

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

**23RD ENVIRONMENTAL MONITORING & AUDIT
MONTHLY REPORT – DECEMBER 2011**

PREPARED FOR

CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG)
COMPANY LIMITED

Quality Index

Date	Reference No.	Prepared By	Certified By
13 January 2012	TCS00491/09/600/R0325v2	Nicola Hon (Environmental Consultant)	T.W. Tam (Environmental Team Leader)



Version	Date	Description
1	5 January 2012	First submission
2	13 January 2012	Amended against IEC's comments on 5 January 2012

This report has been prepared by Action-United Environmental Services & Consulting with all reasonable skill, care and diligence within the terms of the Agreement with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client. We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.

安誠工程顧問有限公司
香港灣仔
皇后大道東183號
合和中心47樓
電話: (852) 2911 2233
傳真: (852) 2805 5028

Hyder Consulting Limited
Company Number 126012
47th Floor, Hopewell Centre
183 Queen's Road East
Wan Chai, Hong Kong
Tel: (852) 2911 2233
Fax: (852) 2805 5028
hyder.hk@hyderconsulting.com
www.hyderconsulting.com



13 January 2012

By Post

Action-United Environmental Services &
Consulting
Unit A, 20/F, Gold King Industrial Building,
35-41 Tai Lin Pai Road,
Kwai Chung,
New Territories,
Hong Kong.

Your Ref:

Our Ref: EB000586-F/THW12-3928

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, December 2011 – IEC Verification

With reference to ET's captioned report (ET's ref.: TCS00491/09/600/R0325v2 dated 13 January 2012) received on 13 January 2012, we have no comment and hereby verify the captioned report excluding the Landscape and Visual Impact section of the report.

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

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

Yours sincerely

F.C. TSANG
Independent Environmental Checker
HYDER CONSULTING LIMITED

FCT/WL/my

EXECUTIVE SUMMARY

- ES01. The China State Construction Engineering (Hong Kong) Limited (hereinafter “The Contractor”) has been awarded by the Drainage Services Department (DSD) the Contract **DC/2009/08 Construction of Yuen Long South Branch Sewers and Expansion of Ha Tsuen Sewage Pumping Station** (the Project) in October 2009.
- ES02. For ease of reporting, it has been agreed among the Engineer’s Representatives (ER, AECOM), Independent Environmental Checker (IEC, Hyder Consulting Limited), the Contractor (The China State Construction Engineering (Hong Kong) Limited), Environmental Team (Action-United Environmental Services and Consulting, ET) and Environmental Protection Department (EPD) that the Environmental Monitoring & Audit (EM&A) Report under the Project is split to the following two stand-alone parts:
- Expansion of the existing Ha Tsuen Sewage Pumping Station (with Environmental Permit No.EP-327/2009/A)
 - Construction of a sewage pumping station near Shui Tsiu San Tsuen Road in Yuen Long South; and construction of about 9km of sewers and rising mains with diameter ranging from 200-1500mm in Yuen Long South and Ha Tsuen areas (without Environmental Permit).
- ES03. This is the **23rd** Monthly Environmental and Audit (EM&A) Report for the designated work of Project under Environmental Permit No.EP-327/2009A (hereinafter ‘the EP’), covering a period from **1 to 31 December 2011** (hereinafter ‘the Reporting Period’).

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

- ES04. 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)	30
	24-hour Total Suspended Particulates (TSP)	12
Construction Noise	Leq (30min) Daytime	10
Water Quality	Dissolved Oxygen	12
	Turbidity	12
	Total Suspended Solids	12
Inspection / Audit	ET Weekly Environmental Site Inspection	4

BREACH OF ACTION AND LIMIT (A/L) LEVELS

- ES05. Breach of the air quality, construction noise and water quality in this Reporting Period is summarized in the following table.

Environmental Aspects	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation	Corrective Actions
Air Quality	1-hour TSP	0	0	0	--	--
	24-hour TSP	1	0	1	Not Project related	N.A.
Construction Noise	Leq (30min) Daytime	0	0	0	--	--
Water Quality	Dissolved Oxygen	0	0	0	--	--
	Turbidity	0	0	0	--	--
	Suspended Solids	0	0	0	--	--

Note: NOE – Notification of Exceedance

- 4.01 In this Reporting Period, no exceedance was recorded in water quality and noise quality monitoring. For air quality monitoring, one (1) Action Level exceedance in 24-hour TSP was recorded at Location AM2 on 24 December 2011. NOE was issued to all relevant parties upon confirmation of the monitoring result and investigation report has been conducted and

completed. It is concluded that exceedance was not related to the Project under the Project.

ENVIRONMENTAL COMPLAINT

ES06. No environmental complaint was recorded / received in this Reporting Period.

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES07. No environmental summons and successful prosecutions were recorded in this Reporting Period.

REPORTING CHANGE

ES08. There are no reporting changes in this reporting month.

SITE INSPECTION BY EXTERNAL PARTIES

ES09. In this Reporting Period, no site inspection was carried by EPD or AFCD.

FUTURE KEY ISSUES

ES10. During dry season, special attention should be paid to the dust mitigation measures to avoid fugitive dust emissions from loose soil surface or haul road. Nevertheless, mitigation measures implemented for control the surface runoff including wheel wash facilities, covering of the loose soil surface or stockpile with tarpaulin sheet, etc., should be properly maintained to prevent any muddy or sandy runoff from the loose soil surface overflow on the site boundary; and also with construction noise and other environmental issues special waste management, as stipulated in the Environmental Monitoring and Audit Manual.

TABLE OF CONTENTS

1	INTRODUCTION	1
	BACKGROUND	1
	REPORT STRUCTURE	1
2	PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS	3
	PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE	3
	CONSTRUCTION PROGRESS	3
	SUMMARY OF ENVIRONMENTAL SUBMISSIONS	3
3	SUMMARY OF IMPACT MONITORING REQUIREMENTS	4
	MONITORING PARAMETERS	4
	MONITORING LOCATIONS	4
	MONITORING FREQUENCY	6
	MONITORING METHODOLOGY AND EQUIPMENTS	7
	EQUIPMENT CALIBRATION	9
	METEOROLOGICAL INFORMATION	9
	DATA MANAGEMENT AND DATA QA/QC CONTROL	9
	DETERMINATION OF ACTION/LIMIT (A/L) LEVELS	10
4	IMPACT MONITORING RESULTS	11
	RESULTS OF AIR QUALITY MONITORING	11
	RESULTS OF CONSTRUCTION NOISE MONITORING	12
	RESULTS OF WATER QUALITY MONITORING – LOCAL STREAM COURSE	12
	RESULTS OF LANDSCAPE AND VISUAL IMPACT	13
5	WASTE MANAGEMENT	13
	RECORDS OF WASTE QUANTITIES	13
6	SITE INSPECTIONS	14
7	ENVIRONMENTAL COMPLAINTS AND NON-COMPLIANCE	15
	ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION	15
8	IMPLEMENTATION STATUS OF MITIGATION MEASURES	16
9	IMPACT FORECAST	20
	KEY ISSUES FOR THE COMING MONTH	20
10	CONCLUSIONS AND RECOMMENTATIONS	21
	CONCLUSIONS	21
	RECOMMENDATIONS	21

LIST OF TABLES

TABLE 2-1	STATUS OF ENVIRONMENTAL LICENSES AND PERMITS
TABLE 3-1	SUMMARY OF MONITORING PARAMETERS
TABLE 3-2	AIR QUALITY MONITORING STATION
TABLE 3-3	CONSTRUCTION NOISE MONITORING STATION
TABLE 3-4	LOCAL STREAM WATER QUALITY MONITORING STATION
TABLE 3-5	AIR QUALITY MONITORING EQUIPMENTS
TABLE 3-6	NOISE MONITORING EQUIPMENTS
TABLE 3-7	WATER QUALITY MONITORING EQUIPMENTS
TABLE 3-8	ACTION AND LIMIT LEVELS FOR AIR QUALITY MONITORING
TABLE 3-9	ACTION AND LIMIT LEVELS FOR CONSTRUCTION NOISE
TABLE 3-10	ACTION AND LIMIT LEVELS FOR A LOCAL STREAM WATER QUALITY MONITORING (R1B)
TABLE 4-1	SUMMARY OF 24-HOUR AND 1-HOUR TSP MONITORING RESULTS – AM1

TABLE 4-2	SUMMARY OF 24-HOUR AND 1-HOUR TSP MONITORING RESULTS – AM2
TABLE 4-3	SUMMARY OF CONSTRUCTION NOISE MONITORING RESULTS – NM1
TABLE 4-4	SUMMARY OF CONSTRUCTION NOISE MONITORING RESULTS – NM2
TABLE 4-5	SUMMARIES OF WATER QUALITY RESULTS – R1B
TABLE 5-1	SUMMARY OF QUANTITIES OF INERT C&D MATERIALS
TABLE 5-2	SUMMARY OF QUANTITIES OF C&D WASTES
TABLE 6-1	SITE OBSERVATIONS IN THE REPORTING MONTH
TABLE 7-1	STATISTICAL SUMMARY OF ENVIRONMENTAL COMPLAINTS
TABLE 7-2	STATISTICAL SUMMARY OF ENVIRONMENTAL SUMMONS
TABLE 7-3	STATISTICAL SUMMARY OF ENVIRONMENTAL PROSECUTION
TABLE 8-1	ENVIRONMENTAL MITIGATION MEASURES

LIST OF ANNEXES

APPENDIX A	SITE LAYOUT PLAN
APPENDIX B	ON-SITE ENVIRONMENTAL MANAGEMENT
APPENDIX C	MASTER CONSTRUCTION PROGRAM AND A THREE MONTHS ROLLING PROGRAM
APPENDIX D	MONITORING LOCATION OF EM&A PROGRAMME
APPENDIX E	CALIBRATION CERTIFICATES
APPENDIX F	METEOROLOGICAL INFORMATION
APPENDIX G	EVENT AND ACTION PLAN
APPENDIX H	MONITORING SCHEDULE IN REPORTING MONTH AND COMING MONTH
APPENDIX I	RESULTS DATA
APPENDIX J	GRAPHICAL PLOTS
APPENDIX K	MONTHLY SUMMARY WASTE FLOW TABLE
APPENDIX L	INSPECTION CHECKLIST

1. INTRODUCTION

BACKGROUND

- 1.01 The China State Construction Engineering (Hong Kong) Limited (hereinafter “The Contractor”) has been awarded by the Drainage Services Department (DSD) the Contract DC/2009/08 *Construction of Yuen Long South Branch Sewers and Expansion of Ha Tsuen Sewage Pumping Station* (the Project) in October 2009.
- 1.02 The Project involves construction of about 9km of sewers and rising mains with diameter ranging from 200-1500mm in Yuen Long South and Ha Tsuen areas, a sewage pumping station near Shui Tsiu San Tsuen Road in Yuen Long South, expansion of existing Ha Tsuen Sewage Pumping Station. The site layout plan is shown in **Appendix A**.
- 1.03 The construction of expansion Ha Tsuen Sewage Pumping Station is under a statutory EIA (Register No. AEIAR-072/2003) study for “*Upgrading and expansion of San Wai Sewage Treatment Works and expansion of Ha Tsuen Pumping Station*” commissioned by the DSD. An Environmental Permit (No. EP-327/2009/A) for upgrading and expansion of Sewage Treatment Works at San Wai (excluded for the Project) and Ha Tsuen Sewage Pumping Station has been obtained by DSD in January 2009 for the relevant works.
- 1.04 According to the Section 25 of the Particular Specification (PS) and the Environmental Permit No. EP-327/2009/A, the scope of monitoring includes air quality, construction noise, water quality and environmental site audit. It should be undertaken in accordance with the Environmental Monitoring and Audit Manual as part of EIA report [AEIAR-072/2003] (hereafter “the EM&A Manual”) by an independent Environmental Team (ET). Also, monitoring and audit works for landscaping and visual will be undertaken as part of the EM&A programme.
- 1.05 As the works of the Project has been commenced in different periods of time, the EM&A Report for the Project are split to two separate parts as follows:
- (a) Expansion Ha Tsuen Sewage Pumping Station (under Environmental Permit No.EP-327/2009/A);
 - (b) Construction of sewers and rising mains with diameter ranging from 200-1500mm in Yuen Long South and Ha Tsuen areas and a sewage pumping station near Shui Tsiu San Tsuen Road in Yuen Long South (the works without Environmental Permit)
- 1.06 Action-United Environmental Services and Consulting (AUES) has been commissioned by the Contractor as the ET to implement the relevant EM&A program. As part of the project EM&A program, baseline monitoring was conducted between *22 December 2009* and *18 January 2010* to determine the ambient environmental conditions before the project commence any major construction works at Ha Tsuen Sewage Pumping Station and it had been verified by IEC and endorsed by EPD.
- 1.07 This is the **23rd** 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 (hereinafter ‘the EP’), covering a period from **1 to 31 December 2011**.

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
 - SECTION 6** SITE INSPECTIONS

SECTION 7	ENVIRONMENTAL COMPLAINTS AND NON-COMPLIANCE
SECTION 8	IMPLEMENTATION STATUES OF MITIGATION MEASURES
SECTION 9	IMPACT FORECAST
SECTION 10	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 programs and a three month rolling construction programme are enclosed in [Appendix C](#). Also, the major construction activities undertaken in this reporting month are listed below:
- Construction of walls

SUMMARY OF ENVIRONMENTAL SUBMISSIONS

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

Table 2-1 Status of Environmental Licenses and Permits

Item	Description	License/Permit Status
1	Environmental Permit (EP-329/2009/A)	Updated on 1 June 2010
2	Chemical waste Producer Registration 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 Pumping Station. Also, monitoring and audit works for landscaping and visual shall be undertaken as part of the EM&A programme.

MONITORING PARAMETERS

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

Table 3-1 Summary of Monitoring Parameters

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

MONITORING LOCATIONS

Monitoring Location Stipulation in the EM&A Manual

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

Air Quality

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

- 3.05 In this case, the alternative location Ho Tak Sum Primary School as one sensitive receiver mentioned in the EIA Report (Register No. AEIAR-072/2003) is proposed to be the replacement to undertake air quality monitoring during the expansion works of Ha Tsuen Sewage Pumping Station in accordance with the EM&A Manual Clauses 2.2.1.20. Simultaneously, air monitoring at the designated location Yeung Chun Pui Care & Attention Home is proposed to be performed. The proposal and recommendation is agreed by IEC and as endorsed by EPD.
- 3.06 As requested by the occupants of Yeung Chun Pui Care & Attention Home (AM2) due to safety reasons, The 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 The monitoring stations are listed in **Table 3-2** and illustrated in **Appendix D**.

Table 3-2 Air Quality Monitoring Stations

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

* HVS shifted to nearby location where less than 10 meters from the original location towards the construction site on 27 October 2011.

Construction Noise

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

Table 3-3 Construction Noise Monitoring Stations

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

Water Quality

- 3.10 One designated location of a local stream course, Tin Shui Wai Nullah, is proposed to carry out water quality monitoring in accordance with the EM&A Manual. The designated sampling location R1 is located at the midpoint between two pedestrian flyovers athwart Tin Shui Wai Nullah, which are 320 meters apart, there is technical difficulty and safety is concerned. So, a new sampling point located at approximately 160m upstream of the R1 (hereinafter as R1b) was therefore proposed for the local stream impact monitoring. A proposal (submission ref.: TCS00491/09/300/L0080) has been verified by IEC and submitted to EPD with no further comments received.
- 3.11 The detailed monitoring station is listed in **Table 3-4** and show in **Appendix D**.

Table 3-4 Local Stream Water Quality Monitoring Station

Monitoring Location ID	Identified Address	Remarks
R1b	The athwart Tin Shui Wai Nullah pedestrian	About 160 meters upstream from the designated location as stipulated in the EM&A Manual. Also,

Monitoring Location ID	Identified Address	Remarks
	flyover	closer the existing Ha Tsuen Pumping Station

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

Landscape and Visual

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

MONITORING FREQUENCY

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

Air Quality Monitoring

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

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

Duration: Throughout the construction period.

Noise Monitoring

Parameters: One set of Leq(30min) as 6 consecutive Leq(5min) between 0700-1900 hours on normal weekdays.
Leq (5min), L10 and L90 during the construction undertaken during Restricted Hours (19:00 to 07:00 hours next of normal working day and full day of public holiday and Sunday)

Frequency: Once every six days during 0700-1900 hours on normal weekdays. Restricted Hour monitoring should depend on conditions stipulated in Construction Noise Permit.

Duration: Throughout the construction period.

Water Quality Monitoring of Local Stream Course

Parameters: DO, Turbidity and SS.

Frequency: 3 days per week.

Depths: mid-depth

Duration: Throughout the construction period and the interval between 2 sets of monitoring is not less than 36 hours

Water Quality Monitoring of Effluent Discharge

Parameters: pH, COD and SS.

Frequency: Depend on conditions stipulated in discharge license under **Section 20** of the **Water Pollution Control Ordinance**.

Duration: Throughout the construction period

Landscape and Visual Monitoring

Parameters: Site inspection with broad scope of audit as listed in the EM&A Manuals

Frequency: Once every 2 weeks

Duration: Throughout the construction period

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

Parameters: DO, Turbidity and SS.

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

MONITORING METHODOLOGY AND EQUIPMENT

Air Quality

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

Table 3-5 Air Quality Monitoring Equipment

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

1-hour TSP

- 3.17 The 1-hour TSP monitor is conducted either with a TSI Dust Track Aerosol Monitor Model 8520 or a Sibata LD-3 Laser Dust Meter which is a portable, battery-operated laser photometer. The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 90° light scattering. The 1-hour TSP monitor consists of the following:
- (a.) A pump to draw sample aerosol through the optic chamber where TSP is measured;
 - (b.) A sheath air system isolates the aerosol in the chamber to keep the optics clean for maximum reliability; and
 - (c.) A built-in data logger compatible with Windows based program to facilitate data collection, analysis and reporting.
- 3.18 The 1-hour TSP meter is used within the valid period as follow manufacturer's Operation and Service Manual.

24-hour TSP

- 3.19 The equipment used for 24-hour TSP measurement is Thermo Andersen Model GS2310 TSP high volume air sampling system, which complied with EPA Code of Federal Regulation, Appendix B to Part 50. The High Volume Air Sampler (HVS) consists of the following:
- (a.) An anodized aluminum shelter;
 - (b.) A 8"x10" stainless steel filter holder;
 - (c.) A blower motor assembly;
 - (d.) A continuous flow/pressure recorder;
 - (e.) A motor speed-voltage control/elapsed time indicator;
 - (f.) A 7-day mechanical timer; and
 - (g.) A power supply of 220V/50 Hz.
- 3.20 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.
- 3.21 24-hour TSP was collected by the ET on filters of HVS and quantified by a local HOKLAS accredited laboratory, ALS Technichem (HK) Pty Ltd (ALS), upon receipt of the samples. The ET kept all the sampled 24-hour TSP filters in normal air conditioned room conditions, i.e. 70% RH (Relative Humidity) and 25°C, for six months prior to disposal.

Noise

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

Table 3-6 Noise Monitoring Equipment

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

- 3.23 Sound level meters listed above comply with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications, as recommended in Technical Memorandum (TM) issued under the Noise Control Ordinance (NCO).
- 3.24 Noise measurements were taken in terms of the A-weighted equivalent sound pressure level (L_{eq}) measured in decibels (dB). Supplementary statistical results (L_{10} and L_{90}) were also obtained for reference.
- 3.25 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).
- 3.26 No noise extension cable was used to link the microphone with sound level meter for the measurement. The microphone was set about 1.2m height above ground and oriented such that it was pointed to the site with the microphone facing perpendicular to the line of sight. The windshield was fitted for all measurements. The monitoring locations AM1 and AM2 were normally set in a free field situation.
- 3.27 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

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

Table 3-7 Water Quality Monitoring Equipment

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

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

Dissolved Oxygen (DO)

- 3.30 A portable YSI 550A DO Meter or YSI Professional Plus was used for in-situ DO measurement, which automates the measurements of temperature, dissolved oxygen and dissolved oxygen saturation simultaneously. The DO meter is capable of measuring DO in the range of 0 - 20

mg/L and 0 - 200 % saturation. Before each round of monitoring, the dissolved oxygen probe is calibrated by the wet bulb method with distilled water. Calibration of the equipment is performed by ALS on quarterly basis.

Turbidity

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

Suspended Solids (SS)

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

Water Sampler

- 3.33 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

- 3.34 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

- 3.35 A 'Willow' 33-litter plastic cool box packed with ice was used to preserve the collected water samples prior to arrival at the laboratory. The water temperature of the cool box was maintained at a temperature as close to 4°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

- 3.36 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.
- 3.37 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.
- 3.38 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.
- 3.39 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

- 3.40 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

- 3.41 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.

- 3.42 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.
- 3.43 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

- 3.44 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 Leq(30min) during normal hours from 0700 to 1900 hours on normal weekdays, reduced to 65 dB(A) during school examination periods
NM2		70 dB(A) of Leq(30min) during normal hours from 0700 to 1900 hours on normal weekdays

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

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

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

- 3.45 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

- 4.02 The monitoring activities undertaken in this Reporting Period is listed in [Appendix H](#). The monitoring results are presented in the following sub-sections.

RESULTS OF AIR QUALITY MONITORING

- 4.03 In this Reporting Period, a total of **12** events of 24-hour TSP monitoring and **30** events of 1-hour TSP monitoring were undertaken and the results are summarized in [Tables 4-1 and 4-2](#). The 24-hour TSP raw data sheets are shown in [Appendix I](#). Also, the graphical plots for the 24-hour and 1-hour TSP monitoring result are shown in [Appendix J](#)

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

Date	24-hour TSP ($\mu\text{g}/\text{m}^3$)	1-hour TSP ($\mu\text{g}/\text{m}^3$)				
		Date	Start Time	1 st hour measured	2 nd hour measured	3 rd hour measured
1-Dec-11	77	6-Dec-11	13:09	123	145	161
7-Dec-11	41	12-Dec-11	13:17	138	159	171
13-Dec-11	20	17-Dec-11	9:17	138	186	102
19-Dec-11	122	23-Dec-11	13:03	201	124	152
24-Dec-11	112	29-Dec-11	13:01	168	153	126
30-Dec-11	147					
Average (Range)	87 (20-147)	Average (Range)		150 (102-201)		

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

Date	24-hour TSP ($\mu\text{g}/\text{m}^3$)	1-hour TSP ($\mu\text{g}/\text{m}^3$)				
		Date	Start Time	1 st hour measured	2 nd hour measured	3 rd hour measured
1-Dec-11	124	6-Dec-11	13:49	186	131	109
7-Dec-11	104	12-Dec-11	14:01	202	167	152
13-Dec-11	163	17-Dec-11	9:51	201	197	131
19-Dec-11	149	23-Dec-11	14:01	193	176	143
24-Dec-11	228	29-Dec-11	13:48	201	178	142
30-Dec-11	125					
Average (Range)	149 (104-228)	Average (Range)		167 (109-202)		

Remarks: *Bold and italic indicated Action Level exceedance*

- 4.04 As shown in [Tables 4-1 and 4-2](#), 1-hour results fluctuated well below the Action Level in this Reporting Period. However, one (1) Action Level exceedance in 24-hour TSP monitoring was recorded at Location AM2 on 24 December 2011. NOE was issued to all relevant parties upon confirmation of the monitoring result and investigation report for the exceedance has been conducted and completed.
- 4.05 According the site information provided by the Contractor, only rebar fixing work was carried out at Ha Tsuen Sewage Pumping Station on 24 December 2011. With full implementation of the required environmental mitigation measures, in particular construction dust suppression measures including water sprays for haul roads as well as wheel washing facilities provided at the exit/entrance of the site, the construction activity is not anticipated to create adverse construction dust impacts as shown by the TSP monitoring results of the previous construction period.
- 4.06 During regular site inspection, it is observed that the vicinity of the site are main traffic road which dominated by heavy truck and construction site from other contracts. In addition, no complaint was received during the exceedance, indicating the occasional exceedance bore only short term impacts during dry and windy season. It is concluded that the exceedance was not related to the works under the project.
- 4.07 The meteorological data during the impact monitoring days are summarized in [Appendix F](#).

RESULTS OF CONSTRUCTION NOISE MONITORING

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

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

Date	Start Time	1 st Leq _{5min}	2 nd Leq _{5min}	3 rd Leq _{5min}	4 th Leq _{5min}	5 th Leq _{5min}	6 th Leq _{5min}	Leq _{30min}	Corrected* Leq _{30min}
6-Dec-11	13:18	58.2	63.8	67.4	67.5	57.9	58.6	64.1	67.1
12-Dec-11	13:09	64.9	64.7	64.8	69.6	67.9	58.0	66.2	69.2
17-Dec-11	9:18	61.8	59.7	58.6	57.9	60.2	56.4	59.4	62.4
23-Dec-11	13:08	58.6	59.0	61.0	60.3	65.0	65.8	62.6	65.6
29-Dec-11	13:07	60.2	58.6	60.4	57.8	54.4	52.6	58.2	61.2
Limit Level		-						> 70 dB(A)	

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

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

Date	Start Time	1 st Leq _{5min}	2 nd Leq _{5min}	3 rd Leq _{5min}	4 th Leq _{5min}	5 th Leq _{5min}	6 th Leq _{5min}	Leq _{30min}	Corrected* Leq _{30min}
6-Dec-11	14:16	67.0	67.2	67.7	66.5	65.9	65.8	66.7	69.7
12-Dec-11	13:51	70.1	67.7	66.0	60.4	60.7	67.8	66.8	69.8
17-Dec-11	10:03	61.8	64.4	62.4	62.6	63.2	64.3	63.2	66.2
23-Dec-11	14:02	68.3	68.3	64.9	64.6	63.1	68.0	66.7	69.7
29-Dec-11	14:02	64.2	68.3	62.6	64.8	65.5	66.2	65.6	68.6
Limit Level		-						> 70 dB(A)	

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

- 4.09 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

- 4.10 In this Reporting Period, a total of **12** 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](#).
- 4.11 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)
3-Dec-11	8.3	14.1	2.0
6-Dec-11	5.0	10.4	19.0
8-Dec-11	4.7	13.2	7.0
10-Dec-11	5.0	11.2	18.0
12-Dec-11	7.5	13.0	16.0
15-Dec-11	5.6	14.2	23.0
17-Dec-11	7.4	13.0	29.0
19-Dec-11	8.3	13.1	28.0
21-Dec-11	5.2	9.6	10.0
23-Dec-11	5.2	10.6	19.0
29-Dec-11	4.8	9.5	14.0
31-Dec-11	5.1	10.4	6.0

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

- 4.02 During the Reporting Period, field measurements showed that water temperature and pH value of the local stream are within **14.1°C** to **21.3°C** and **7.6 to 8.7** respectively..

RESULTS OF LANDSCAPE AND VISUAL IMPACT

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

5. WASTE MANAGEMENT

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

RECORDS OF WASTE QUANTITIES

- 5.02 All types of waste arising from the construction work are classified into the following:
- Construction & Demolition (C&D) Material;
 - Chemical Waste;
 - General Refuse; and
 - Excavated Soil.
- 5.03 The quantities of waste for disposal in this Reporting Period are summarized in **Tables 5-1** and **5-2** and the Monthly Summary Waste Flow Table is shown in **Appendix K**. Whenever possible, materials were reused on-site as far as practicable.

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

Type of Waste	Quantity	Disposal Location
C&D Materials (Inert) (m ³)	0	-
Reused in this Contract (Inert) (m ³)	0	-
Reused in other Projects (Inert) (m ³)	0	-
Disposal as Public Fill (Inert) (m ³)	1,445	Tuen Mun Area 38

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

Type of Waste	Quantity	Disposal Location
Recycled Metal (kg)	0	-
Recycled Paper / Cardboard Packing (kg)	0	-
Recycled Plastic (kg)	0	-
Chemical Wastes (kg)	0	-
General Refuses (m ³)	1	NENT

- 5.04 There was no site effluent or surface runoff discharged in this monthly period.
- 5.05 To control over the site performance on waste management, the Contractor shall ensure that all solid and liquid waste management works are in full compliance with the relevant license/permit requirements, such as the effluent discharge 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 **6, 15, 20 and 28 December 2011** to evaluate the site environmental performance. No non-compliance was noted.
- 6.02 Observations for the site inspections and monthly audit found at Ha Tsuen Pumping Station within this Reporting Period are summarized in **Table 6-1** and inspection checklists are attached in **Appendix L**.

Table 6-1 Site Observations in the Reporting Month

Date	Findings / Deficiencies	Follow-Up Status
6 December 2011	No Adverse environmental impacts were observed.	NA
15 December 2011	Pumping of turbid water was observed in Ha Tsuen Pumping Station. Desilting of the water prior to discharge is required.	Treatment of the turbid water was observed during site inspection on 20 December 2011
20 December 2011	No Adverse environmental impacts were observed.	NA
28 December 2011	No Adverse environmental impacts were observed.	NA

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)
1 Jan – 31 Mar 2011	0	3	NA
1 Apr – 30 June 2011	0	3	NA
1 Jul – 30 Sep 2011	0	3	NA
1 Oct – 31 Dec 2011	0	3	NA

Table 7-2 Statistical Summary of Environmental Summons

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
Feb – Dec 2010	0	0	NA
1 Jan – 31 Mar 2011	0	0	NA
1 Apr – 30 June 2011	0	0	NA
1 Jul – 30 Sep 2011	0	0	NA
1 Oct – 31 Dec 2011	0	0	NA

Table 7-3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
Feb – Dec 2010	0	0	NA
1 Jan – 31 Mar 2011	0	0	NA
1 Apr – 30 June 2011	0	0	NA
1 Jul – 30 Sep 2011	0	0	NA
1 Oct – 31 Dec 2011	0	0	NA

8. IMPLEMENTATION STATUS OF MITIGATION MEASURES

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

Dust Mitigation Measure

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

- (h) Construction activities should be planned so that parallel operation of several sets of equipment close to a given receiver is avoided, thus reducing the cumulative impacts between operations. The numbers of operating items of powered mechanical equipment should be minimized.
- (i) Construction plant should be properly maintained (well-greased, damage and worn parts promptly replaced) and operated. Construction equipment often has silencing measures built in or added on, e.g. bulldozer silencers, compressor panels, and mufflers. Silencing measures should be properly maintained and utilized. Where possible, rubber or damping materials should be introduced between metal panels to avoid rattle and reverberation of noise.
- (j) Equipment known to emit sound strongly in one direction, should where possible, be oriented so that the noise is directed away from nearby NSRs.
- (k) Material stockpiles and other structures (such as site offices) should be effectively utilized, where practicable, to screen noise from on-site construction activities.
- (l) The Contractor should devise, arrange methods of working and carry out the works in such manner as to minimize noise impacts on the surrounding environment, and should provide experienced personnel with suitable training to ensure that these measures are implemented properly.

Water Quality Mitigation Measures

- (a) Exposed stockpiles should be covered with tarpaulin or impervious sheets before a rainstorm occurs;
- (b) The exposed soil surfaces should also be properly protected to minimise dust emission;
- (c) The stockpiles of materials should be placed in the locations away from the drainage channel so as to avoid releasing materials into the channel;
- (d) Wheel washing facilities should be provided at site exits to ensure that earth, mud and debris would not be carried out of the works areas by vehicles;
- (e) Provision of site drainage systems and treatment facilities would be required to minimize the water pollution;
- (f) A discharge licence needs to be applied from EPD for discharging effluent from the construction site;
- (g) The treated effluent quality is required to meet the requirements specified in the discharge licence;
- (h) Provision of chemical toilets is required to collect sewage from workforce. The chemical toilets should be cleaned on a regular basis;
- (i) Wastewater generated from kitchens should be discharged to public foul sewers or collected in a temporary storage tank if connection to public foul sewers is not feasible;
- (j) A licensed waste collector should be employed to clean the chemical toilets and temporary storage tank on a regular basis;
- (k) Illegal disposal of chemicals should be strictly prohibited;
- (l) Registration as a chemical waste producer is required if chemical wastes are generated and need to be disposed of. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes;
- (m) Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance should be used as a guideline for 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 labelled bins should be provided to segregate this waste from other general refuse generated by the workforce;
- (c) Any unused chemicals or those with remaining functional capacity should be recycled;
- (d) Prior to disposal of C&D waste, it is recommended that wood, steel and other metals be separated for re-use and/or recycling and inert waste utilised as fill material to minimise the quantity of waste to be disposed of to landfill;
- (e) Proper storage and site practices to minimise the potential for damage or contamination of construction materials; and
- (f) Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.

Landscape and Visual Mitigation Measures

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

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

Table 8-1 Environmental Mitigation Measures

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

Issues	Environmental Mitigation Measures
Air Quality	- Regular watering to reduce dust emissions from all exposed site surface, particularly during dry weather; - Frequent watering for particularly dusty construction areas and areas close to air sensitive receivers; - Cover all excavated or stockpile of dusty material by impervious sheeting or sprayed with water to maintain the entire surface wet; - Public roads around the site entrance/exit had been kept clean and free from dust; - Tarpaulin covering of any dusty materials on a vehicle leaving the site; - Water sprinkler system is provided at haul road to reduce dust emissions during the vehicles passing through the haul road' - The vehicle speed within the site is limited to 5km/hr; - Wheel washing facilities have been provided at the site exit
Noise	- Good site practices to limit noise emissions at the sources; - Use of quiet plant and working methods according to EP-329/2009; - Use of site hoarding with noise barriers to screen noise at ground level of NSRs; - Use of shrouds/temporary noise barriers to screen noise from relatively static PMEs according to EP-329/2009; - Use of temporary noise barrier with surface density 7kg/m² 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; - Idle equipment are turned off or throttled down; - No construction works shall be undertaken during school examination period in the Ha Tsuen Pumping Station according to EP-329/2009; and - Alternative use of plant items within one worksite, where practicable.
Waste and Chemical Management	- Excavated material should be reused on site as far as possible to minimize off-site disposal. Scrap metals or abandoned equipment should be recycled if possible; - Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner; - The Contractor should adopt a trip ticket system for the disposal of C&D materials to any designed public filling facility and/or landfill; and - Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes. - Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; - To encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to segregate this waste from other general refuse generated by the workforce; - Any unused chemicals or those with remaining functional capacity should be recycled; - Prior to disposal of C&D waste, it is recommended that wood, steel and other metals be separated for re-use and/or recycling and inert waste utilised as fill material to minimise the quantity of waste to be disposed of to landfill; - Proper storage and site practices to minimise the potential for damage or contamination of construction materials; and - Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.
Landscape and Visual	The landscape and visual impacts monitoring results and findings will be submitted in the stand-alone document.
General	The site was generally kept tidy and clean.

9. IMPACT FORCAST

KEY ISSUES FOR THE COMING MONTH

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

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

10. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

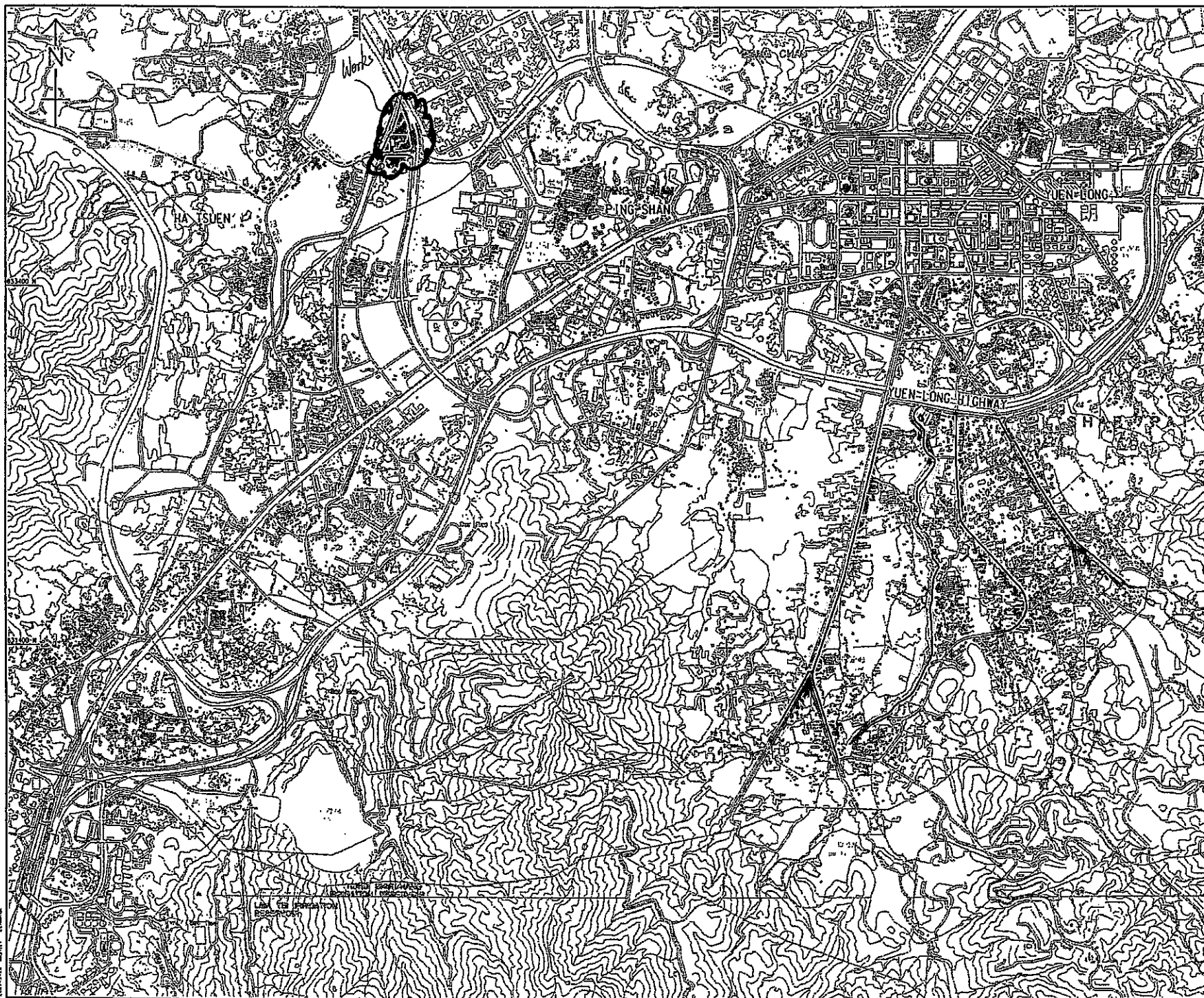
- 10.01 This is the **23rd** Monthly EM&A Report for the designated work of the Project, covering the construction period from **1** to **31 December 2011**.
- 10.02 No 1-hour TSP results that triggered the Action or Limit Level was recorded in this Reporting Period. However, one (1) Action Level exceedance in 24-hour TSP monitoring was recorded at Location AM2 on 24 December 2011. NOE was issued to all relevant parties upon confirmation of the monitoring result and investigation report has been conducted and completed. It is concluded that exceedance was not related to the Project under the Project.
- 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.
- 10.01 No Action/Limit Level exceedance was recorded for in Suspended Solids for the water quality monitoring during Reporting Period. The field measurements showed that water temperature and pH value of the local stream are within 20.9°C to 28.9°C, and 8.3 to 8.7 respectively.
- 10.02 No documented complaint, notification of summons or successful prosecution was received.
- 10.03 The ET had carried out a site inspection on **6, 15, 20 and 28 December 2011**. No non-compliance was observed during the inspections. In general, it was reminded that desilting of the water turbid is required prior to discharge. Overall, the environmental performance of the Project was therefore considered satisfactory.
- 10.04 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

- 10.05 During dry season, special attention should be paid to the dust mitigation measures to avoid fugitive dust emissions from loose soil surface or haul road. Nevertheless, mitigation measures implemented for control the surface runoff including wheel wash facilities, covering of the loose soil surface or stockpile with tarpaulin sheet, etc., should be properly maintained to prevent any muddy or sandy runoff from the loose soil surface overflow on the site boundary; and also with construction noise and other environmental issues stipulated in the Environmental Monitoring and Audit Manual.
- 10.06 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

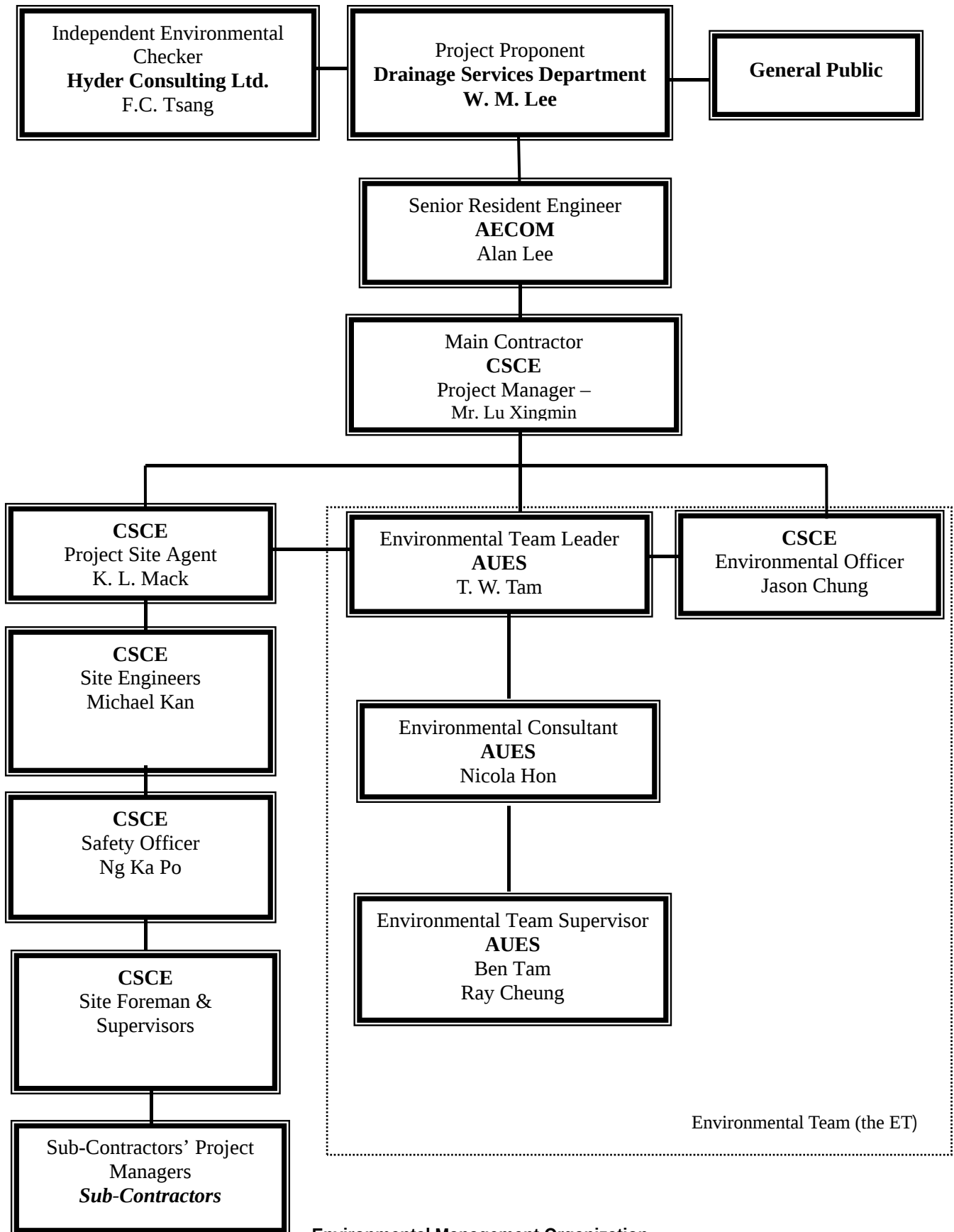
DWG. NO. 60022017/C1/1001

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

COPYRIGHT RESERVED

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 2730	2805 5028
CSCE	Project Manager	Mr. Lu Xingmin	2472 0113	2472-0229
CSCE	Site Agent	Mr. K L Mack	2472 0113	2472-0229
CSCE	Site Engineer	Mr. Michael Kan	2472 0113	2472-0229
CSCE	Environmental Officer	Mr. Jason Chung	2472 0113	2472-0229
CSCE	Environmental Supervisor	Mr. Chan Yau Pang	2472 0113	2472-0229
CSCE	Safety Officer	Mr. Ng Ka Po	2472 0113	2472-0229
AUES	Environmental Team Leader	Mr. T. W. Tam	2959-6059	2959-6079
AUES	Environmental Consultant	Ms. Nicola Hon	2959-6059	2959-6079
AUES	Assistance Environmental Consultant	Mr. Ray Cheung	2959-6059	2959-6079
AUES	Team Supervisor	Mr. Ben Tam	2959-6059	2959-6079

Legend:

DSD (Employer) – Drainage Services Department

AECOM (Engineer) – AECOM

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

Hyder (IEC) – Hyder Consulting Limited

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

Appendix C

Master construction program

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

Activity ID	Description	Original Duration	Early Start	Early Finish	Total Float	2009												2010												2011												2012												2013																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
						SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Ha Tsuen Area																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Pumping Station																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
H/200020	Site investigation and report	42	18NOV09	08JAN10	67d																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								</

Start date	17SEP09		Early bar
Finish date	02JUL15		Critical bar
Run date	05FEB10		Summary bar
Project name	WP11		
Page number	1A		Start milestone point
c Primavera Systems, Inc.			Finish milestone point

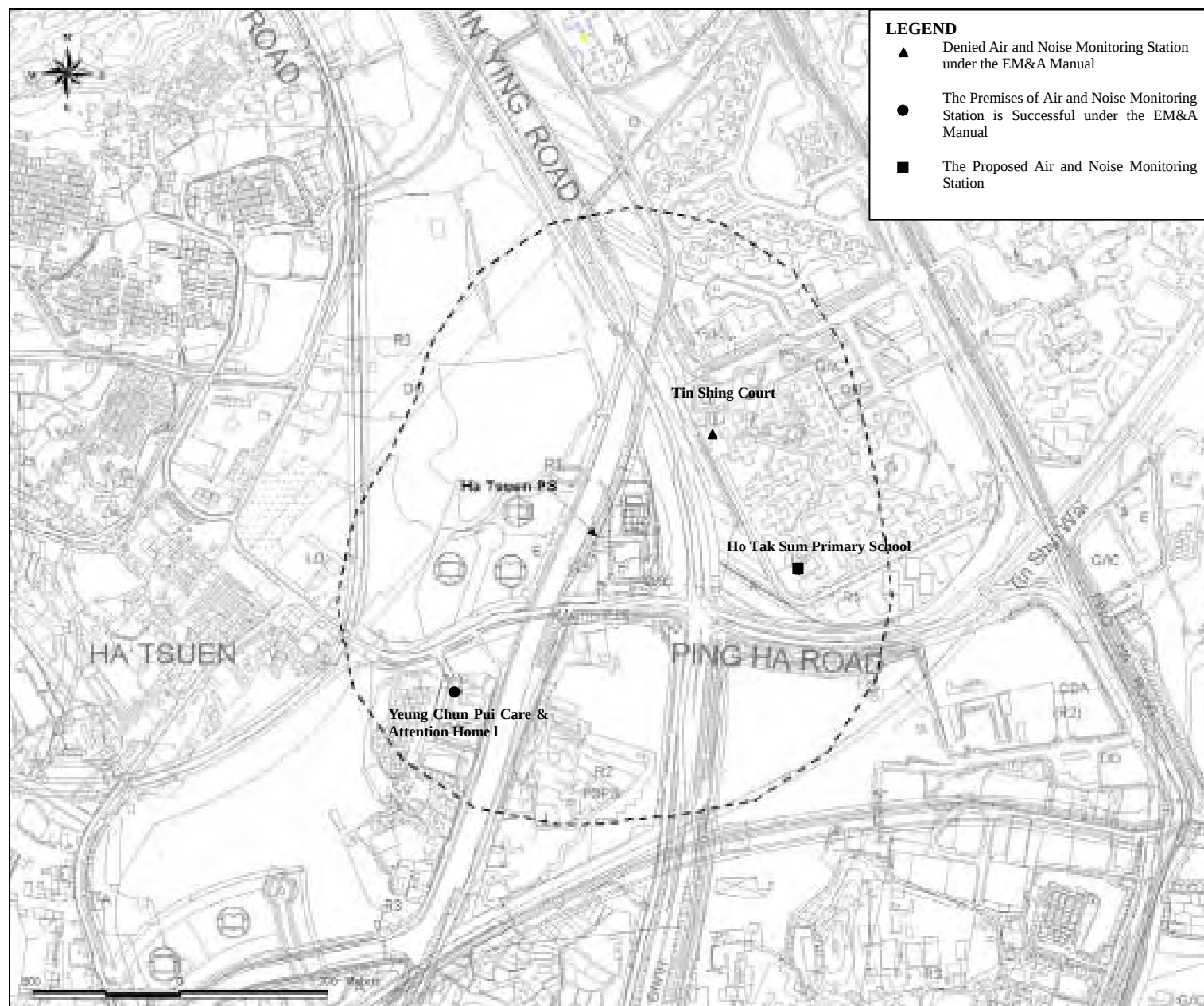
Initial Works Programme - Rev 02 (Ha Tsuen Area)



Appendix D

Monitoring Location of EM&A Programme

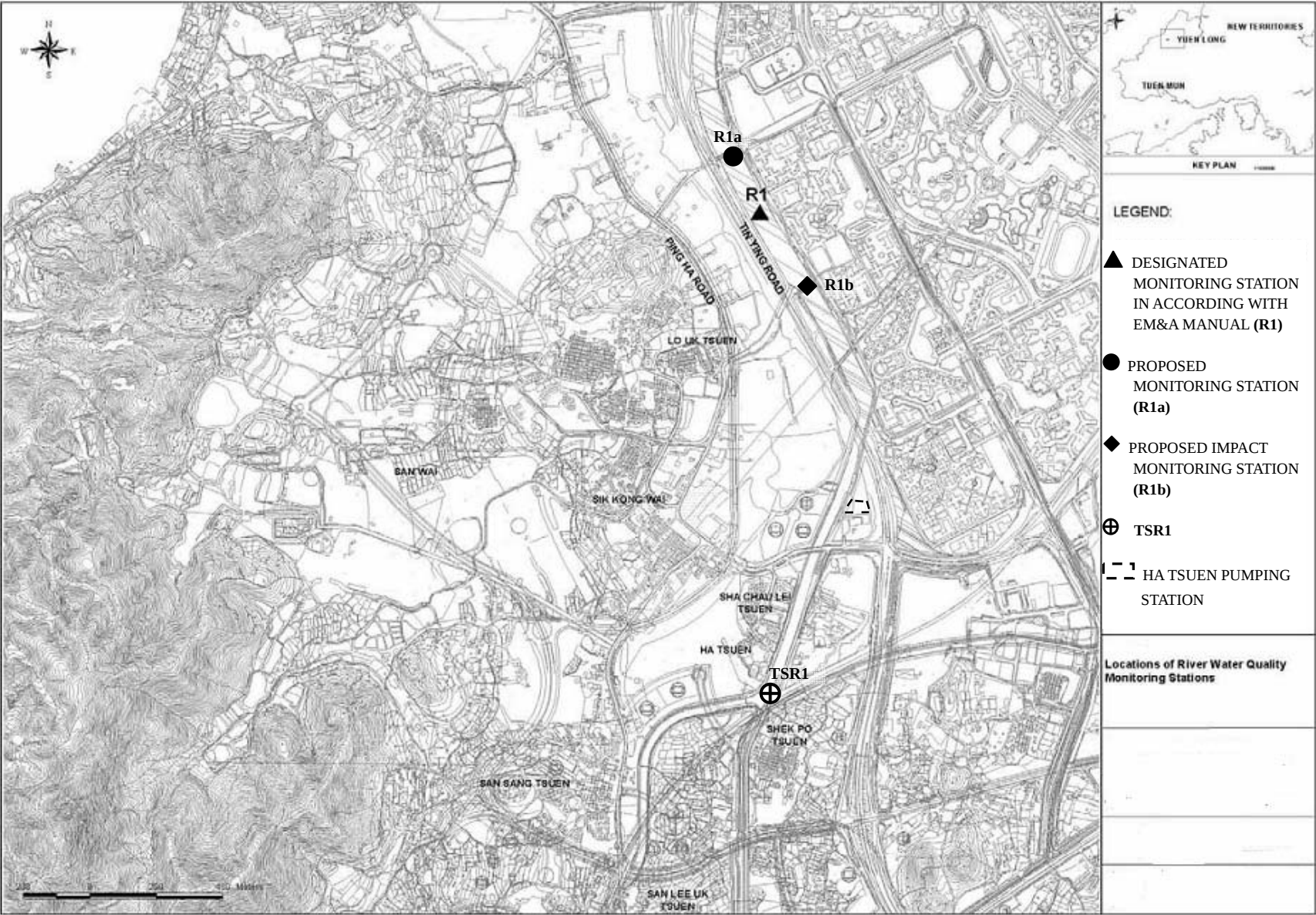
Proposed Air and Noise Monitoring Station



**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

Items	Aspect	Description of Equipment	Date of Calibration	Date of Next Calibration
1	Air	Thermo Anderson Model GS2310 TSP high volume air sampling system (AM1 - Yeung Chun Pui Care & Attention Home)	2 October 11	2 December 11
1 _(a) *		Thermo Anderson Model GS2310 TSP high volume air sampling system (AM1 - Yeung Chun Pui Care & Attention Home)	2 December 11	2 February 12
2		Thermo Anderson Model GS2310 TSP high volume air sampling system (AM2 - Ho Tak Sum Primary School)	27 October 11	27 December 11
2 _(a) *		Thermo Anderson Model GS2310 TSP high volume air sampling system (AM1 - Yeung Chun Pui Care & Attention Home)	29 December 11	29 February 12
3		Calibration Kit TISCH Model TE-5025A Orifice ID 1941 and Rootsmeter S/N 0438320	2 Jun 11	2 Jun 12
4		TSI DustTrak Model 8520 (Serial Number 23079)	13 Sep 11	13 Sep 12
5	Noise	Bruel & Kjaer 4231 Acoustical Calibrator (Serial Number 2713428)	19 Apr 11	19 Apr 12
6		Bruel & Kjaer 2238 Integrating Sound Level Meter (Serial Number 2285721)	19 Apr 11	19 Apr 12
7	Water	YSI Professional Plus (Serial No. 10G101946)	16 Nov 11	16 Feb 12
8*		Turbidimeter HACH 2100p (Serial No. 11030C08499)	21 Sep 11	21 Dec 11
9*		YSI Sonde YSI 6820 / 650MDS Serial No. 02J0912/02K0788 AA	16 Dec 11	16 Mar 12

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

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

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

Date of Calibration: 2-Dec-11
Next Calibration Date: 2-Feb-12
Technician: Ben Tam

CONDITIONS

Sea Level Pressure (hPa) 1017
Temperature (°C) 15.0

Corrected Pressure (mm Hg) 762.75
Temperature (K) 288

CALIBRATION ORIFICE

Make-> TISCH
Model-> 5025A
Calibration Date-> 2-Jun-11

Qstd Slope -> 2.11693
Qstd Intercept -> -0.02568
Expiry Date-> 2-Jun-12

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	4.7	4.7	9.4	1.488	51	52.87	Slope = 40.4934
13	3.7	3.7	7.4	1.322	44	45.61	Intercept = -7.6242
10	2.5	2.5	5	1.089	35	36.28	Corr. coeff. = 0.9998
7	1.9	1.9	3.8	0.951	30	31.10	
5	1.1	1.1	2.2	0.726	21	21.77	

Calculations :

$$Q_{std} = 1/m[\sqrt{H_2O(P_a/P_{std})(T_{std}/T_a)}] - b]$$

$$IC = I[\sqrt{P_a/P_{std})(T_{std}/T_a)}]$$

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:

$$1/m((I) [\sqrt{298/T_{av}}(P_{av}/760)] - b)$$

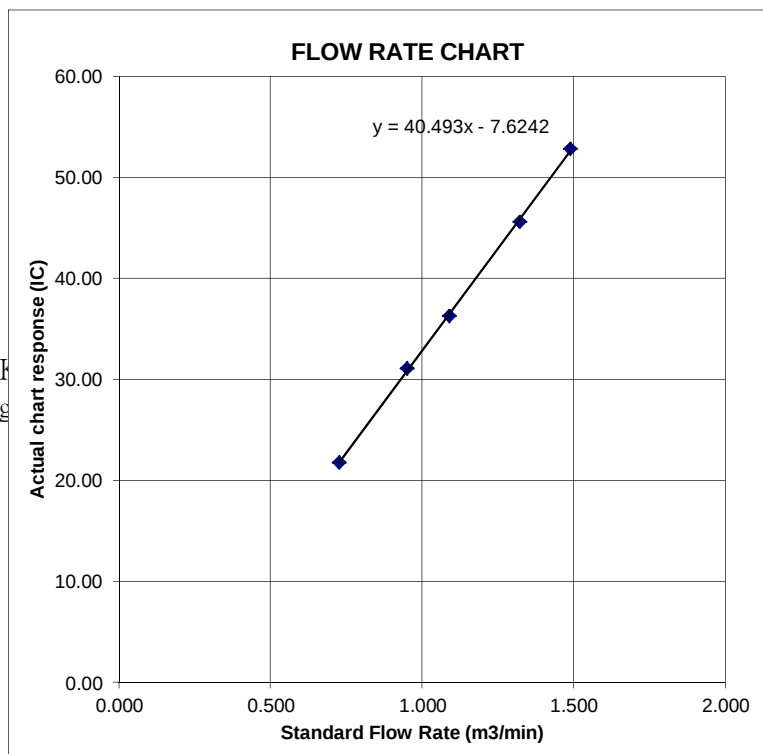
m = sampler slope

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

Date of Calibration: 29-Dec-11
Next Calibration Date: 29-Feb-12
Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa) 1020.6
Temperature (°C) 17.7

Corrected Pressure (mm Hg) 765.45
Temperature (K) 291

CALIBRATION ORIFICE

Make-> TISCH
Model-> 5025A
Calibration Date-> 2-Jun-11

Qstd Slope -> 2.11693
Qstd Intercept -> -0.02568
Expiry Date-> 2-Jun-12

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	4.5	4.5	9.0	1.452	49	50.41	Slope = 39.2183
13	3.5	3.5	7.0	1.282	42	43.21	Intercept = -6.9303
10	2.7	2.7	5.4	1.128	36	37.04	Corr. coeff. = 0.9995
7	1.9	1.9	3.8	0.948	29	29.83	
5	1.0	1.0	2.0	0.691	20	20.58	

Calculations :

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

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

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

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

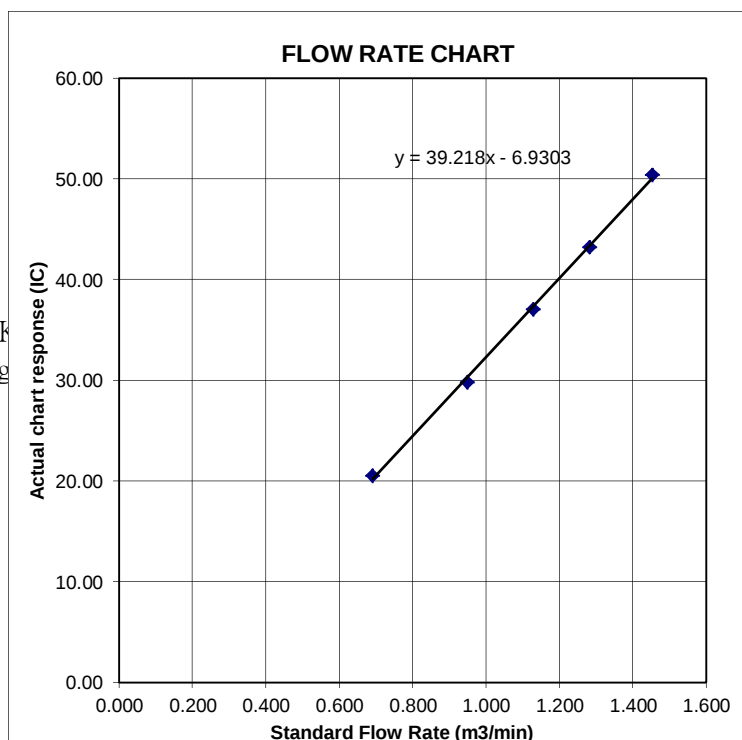
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure





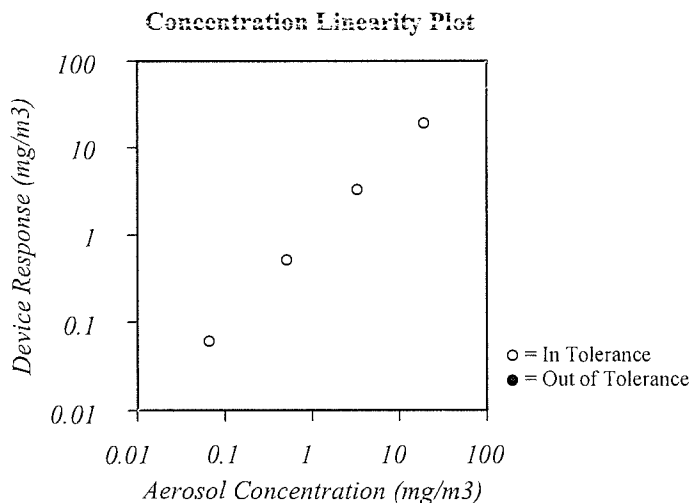
CERTIFICATE OF CALIBRATION AND TESTING

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

Environment Condition			Model	8520
Temperature	68.7 (20.4)	°F (°C)	Serial Number	23079
Relative Humidity	41	%RH		
Barometric Pressure	28.98 (981.4)	inHg (hPa)		

☒ As Left
☐ As Found

☒ In Tolerance
☐ Out of Tolerance



System ID: DT1101-02

Zero Stability Results

Average:	Minimum:	Maximum:	Time:
0.000 :mg/m ³	0.000 :mg/m ³	0.001 :mg/m ³	4:00 :hrs.

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

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Barometric Pressure	E003733	01-15-11	02-15-12	Temperature	E002873	11-24-10	11-24-11
Humidity	E002873	11-24-10	11-24-11	DC Voltage	E003314	01-05-11	01-05-12
DC Voltage	E003315	01-05-11	01-05-12	Photometer	E003319	07-25-11	01-25-12
Microbalance	E001324	01-04-11	01-04-12	Pressure	E003511	11-12-10	11-12-11
Flowmeter	E003769	06-13-11	06-13-12				

T. Thao

Calibrated

☒ Final Function
Check

September 13, 2011

Date



ALS Technichem (HK) Pty Ltd

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: MR RAY CHEUNG
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.
PROJECT: --

WORK ORDER: HK1121907
LABORATORY: HONG KONG
DATE RECEIVED: 17/09/2011
DATE OF ISSUE: 27/09/2011

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: Turbidity
Description: Turbidimeter
Brand Name: HACH
Model No.: 2100Q
Serial No.: 11030C008499
Equipment No.: --
Date of Calibration: 21 September, 2011

NOTES

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

ISSUING LABORATORY: HONG KONG

Address

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

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


Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

This report may not be reproduced except with prior written approval from ALS Technichem (HK) Pty Ltd.

Page 1 of 2

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

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1121907
Date of Issue: 27/09/2011
Client: ACTION UNITED ENVIRO SERVICES



Description: Turbidimeter
Brand Name: HACH
Model No.: 2100Q
Serial No.: 11030C008499
Equipment No.: --

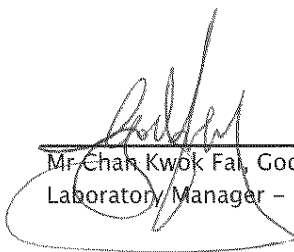
Date of Calibration: 21 September, 2011 Date of next Calibration: 21 December, 2011

Parameters:

Turbidity

Method Ref: ALPHA 21st Ed. 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0.00	0.14	--
4.00	4.18	4.5
40.0	40.6	1.5
80.0	80.2	0.3
400	391	-2.3
800	829	3.6
Tolerance Limit (±%)		10.0


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



ALS Technichem (HK) Pty Ltd

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

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

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

PROJECT: --

COMMENTS

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

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

NOTES

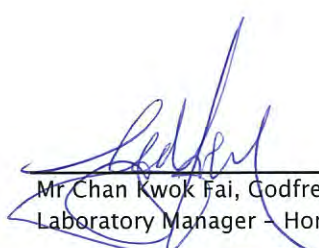
This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

Address

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

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


Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

This report may not be reproduced except with prior written approval from ALS Technichem (HK) Pty Ltd.

Page 1 of 3

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

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



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

Date of next Calibration: 16 March, 2012

Parameters:

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

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

pH Value

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

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

Salinity

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

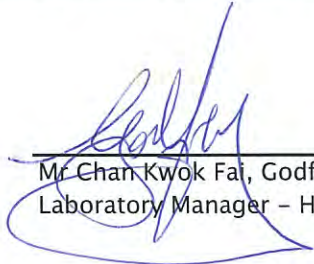
Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	--
10	10.05	0.5
20	20.10	0.5
30	30.89	3.0
	Tolerance Limit ($\pm$ %)	10.0

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical

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

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


 Mr Chan Kwok Fai, Godfrey
 Laboratory Manager - Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

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



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

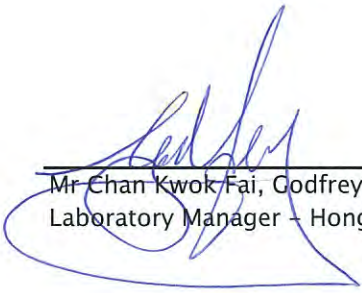
Date of next Calibration: 16 March, 2012

Parameters:

Turbidity

Method Ref: APHA 21st Ed. 2130B

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


Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

Appendix F

Meteorological information

Meteorological Data Extracted from HKO during the Reporting Period

Date		Weather	Lau Fau Shan Weather Station				
			Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
1-Dec-11	Thu	Mainly cloudy with relatively low visibility	0	17.3	23	66	N/NE
2-Dec-11	Fri	Moderate easterly winds	0	14	22	58.5	N
3-Dec-11	Sat	Sunny intervals	0	13.2	19	61	E
4-Dec-11	Sun	Moderate northeasterly winds,	0	16.7	10.4	57	N
5-Dec-11	Mon	Mainly cloudy.	1.2	19.9	14.9	66	E
6-Dec-11	Tue	Moderate easterly winds, occasionally fresh offshore.	1.2	21.4	11.9	74	E/NE
7-Dec-11	Wed	Mainly cloudy.	0	23.1	14.7	73.2	E/NE
8-Dec-11	Thu	Fresh northerly winds, occasionally strong offshore.	0	18.1	26.1	68	N
9-Dec-11	Fri	Moderate northerly winds	Trace	14.3	24.7	56.2	N/NE
10-Dec-11	Sat	fine and dry.	0	12.7	21	47.5	N/NE
11-Dec-11	Sun	It will be fine and very dry.	0	11.9	14.5	35	N
12-Dec-11	Mon	Fine and dry.	0	13.8	10	40	E/NE
13-Dec-11	Tue	Moderate northeasterly winds	Trace	16	11.4	52.7	E/NE
14-Dec-11	Wed	It will be fine and very dry.	0	18.5	8.3	54.7	E/NE
15-Dec-11	Thu	Moderate to fresh northerly winds.	0	18.9	11.8	55.2	N
16-Dec-11	Fri	Mainly cloudy.	0	16.1	18.5	50	NE
17-Dec-11	Sat	fine and dry.	Trace	15.5	11.7	52	NE
18-Dec-11	Sun	Mainly cloudy.	Trace	15.4	8.6	60	E
19-Dec-11	Mon	Moderate northeasterly winds.	0	15.6	11.3	65	E
20-Dec-11	Tue	Mainly cloudy.	Trace	17.5	11.9	68.2	E/NE
21-Dec-11	Wed	Mainly cloudy.	0	20	10.5	63.5	E/NE
22-Dec-11	Thu	Moderate north to northeasterly winds.	0	16.9	16.2	57.5	E/NE
23-Dec-11	Fri	Fine and dry.	0	13.7	16.8	59	NE
24-Dec-11	Sat	Mainly cloudy.	0	11.9	14.5	61	NE
25-Dec-11	Sun	holiday					
26-Dec-11	Mon	holiday					
27-Dec-11	Tue	holiday					
28-Dec-11	Wed	Mainly cloudy.	0	16.8	10	76	E/SE
29-Dec-11	Thu	Moderate north to northeasterly winds.	0	18.6	14.2	74	E/NE
30-Dec-11	Fri	Moderate northeasterly winds	Trace	17.6	12.5	74.5	NE
31-Dec-11	Sat	Fine and dry.	0.4	17.1	13.4	71	E.NE

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

Appendix G

Event and Action Plan

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

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

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)



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

Appendix H

Monitoring Schedule in Reporting Month and Coming Month

Monitoring Schedule for Reporting Period

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

	Monitoring Day
	Sunday or Public Holiday

Monitoring Schedule for Coming Month

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

	Monitoring Day
	Sunday or Public Holiday

Appendix I

Results Data

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

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

DATE	SAMPLE NUMBER	ELAPSED TIME			MIN CHART READING	MAX CHART READING	AVG CHART READING	AVG TEMP (oC)	STANDARD			INITIAL FILTER WEIGHT (g)	FINAL FILTER WEIGHT (g)	WEIGHT DUST COLLECTED (g)	Dust 24-hr TSP in air (ug/m ³)
		INITIAL	FINAL	(min)					AVG PRESS (hPa)	FLOW RATE (m3/min)	AIR VOLUME (std m3)				
1-Dec-11	24394	10537.76	10561.89	1447.80	34	38	36.0	18.7	1017.2	1.11	1614	2.8925	3.0163	0.1238	77
7-Dec-11	24405	10561.89	10585.97	1444.80	32	38	35.0	22.3	1016.7	1.06	1529	2.8475	2.9104	0.0629	41
13-Dec-11	24443	10585.97	10610.04	1444.20	36	39	37.5	17.1	1019.5	1.13	1632	2.8637	2.8965	0.0328	20
19-Dec-11	24457	10610.04	10634.07	1441.80	34	38	36.0	16.7	1021.4	1.09	1577	2.8513	3.0433	0.1920	122
24-Dec-11	24458	10634.07	10658.15	1444.80	32	38	35.0	13	1023.8	1.08	1553	2.856	3.0306	0.1746	112
30-Dec-11	24486	10658.15	10682.19	1442.40	34	36	35.0	17.7	1023	1.07	1540	2.8452	3.0861	0.2409	156

Action Level : 162 Limit Level : 260

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

DATE	SAMPLE NUMBER	ELAPSED TIME			MIN CHART READING	MAX CHART READING	AVG CHART READING	AVG TEMP (oC)	STANDARD			INITIAL FILTER WEIGHT (g)	FINAL FILTER WEIGHT (ug/m ³)	WEIGHT DUST COLLECTED (g)	Dust 24-hr TSP in air (ug/m ³)
		INITIAL	FINAL	(min)					AVG PRESS (hPa)	FLOW RATE (m3/min)	AIR VOLUME (std m3)				
1-Dec-11	24397	12059.08	12083.25	1450.20	31	38	34.5	18.7	1017.2	1.07	1546	2.884	3.0757	0.1917	124
7-Dec-11	24401	12083.25	12107.32	1444.20	35	39	37.0	22.3	1016.7	1.12	1621	2.8882	3.0583	0.1701	104
13-Dec-11	24451	12107.32	12131.39	1444.20	34	38	36.0	17.1	1019.5	1.11	1598	2.8354	3.0952	0.2598	163
19-Dec-11	24450	12131.39	12155.41	1441.20	33	37	35.0	16.7	1021.4	1.08	1561	2.8464	3.0783	0.2319	149
24-Dec-11	24463	12155.41	12179.56	1449.00	34	38	36.0	13	1023.8	1.12	1616	2.8455	3.2132	0.3677	228
30-Dec-11	24484	12179.56	12203.59	1441.80	33	37	35.0	17.7	1023	1.08	1551	2.8476	3.0422	0.1946	125

Action Level : 190 Limit Level : 260

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

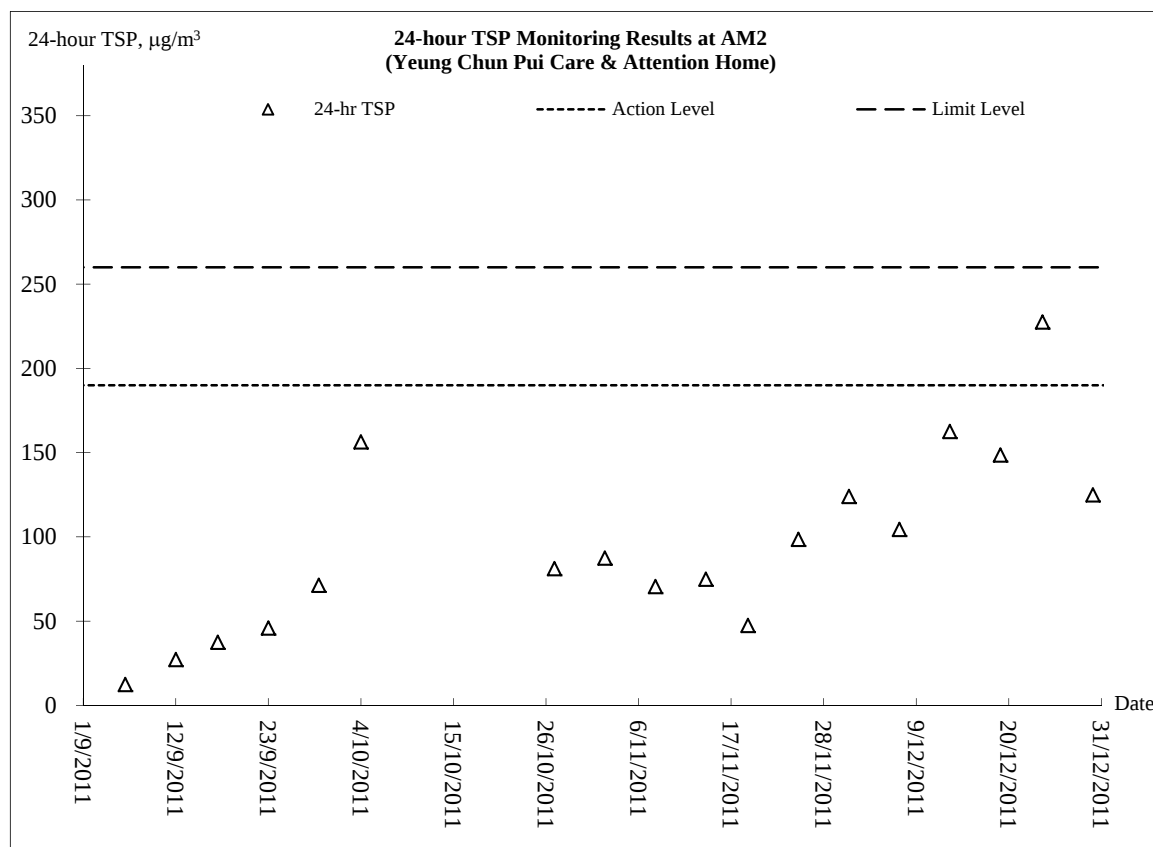
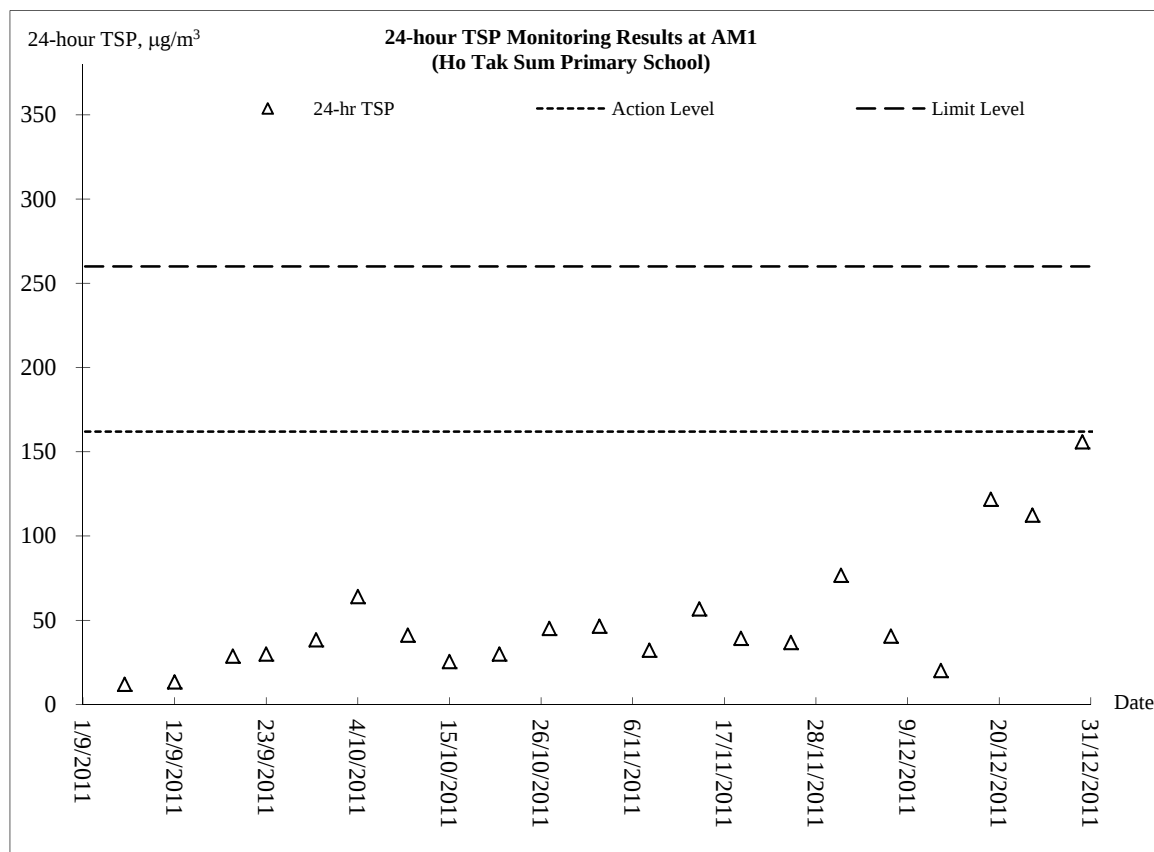
Summary of Water Quality Monitoring Results - R1b

Date		ACTION/ LIMIT													
Location					DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS		
R1b					ACT	4.6			ACT	15.6	ACT		ACT	31.5	
					LIM	4			LIM	16.2	LIM		LIM	31.9	
Date 3-Dec-11															
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS		
R1b	10:22	0.60	16.4	16.4	8.37	8.3	96.3	96.0	14.3	14.1	8.6	8.5	2	2.0	
			16.4		8.19		95.6		13.8		8.4		2		
Date 6-Dec-11															
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS		
R1b	16:03	0.60	18.4	18.8	5.03	5.0	78.6	78.0	10.5	10.4	8.5	8.5	19	19.0	
			19.1		4.97		77.3		10.3		8.4		19		
Date 8-Dec-11															
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS		
R1b	10:05	0.50	20.4	20.4	4.71	4.7	61.7	59.7	13.2	13.2	8.6	8.5	7	7.0	
			20.4		4.69		57.7		13.1		8.4		7		
Date 10-Dec-11															
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS		
R1b	10:10	0.60	14.1	14.1	5.02	5.0	78.3	78.6	11.6	11.2	8.6	8.6	18	18.0	
			14.1		4.97		78.9		10.8		8.5		18		
Date 12-Dec-11															
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS		
R1b	16:38	0.50	19.4	19.4	7.51	7.5	81.8	82.2	13.6	13.0	8.7	8.7	16	16.0	
			19.4		7.39		82.6		12.4		8.6		16		
Date 15-Dec-11															
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS		
R1b	9:58	0.60	19.3	19.3	5.62	5.6	86.3	86.1	14.6	14.2	8.5	8.5	23	23.0	
			19.3		5.54		85.8		13.8		8.4		23		
Date 17-Dec-11															
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS		
R1b	15:31	0.60	18.7	18.7	7.43	7.4	85.1	84.9	13.1	13.0	8.7	8.7	29	29.0	
			18.7		7.38		84.7		12.9		8.6		29		
Date 19-Dec-11															
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS		
R1b	9:57	0.50	17.4	17.4	8.32	8.3	95.3	94.8	14.8	13.1	8.5	8.5	28	28.0	
			17.4		8.2		94.2		11.3		8.4		28		
Date 21-Dec-11															
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS		
R1b	10:25	0.50	21.3	21.3	5.11	5.2	53.1	54.0	9.5	9.6	7.5	7.6	10	10.0	
			21.3		5.22		54.9		9.7		7.6		10		
Date 23-Dec-11															
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS		
R1b	16:08	0.60	19.4	19.4	5.18	5.2	52.6	53.0	10.7	10.6	8.3	8.3	19	19.0	
			19.4		5.29		53.3		10.4		8.2		19		
Date 29-Dec-11															
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS		
R1b	16:08	0.50	17.4	17.4	4.78	4.8	50.8	51.0	9.5	9.5	7.6	7.6	14	14.0	
			17.3		4.88		51.1		9.5		7.5		14		
Date 31-Dec-11															
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS		
R1b	10:50	0.60	16.9	16.9	5.08	5.1	52.6	53.2	10.8	10.4	8.5	8.5	6	6.0	
			16.9		5.17		53.8		9.9		8.4		6		

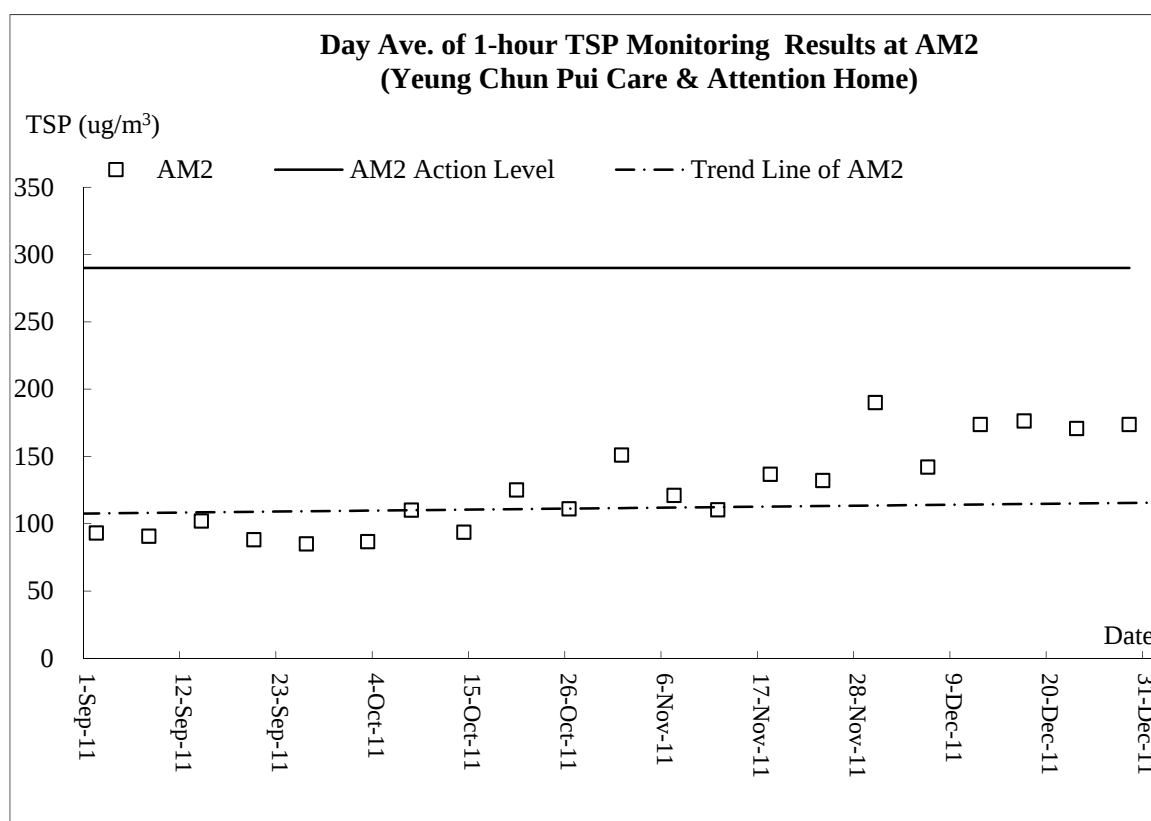
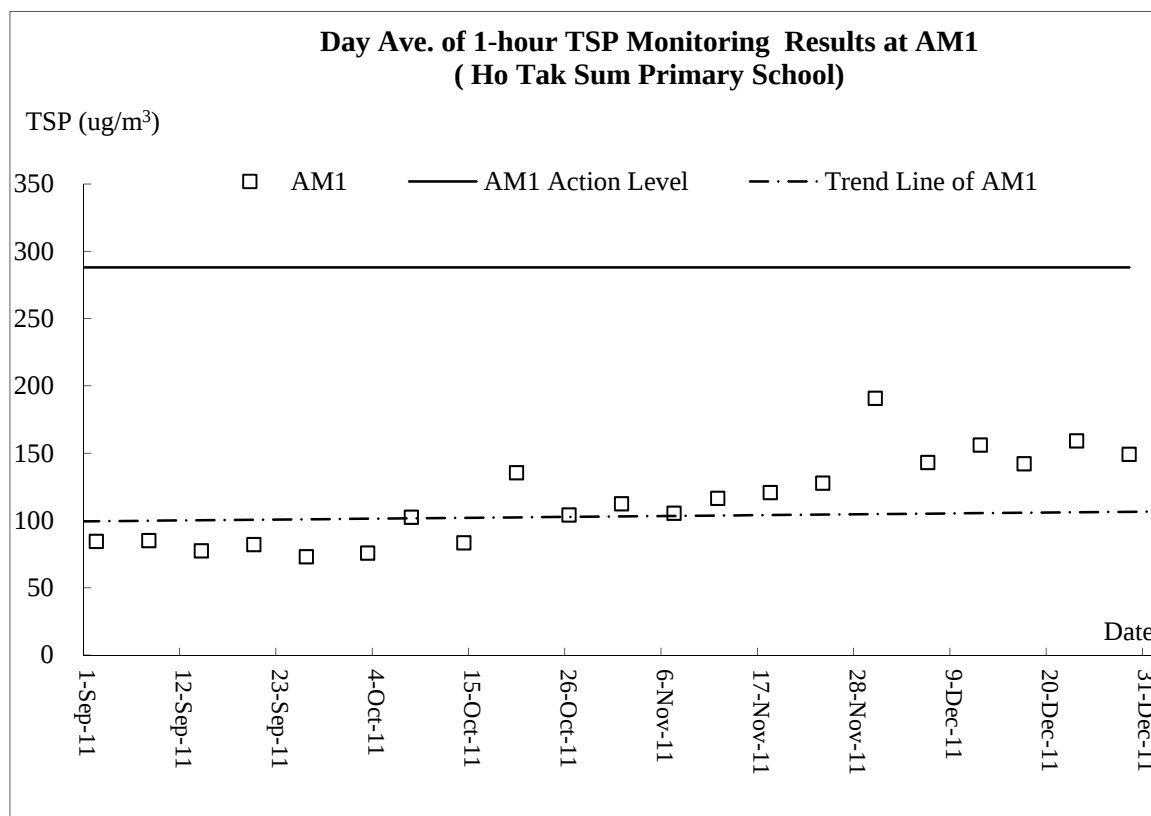
Appendix J

Graphical plots

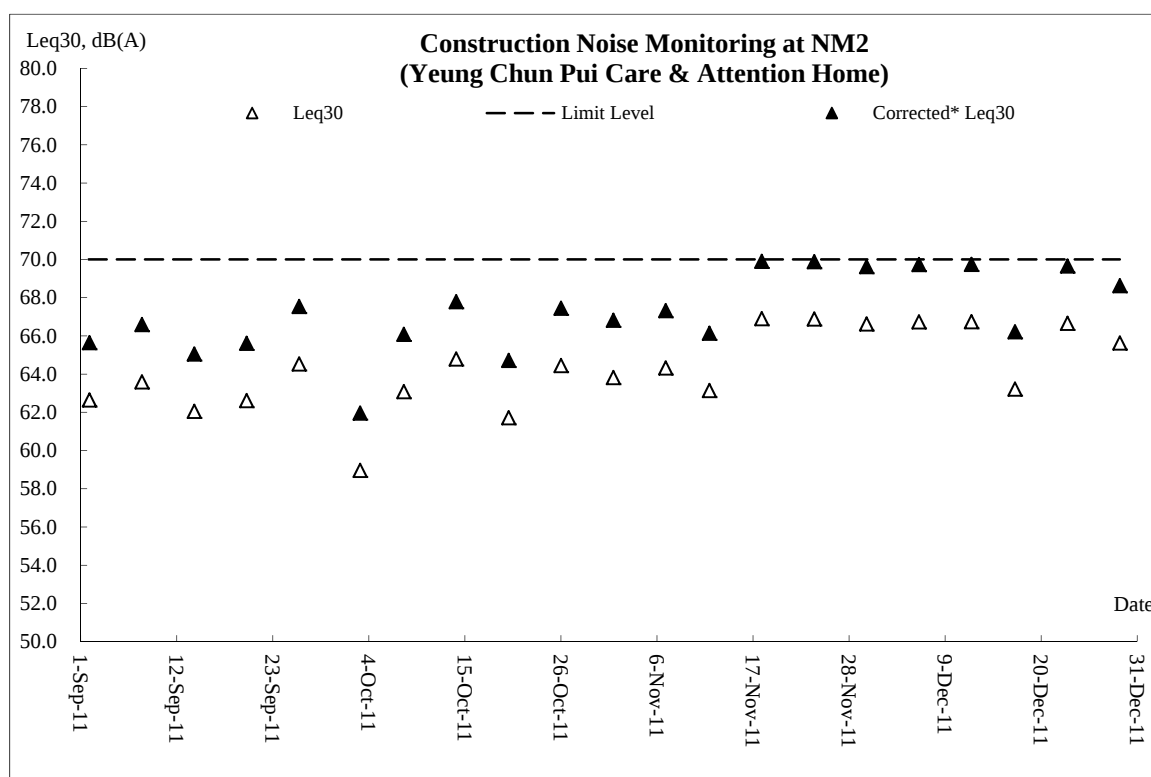
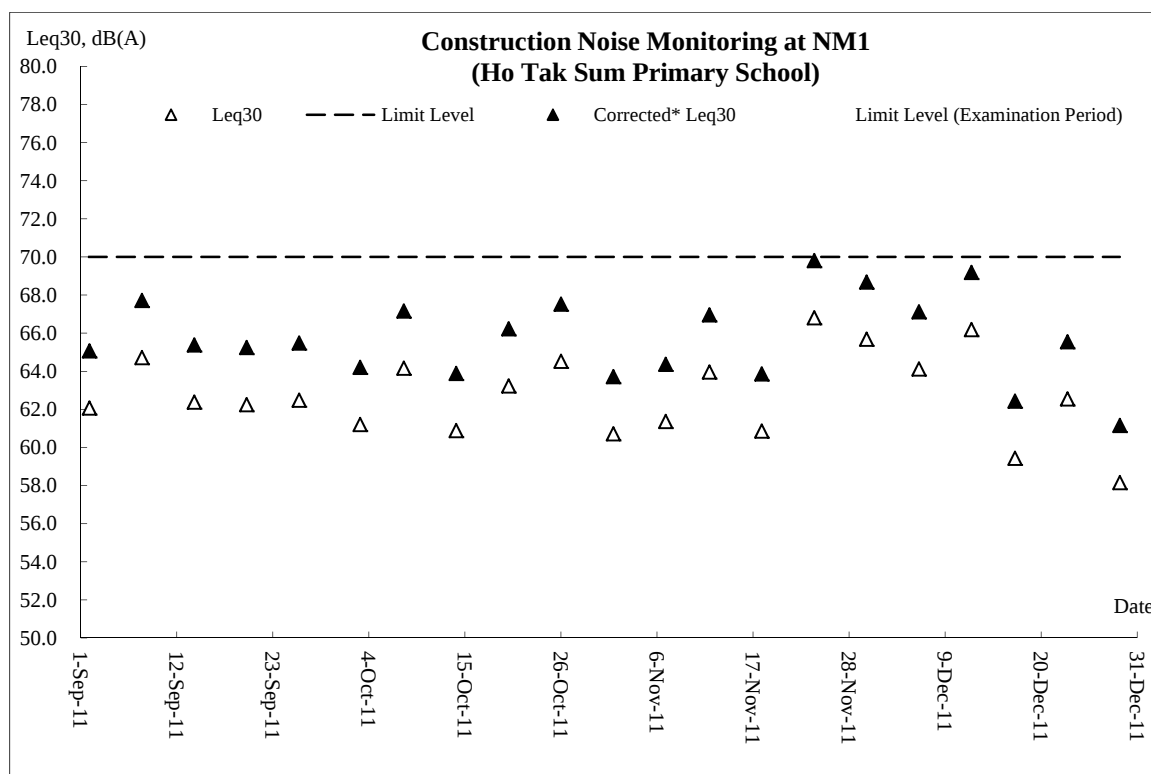
Air Quality – 24-Hr TSP



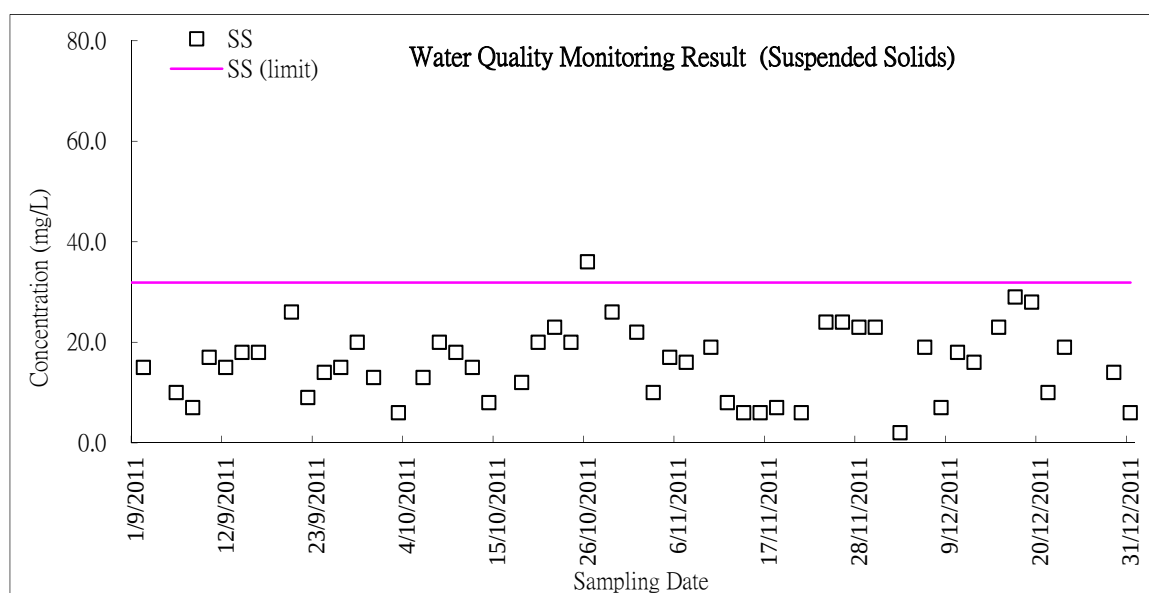
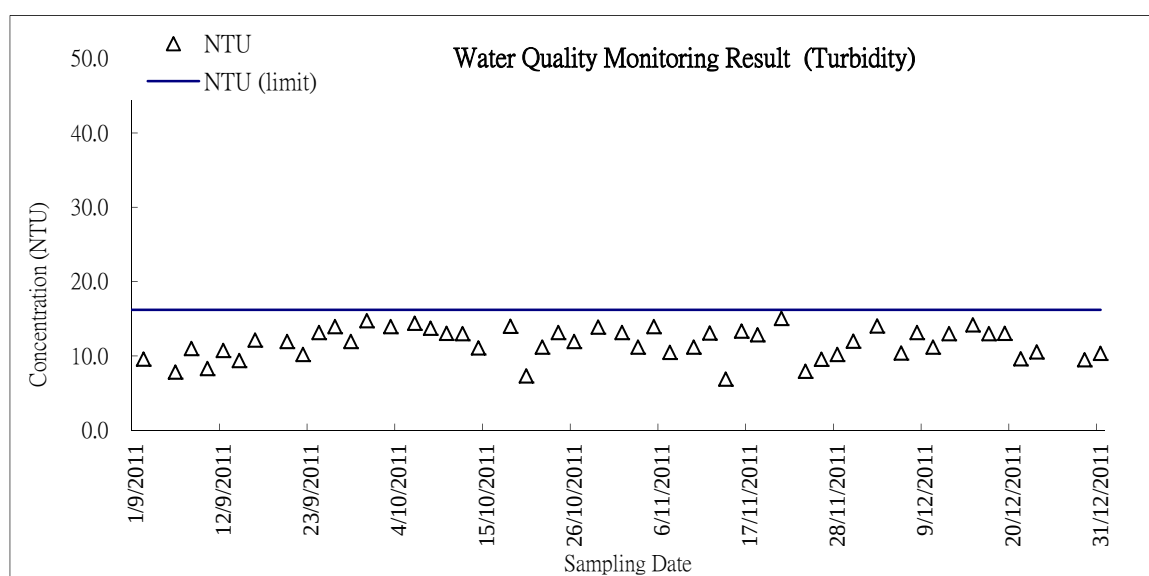
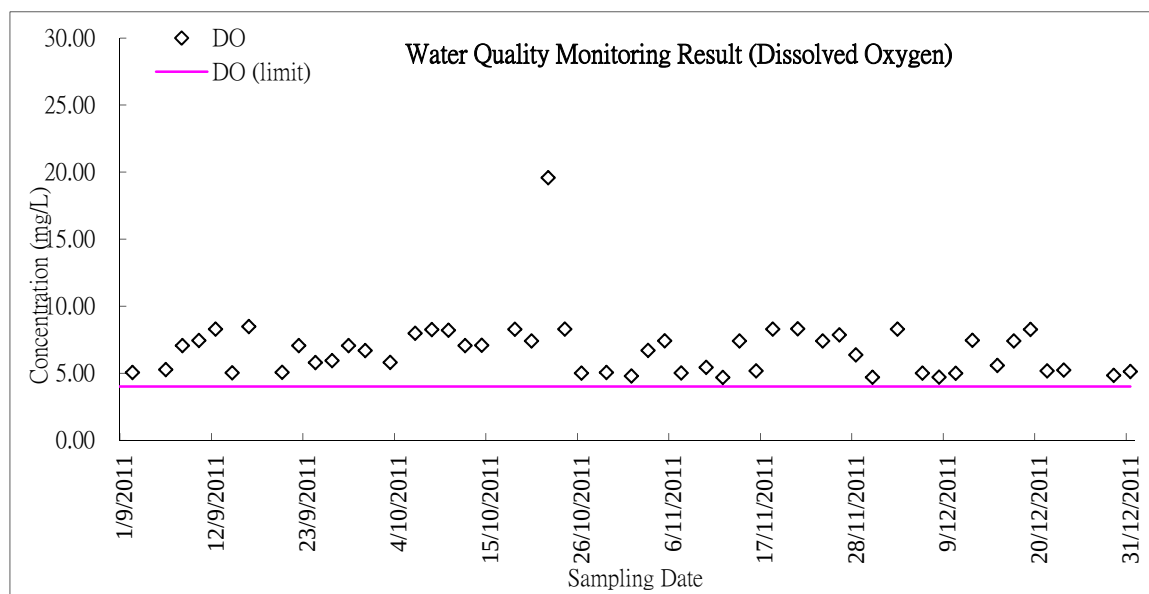
Air Quality – 1 Hour TSP



Construction Noise



Water Quality – Local Stream Course (R1b)



Appendix K

Monthly Summary Waste Flow Table

Drainage Service Department
Monthly Summary Waste Flow Table
for Contract with Waste Management Plan under ETWB TCW No. 15/2003
Reporting Year: 2011
Contract No. DC/2009/08

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

Month	Actual Quantities of Inert C&D Materials Generated / Imported (in '000 m ³)						Actual Quantities of Other C&D Materials / Wastes Generated				
	Total Quantities Generated	Broken Concrete (including rock for recycling into aggregates)	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported C&D Material	Metal	Paper/ Cardboard Packaging	Plastic (bottles/containers, plastic sheets/ foams from package material)	Chemical Waste	Others (e.g. General Refuse etc.)
	[a+b+c+d]	(a)	(b)	(c)	(d)		(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
January	4.579	0	0	0	4.579	0	0	0	2.575	0	0.001
February	1.123	0	0	0	1.123	0	0	0	0	0	0.002
March	0.371	0	0	0	0.371	0	0	0	0	0	0.002
April	0.375	0	0	0	0.375	0	0	0	0	0	0.009
May	1.110	0	0	0	1.110	0	0	0	0	0	0.000
June	0.751	0	0	0	0.751	0	0	0	0	0	0.002
Half-year total	8.309	0	0	0	8.309	0	0	0	2.575	0	0.016
July	0.752	0	0	0	0.752	0	0	0	0	0	0.002
August	0.754	0	0	0	0.754	0	0	0	0	0	0.002
September	1.112	0	0	0	1.112	0	0	0	0	0	0.001
October	1.483	0	0	0	1.483	0	0	0	0	0	0.002
November	1.854	0	0	0	1.854	0	0	0	0	0	0.002
December	1.445	0	0	0	1.445	0	0	0	0	0	0.001
Yearly Total	15.709	0	0	0	15.709	0	0	0	2.575	0	0.026

Appendix L

Inspection Checklist

PART A: GENERAL INFORMATION		Environmental Permit No.: N/A	
Weather:	☐ Sunny	☒ Fine	☐ Cloudy ☐ Rainy
Temperature:	23 °C		
Humidity:	☐ High	☒ Moderate	☐ Low
Wind:	☐ Strong	☒ Breeze	☐ Light ☐ Calm

Not Observed	Yes	No	Follow up	Not Applicable	Photo/ Remarks
--------------	-----	----	-----------	----------------	----------------

1.01	Is an effluent discharge license obtained for the Project?	☐	☒	☐	☐	☐	Remark 1
1.02	Is the effluent discharged in accordance with the discharge licence?	☐	☒	☐	☐	☐	
1.03	Is the discharge of turbid water avoided?	☐	☒	☐	☐	☐	
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	☐	☒	☐	☐	☐	
1.05	Are there channels, sandbags or bunds to divert the surface run-off to sedimentation tanks/desilting system prior discharge?	☐	☒	☐	☐	☐	
1.06	Are there any temporary perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	☒	☐	☐	☐	☐	Remark 2
1.07	Is temporary drainage system (within site boundaries) and the nearby permanent drainage system (outside site boundaries) are well maintained?	☐	☒	☐	☐	☐	
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	☐	☒	☐	☐	☐	
1.09	Are temporary exposed slopes properly covered?	☐	☒	☐	☐	☐	
1.10	Are earthworks final surfaces well compacted or protected?	☐	☒	☐	☐	☐	
1.11	Are manholes adequately covered or temporarily sealed?	☐	☒	☐	☐	☐	Remark 3
1.12	Are there any procedures and equipment for rainstorm protection?	☐	☒	☐	☐	☐	
1.13	Are wheel washing facilities well maintained?	☐	☒	☐	☐	☐	
1.14	Is overflow runoff from wheel washing facilities avoided?	☐	☒	☐	☐	☐	
1.15	Are there chemical toilets provided on site?	☐	☒	☐	☐	☐	
1.16	Are chemical toilets properly maintained?	☐	☒	☐	☐	☐	Remark 4
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	☐	☐	☐	☐	☒	
1.18	Is the oil leakage from the on-site vehicles/plants or spillage during the fuel refilling avoided?	☐	☒	☐	☐	☐	
1.19	Are there any measures to prevent oil leakage entering the temporary/permanent drainage system?	☐	☒	☐	☐	☐	
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	☐	☒	☐	☐	☐	
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	☒	☐	☐	☐	☐	Remark 5
1.22	Are the oil interceptors/grease traps maintained properly?	☐	☒	☐	☐	☐	

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

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

Remarks

Follow up of last Site Inspection:

- 1) Pretreatment of the turbid water prior to discharge and improvement of water quality was observed.

**Observations recorded in this Site Inspection: (6-Dec-2011)**

Remark 1: Generator without drip tray was observed within Yuen Long South (Tai Shu Ha Rd) construction site. Drip tray is required to prevent spilled or leaked oil from entering the nearby receiving water stream .

Remark 2: Trace of leaked oil was observed on the road nearby the Yuen Long South (Tai Shu Ha Rd) construction site. The source of the oil was found to be the oil leaked from a construction plant . Regular maintenance and repair of the plant is required. In addition, clearance of the trace of leaked oil is required.

RE's representative

IEC's representative

ET's representative

Contractor's representative

()

()

(F. N. Wong)

()

Project:	<u>DC/2009/08</u>	Inspected by	<u></u>
	<u>Construction of Yuen Long South Branch Sewers and Expansion of Ha Tsuen PS</u>	RE's representative:	<u>K.P. Cheung</u>
Inspection	<u></u>	IEC's representative:	<u>William Law</u>
Date:	<u>15 Dec 2011</u>	ET's representative:	<u>F. N. Wong</u>
Time:	<u>9:30</u>	Contractor's representative:	<u>Chan Yau Pang/ Jason Chung</u>
		Checklist No.	<u>DC200908-15-Dec-2011</u>

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

Weather: ☒ Sunny ☐ Fine ☐ Cloudy ☐ Rainy

Temperature: 22 °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?	☐	☒	☐	☐	☐	
1.02	Is the effluent discharged in accordance with the discharge licence?	☐	☒	☐	☐	☐	
1.03	Is the discharge of turbid water avoided?	☐	☒	☐	☐	☐	Remark 1
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	☐	☒	☐	☐	☐	
1.05	Are there channels, sandbags or bunds to divert the surface run-off to sedimentation tanks/desilting system prior discharge?	☐	☒	☐	☐	☐	
1.06	Are there any temporary perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	☒	☐	☐	☐	☐	
1.07	Is temporary drainage system (within site boundaries) and the nearby permanent drainage system (outside site boundaries) are well maintained?	☐	☒	☐	☐	☐	
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	☐	☒	☐	☐	☐	
1.09	Are temporary exposed slopes properly covered?	☐	☒	☐	☐	☐	
1.10	Are earthworks final surfaces well compacted or protected?	☐	☒	☐	☐	☐	
1.11	Are manholes adequately covered or temporarily sealed?	☐	☒	☐	☐	☐	
1.12	Are there any procedures and equipment for rainstorm protection?	☐	☒	☐	☐	☐	
1.13	Are wheel washing facilities well maintained?	☐	☒	☐	☐	☐	
1.14	Is overflow runoff from wheel washing facilities avoided?	☐	☒	☐	☐	☐	
1.15	Are there chemical toilets provided on site?	☐	☒	☐	☐	☐	
1.16	Are chemical toilets properly maintained?	☐	☒	☐	☐	☐	
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	☐	☐	☐	☐	☒	
1.18	Is the oil leakage from the on-site vehicles/plants or spillage during the fuel refilling avoided?	☐	☒	☐	☐	☐	
1.19	Are there any measures to prevent oil leakage entering the temporary/permanent drainage system?	☐	☒	☐	☐	☐	
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	☐	☒	☐	☐	☐	
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	☒	☐	☐	☐	☐	
1.22	Are the oil interceptors/grease traps maintained properly?	☐	☒	☐	☐	☐	

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

Environmental Site Inspection Checklist

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

Remarks

Follow up of Last Site Inspection:



1) Provision of drip tray was on going.

2) Clearance of trace of leaked oil was on going.

Observations recorded in this Site Inspection: (15-Dec-2011)



1) Pumping of turbid water was observed in Ha Tsuen Pumping Station. Desilting of the water prior to discharge is required.

RE's representative

IEC's representative

ET's representative

Contractor's
representative

()

()

(F. N. Wong)

()

Project:	<u>DC/2009/08</u>	Inspected by	<u></u>
	<u>Construction of Yuen Long South Branch Sewers and Expansion of Ha Tsuen PS</u>	RE's representative:	<u>K.P. Cheung</u>
Inspection	<u></u>	IEC's representative:	<u></u>
Date:	<u>20 Dec 2011</u>	ET's representative:	<u>F. N. Wong</u>
Time:	<u>10:15</u>	Contractor's representative:	<u>Chan Yau Pang/ Jason Chung</u>
		Checklist No.	<u>DC200908-20-Dec-2011</u>

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

Weather: ☒ Sunny ☐ Fine ☐ Cloudy ☐ Rainy

Temperature: 22 °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?	☐	☒	☐	☐	☐	
1.02	Is the effluent discharged in accordance with the discharge licence?	☐	☒	☐	☐	☐	
1.03	Is the discharge of turbid water avoided?	☐	☒	☐	☐	☐	Remark 1
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	☐	☒	☐	☐	☐	
1.05	Are there channels, sandbags or bunds to divert the surface run-off to sedimentation tanks/desilting system prior discharge?	☐	☒	☐	☐	☐	
1.06	Are there any temporary perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	☒	☐	☐	☐	☐	
1.07	Is temporary drainage system (within site boundaries) and the nearby permanent drainage system (outside site boundaries) are well maintained?	☐	☒	☐	☐	☐	
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	☐	☒	☐	☐	☐	
1.09	Are temporary exposed slopes properly covered?	☐	☒	☐	☐	☐	
1.10	Are earthworks final surfaces well compacted or protected?	☐	☒	☐	☐	☐	
1.11	Are manholes adequately covered or temporarily sealed?	☐	☒	☐	☐	☐	
1.12	Are there any procedures and equipment for rainstorm protection?	☐	☒	☐	☐	☐	
1.13	Are wheel washing facilities well maintained?	☐	☒	☐	☐	☐	
1.14	Is overflow runoff from wheel washing facilities avoided?	☐	☒	☐	☐	☐	
1.15	Are there chemical toilets provided on site?	☐	☒	☐	☐	☐	
1.16	Are chemical toilets properly maintained?	☐	☒	☐	☐	☐	
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	☐	☐	☐	☐	☒	
1.18	Is the oil leakage from the on-site vehicles/plants or spillage during the fuel refilling avoided?	☐	☒	☐	☐	☐	
1.19	Are there any measures to prevent oil leakage entering the temporary/permanent drainage system?	☐	☒	☐	☐	☐	
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	☐	☒	☐	☐	☐	
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	☒	☐	☐	☐	☐	
1.22	Are the oil interceptors/grease traps maintained properly?	☐	☒	☐	☐	☐	

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

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

Remarks

Follow up of Last Site Inspection:

- 1) Generator without drip tray was not observed.
- 2) The leaked oil was not observed. (Photo 1)
- 3) Treatment of the turbid water was observed. (Photo 2)



Photo 1



Photo 2

Observations recorded in this Site Inspection: (20-Dec-2011)



- 1) Turbid water discharge was observed along Shui Tsiu San Tsuen site. The source of turbidity was found to be the washing of soil spillages on the ground of the upstream site during loading of the excavated soil. Proper treatment of the washing is required prior to discharge.

RE's representative

IEC's representative

ET's representative

Contractor's representative

()

()

(F. N. Wong)

()

PART A:	GENERAL INFORMATION		Environmental Permit No.: N/A	
Weather:	☒ Sunny	☐ Fine	☐ Cloudy	☐ Rainy
Temperature:	20 °C			
Humidity:	☐ High	☒ Moderate	☐ Low	
Wind:	☐ Strong	☐ Breeze	☐ Light	☒ Calm

Not Observed	Yes	No	Follow up	Not Applicable	Photo/ Remarks
--------------	-----	----	-----------	----------------	----------------

1.01	Is an effluent discharge license obtained for the Project?	☐	☒	☐	☐	☐
1.02	Is the effluent discharged in accordance with the discharge licence?	☐	☒	☐	☐	☐
1.03	Is the discharge of turbid water avoided?	☐	☒	☐	☐	☐
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	☐	☒	☐	☐	☐
1.05	Are there channels, sandbags or bunds to divert the surface run-off to sedimentation tanks/desilting system prior discharge?	☐	☒	☐	☐	☐
1.06	Are there any temporary perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	☒	☐	☐	☐	☐
1.07	Is temporary drainage system (within site boundaries) and the nearby permanent drainage system (outside site boundaries) are well maintained?	☐	☒	☐	☐	☐
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	☐	☒	☐	☐	☐
1.09	Are temporary exposed slopes properly covered?	☐	☒	☐	☐	☐
1.10	Are earthworks final surfaces well compacted or protected?	☐	☒	☐	☐	☐
1.11	Are manholes adequately covered or temporarily sealed?	☐	☒	☐	☐	☐
1.12	Are there any procedures and equipment for rainstorm protection?	☐	☒	☐	☐	☐
1.13	Are wheel washing facilities well maintained?	☐	☒	☐	☐	☐
1.14	Is overflow runoff from wheel washing facilities avoided?	☐	☒	☐	☐	☐
1.15	Are there chemical toilets provided on site?	☐	☒	☐	☐	☐
1.16	Are chemical toilets properly maintained?	☐	☒	☐	☐	☐
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	☐	☐	☐	☐	☒
1.18	Is the oil leakage from the on-site vehicles/plants or spillage during the fuel refilling avoided?	☐	☒	☐	☐	☐
1.19	Are there any measures to prevent oil leakage entering the temporary/permanent drainage system?	☐	☒	☐	☐	☐
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	☐	☒	☐	☐	☐
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	☒	☐	☐	☐	☐
1.22	Are the oil interceptors/grease traps maintained properly?	☐	☒	☐	☐	☐

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

Environmental Site Inspection Checklist

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

Remarks

Follow up of Last Site Inspection:

Turbid water was not observed.

Observations recorded in this Site Inspection: (28-Dec-2011)

No adverse environmental impacts were observed during the site inspection. However, full implementation of the required environmental mitigation measures, in particular construction dust suppression during dry and windy conditions, is reminded during construction activities.

RE's representative**IEC's representative****ET's representative****Contractor's
representative**

()

()

(F. N. Wong)

()