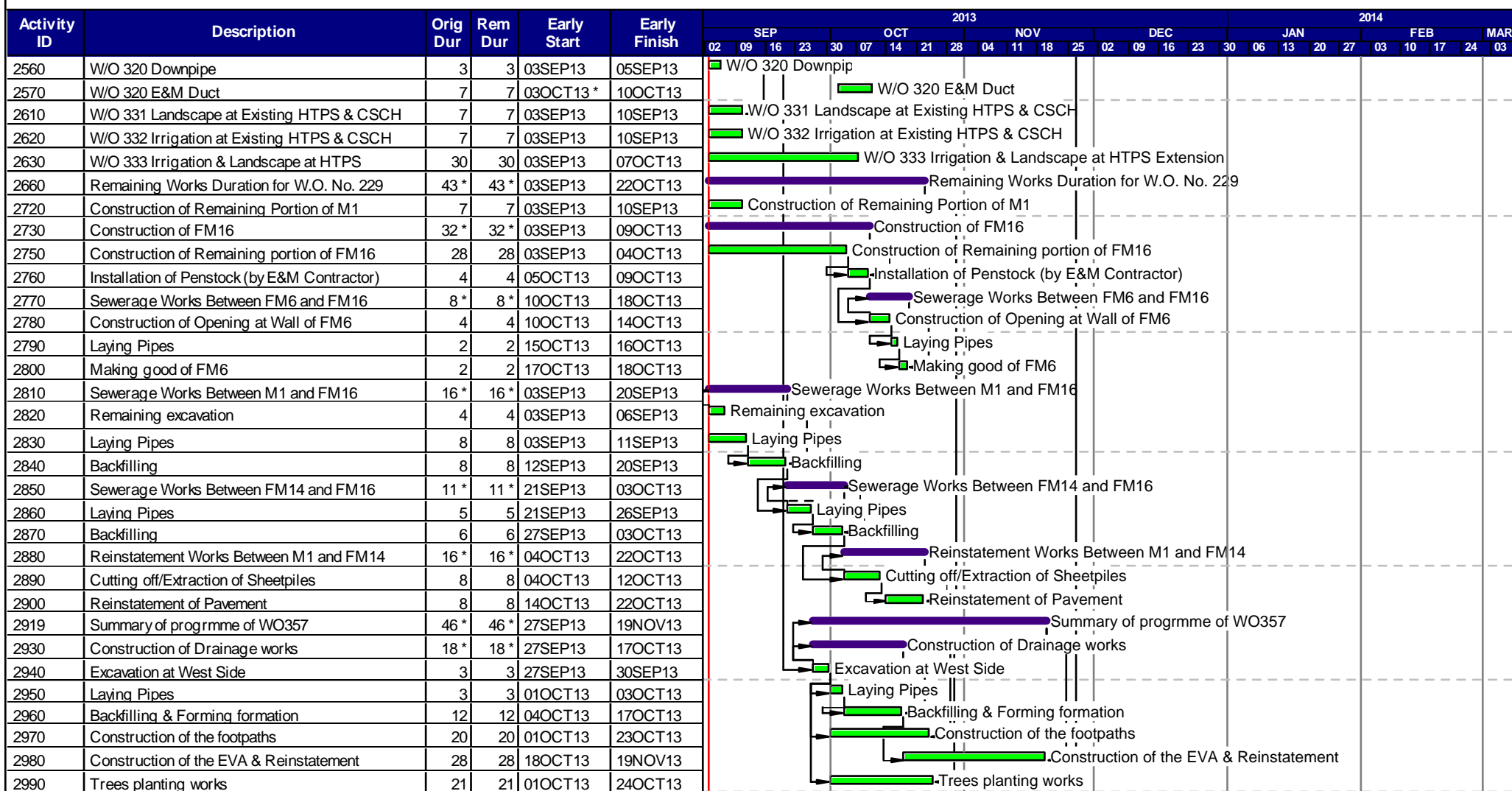
Contract No. DC/2009/08  
Construction of Yuen Long South Branch Sewers and Expansion of Ha Tsuen Sewage Pumping Station

Activity ID	Description	Orig Dur	Rem Dur	Early Start	Early Finish	2013												2014																			
						SEP				OCT				NOV				DEC				JAN				FEB				MAR							
						02	09	16	23	30	07	14	21	28	04	11	18	25	02	09	16	23	30	06	13	20	27	03	10	17	24	03					
1000	Summary of Ha Tsuen Pumping Station Works	67 *	67 *	03SEP13	19NOV13	Summary of Ha Tsuen Pumping Station Works																															
1180	Summary of progrmme of WO111	17 *	17 *	03SEP13	21SEP13	Summary of progrmme of WO111																															
1360	Ch387 reinstate Road surface	7	7	03SEP13	10SEP13	Ch387 reinstate Road surface																															
1545	Ch580 Reinstate Box Culvert	7	7	03SEP13	10SEP13	Ch580 Reinstate Box Culvert																															
1559	Ch580 Reinstate Planter	10	10	11SEP13	21SEP13	Ch580 Reinstate Planter																															
1570	Summary of progrmme of WO234	16 *	16 *	03SEP13	20SEP13	Summary of progrmme of WO234																															
1620	Ch815 reinstate UU	7	7	03SEP13	10SEP13	Ch815 reinstate UU																															
1650	Ch815 reinstate road surface	7	7	11SEP13	18SEP13	Ch815 reinstate road surface																															
1710	Ch900 Reinstate UU	7	7	03SEP13	10SEP13	Ch900 Reinstate UU																															
1730	Ch900 Reinstate road surface	7	7	11SEP13	18SEP13	Ch900 Reinstate road surface																															
1790	Ch1130 Reinstate UU	7	7	03SEP13	10SEP13	Ch1130 Reinstate UU																															
1800	Ch1130 Reinstate Road surface	4	4	11SEP13	14SEP13	Ch1130 Reinstate Road surface																															
1850	Ch1260 Backfilling	3	3	03SEP13	05SEP13	Ch1260 Backfilling																															
1860	Ch1260 Reinstate UU	2	2	06SEP13	07SEP13	Ch1260 Reinstate UU																															
1870	Ch1260 Remove sheet piles	7	7	09SEP13	16SEP13	Ch1260 Remove sheet piles																															
1880	Ch1260 Reinstate road surface	4	4	17SEP13	20SEP13	Ch1260 Reinstate road surface																															
1900	Summary of progrmme of WO238	28 *	28 *	03SEP13	04OCT13	Summary of progrmme of WO238																															
1960	Ch387 reinstate Road surface	7	7	03SEP13	10SEP13	Ch387 reinstate Road surface																															
2070	Ch280 Backfilling	7	7	03SEP13	10SEP13	Ch280 Backfilling																															
2080	Ch280 Remove Sheet piles	9	9	11SEP13	20SEP13	Ch280 Remove Sheet piles																															
2090	Ch280 Reinstate UU	5	5	21SEP13	26SEP13	Ch280 Reinstate UU																															
2100	Ch280 Reinstate Road Surface	7	7	27SEP13	04OCT13	Ch280 Reinstate Road Surface																															
2121	Summary of progrmme of WO248	7 *	7 *	03SEP13	10SEP13	Summary of progrmme of WO248																															
2180	Ch1615 Reinstae Road Surface	7	7	03SEP13	10SEP13	Ch1615 Reinstae Road Surface																															
2200	Summary of progrmme of WO258	7 *	7 *	03SEP13	10SEP13	Summary of progrmme of WO258																															
2250	Install D1200 pipe from flowment to PS	7	7	03SEP13	10SEP13	Install D1200 pipe from flowment to PS																															
2260	Backfilling	7	7	11SEP13	18SEP13	Backfilling																															
2270	Remove sheet piles	7	7	19SEP13	26SEP13	Remove sheet piles																															
2400	Summary of remaining works at HTPS	7 *	7 *	03SEP13	10SEP13	Summary of remaining works at HTPS																															
2430	Summary of W/O 320	77 *	77 *	03SEP13	30NOV13	Summary of W/O 320																															
2500	W/O 320 Wooden Facade at HTPS Extension	7	7	03SEP13	10SEP13	W/O 320 Wooden Facade at HTPS Extension																															
2510	W/O 320 Pumping System (Water Pipes)	14	14	03SEP13	18SEP13	W/O 320 Pumping System (Water Pipes)																															
2530	W/O 320 Wall tile in Ground Beam & External Wall	14	14	03SEP13	18SEP13	W/O 320 Wall tile in Ground Beam & External Wall																															

## Summary of Remaining Works in Ha Tsuen Area

Start date	03SEP13	 Early bar
Finish date	19NOV13	 Progress bar
Run date	03SEP13	 Critical bar
Page number	1A	 Summary bar
Company name	CSHK	 Start milestone point
c Primavera Systems, Inc.		 Finish milestone point

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



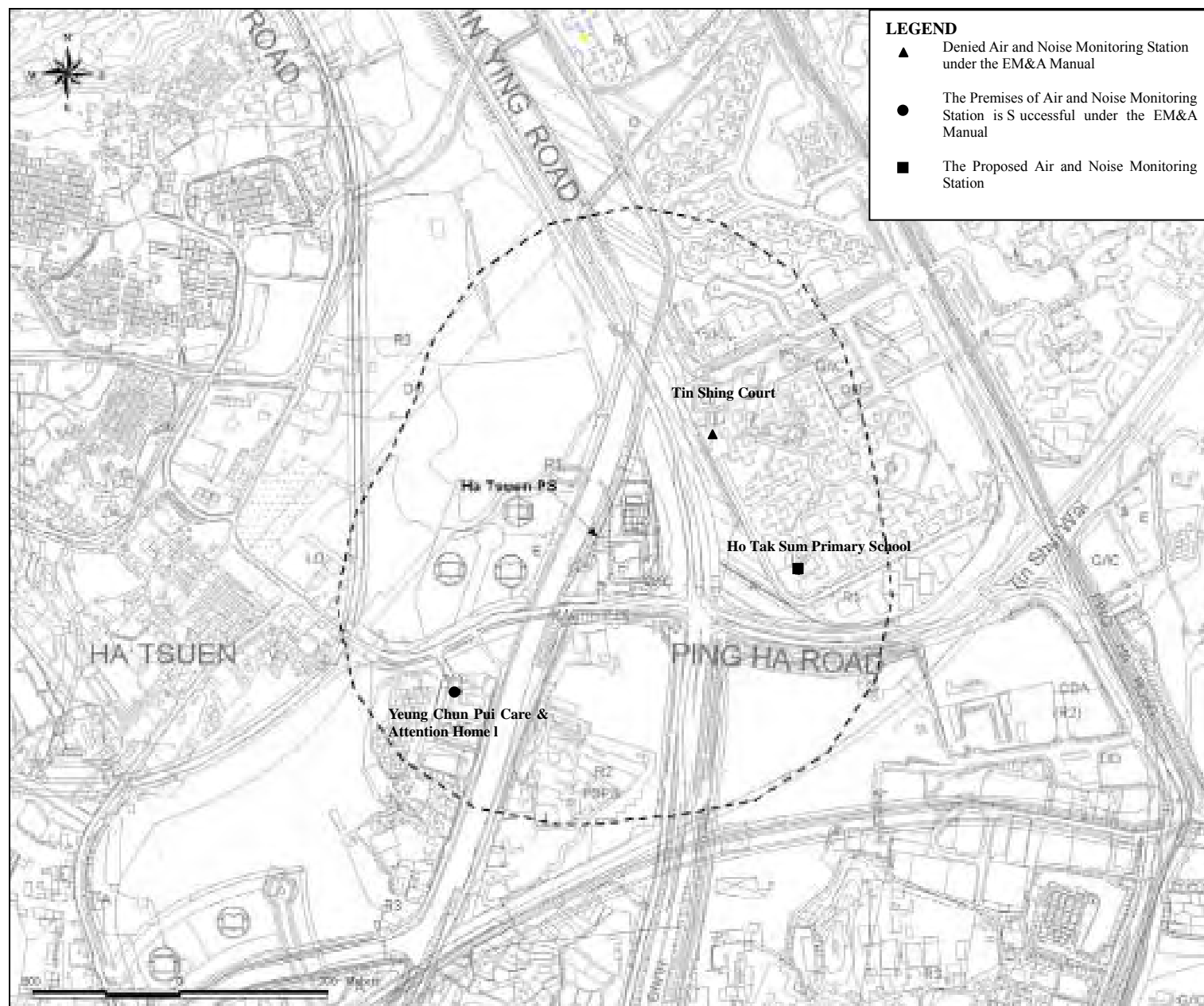
Start date	03SEP13		Early bar
Finish date	19NOV13		Progress bar
Run date	03SEP13		Critical bar
Page number	2A		Summary bar
Company name	CSHK		Start milestone point
c Primavera Systems, Inc.			Finish milestone point

Summary of Remaining Works in Ha Tsuen Area

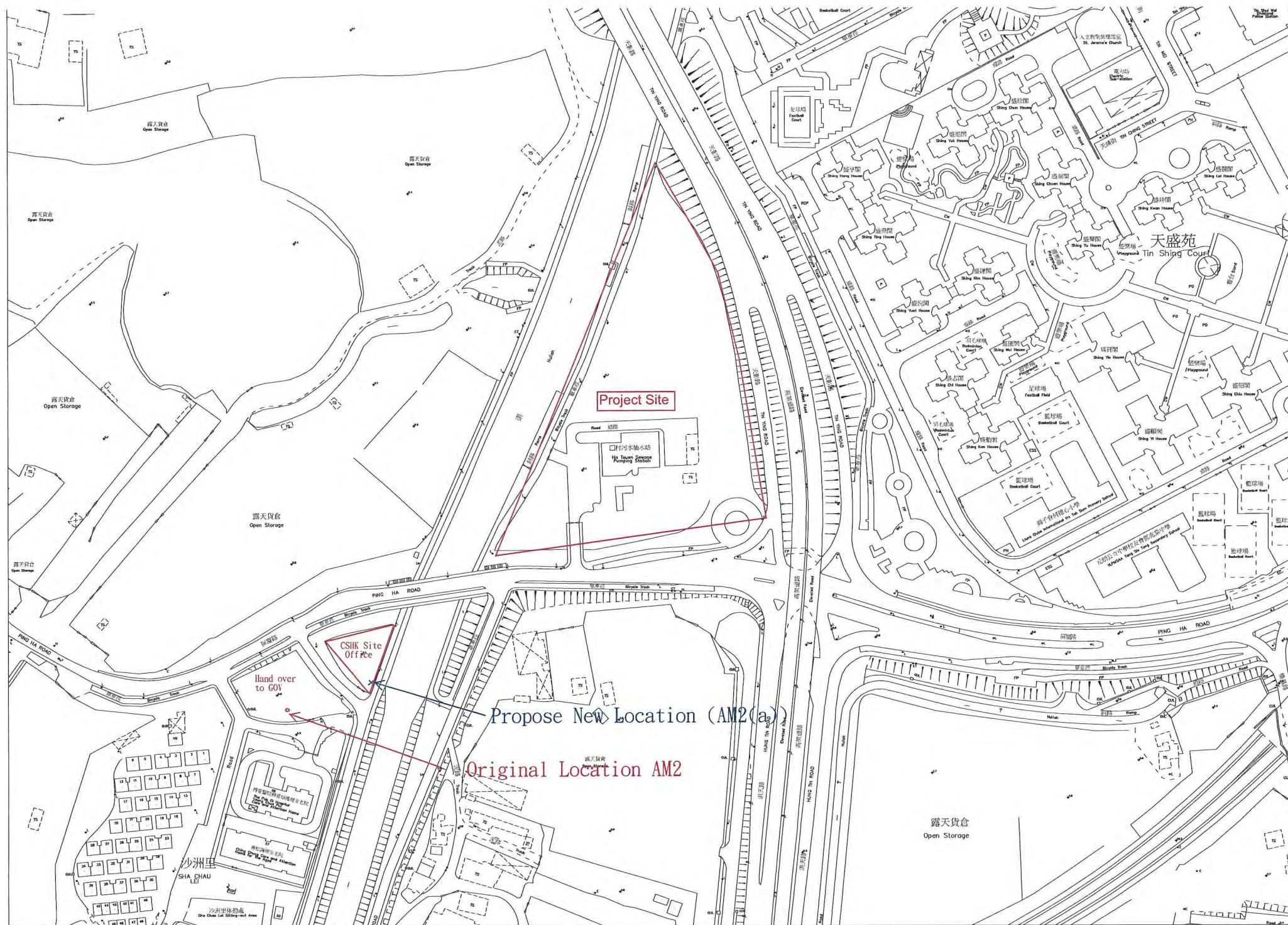
## **Appendix D**

### **Monitoring Location of EM&A Programme**

Proposed Air and Noise Monitoring Station



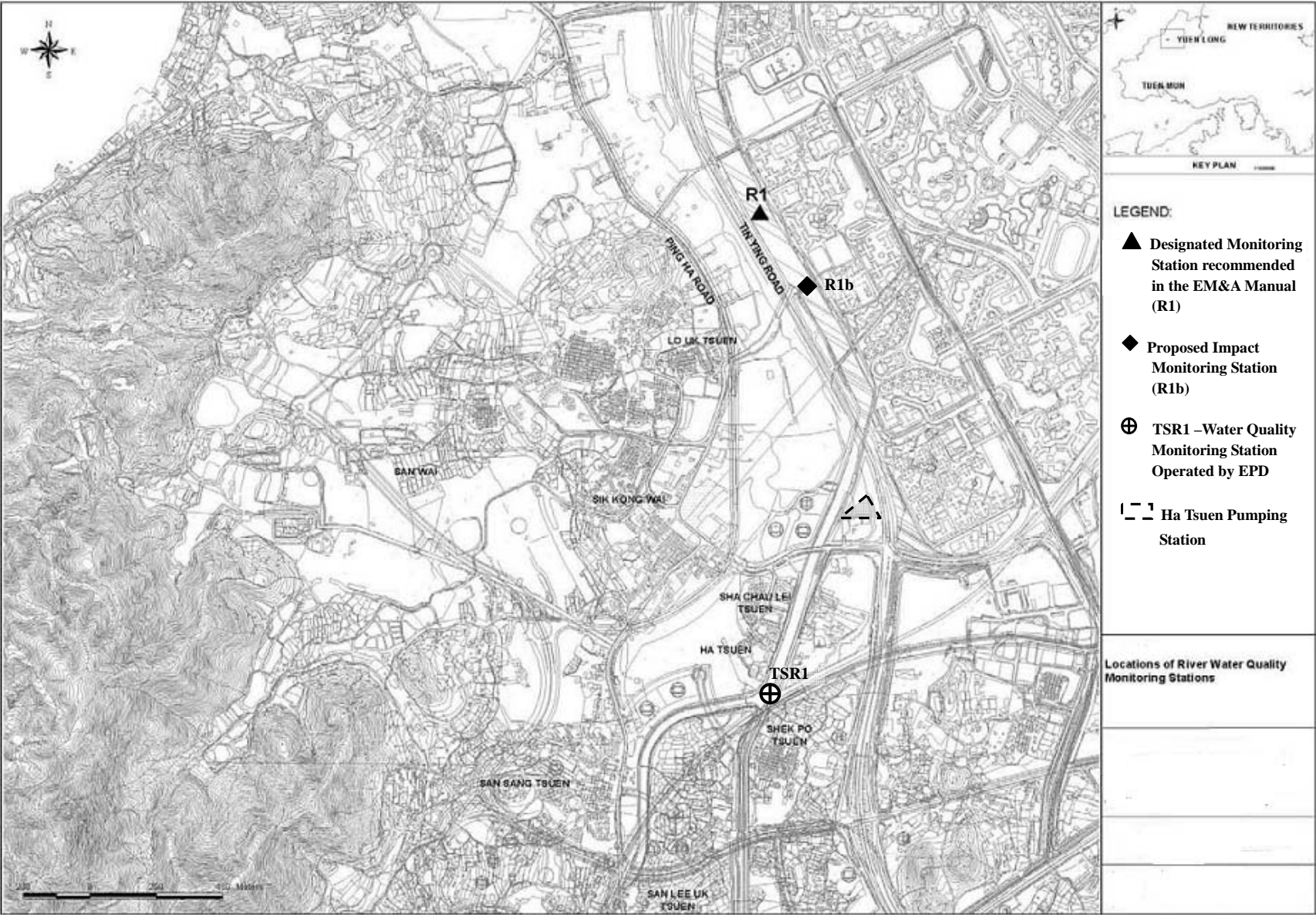




**DSD Contract No. DC/2009/08 – Construction of Yuen Long South Branch Sewers  
And Extension of Ha Tsuen Sewage Pumping Station**

**Proposed Water Quality Monitoring Location**

**AUES**





## **Appendix E**

### **Calibration certificates**

### Equipment Calibration Certificates List

Item s	Aspect	Description of Equipment	Date of Calibration	Date of Next Calibration
1	Air	Thermo Anderson Model GS2310 TSP high volume air sampling system (AM1 – Ho Tak Sum Primary School)	30 Jul 13	30 Sep 13
2		Thermo Anderson Model GS2310 TSP high volume air sampling system (AM2(a) Yeung Chun Pui Care & Attention Home)	28 Aug 13	28 Oct 13
3		Calibration Kit TISCH Model TE-5025A Orifice ID 1941 and Rootsmeter S/N 0438320	9 Apr 13	9 Apr 14
4		TSI DustTrak Model 8520 (Serial number: 23079)	17 Jun 13	17 Jun 14
5	Noise	Bruel & Kjaer 4231 Acoustical Calibrator (Serial number 2326408)	15 Apr 13	15 Apr 14
6		Bruel & Kjaer 2238 Integrating Sound Level Meter (Serial number: 2285762)	27 Apr 13	27 Apr 14
7	Water	YSI SONDE YS4I 6820 (Serial number: 02J0912)	12 Jul 13	12 Oct 13

## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

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

Date of Calibration: 30-Jul-13  
Next Calibration Date: 30-Sep-13  
Technician: Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)  
Temperature (°C)

1009.7  
25.7

Corrected Pressure (mm Hg)  
Temperature (K)

757.275  
299

### CALIBRATION ORIFICE

Make-> TISCH  
Model-> 5025A  
Calibration Date-> 9-Apr-13

Qstd Slope -> 2.11662  
Qstd Intercept -> -0.01714  
Expiry Date-> 9-Apr-14

### CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5	5	10	1.498	49	48.80	Slope = 29.9241
13	3.7	3.7	7.4	1.289	43	42.82	Intercept = 4.2609
10	2.4	2.4	4.8	1.040	36	35.85	Corr. coeff. = 0.9990
7	1.7	1.7	3.4	0.877	31	30.87	
5	1.0	1.0	2	0.674	24	23.90	

#### Calculations :

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

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

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration ( deg F)

Pstd = actual pressure during calibration ( mm Hg)

#### For subsequent calculation of sampler flow:

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

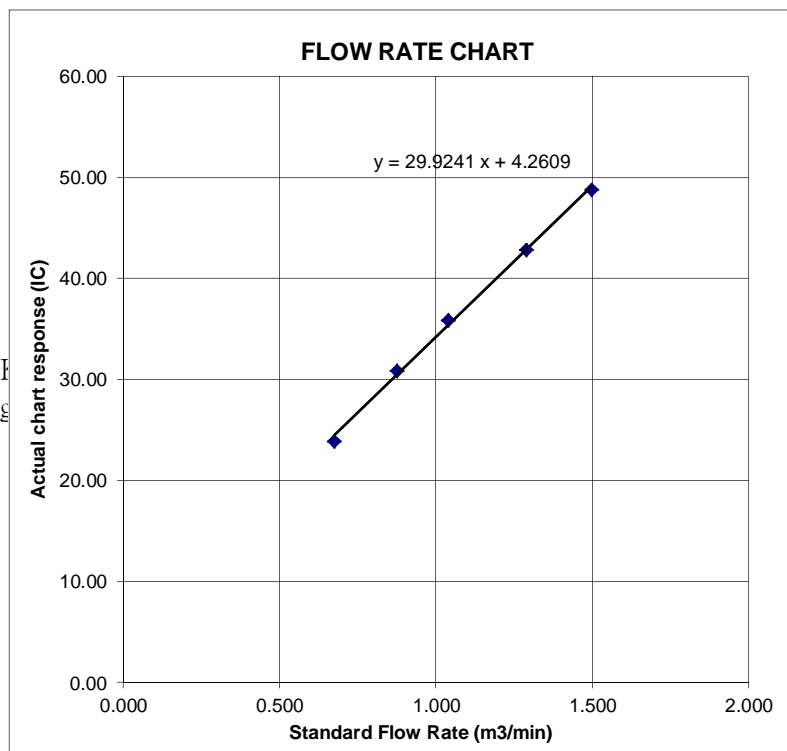
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Yeung Chun Pui Care & Attention Home  
Location ID : AM2(a)

Date of Calibration: 28-Aug-13  
Next Calibration Date: 28-Oct-13  
Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa) 1005.2  
Temperature (°C) 29.7

Corrected Pressure (mm Hg) 753.9  
Temperature (K) 303

### CALIBRATION ORIFICE

Make-> TISCH  
Model-> 5025A  
Calibration Date-> 9-Apr-13

Qstd Slope -> 2.11662  
Qstd Intercept -> -0.01714  
Expiry Date-> 9-Apr-14

### CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	4.4	4.4	8.8	1.393	50	49.03	Slope = 32.0582
13	3.3	3.3	6.6	1.208	42	41.18	Intercept = 3.2180
10	2.3	2.3	4.6	1.009	35	34.32	Corr. coeff. = 0.9941
7	1.5	1.5	3.0	0.817	30	29.42	
5	1.0	1.0	2.0	0.668	26	25.49	

#### Calculations :

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

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

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration ( deg C)

Pstd = actual pressure during calibration ( mm Hg)

#### For subsequent calculation of sampler flow:

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

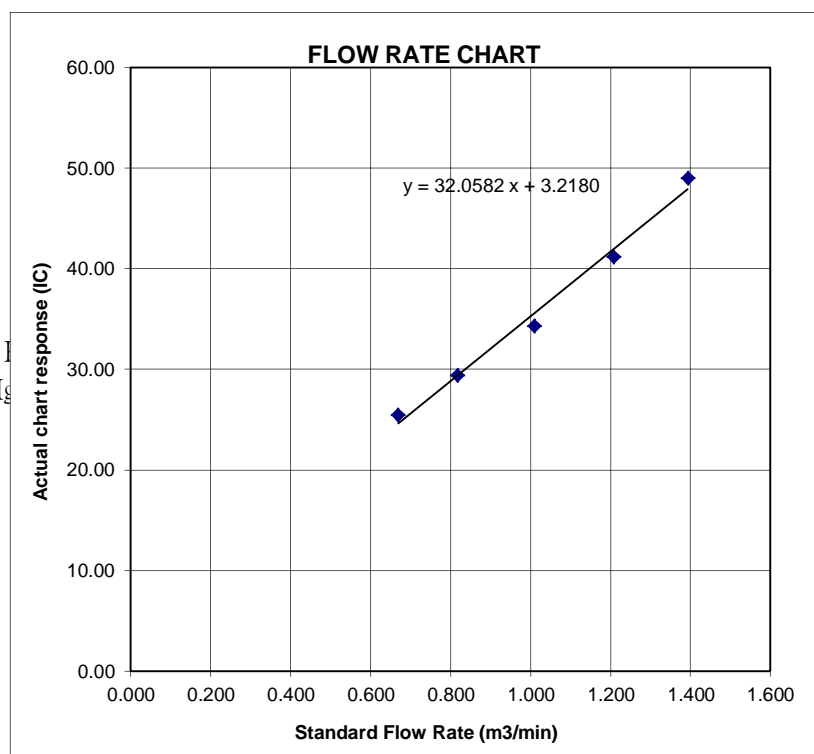
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure





# CERTIFICATE OF CALIBRATION AND TESTING

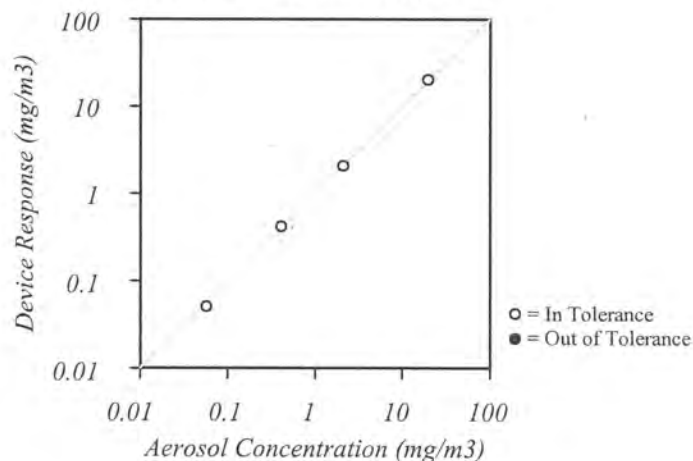
TSI Instruments Ltd, Stirling Road, Cressex Business Park  
High Wycombe Bucks HP12 3ST England  
Tel: (Int +44) (UK 0) 1494 459200 Fax: (Int +44) (UK 0) 1494 459700 <http://www.tsiinc.co.uk>

Environment Condition			Model	8520
Temperature	23.5	°C	Serial Number	23079
Relative Humidity	41.92	%RH		
Barometric Pressure	996.6	hPa		

☒ As Left  
☐ As Found

☒ In Tolerance  
☐ Out of Tolerance

Concentration Linearity Plot



System ID: DTII02-01

## Zero Stability Results

Average:	Minimum:	Maximum:	Time:
0.000 :mg/m <sup>3</sup>	0.000 :mg/m <sup>3</sup>	0.001 :mg/m <sup>3</sup>	4.00 :hrs.

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

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Barometric Pressure	E006013	18-03-13	18-03-14	Temperature	E006014	18-03-13	18-03-14
Humidity	E006014	18-03-13	18-03-14	Photometer	E003336	06-03-13	06-09-13
Microbalance	UK 23403008	07-01-13	07-01-14	Flow and Temperature	E006128	29-01-13	29-01-14
Pressure	E006013	18-03-13	18-03-14	DC Voltage	E003323	19-10-12	19-10-13

S. L.

Calibrated

☒ Final Function  
Check

17 June, 2013

Date





TISCH ENVIRONMENTAL, INC.  
145 SOUTH MIAMI AVE.  
VILLAGE OF CLEVELAND, OH 44102  
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 - Apr 09, 2013 Rootsmeter S/N 0438320 Ta (K) - 296  
Operator Tisch Orifice I.D. - 1941 Pa (mm) - 751.84

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORIFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4710	3.3	2.00
2	NA	NA	1.00	1.0370	6.4	4.00
3	NA	NA	1.00	0.9270	7.9	5.00
4	NA	NA	1.00	0.8840	8.8	5.50
5	NA	NA	1.00	0.7300	12.8	8.00

**DATA TABULATION**

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9916	0.6741	1.4113		0.9956	0.6768	0.8874
0.9874	0.9521	1.9959		0.9914	0.9560	1.2549
0.9854	1.0630	2.2315		0.9894	1.0673	1.4030
0.9843	1.1134	2.3405		0.9883	1.1180	1.4715
0.9790	1.3410	2.8227		0.9829	1.3465	1.7747
Qstd slope (m) = 2.11662				Qa slope (m) = 1.32539		
intercept (b) = -0.01714				intercept (b) = -0.01078		
coefficient (r) = 0.99999				coefficient (r) = 0.99999		
y axis = SQRT[H2O(Pa/760) (298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

**CALCULATIONS**

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

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

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

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

For subsequent flow rate calculations:

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

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

# Certificate of Calibration

## 校正證書

Certificate No. : C132568

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0878)

Description / 儀器名稱 : Integrating Sound Level Meter (EQ006)  
Manufacturer / 製造商 : Brüel & Kjær  
Model No. / 型號 : 2238  
Serial No. / 編號 : 2285762  
Supplied By / 委託者 : Action-United Environmental Services and Consulting  
Unit A, 20/F., Gold King Industrial Building,  
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

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

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

Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 27 April 2013

TEST RESULTS / 測試結果

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

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

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

Tested By  
測試

:

H C Chan

Certified By  
核證

:

K C Lee

Date of Issue  
簽發日期

:

30 April 2013

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

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

Sun Creation Engineering Limited - Calibration & Testing Laboratory

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

輝創工程有限公司 - 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com



# Certificate of Calibration

## 校正證書

Certificate No. : C132568  
證書編號

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

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C130019
CL281	Multifunction Acoustic Calibrator	DC110233

- Test procedure : MA101N.

- Results :

### 6.1 Sound Pressure Level

#### 6.1.1 Reference Sound Pressure Level

##### 6.1.1.1 Before Self-calibration

UUT Setting				Applied Value		UUT Reading
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	(dB)
50 - 130	L <sub>AFP</sub>	A	F	94.00	1	93.6

##### 6.1.1.2 After Self-calibration

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

##### 6.1.2 Linearity

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

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

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

本證書所載按正用之調試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

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Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

# Certificate of Calibration

## 校正證書

Certificate No. : C132568  
證書編號

### 6.2 Time Weighting

#### 6.2.1 Continuous Signal

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

#### 6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L <sub>AFP</sub>	A	F	106.0	Continuous	106.0	Ref.
	L <sub>AFMax</sub>				200 ms	104.9	-1.0 ± 1.0
	L <sub>ASP</sub>	S	Continuous		106.0	Ref.	
	L <sub>ASMax</sub>		500 ms		101.9	-4.1 ± 1.0	

### 6.3 Frequency Weighting

#### 6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L <sub>AFP</sub>	A	F	94.00	31.5 Hz	55.1	-39.4 ± 1.5
					63 Hz	67.9	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	92.9	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.8	-4.3 (+3.0 ; -6.0)

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

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

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Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com



# Certificate of Calibration 校正證書

Certificate No. : C132568  
證書編號

## 6.3.2 C-Weighting

UUT Setting				Applied Value		UUT	IEC 60651
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Type 1 Spec. (dB)
50 - 130	L <sub>CFP</sub>	C	F	94.00	31.5 Hz	91.4	-3.0 ± 1.5
					63 Hz	93.3	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	94.0	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.0
					4 kHz	93.2	-0.8 ± 1.0
					8 kHz	90.9	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.8	-6.2 (+3.0 ; -6.0)

## 6.4 Time Averaging

UUT Setting				Applied Value					UUT	IEC 60804
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type 1 Spec. (dB)
30 - 110	L <sub>Aeq</sub>	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5
			60 sec.					90	89.8	± 0.5
			5 min.					80	79.4	± 1.0
								70	69.2	± 1.0

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

- Uncertainties of Applied Value : 94 dB : 31.5 Hz - 125 Hz : ± 0.35 dB  
 250 Hz - 500 Hz : ± 0.30 dB  
 1 kHz : ± 0.20 dB  
 2 kHz - 4 kHz : ± 0.35 dB  
 8 kHz : ± 0.45 dB  
 12.5 kHz : ± 0.70 dB  
 104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)  
 114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)  
 Burst equivalent level : ± 0.2 dB (Ref. 110 dB continuous sound level)

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

### Note :

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

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

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

Sun Creation Engineering Limited - Calibration & Testing Laboratory

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

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c/o 香港新界山門街安里一號青山灣機樓四樓

Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

# Certificate of Calibration

## 校正證書

Certificate No. : C132228

證書編號

### ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0878)

Description / 儀器名稱 : Acoustical Calibrator (EQ081)  
Manufacturer / 製造商 : Brüel & Kjær  
Model No. / 型號 : 4231  
Serial No. / 編號 : 2326408  
Supplied By / 委託者 : Action-United Environmental Services and Consulting  
Unit A, 20/F., Gold King Industrial Building,  
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

### TEST CONDITIONS / 測試條件

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

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

### TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 15 April 2013

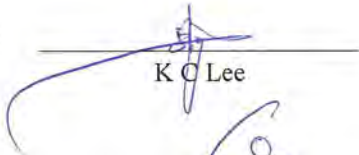
### TEST RESULTS / 測試結果

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

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

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

Tested By  
測試

:   
K C Lee

Certified By  
核證

:   
K M Wu

Date of Issue  
簽發日期

16 April 2013

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

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# Certificate of Calibration

## 校正證書

Certificate No. : C132228  
證書編號

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

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C123541
CL281	Multifunction Acoustic Calibrator	DC110233
TST150A	Measuring Amplifier	C120886

- Test procedure : MA100N.

- Results :

### 5.1 Sound Level Accuracy

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

### 5.2 Frequency Accuracy

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

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

### Note :

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

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## ALS Technichem (HK) Pty Ltd

### REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

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

**WORK ORDER:** HK1318874  
**LABORATORY:** HONG KONG  
**DATE RECEIVED:** 12/07/2013  
**DATE OF ISSUE:** 17/07/2013

**PROJECT:** --

#### COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory.

Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of ALS will be followed.

Scope of Test: Dissolved Oxygen, pH, Turbidity, Salinity and Temperature  
Equipment Type: Sonde Environmental Monitoring System  
Brand Name: YSI  
Model No.: 6820 / 650MDS  
Serial No.: 02J0912/02K0788 AA  
Equipment No.: --  
Date of Calibration: 12 July, 2013

#### NOTES

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

#### ISSUING LABORATORY: HONG KONG

##### **Address**

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

**Phone:** 852-2610 1044  
**Fax:** 852-2610 2021  
**Email:** [hongkong@alsglobal.com](mailto:hongkong@alsglobal.com)

Mr. Fung Lim Chee, Richard  
General Manager  
Greater China & Hong Kong

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Page 1 of 3



# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1318874  
Date of Issue: 17/07/2013  
Client: ACTION UNITED ENVIRO SERVICES



Equipment Type: Sonde Environmental Monitoring System  
Brand Name: YSI  
Model No.: 6820 / 650MDS  
Serial No.: 02J0912/02K0788 AA  
Equipment No.: --  
Date of Calibration: 12 July, 2013 Date of next Calibration: 12 October, 2013

## Parameters:

### Dissolved Oxygen

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

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
3.24	3.34	0.10
5.11	5.18	0.07
7.72	7.70	-0.02
Tolerance Limit ( $\pm$ mg/L)		0.20

### pH Value

Method Ref: APHA 21st Ed. 4500H:B

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	3.95	-0.05
7.0	6.98	-0.02
10.0	9.93	-0.07
Tolerance Limit ( $\pm$ pH unit)		0.20

### Salinity

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

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0	--
10	9.66	-3.4
20	19.66	-1.7
30	29.27	-2.4
Tolerance Limit ( $\pm$ %)		10.0

### Temperature

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

Expected Reading ( $^{\circ}$ C)	Displayed Reading ( $^{\circ}$ C)	Tolerance ( $^{\circ}$ C)
9.5	9.38	-0.1
25.5	24.32	-1.2
40.0	39.13	-0.9
Tolerance Limit ( $\pm$ $^{\circ}$ C)		2.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr. Fung Lim Chee, Richard  
General Manager -  
Greater China & Hong Kong

# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

**Work Order:** HK1318874  
**Date of Issue:** 17/07/2013  
**Client:** ACTION UNITED ENVIRO SERVICES



**Equipment Type:** Sonde Environmental Monitoring System  
**Brand Name:** YSI  
**Model No.:** 6820 / 650MDS  
**Serial No.:** 02J0912/02K0788 AA  
**Equipment No.:** --  
**Date of Calibration:** 12 July, 2013      **Date of next Calibration:** 12 October, 2013

## Parameters:

### Turbidity

**Method Ref: APHA (21st edition), 2130B**

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.2	--
4	4.2	5.0
40	40.6	1.5
80	81.5	1.9
400	410.9	2.7
800	792.8	-0.9
Tolerance Limit (±%)		10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.



Hong Kong Accreditation Service  
香港認可處

**Certificate of Accreditation**  
**認可證書**

*This is to certify that*  
特此證明

**ALS TECHNICHEM (HK) PTY LIMITED**

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

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

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

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

**Environmental Testing**  
環境測試

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

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

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

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

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

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





## **Appendix F**

### **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)	Mean Relative Humidity (%)	Wind Direction	Wind Speed (km/h)
1-Sep-13	Sun	Cloudy, showers, a few thunderstorms. Light to moderate southerly winds.	*****	****	***	***	*****
2-Sep-13	Mon	Rain, fine, showers. Light to moderate southerly winds.	9.5#	****#	***#	***#	*****#
3-Sep-13	Tue	Cloudy, rami, few squally thunderstorms. Moderate to fresh easterly winds.	8.0	25.6	96	140	8.0
4-Sep-13	Wed	Rain, fine, showers. Light to moderate southerly winds.	32.5	24.8	96	80	10.0
5-Sep-13	Thu	Cloudy, rain, few squally thunderstorms. Moderate to fresh easterly winds.	26.5	24.4	96	80	11.5
6-Sep-13	Fri	Fine, Hot, Moderate easterly winds.	0.0	26.7	82	70	12.4
7-Sep-13	Sat	Fine, Hot, Moderate easterly winds.	0.0	27.7	75	70	11.4
8-Sep-13	Sun	Fine, Hot, Moderate easterly winds.	0.0	28.3	78	70	12.0
9-Sep-13	Mon	Sunny periods, showers. Moderate easterly winds.	0.0	28.6	76	70	12.1
10-Sep-13	Tue	Sunny periods, cloudy. Moderate easterly winds.	0.0	28.9	79	70	11.9
11-Sep-13	Wed	Sunny intervals, a few showers, isolated thunderstorms. Moderate east to northeasterly winds.	0.0	29.1	77	70	14.0
12-Sep-13	Thu	Sunny intervals, a few showers, isolated thunderstorms. Moderate east to northeasterly winds.	0.0	28.6#	78#	070#	11.8#
13-Sep-13	Fri	Fine, Hot, Moderate easterly winds.	0.0	27.8	81	70	11.5
14-Sep-13	Sat	Sunny periods, cloudy. Moderate easterly winds.	0.0	28.5	77	060#	10.1#
15-Sep-13	Sun	Sunny periods, cloudy. Moderate to fresh easterly winds.	2.0	27.3	84	80	8.2
16-Sep-13	Mon	Cloud, fine, dry. Fresh easterly winds.	0.0	28.5	76	70	14.9
17-Sep-13	Tue	Sunny intervals, a few showers, isolated thunderstorms. Moderate east to northeasterly winds.	0.0	28	69	70	16.0
18-Sep-13	Wed	Fine, Hot, Moderate easterly winds.	0.0	27.3	74	70	16.9
19-Sep-13	Thu	Sunny periods, cloudy. Moderate to fresh easterly winds.	0.0	28.7	74	70	14.3
20-Sep-13	Fri	Fine, cloudy. Moderate to fresh northeasterly winds.	0.0	28.9	77	230	9.5
21-Sep-13	Sat	Fine, cloudy. Moderate to fresh northeasterly winds.	0.0	30.6	60	340	19.6
22-Sep-13	Sun	Fine, Hot, Moderate easterly winds.	21.5	27.4	79	330#	28.6#
23-Sep-13	Mon	Cloud, fine, dry. Fresh easterly winds.	41.0	26.9	92	***	*****
24-Sep-13	Tue	Sunny periods, cloudy. Moderate to fresh easterly winds.	1.0	28.5	81	***	*****
25-Sep-13	Wed	Sunny periods, cloudy. Moderate to fresh easterly winds.	0.0	28	76	***	*****
26-Sep-13	Thu	Fine, cloudy. Moderate to fresh northeasterly winds.	0.0	26.5	76	***#	*****#
27-Sep-13	Fri	Fine, cloudy. Moderate to fresh northeasterly winds.	0.0	25.1	76	30	12.5
28-Sep-13	Sat	Fine, cloudy. Moderate to fresh northeasterly winds.	0.0	26.2	77	30	13.9
29-Sep-13	Sun	Fine, cloudy. Moderate to fresh northeasterly winds.	1.5	24.7	78	30	16.8
30-Sep-13	Mon	Cloudy, rain. Fresh easterly winds, strong offshore and on high ground.	10.0	24.1	94	40	10.5

\*\*\* unavailable

# missing (less than 24 hourly observations a day)

Rainfall measured in increment of 0.5 mm. Amount of < 0.5 mm cannot be detected

## **Appendix G**

### **Event and Action Plan**



EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded for one sample	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IEC and ER;</li> <li>3. Repeat measurement to confirm finding;</li> <li>4. Increase monitoring frequency to daily.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method.</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Rectify any unacceptable practice;</li> <li>2. Amend working methods if appropriate.</li> </ol>
Action Level being exceeded for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IEC and ER;</li> <li>3. Repeat measurements to confirm findings;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Discuss with IEC and Contractor on remedial actions required;</li> <li>6. If exceedance continues, arrange meeting with IEC and ER;</li> <li>7. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and Contractor on possible remedial measures;</li> <li>4. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>5. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Ensure remedial measures are properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>2. Implement the agreed proposals;</li> <li>3. Amend proposal if appropriate.</li> </ol>
Limit Level being exceeded for one sample	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IEC, ER and EPD;</li> <li>3. Repeat measurement to confirm finding;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Assess effectiveness of Contractor's remedial actions;</li> <li>6. Keep EPD and ER informed of the results.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET and Contractor's working method;</li> <li>2. Discuss with Contractor on the possible mitigation measures;</li> <li>3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Check monitoring data and Contractor's working methods;</li> <li>4. Discuss with IEC and Contractor on potential remedial actions;</li> <li>5. Ensure remedial actions properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to ER within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Amend proposal if appropriate.</li> </ol>
Limit Level being exceeded for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IEC, ER and EPD the causes &amp; actions taken for the exceedances;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Investigate the causes of exceedance;</li> <li>6. Arrange meeting with EPD and ER to discuss the remedial actions to be taken;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep EPD and ER informed of the results;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET and Contractor's working method;</li> <li>2. Discuss with Contractor on the possible mitigation measures;</li> <li>3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly;</li> <li>4. Supervise the implementation of mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>4. Discuss with IEC and the Contractor on potential remedial actions;</li> <li>5. Review Contractor's remedial actions whenever necessary to assure their effectiveness;</li> <li>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.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to ER within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Resubmit proposals if problem still not resolved;</li> <li>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>

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

**DSD Contract No. DC/2009/08 – Construction of Yuen Long South Branch Sewers and Expansion of Ha Tsuen Sewage Pumping Station**  
**Event Action Plan – Water Quality (Local Stream)**

**AUES**

Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level being exceeded by one sampling day	<ol style="list-style-type: none"> <li>1. Repeat in-situ measurement to confirm findings;</li> <li>2. Identify reasons for non-compliance and sources of impact;</li> <li>3. Inform IEC and Contractor;</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Discuss mitigation measures with IEC and Contractor;</li> <li>6. Repeat measurement on next day of exceedance.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with ET and Contractor on the mitigation measures;</li> <li>2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly;</li> <li>3. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with IEC on the proposed mitigation measures;</li> <li>2. make agreement on the mitigation measures to be implemented;</li> <li>3. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the ER and confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment;</li> <li>4. Consider changes of working methods;</li> <li>5. Discuss with ET and IEC and propose mitigation measures to IEC and ER;</li> <li>6. Implement the agreed mitigation measures.</li> </ol>
Action Level being exceeded by more than two consecutive sampling days	<ol style="list-style-type: none"> <li>1. Repeat in-situ measurement to confirm findings;</li> <li>2. Identify reasons for non-compliance and sources of impact;</li> <li>3. Inform IEC and Contractor;</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Discuss mitigation measures with IEC and Contractor;</li> <li>6. Ensure mitigation measures are implemented;</li> <li>7. Prepare to increase the monitoring frequency to daily;</li> <li>8. Repeat measurement on next day of exceedance.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with ET and Contractor on the mitigation measures;</li> <li>2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly;</li> <li>3. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with IEC on the proposed mitigation measures;</li> <li>2. Make agreement on the mitigation measures to be implemented;</li> <li>3. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the ER and confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment;</li> <li>4. Consider changes of working methods;</li> <li>5. Discuss with ET and IEC and propose mitigation measures to IEC and ER within 3 working days;</li> <li>6. Implement the agreed mitigation measures.</li> </ol>
Limit Level being exceeded by one sampling day	<ol style="list-style-type: none"> <li>1. Repeat in-situ measurement to confirm findings;</li> <li>2. Identify reasons for non-compliance and sources of impact;</li> <li>3. Inform IEC, Contractor and EPD;</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Discuss mitigation measures with IEC, ER and Contractor;</li> <li>6. Ensure mitigation measures are implemented;</li> <li>7. Increase the monitoring frequency to daily until no exceedance of Limit Level.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with ET and Contractor on the mitigation measures;</li> <li>2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly;</li> <li>3. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with IEC, ET and Contractor on the proposed mitigation measures;</li> <li>2. Request Contractor to critically review the working methods;</li> <li>3. Make agreement on the mitigation measures to be implemented;</li> <li>4. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the ER and confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment;</li> <li>4. Consider changes of working methods;</li> <li>5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days;</li> <li>6. Implement the agreed mitigation measures.</li> </ol>
Limit Level being exceeded by more than two consecutive sampling days	<ol style="list-style-type: none"> <li>1. Repeat in-situ measurement to confirm findings;</li> <li>2. Identify reasons for non-compliance and sources of impact;</li> <li>3. Inform IEC, Contractor and EPD;</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Discuss mitigation measures with IEC, ER and Contractor;</li> <li>6. Ensure mitigation measures are implemented;</li> <li>7. Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with ET and Contractor on the mitigation measures;</li> <li>2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly;</li> <li>3. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with IEC, ET and Contractor on the proposed mitigation measures;</li> <li>2. Request Contractor to critically review the working methods;</li> <li>3. Make agreement on the mitigation measures to be implemented;</li> <li>4. Assess the effectiveness of the implemented mitigation measures;</li> <li>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.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the ER and confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment;</li> <li>4. Consider changes of working methods;</li> <li>5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days;</li> <li>6. Implement the agreed mitigation measures;</li> <li>7. As directed by the ER, to slow down or to stop all or part of the marine work or construction activities.</li> </ol>

## **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		
Sun	1-Sep-13				
Mon	2-Sep-13				
Tue	3-Sep-13				
Wed	4-Sep-13				
Thu	5-Sep-13				
Fri	6-Sep-13				
Sat	7-Sep-13				
Sun	8-Sep-13				
Mon	9-Sep-13				
Tue	10-Sep-13				
Wed	11-Sep-13				
Thu	12-Sep-13				
Fri	13-Sep-13				
Sat	14-Sep-13				
Sun	15-Sep-13				
Mon	16-Sep-13				
Tue	17-Sep-13				
Wed	18-Sep-13				
Thu	19-Sep-13				
Fri	20-Sep-13				
Sat	21-Sep-13				
Sun	22-Sep-13				
Mon	23-Sep-13				
Tue	24-Sep-13				
Wed	25-Sep-13				
Thu	26-Sep-13				
Fri	27-Sep-13				
Sat	28-Sep-13				
Sun	29-Sep-13				
Mon	30-Sep-13				

	Monitoring Day
	Sunday or Public Holiday

### Monitoring Schedule for Coming Month

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

	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 (°C)	STANDARD			INITIAL FILTER WEIGHT (g)	FINAL FILTER WEIGHT (g)	WEIGHT DUST COLLECTED (g)	Dust 24-hr TSP in air (ug/m³)
		INITIAL	FINAL	(min)					AVG PRESS (hPa)	FLOW RATE (m³/min)	AIR VOLUME (std m³)				
4-Sep-13	33710	13104.35	13128.01	1419.60	34	40	37.0	25	1009.2	1.09	1550	3.7199	3.7373	0.0174	11
10-Sep-13	33734	13128.01	13151.89	1432.80	35	42	38.5	28.6	1010.6	1.13	1623	3.5995	3.6428	0.0433	27
16-Sep-13	26059	13151.89	13176.12	1453.80	38	42	40.0	28.5	1007.9	1.18	1720	2.7452	2.7798	0.0346	20
21-Sep-13	26078	13176.12	13199.58	1407.60	37	42	39.5	31.2	1009.7	1.16	1635	2.7513	2.8005	0.0492	30
27-Sep-13	26083	13199.58	13223.17	1415.40	38	45	41.5	26.5	1011.7	1.24	1755	2.7485	2.8175	0.0690	39

Action Level : 162      Limit Level : 260

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

DATE	SAMPLE NUMBER	ELAPSED TIME			MIN CHART READING	MAX CHART READING	AVG CHART READING	AVG TEMP (°C)	STANDARD			INITIAL FILTER WEIGHT (g)	FINAL FILTER WEIGHT (g)	WEIGHT DUST COLLECTED (g)	Dust 24-hr TSP in air (ug/m³)
		INITIAL	FINAL	(min)					AVG PRESS (hPa)	FLOW RATE (m³/min)	AIR VOLUME (std m³)				
4-Sep-13	33711	14534.47	14558.16	1421.40	36	40	38.0	25	1009.2	1.08	1539	3.7212	3.7574	0.0362	24
10-Sep-13	33727	14558.16	14582.31	1449.00	38	42	40.0	28.6	1010.6	1.14	1649	3.5773	3.6544	0.0771	47
16-Sep-13	26058	14582.31	14605.76	1407.00	38	42	40.0	28.5	1007.9	1.14	1599	2.743	2.8535	0.1105	69
21-Sep-13	26079	14605.76	14629.92	1449.60	36	42	39.0	31.2	1009.7	1.10	1597	2.7488	2.8762	0.1274	80
27-Sep-13	26084	14629.92	14653.56	1418.40	38	44	41.0	26.5	1011.7	1.17	1666	2.7493	2.8799	0.1306	78

Action Level : 190      Limit Level : 260

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

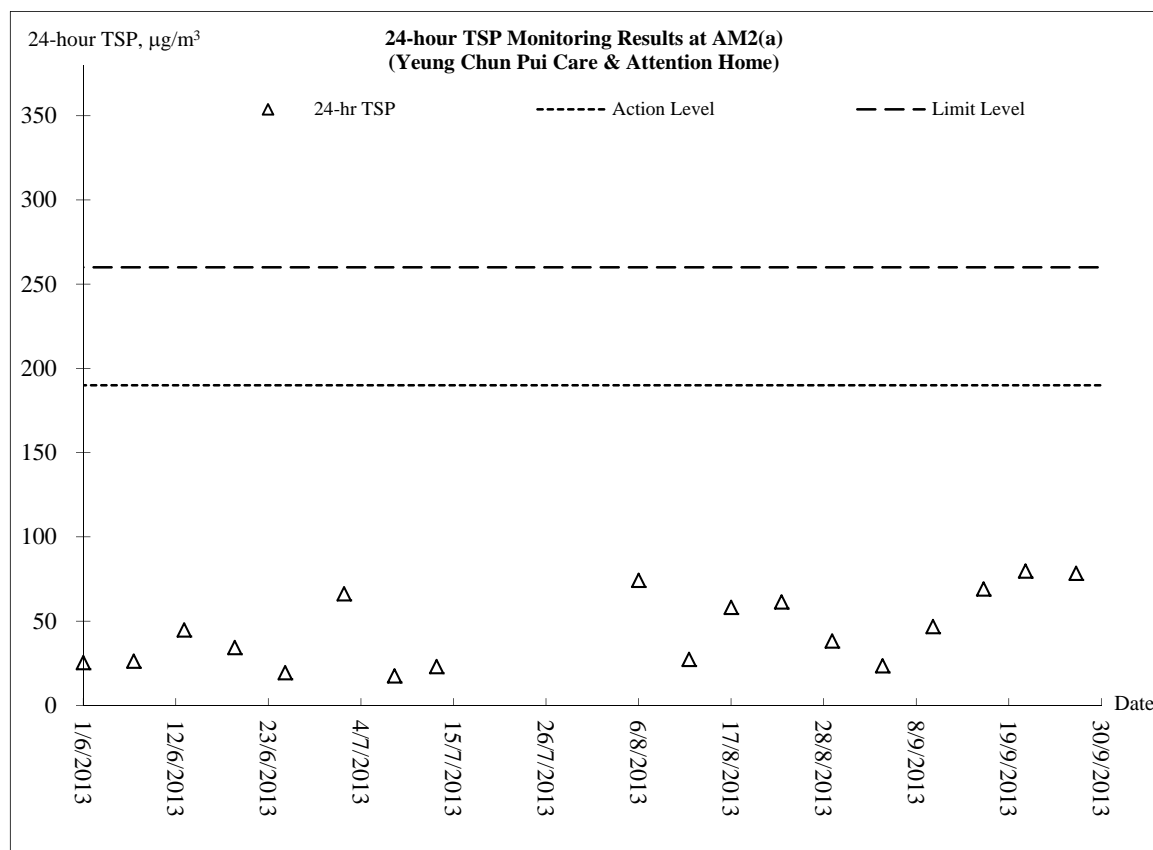
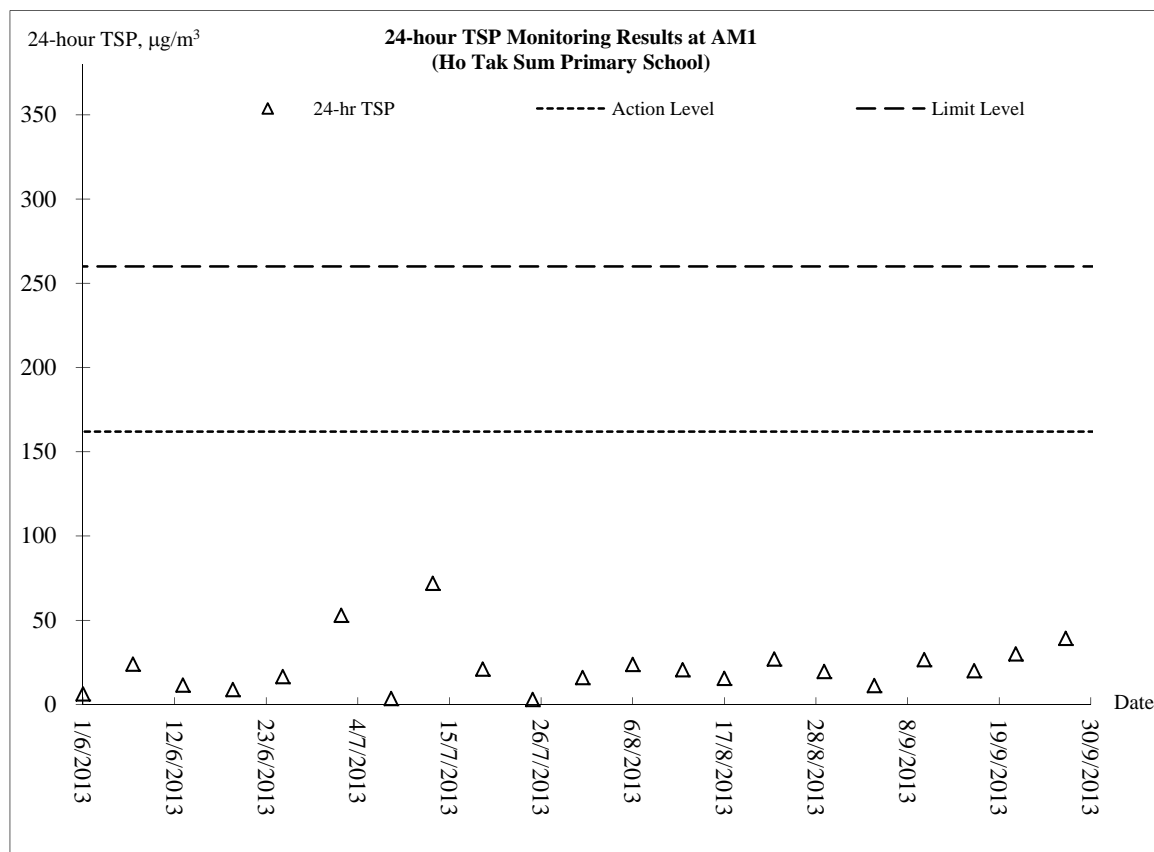
## Summary of Water Quality Monitoring Results - R1b

Date		ACTION/ LIMIT												
Location					DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS (mg/L)	
R1b					ACT	4.6			ACT	15.6	ACT		ACT	31.5
					LIM	4			LIM	16.2	LIM		LIM	31.9
Date		2-Sep-13												
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS (mg/L)	
R1b	11:51	0.60	24.2	24.2	6.55	6.4	77.2	76.1	15.1	14.8	8.6	8.6	6	6.0
			24.2		6.33		75.0		14.5		8.59		6	
Date		5-Sep-13												
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS (mg/L)	
R1b	10:55	1.30	25.7	25.7	5.39	5.4	65.3	65.4	14.0	14.0	7.78	7.8	24	24.0
			25.7		5.4		65.5		14.0		7.77		24	
Date		7-Sep-13												
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS (mg/L)	
R1b	11:50	0.50	27.2	27.2	6.04	6.0	75.9	75.0	10.5	10.6	8.16	8.2	10	10.0
			27.2		6.01		74.0		10.7		8.14		10	
Date		9-Sep-13												
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS (mg/L)	
R1b	13:08	0.50	28.3	28.3	6.12	5.9	75.7	72.8	12.6	12.6	7.53	7.5	13	13.0
			28.3		5.68		69.8		12.6		7.52		13	
Date		11-Sep-13												
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS (mg/L)	
R1b	9:18	0.60	29.7	29.7	7.01	6.9	91.3	90.7	9.5	9.5	7.53	7.5	6	6.0
			29.7		6.85		90.1		9.5		7.52		6	
Date		13-Sep-13												
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS (mg/L)	
R1b	15:26	0.60	27.5	27.5	6.96	6.9	83.8	82.9	9.5	10.0	6.84	6.8	19	19.0
			27.5		6.81		82.0		10.4		6.83		19	
Date		17-Sep-13												
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS (mg/L)	
R1b	10:18	0.50	26.9	26.9	4.63	4.6	56.6	56.4	8.4	8.0	7.15	7.1	15	15.0
			26.9		4.59		56.1		7.7		7.14		15	
Date		19-Sep-13												
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS (mg/L)	
R1b	14:28	0.60	27.4	27.4	5.11	5.1	63.2	63.1	5.8	7.3	7.28	7.3	8	8.0
			27.4		5.03		62.9		8.7		7.28		8	
Date		21-Sep-13												
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS (mg/L)	
R1b	9:08	0.50	27.9	27.9	4.76	4.7	58.6	57.9	10.2	9.9	6.99	7.0	15	15.0
			27.9		4.67		57.2		9.7		6.98		15	
Date		23-Sep-13												
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS (mg/L)	
R1b	9:12	0.80	26.8	26.8	5.4	5.3	65.7	65.1	11.1	10.7	6.98	7.0	8	8.0
			26.8		5.29		64.5		10.3		6.97		8	
Date		25-Sep-13												
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS (mg/L)	
R1b	11:50	0.60	28.5	28.5	6.92	6.9	83.2	83.2	11.1	11.3	8.05	8.1	11	11.0
			28.5		6.9		83.1		11.5		8.05		11	
Date		27-Sep-13												
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS (mg/L)	
R1b	9:39	0.60	27.3	27.3	6.03	6.0	71.4	70.8	14.1	14.5	8.04	8.1	11	11.0
			27.3		5.93		70.2		14.9		8.08		11	
Date		30-Sep-13												
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS (mg/L)	
R1b	11:45	0.60	26.7	26.7	4.62	4.7	56.1	56.7	4.7	4.3	7.58	7.6	20	20.0
			26.7		4.74		57.2		4.0		7.57		20	

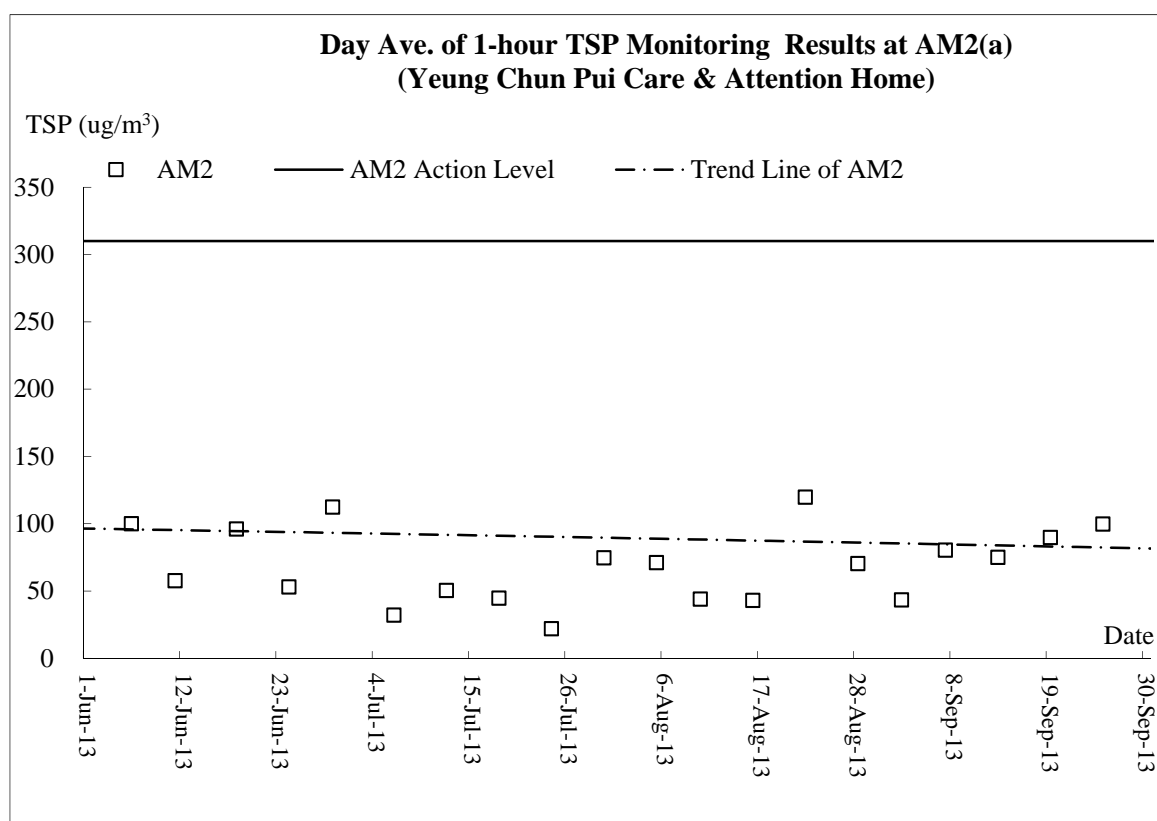
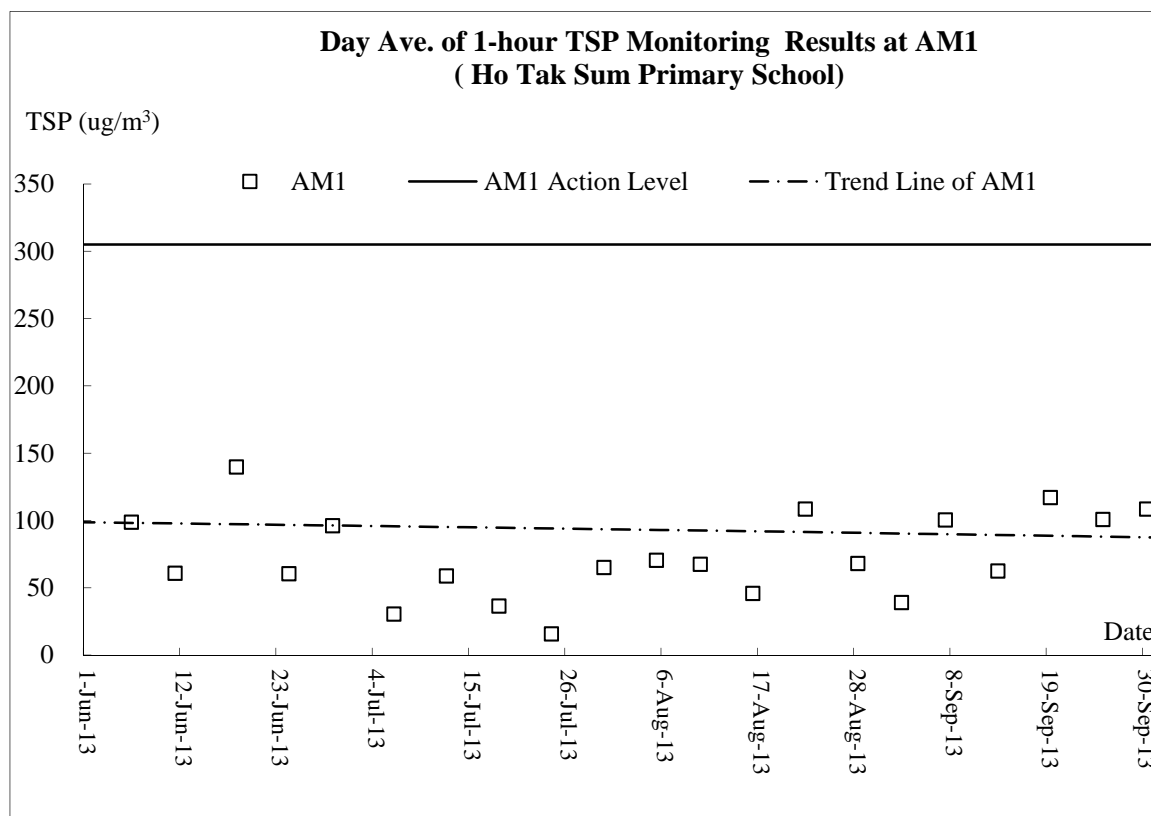
## **Appendix J**

### **Graphical plots**

## Air Quality – 24-hour TSP

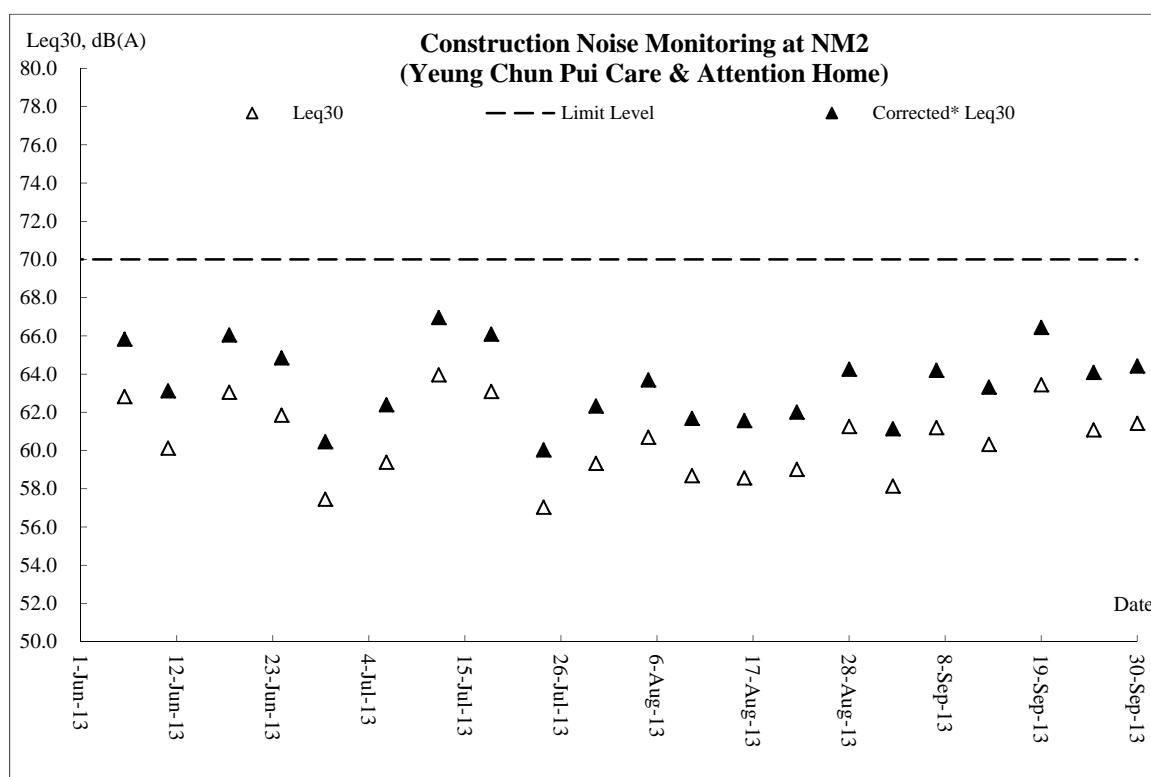
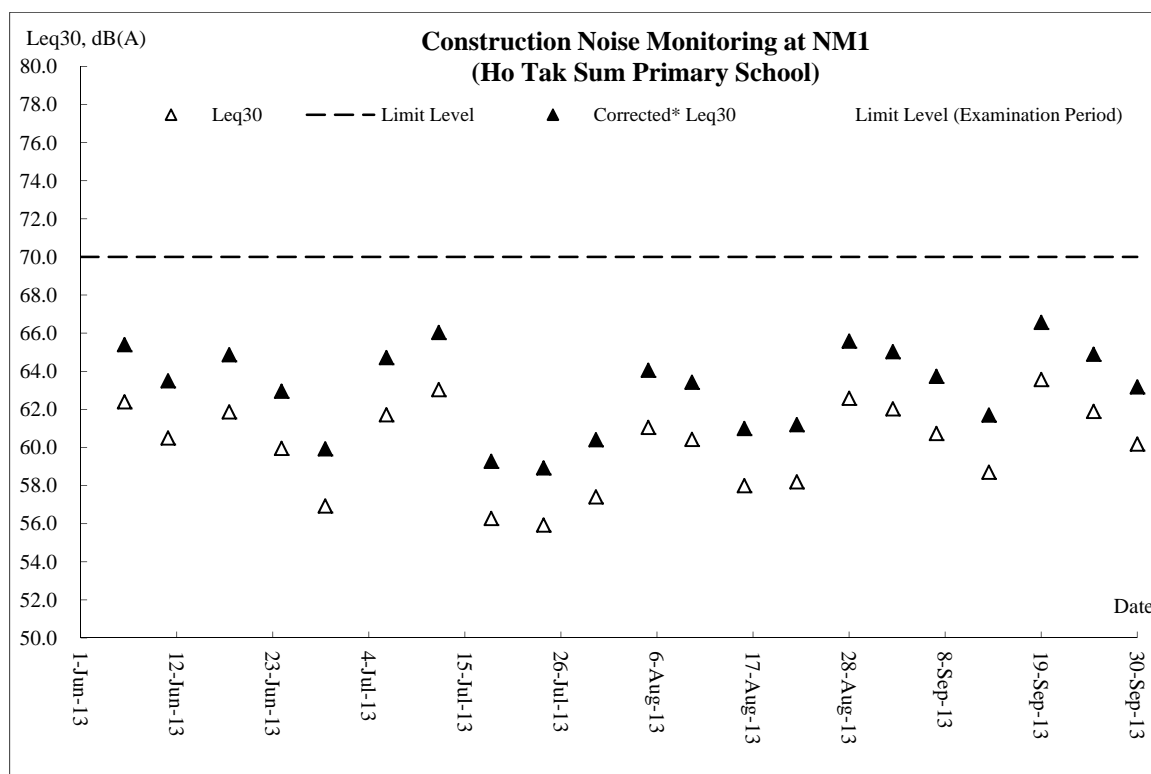


## Air Quality – 1 hour TSP

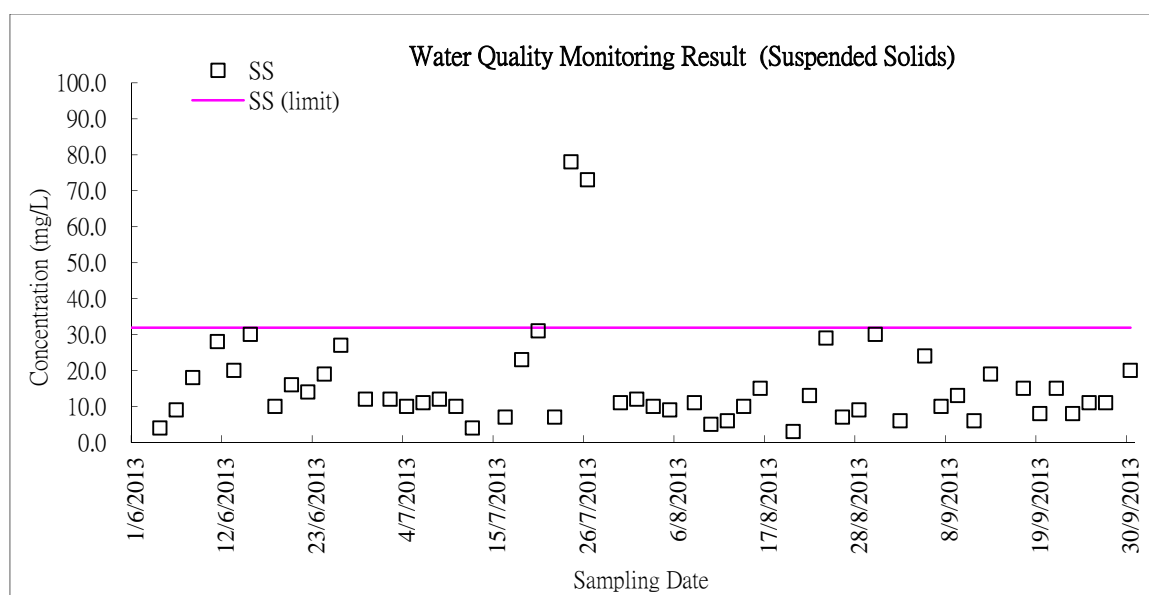
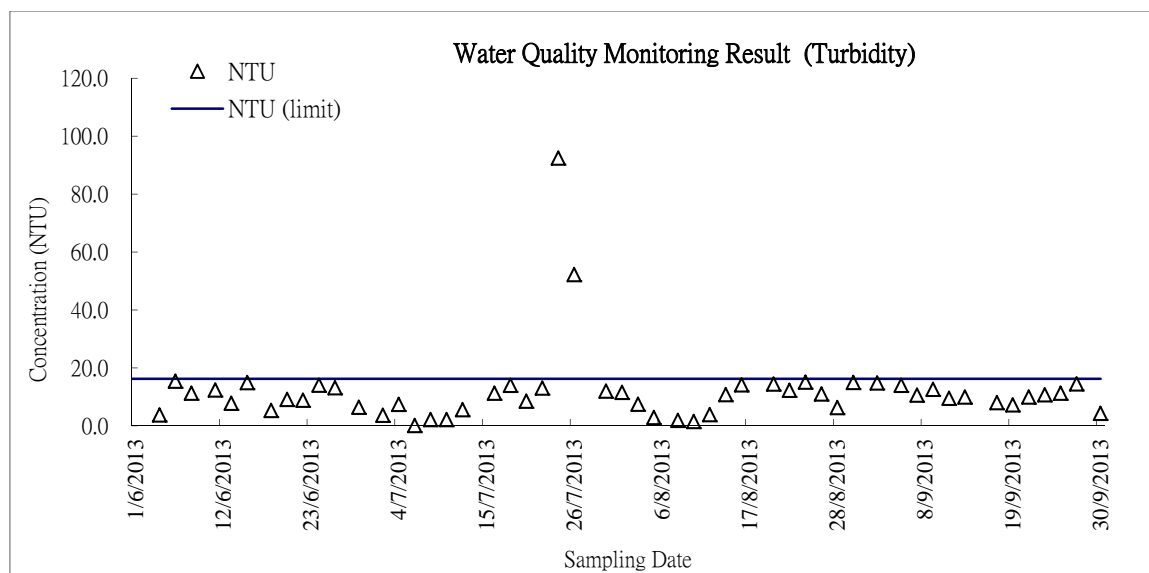
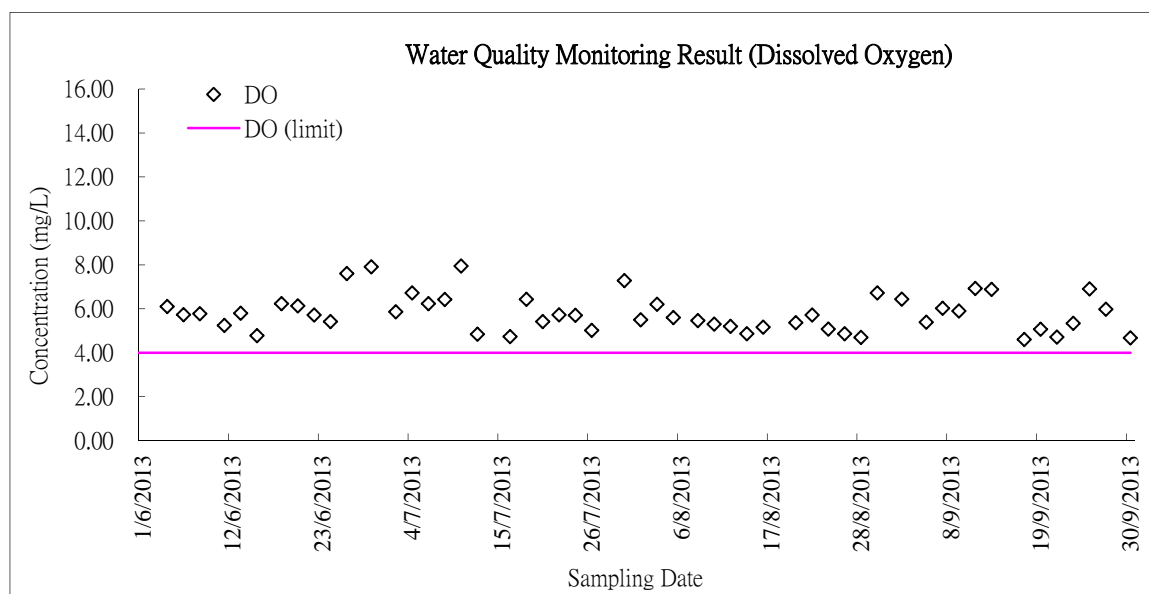




## Construction Noise



## 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: 2013**  
**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)*

2013 Month	Actual Quantities of Inert C&D Materials Generated / Imported (in '000 m <sup>3</sup> )						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 '000m <sup>3</sup> )
January	1.765	0	0	0	1.765	0	0	0	0.000	0	0.001
February	0.082	0	0	0	0.082	0	0	0	0.000	0	0.001
March	1.925	0	0	0	1.925	0	0	0	0.000	0	0.001
April	1.025	0	0	0	1.025	0	0	0	0.000	0	0.001
May	1.815	0	0	0	1.815	0	0	0	0.000	0	0.001
June	1.521	0	0	0	1.521	0	0	0	0.000	0	0.001
Half-year total	8.133	0	0	0	8.133	0	0	0	0.000	0	0.006
July	1.361	0	0	0	1.361	0	0	0	0.000	0	0.001
August	1.132	0	0	0	1.132	0	0	0	0.000	0	0.001
September	0.823	0	0	0	0.823	0	0	0	0.000	0	0.001
October	0.000										
November	0.000										
December	0.000										
Yearly Total	11.449	0	0	0	11.449	0	0	0	0.000	0	0.009

## **Appendix L**

### **Inspection Checklist**

**Project:** DC/2009/08  
**Construction of Yuen Long South Branch**  
**Sewers and Expansion of Ha Tsuen PS**

**Inspection** \_\_\_\_\_

**Date:** 3 September 2013

**Time:** 10:00

**Inspected by** \_\_\_\_\_

**RE's representative:** Mr. K.P. Cheung

**IEC's representative:** -

**ET's representative:** Mr. T.W. Tam

**Contractor's representative:** Mr. Conmy Wong

**Checklist No.** DC200908-03092013

## PART A: GENERAL INFORMATION

Environmental Permit No.: EP-327/2009/A

Weather: ☐ Sunny ☐ Fine ☒ Cloudy ☐ Rainy

Temperature: 26.0 °C

Humidity: ☒ High ☐ Moderate ☐ Low

Wind: ☐ Strong ☐ Breeze ☐ Light ☒ Calm

## PART B: SITE AUDIT

### Section 1: Water Quality

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



# Environmental Site Inspection Checklist

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

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

Remarks:

Follow up of Last Site Inspection:

N.A.

Observations recorded in this Site Inspection: (3-Sep-2013)



Photo 1: Stagnant water was observed in the drip tray in Sham Chung Works Area, the Contractor should clean the stagnant water regularly to prevent mosquito breeding.



Photo 2: Dusty access road was observed inside Ha Tsuen Sewage Pumping Station, the Contractor should implement dust suppressive measures.

**RE's representative**

**IEC's representative**

**ET's representative**

**Contractor's representative**

T.W. Tam

( ) ( ) ( ) ( )

**Project:** DC/2009/08  
**Construction of Yuen Long South Branch**  
**Sewers and Expansion of Ha Tsuen PS**

**Inspection** \_\_\_\_\_

**Date:** 10 September 2013

**Time:** 10:00

**Inspected by** \_\_\_\_\_

**RE's representative:** Mr. K.P. Cheung

**IEC's representative:** -

**ET's representative:** Mr. T.W. Tam

**Contractor's representative:** Mr. Conmy Wong

**Checklist No.** DC200908-10092013

## PART A: GENERAL INFORMATION

**Environmental Permit No.:** EP-327/2009/A

**Weather:** ☐ Sunny ☒ Fine ☐ Cloudy ☐ Rainy

**Temperature:** 26.0 °C

**Humidity:** ☐ High ☒ Moderate ☐ Low

**Wind:** ☐ Strong ☐ Breeze ☐ Light ☒ Calm

## PART B: SITE AUDIT

### Section 1: Water Quality

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

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

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



**Follow up of Last Site Inspection:**

- Observations recorded in this Site Inspection: (10-Sep-2013)**

**RE's representative**

**ET's representative**

**Contractor's  
representative**

( ) ( ) ( T.W. Tam ) ( )

**Project:** DC/2009/08  
**Inspection** Construction of Yuen Long South Branch Sewers and Expansion of Ha Tsuen PS  
**Date:** 18 September 2013  
**Time:** 10:00

**Inspected by**  
**RE's representative:** Mr. K.P. Cheung  
**IEC's representative:** Mr. Ray Tam  
**ET's representative:** Mr. T.W. Tam  
**Contractor's representative:** Mr. Conmy Wong  
**Checklist No.** DC200908-18092013

## PART A: GENERAL INFORMATION

Environmental Permit No.: EP-327/2009/A

Weather: ☐ Sunny ☐ Fine ☒ Cloudy ☐ Rainy  
 Temperature: 27.7 °C  
 Humidity: ☐ High ☒ Moderate ☐ Low  
 Wind: ☐ Strong ☐ Breeze ☐ Light ☒ Calm

## PART B: SITE AUDIT

### Section 1: Water Quality

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

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


	Not Observed	Yes	No	Follow up	Not Applicable	Photo/ Remarks
4.02 Is general refuse sorting or recycling implemented?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.03 Is general refuse disposed of properly and regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.04 Is the Contractor registered as a chemical waste producer?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.05 Are the chemical waste containers properly labelled?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.06 Are the chemical wastes stored in proper storage areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Photo 1
4.07 Is the chemical waste storage area properly labelled?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.08 Is the chemical waste storage area used for storage of chemical waste only?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.09 Are incompatible chemical wastes stored in different areas?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.10 Are the chemical wastes disposed of by licensed collectors?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.11 Are trip tickets for chemical wastes disposal available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.12 Are chemical/fuel storage areas bunded?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.13 Are designated areas identified for storage and sorting of construction wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.14 Are construction wastes sorted on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.15 Are construction wastes reused?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.16 Are construction wastes disposed of properly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.17 Are site hoardings and signboards made of durable materials instead of timber?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.18 Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.19 Are appropriate procedures followed if contaminated material exists?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.20 Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Section 5: Landscape &amp; Visual</b>						
5.01 Are retained and transplanted trees in health condition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.02 Are retained and transplanted trees properly protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.03 Are surgery works carried out for the damaged trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.04 Is damage to trees outside site boundary due to construction activities avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.05 Is the night-time lighting controlled to minimize glare to sensitive receivers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Section 6: Others</b>						
6.01 Are relevant Environmental Permits posted at all vehicle site entrances/exits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.02 Is mosquito control measures adequately implemented?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	


Remarks:

Follow up of Last Site Inspection:

N.A.

Observations recorded in this Site Inspection: (18-Sep-2013)

	
Photo 1: free standing chemical container was observed in Ha Tsuen Sewage Pumping Station, the Contractor should provide drip tray underneath or remove them after used.	Photo 2: uncovered gravel was observed at Ha Tsuen Sewage Pumping Station, the Contractor should provide cover it with impervious sheet to minimize dust impact.

RE's representative	IEC's representative	ET's representative	Contractor's representative
			
(	)	( T.W. Tam )	)

**Project:** DC/2009/08  
**Construction of Yuen Long South Branch Sewers and Expansion of Ha Tsuen PS**

**Inspection** \_\_\_\_\_

**Date:** 24 September 2013

**Time:** 10:00

**Inspected by** \_\_\_\_\_

**RE's representative:** Mr. K.P. Cheung

**IEC's representative:** -

**ET's representative:** Mr. Ben Tam

**Contractor's representative:** Mr. Conmy Wong

**Checklist No.** DC200908-24092013

## PART A: GENERAL INFORMATION

Environmental Permit No.: EP-327/2009/A

Weather: ☐ Sunny ☐ Fine ☒ Cloudy ☐ Rainy

Temperature: 28.1 °C

Humidity: ☒ High ☐ Moderate ☐ Low

Wind: ☐ Strong ☐ Breeze ☐ Light ☒ Calm

## PART B: SITE AUDIT

### Section 1: Water Quality

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



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

	Not Observed	Yes	No	Follow up	Not Applicable	Photo/ Remarks
4.02 Is general refuse sorting or recycling implemented?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.03 Is general refuse disposed of properly and regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.04 Is the Contractor registered as a chemical waste producer?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.05 Are the chemical waste containers properly labelled?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.06 Are the chemical wastes stored in proper storage areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.07 Is the chemical waste storage area properly labelled?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.08 Is the chemical waste storage area used for storage of chemical waste only?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.09 Are incompatible chemical wastes stored in different areas?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.10 Are the chemical wastes disposed of by licensed collectors?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.11 Are trip tickets for chemical wastes disposal available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.12 Are chemical/fuel storage areas bunded?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.13 Are designated areas identified for storage and sorting of construction wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.14 Are construction wastes sorted on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.15 Are construction wastes reused?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.16 Are construction wastes disposed of properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Photo 2
4.17 Are site hoardings and signboards made of durable materials instead of timber?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.18 Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.19 Are appropriate procedures followed if contaminated material exists?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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<b>Section 5: Landscape &amp; Visual</b>						
5.01 Are retained and transplanted trees in health condition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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6.02 Is mosquito control measures adequately implemented?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Remarks:

Follow up of Last Site Inspection:

1. Free standing chemical containers in Ha Tsuen Sewage Pumping Station were removed.

2. Uncovered gravel in Ha Tsuen Sewage Pumping Station was removed.

Observations recorded in this Site Inspection: (24-Sep-2013)



Photo 1: Direct discharge of wastewater was observed in Sham Chung Works Area, the Contractor should treat the wastewater in de-silting tank prior discharge to the stream.



Photo 2: Stockpile of construction waste was observed in Ha Tsuen Sewage Pumping Station, the Contractor dispose the waste in regular basis.

RE's representative

IEC's representative

ET's representative

Contractor's representative

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Ben Tam

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