



PROJECT No.: TCS/00553/11

**CONTRACT NO. DC/2010/02 –
DRAINAGE IMPROVEMENT IN SHUEN WAN AND
SHEK WU WAI**

**MONTHLY ENVIRONMENTAL MONITORING AND
AUDIT (EM&A) REPORT (NO.1) – JULY 2011**

PREPARED FOR
KWAN LEE-KULY JOINT VENTURE

Quality Index

Date	Reference No.	Prepared By	Certified by
		(Environmental Consultant)	(Environmental Team Leader)
6 September 2011	TCS00553/11/600/R0014v4		
		Nicola Hon	T.W. Tam

Ver	Date	Prepared by:	Certified by:	Description
1	9 July 2011	Nicola Hon	T.W. Tam	First submission
2	25 Aug 2011	Nicola Hon	T.W. Tam	Amended against IEC's comments on 22 Aug 2011
3	1 Sep 2011	Nicola Hon	T.W. Tam	Amended against IEC's comments on 29 Aug 2011
4	6 Sep 2011	Nicola Hon	T.W. Tam	Amended against IEC's comments on 5 Sep 2011

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Ref.: DSDSHUWNEM00_0_0204L.11

6th Sep 2011

Drainage Services Department
Projects and Development Branch
Drainage Projects Division
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5 Gloucester Road,
Wan Chai, Hong Kong

By Post and Fax (2827 8700)

Attention : Mr. Ronald Siu (Engr / Drainage Projects 19)

Dear Mr. Siu,

**Re: Agreement No. DP 01/2010
Services as Independent Environmental Checker for the Drainage Improvement
Works in Sha Tin and Tai Po under Contract No. DC/2010/02
Monthly Environmental Monitoring and Audit Report for July 2011**

Reference is made to Environment Team's submission of the Monthly Environmental Monitoring and Audit Report for July 2011 by Email on 16th Aug 2011 (entitled "Re: Drainage Improvement Works in Shuen Wan, Tai Po - Contract 2 - Progress Report for Jul 2011") and the subsequent revision of the report by Email on 6th Sep 2011.

Please be informed that we have no further comment on the captioned revised report. We write to verify the captioned submission in accordance with Condition 5.4 of EP-303/2008.

Thank you very much for your kind attention and please do not hesitate to contact the undersigned should you have any queries.

Yours sincerely,



Tony Cheng
Independent Environmental Checker

c.c. AUES
Kwan Lee-Kuly JV

Attn: Mr. T. W. Tam
Attn: Mr. W. K. Chan

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EXECUTIVE SUMMARY

- ES.01. **Kwan Lee-Kuly Joint Venture** (hereinafter ‘KLKJV’) has been awarded by Drainage Services Department (hereinafter ‘DSD’) of the Contract No. DC/2010/02 - Drainage Improvement in Shuen Wan and Shek Wu Wai (hereinafter “the Project”). The works to be executed under the Project are located in along Tung Tsz Road Shuen Wan and Shek Wu Wai, Shatin.
- ES.02. This Project (hereinafter ‘the Contract 2’) is part of the Drainage Improvement works amongst Shatin and Tai Po and it is defined as a “Designated Project” which controlled under Environmental Permit EP-303/2008. Currently, DSD has another Contract DC/2009/22 (hereinafter ‘the Contract 1’) ongoing for construction at Shuen Wan working area which under the same Environmental Permit and the updated Environmental Monitoring and Audit Manual (hereinafter ‘the Updated EM&A Manual’). Furthermore, Shek Wu Wai San Tin is a non-designated project work and no environmental monitoring and audit is requested to carry out.
- ES.03. Action-United Environmental Services and Consulting (AUES) has been commissioned by KLKJV as the Environmental Team (ET) to implement the relevant EM&A program.
- ES.04. The works to be executed under the Project comprise construction of about 735 metres long single-cell box culvert along Tung Tsz Road in Shuen Wan, Tai Po and construction of about 15 m long three-cell box culvert in Shek Wu Wai, Shatin. Impact EM&A program has been started upon the construction work commenced on 20 July 2011 as compliance with the Particular Specification of the contract, the Updated EM&A Manual, and Environmental Permit EP-303/2008.
- ES.05. The baseline monitoring of EM&A program was performed by the Contract 1 Environmental Monitoring Team (hereinafter the “Contract 1 ET”). Also, the Baseline monitoring report under the EP-303/2008, which determines the ambient environmental conditions i.e. construction noise, water quality and hydrological characteristics, has been compiled by Contract 1 ET and verified by Independent Environmental Checker (hereinafter the “IEC”) prior submitted to EPD for endorsement. An re-establishment of new set of A/L Levels is served as the yardsticks for assessing the acceptability of the environmental impact during the construction phase impart monitoring for Contract 2 of the project.
- ES.06. The recommendation and proposal was submitted on 6 July 2010 which agreed by IEC and for EPD endorsement before the relevant works commenced on 20 July 2011. The proposed A/L levels to be used for Contract 2 are given in below:

Action and Limit Levels for Construction Noise Monitoring

Time Period	Action Level in dB(A)	Limit Level in dB(A)
Daytime 0700 – 1900 hrs on normal weekdays	When one documented complaint is received	> 75* dB(A)

Note: * Reduces to 70dB(A) for schools and 65dB(A) during the school examination periods.

Action and Limit Levels for Water Quality

Parameter	Performance Criteria	Impact Station		
		W1	W2	W4
DO Concentration (mg/L)	Action Level	7.27	7.26	9.27
	Limit Level	7.05	6.44	7.98
pH	Action Level	NA	NA	NA
	Limit Level	6 - 9	6 - 9	6 - 9
Turbidity (NTU)	Action Level	4.77	2.46	3.32
	Limit Level	5.26	3.42	4.52
Suspended Solids (mg/L)	Action Level	9.73	8.89	6.98
	Limit Level	10.77	9.75	7.66

Remarks:

- For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits;

- For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits; and
- For pH, non-compliance of the quality limits occurs when monitoring result is lower than 6 and higher than 9

Action and Limit Levels Proposal for Hydrological Characteristics

Parameter	Acceptance Criteria	Monitoring Station	
		H1	H2
Water Depth (m)	Action Level	0.08 (80% of baseline water depth)	0.40 (80% of baseline water depth)
	Limit Level	0.06 (60% of baseline water depth)	0.30 (60% of baseline water depth)
Water Flow Rate (m ³ /s)	Action Level	120% of control station's water flow rate on the same day of measurement	120% of control station's water flow rate on the same day of measurement
	Limit Level	140% of control station's water flow rate on the same day of measurement	140% of control station's water flow rate on the same day of measurement

Remarks: H3, H4 is a reference to monitor any changes in the hydrological characteristics of Wai Ha River arising from the work contract 2 to affect the Shuen Wan Marsh.

ES.07. This is the 1st EM&A report for Contract 2 under Environmental Permit No.EP-303/2008, covering a period from **20 July 2011 to 31 July 2011** (hereinafter 'the Reporting Period') upon construction works commenced on 20 July 2011.

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES.08. Environmental monitoring activities under the EM&A program in this Reporting Period are summarized in the following table.

Issues	Environmental Monitoring Parameters / Inspection	Occasions
Construction Noise	Leq (30min) Daytime	10
Water Quality	Local Stream Water Sampling day	5
	Water flow and depth of hydrological characteristics measurement day	2
Inspection / Audit	Monthly Environmental Site Inspection and audit by Environmental Team and IEC	1
	Regular weekly Environmental inspection by the Contractor and Site Representative Engineer	3

ES.09. According to updated EM&A Manual Section 6.17, ecological monitoring is conducted by the IEC. Furthermore, a registered Landscape Architect as member of the ET is employed by the Contractor to undertake landscape and visual inspection. During this reporting period, no landscape and visual inspection was carried out by a registered Landscape Architect. Hence, no results or findings would be presented in this report.

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES.10. No exceedance in construction noise monitoring is recorded in this Reporting Period. No Notification of Exceedance (NOE) was therefore issued. For water quality monitoring, no Action/Limit Levels exceedance is recorded for Suspended Solids, however, 11 and 8 Action/Limit levels exceedances are recorded for DO and Turbidity respectively. NOEs were issued to notify EPD, IEC, the Contractor and RE. According to construction activities records provided by KLKVJ and the results of Control Station W3, all the exceedances are considered not due to the work under the Project. The statistics of environmental exceedance, NOE issued and investigation of exceedance are summarized in the following table.

Environmental Issues	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation	Corrective Actions
Construction Noise	Leq _{30min} Daytime	0	0	0	0	0
Water Quality	DO	5	6	5	Not related Contract 2	Not required
	Turbidity	2	6	1		
	SS	0	0	0		
Hydrological Characteristics	Water Flow	0	0	0	0	0
	Water Depth	0	0	0	0	0

Note: NOE – Notification of Exceedance

ENVIRONMENTAL COMPLAINT

ES.11. No written or verbal complaint was recorded in this Reporting Period. The statistics of environmental complaint are summarized in the following table.

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
20 – 31 July 2011	0	0	NA

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES.12. No environmental summons or successful prosecutions were recorded in this Reporting Period. The statistics of environmental complaint are summarized in the following tables

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
20 – 31 July 2011	0	0	NA

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
20 – 31 July 2011	0	0	NA

REPORTING CHANGE

ES.13. For reporting change, a new set of the Action/ Limit levels as used to Contract 2 were proposed by ET, it had been accepted by the IEC and also submitted to the EPD seek for endorsement.

SITE INSPECTION BY EXTERNAL PARTIES

ES.14. No site inspection was undertaken by external parties i.e. EPD or AFCD within the Reporting Period.

FUTURE KEY ISSUES

ES.15. During wet season (April to November), muddy water and other water quality pollutants via site surface water runoff into the local stream Wah Ha River would be the key issue in the forth-coming month. Mitigation measures for water quality should therefore be fully implemented.

ES.16. On the other hand, construction noise should be other key environmental issue during sheet-piling process. The noise mitigation measures accordingly should be necessary to implement.

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1.0 INTRODUCTION

PROJECT BACKGROUND

- 1.01 **Kwan Lee-Kuly Joint Venture** (hereinafter ‘KLKJV’) has been awarded by Drainage Services Department (hereinafter ‘DSD’) of the Contract No. DC/2010/02 - Drainage Improvement in Shuen Wan and Shek Wu Wai (hereinafter ‘the Project’). The Project is scheduled to commence in May 2011 and complete in March 2014 for about 35 months.
- 1.02 The works to be executed under the Project are located in Shuen Wan and Shek Wu Wai. The works mainly comprise construction of about 735 metres long single-cell box culvert along Tung Tsz Road in Shuen Wan, Tai Po and construction of about 15 m long three-cell box culvert in Shek Wu Wai, Shatin.
- 1.03 This Project (hereinafter ‘the Contract 2’) is part of the Drainage Improvement works amongst Shatin and Tai Po and it is defined as a “Designated Project” which controlled under Environmental Permit EP-303/2008. Currently, DSD has another Contract DC/2009/22 (hereinafter ‘the Contract 1’) ongoing for construction at Shuen Wan working area which under the same Environmental Permit and the updated Environmental Monitoring and Audit Manual (hereinafter ‘the Updated EM&A Manual’). Both DSD contract’s site boundary at Shuen Wan are shown in **Appendix A**. On the other hand, Shek Wu Wai San Tin is a non-designated project work and no environmental monitoring and audit is requested to carry out.
- 1.04 In order to effectively implement the environmental protection measures stipulated in the Project Profile (hereinafter ‘the PP’), Environmental Impact Assessment Report (hereinafter “the EIAR”), Environmental Permit EP303/2008, a corresponding EM&A Manual have been prepared to outline the environmental monitoring and auditing (hereinafter ‘the EM&A’) programme undertake for the Contracts 1 and 2.
- 1.05 KLKJV has commissioned Action-United Environmental Services and Consulting (AUES) as an independent environmental team (hereinafter ‘the ET’) to implement the EM&A program for the environmental protection of the Project. Due to the construction of Contracts 1 and 2 carry out is just about the time, a Proposal Environmental Monitoring Programme and Methodology (hereinafter the “PEMPM”) was prepared and submitted to describe EM&A programme would be undertaken during construction period of the Contract 2.
- 1.06 The baseline monitoring of EM&A program has been performed by the Contract 1 ET. The Action and Limit Levels environmental performance criteria have also been established by the Contract 1. Therefore, no baseline monitoring was performed for the Contract 2 of Project. However, a new set of the Action/ Limit levels as used to Contract 2 were proposed by ET, it had been accepted by the IEC and also submitted to the EPD seek for endorsement.
- 1.07 This is the 1st monthly EM&A report for Contract 2 presenting the monitoring results and inspection findings for the reporting period from **20 July 2011 to 31 July 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 AND SUBMISSION
SECTION 3	EM&A PROGRAM REQUIREMENT FOR THE PROJECT
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 RECOMMENDATION

2.0 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS AND SUBMISSION

PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE

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

CONSTRUCTION PROGRESS

2.02 The master and three month rolling construction programs are enclosed in *Appendix C* and the major construction activities undertaken in this report period are listed below:

- underground utilities detection;
- setting out point surveying;
- initial Condition Survey of existing structures at A2;
- construction of haul road at box culvert bays 20 to 23; and
- driving sheet-piles at the bays 20 to 23.

SUMMARY OF ENVIRONMENTAL SUBMISSIONS

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

Table 2-1 Status of Environmental Licenses and Permits

Item	Description	License/Permit Status
1	Air pollution Control (Construction Dust)	In Progress
2	Chemical waste Producer Registration	In Progress
3	Water Pollution Control Ordinance (Discharge License) WT00009528-2011	Valid to 31 July 2016
4	Billing Account for Disposal of Construction Waste (Account No.: 7012838)	Effective
5	Construction Noise permit	In Progress

2.04 The “Proposal Environmental Monitoring Programme and Methodology (R0006 Version 2)” was set out in accordance with the Updated Environmental Monitoring and Audit Manual. It was approved by the ER and agreed with the Independent Environmental Checker (IEC) and submitted to the EPD for endorsement.

2.05 For Contract 2 of the Project, no Baseline Monitoring Report was issued by the ETL. However, a new set of the Action/ Limit levels as used to Contract 2 were proposed by ET, it had been accepted by the IEC and also submitted to the EPD seek for endorsement.

3.0 EM&A PROGRAM REQUIREMENT FOR THE PROJECT

3.01 The EM&A requirements set out in the PP, EIAR, Environmental Permit EP303/2008 (hereinafter ‘the EP’), and the associated updated EM&A Manual, are presented below sub-section.

MONITORING PARAMETERS

3.02 According to the EIAR and the updated EM&A Manual, the aspect of air quality is not concerned during construction phase, therefore, no air quality monitoring will be carried out for the Project. However, construction noise should be a key environmental issue and noise monitoring would be carried out for the project.

3.03 In EIA study, the construction of penstock and Ecological Compensatory Area (hereinafter ‘ECA’) should not be significantly affected the water quality of the water receivers within Tolo Harbour, namely the fish ponds at Shuen Wan, Wai Ha River. However, the construction of the ECA for Contract 1 and box culvert for Contract 2 include excavation at sections adjacent to the Wai Ha River, water quality monitoring scheme for construction phase was therefore determined to be necessary. Moreover, hydrological monitoring is recommended to ensure the works along Wai Ha River will not affect the water flow into the Shuen Wan Marsh.

3.04 The ecological impact assessment in the EIA Report identified that ecological impacts resulting from the proposed drainage improvement works are anticipated to be very minor in scale. Nevertheless, measures were identified in the EIA Report to reduce any potential ecological impact. The proper implementation of mitigation measures during construction recommended in the updated EM&A Manual Sections 6.3 to 6.15 should be monitored and audited.

3.05 According to EIA Report, the landscape and visual has considered the key issues and the possible impacts due to the proposed work at Shuen Wan. Therefore, the recommended mitigation measures are stipulated in the updated EM&A Manual for minimizing the impact and for improving overall landscape and visual quality should be inspected and audited.

3.06 The monitoring parameters of each environmental aspect summarized in *Table 3-1* will be performed as under the Project.

Table 3-1 Summary of Monitoring Parameters

Environmental Aspect	Parameters	
Construction Noise	<ul style="list-style-type: none"> 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	In Situ Measurement	Temperature, Dissolved Oxygen, Dissolved Oxygen Saturation, pH and Turbidity
	Laboratory Analysis	Suspended Solids (hereinafter ‘SS’)
Hydrological	The water flow and depth measurement onsite	
*Ecology	Monitor and audit the proper implementation of mitigation measures stipulated in EIA report and the updated EM&A Manual	
Landscape & Visual	Inspect and audit the implementation and maintenance of landscape and visual mitigation measures	

Remarks: * the monitoring is carried out by IEC

MONITORING LOCATIONS

3.07 Monitoring locations have been proposed in the updated EM&A Manual. Graphic plot to show in *Appendix D* and summarized in *Table 3-2*.

Table 3-2 Monitoring Locations of the Updated EM&A Manual Stipulation

Aspect	Location ID	Address
Construction Noise	M1	14, Shuen Wan Chim Uk
	AL1	Joint Village Office for Villages in Shuen Wan, Tai PO
	M2	150, San Tau Kok
	M3	31, Wai Ha
	M4	Block 15, Treasure Spot Garden
Water Quality	(#) W1	Between the Shuen Wan Marsh and ECA (Co-ordinates: E 839301, N 836386; and Existing River Bed Level: +1.75mPD).
	W2	Between Tolo Harbour and Proposed Penstock (Co-ordinates: E839542, N 836184; and Existing River Bed Level: +1.48mPD)
	(*) W3	Upstream of Tung Tze Shan Road (Co-ordinates: E 838760, N 836714; and Existing River Bed Level: +5.08mPD)
	W4	Wai Ha Village 29D (Co-ordinates: E 838865, N 836621; and Existing River Bed Level: +4.05mPD)
Hydrological	H1	Between the Shuen Wan Marsh and ECA (Coordinates: E 839306, N 836379)
	H2	Route 10 Sam Kung Temple (Coordinates: E 839163, N 836433)
	H3	Upstream of Tung Tze Shan Road (Coordinates: E 838760, N 836714)
	H4	Wai Ha Village 29D (Coordinates: E 838865, N 836621)
Ecology	Areas within 100m of the works boundary under Contract 2	
Landscape & Visual	As within and adjacent to the construction sites and works areas under the Contract 2,	

Remarks:

(#) Control Station of Contract 1, however impact station of Contract 2

(*) Control Station of Contract 2

Recommendation of Monitoring Location

- 3.08 As shown in Table 3-2 and monitoring location plan in Appendix D, water quality monitoring point “W3” should be the control station of Contract 2. Other monitoring points “W1”, “W2” and “W4” should be the impact stations although “W1” is a control station of Contract 1.
- 3.09 According to the updated EM&A Manual Section 4.30, H1 and H2 should be the stations for hydrological monitoring as they are located on the upper and lower stream of Shuen Wan Marsh. H3 and H4 are proposed to monitor if there is any change in the hydrological characteristics of Wai Ha River subsequently affect the Shuen Wan Marsh by the works of Contract 2.

MONITORING FREQUENCY

- 3.10 The monitoring frequency and duration as specified in the updated EM&A Manual are summarized below.

Construction Noise

Frequency: Once a week during 0700-1900 on normal weekdays for Leq30min

If the construction work is undertake at restricted hour, the monitoring frequency of construction noise will be conducted in accordance with the related Construction Noise Permit requirement issued by EPD as follow

- 3 consecutive Leq5min at restrict hour from 1700 – 2300;
- 3 consecutive Leq5min for restrict hour from 2300 – 0700 next day;
- 3 consecutive Leq5min for Sunday or public holiday from 0700 – 1900;

Duration: Throughout the construction period when the major construction activities are undertaken

Water Quality

Frequency: Three times a week. The interval between 2 sets monitoring are not less than 36 hours

Duration: During the construction phase of Contract 2 to undertake (in accordance with the Updated EM&A Manual Section 4.27).

Hydrological Characteristics

Frequency: Once per week at mid-flood and mid-ebb tides

Duration: During the construction phase of Contract 2 to undertake; and one year after the construction is complete as operation phase monitoring (in accordance with the Updated EM&A Manual Section 4.32).

Ecology

- 3.11 In according with Section 6.17 of the Updated EM&A Manual, ecological monitoring should be conducted by the Independent Environmental Checker (hereinafter 'IEC'). Monitoring programme details should be agreed with the Agriculture, Fisheries and Conservation Department (AFCD). Moreover, the IEC should submit reports on the findings of each monitoring trip, and a final report summarizing the monitoring results over the entire monitoring period to AFCD and Environmental Protection Department (EPD). Hence, no monitoring or surveying should be carried out by ET of the Project.

Landscape & Visual

- 3.12 According to Section 7.4 of the Updated EM&A Manual, site inspection bi-weekly should be performed to check the implementation and maintenance of landscape and visual mitigation measures whether to full realize.

MONITORING EQUIPMENT

Noise Monitoring

- 3.13 Sound level meter in compliance with the *International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1)* specifications shall be used for noise monitoring. The sound level meter shall be checked with an acoustic calibrator. The wind speed shall be checked with a portable wind speed meter which capable to measure wind speed in m/s .

Water Quality Monitoring

- 3.14 **Dissolved Oxygen and Temperature Measuring Equipment** – The instrument should be a portable and weatherproof dissolved oxygen (DO) measuring instrument complete with cable and sensor, and use a DC power source. The equipment should be capable of measuring DO level in the range of 0 – 20mg L⁻¹ and 0 – 200% saturation; and temperature of 0 – 45 degree Celsius.
- 3.15 **pH Meter** – The instrument shall consist of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It shall be readable to 0.1 pH in arrange of 0 to 14.
- 3.16 **Turbidity (NTU) Measuring Equipment** – The instrument should be a portable and weatherproof turbidity measuring instrument using a DC power source. It should have a photoelectric sensor capable of measuring turbidity between 0 - 1000 NTU.
- 3.17 **Water Sampling Equipment** – A water sampler should comprise a transparent PVC cylinder, with a capacity of not less than 2 litres, which can be effectively sealed with latex cups at both ends. The sampler should have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth.
- 3.18 **Water Depth Detector** – A portable, battery-operated echo sounder should be used for the determination of water depth at each designated monitoring station. The unit can either be hand held or affixed to the bottom of the work boat.
- 3.19 **Sample Containers and Storage** – Water samples for SS should be stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4°C without being frozen).
- 3.20 **Suspended Solids Analysis** – Analysis of suspended solids shall be carried out in a HOKLAS or other international accredited laboratory.

Hydrological Characteristics

- 3.21 **Water Depth Detector** - A portable, battery-operated echo sounder shall be used for the

determination of water depth at each designated monitoring station.

- 3.22 **Stream water flow Equipment** –A portable, battery-operated flow meter should be used for the determination of water flow rate at each designated monitoring location and record in m³/s.

Velocity Flow Rate (m/s)

- 3.23 The monitoring equipment using for the Project’s EM&A program were proposed by the ET and verified by the IEC prior commencement of the monitoring. Details of the equipment used for impact monitoring are listed in **Table 3-3**.

Table 3-3 Monitoring Equipment Used in EM&A Program

Equipment	Model
Construction Noise	
Integrating Sound Level Meter	B&K Type 2238
Calibrator	B&K Type 4231
Portable Wind Speed Indicator	Testo Anemometer
Water quality	
Water Depth Detector	Eagle Sonar
Water Sampler	A transparent PVC cylinder / bucket
Thermometer & DO meter	DO Meter YSI 55
pH meter	Extech EC500
Turbidimeter	Hach 2100Q
Sample Container	High density polythene bottles (provided by laboratory)
Storage Container	‘Willow’ 33-litre plastic cool box
Suspended Solids	HOKLAS-accredited laboratory (ALS Technichem (HK) Pty Ltd)
Hydrological Characteristics	
Water flow meter	GLOBAL WATER model FP211
Water Depth Detector	Eagle Sonar or an appropriate steel ruler or rope with appropriate weight

MONITORING METHODOLOGY

Noise Monitoring

- 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 Sound level meter as listed in **Table 3-3** are complied 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)*.
- 3.26 During the 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 is used as monitoring parameter for other time periods (e.g. during restricted hours), if necessary.
- 3.27 During the course of measurement, the sound level meter is mounted on a tripod with a height of 1.2m above ground and placed at the assessment point and oriented such that the microphone is pointed to the site with the microphone facing perpendicular to the line of sight. The windshield is fitted for all measurements. The assessment point is normally set as free-field situation for the measurement.
- 3.28 Prior to noise measurement, the accuracy of the sound level meter is checked by an acoustic calibrator which generated a known sound pressure level at a known frequency. The checking was performed before and after the noise measurement.

Water Quality

- 3.29 Water quality monitoring are conducted at the depth below:-
- Three depths: 1m below water surface, 1m above river bed and at mid-depth when the water depth exceeds 6m, or
 - If the water depth is between 3m and 6m, two depths: 1m below water surface and 1m above river bed, and or
 - If the water depth is less than 3m, 1 sample at mid-depth is taken
- 3.30 Water depths are determined prior to measurement and sampling, using a portable battery operated depth detector, brand named ‘Eagle Sonar’, if the depths exceed 1.5 meter. If the depth between 1.5 meter and 1 meter, plastic tape measurement tied with appropriate weight are used the depth estimation. For the depth well below 1 meter, an appropriate steel ruler or rope with appropriate weight are used for the depth measurement.
- 3.31 A transparent PVC cylinder, with a capacity of not less than 2 litres, is used for water sampling. The water sampler is lowered into the water body at a predetermined depth. The trigger system of the sampler is activated with a messenger and opening ends of the sampler are closed accordingly then the sample of water is collected. If the water depth is less than 500mm, a water bucket is be used as a water sampler to minimize the possibility of the latching system disturbing sediment during water sampling
- 3.32 A portable YSI 55 DO Meter is used for in-situ DO measurement. The DO meter is capable of measuring DO in the range of 0 - 20 mg/L and 0 - 200 % saturation and checked against water saturated ambient air on each monitoring day prior to monitoring. Although the DO Meter automatically compensates ambient water temperature to a standard temperature of 20⁰C for ease of comparison of the data under the changing reality, the temperature readings of the DO Meter are be recorded in the field data sheets. The equipment calibration is performed on quarterly basis.
- 3.33 A portable Extech EC500 pH Meter is used for in-situ pH measurement. The pH meter is capable of measuring pH in the range of 0 – 14 and readable to 0.1. Standard buffer solutions of pH 7 and pH 10 are used for calibration of the instrument before and after measurement. The equipment calibration is performed on quarterly basis.
- 3.34 A portable Hach 2100Q Turbidity Meter is be used for in-situ turbidity measurement. The turbidity meter is capable of measuring turbidity in the range of 0 – 1000 NTU. The equipment calibration is performed on quarterly basis.
- 3.35 Water samples are contained in screw-cap PE (Poly-Ethylene) bottles, which are provided and pretreated and ‘PE’ (Poly-Ethylene) sampling bottles provided and pre-treated according to corresponding analytical requirements. Where appropriate, the sampling bottles are rinsed with the water to be contained. Water sample is then transferred from the sampler to the sample bottles.
- 3.36 One liter or 500 mL water sample are collected from each depth for SS determination. The collected samples are stored in a cool box maintained at 4⁰C and delivered to laboratory upon completion of the sampling by end of each sampling day.
- 3.37 All water samples are analyzed with Suspended Solids (SS) as specified in the updated *EM&A Manual* by a local HOKLAS-accredited testing laboratory (ALS Technichem (HK) Pty Ltd HOKLAS registration no. 66). SS are determined by the laboratory upon receipt of the water samples using HOKLAS accredited analytical method. The detection limits and testing method are shown below in **Table 3-4**. The certificate of ALS Technichem (HK) Pty Ltd is provided in **Appendix E**.

Table 3-4 Testing Method and Detection limit of SS to be provided by the Laboratory

Determinant	Testing Method	Detection Limit
Suspended solid	Determination use HOKLAS accredited analytical methods namely ALS Method EA-025 (based on APHA 2540 D)	2mg/L

Hydrological Characteristics

- 3.38 A portable, water flow meter, brand named “GLOBAL WATER model FP211” are used to determine the water current flow at the designated monitoring stations. A water flow velocity is measured at mid depth of current water body or 0.5m below water level.
- 3.39 Water depths are determined prior to measurement, using a portable battery operated depth detector, brand named ‘Eagle Sonar’, if the depths exceed 1.5 meter. If the depth between 1.5 meter and 1 meter, plastic tape measurement tied with appropriate weight are used the depth estimation. For the depths well below 1 meter, an appropriate steel ruler or rope with appropriate weight are used for the depth measurement.

DATA MANAGEMENT AND DATA QA/QC CONTROL

- 3.40 The impact monitoring data are handled by the ET’s systematic data recording and management, which complies with in-house Quality Management System. Standard Field Data Sheets (FDS) are used in the impact monitoring program.
- 3.41 The monitoring data recorded in the equipment e.g. noise meter and Multi-parameter Water Quality Monitoring System 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 are input directly into the computerized database and QA/QC checked by personnel other than those who input the data. For monitoring activities require laboratory analysis, the local laboratory follows the QA/QC requirements as set out under the HOKLAS scheme for all laboratory testing.

OTHERS MONITORING IMPLEMENTATION FOR THE CONTRACT

Ecology

- 3.42 Ecological monitoring and reporting should be performed by IEC. No equipment and procedure are presented in the EM&A Monthly Report.

Landscape and Visual

- 3.43 A registered Landscape Architect as member of the ET is employed by the Contractor to undertake site inspection. Site inspection will undertake at least once every two weeks throughout the construction period to ensure compliance with the intended aims of the mitigation measures are proposed in the EIA and the updated EM&A Manual, implemented by the Contractor.

DETERMINATION OF ACTION/LIMIT (A/L) LEVELS FROM DC/2009/22

- 3.44 According to the Updated Environmental Monitoring and Audit Manual, the performance criteria for construction noise, water quality and hydrological, namely Action and Limit levels were established by Contract DC/2009/22. The Action/Limit Levels proposed by DC/2009/22 are listed in *Tables 3-5, 3-6, and 3-7*.

Table 3-5 Action and Limit Levels for Construction Noise

Location	Time Period	Action Level in dB(A)	Limit Level in dB(A)
M1, AL1, M2, M3, M4	Daytime 0700 – 1900 hrs on normal weekdays	When one documented complaint is received	> 75* dB(A)
	1900 – 2300 on all days and 0700 – 2300 on general holidays (including Sundays)		60/65/70 dB(A)**
	2300 – 0700 on all days		45/50/55 dB(A)**

Note: * Reduces to 70dB(A) for schools and 65dB(A) during the school examination periods.
 ** To be selected based on the Area Sensitivity Rating of A/B/C, and the conditions of the applicable CNP(s) must be followed

Table 3-6 Action and Limit Levels for Water Quality

Parameter	Performance Criteria	Station			
		W1	W2	W3	W4
Flood Tide					
DO Concentration (mg/L)	Action Level	8.07	7.81	8.66	8.52
	Limit Level	8.07	7.69	8.00	7.78
pH	Action Level	NA	NA	NA	NA
	Limit Level	<6 or >9	<6 or >9	<6 or >9	<6 or >9
Turbidity (NTU)	Action Level	4.9	1.7	3.1	0.5
	Limit Level	5.3	1.8	4.1	0.9
Suspended Solids (mg/L)	Action Level	7.7	7.7	6.4	6.6
	Limit Level	8.1	8.6	6.9	7.6
Ebb Tide					
DO Concentration (mg/L)	Action Level	7.12	6.77	8.71	9.44
	Limit Level	7.02	6.31	8.61	9.30
pH	Action Level	NA	NA	NA	NA
	Limit Level	<6 or >9	<6 or >9	<6 or >9	<6 or >9
Turbidity (NTU)	Action Level	4.2	3.0	1.8	4.1
	Limit Level	4.7	3.5	3.0	4.6
Suspended Solids (mg/L)	Action Level	10.5	9.4	7.8	6.2
	Limit Level	10.9	9.9	8.1	7.0

Table 3-7 Action and Limit Levels for Hydrological Characteristics

Parameter	Acceptance Criteria	Monitoring Station			
		H1	H2	H3	H4
Water Depth (m)	Action Level	0.08 (80% of baseline water depth)	0.40 (80% of baseline water depth)	0.40 (80% of baseline water depth)	0.24 (80% of baseline water depth)
	Limit Level	0.06 (60% of baseline water depth)	0.30 (60% of baseline water depth)	0.30 (60% of baseline water depth)	0.18 (60% of baseline water depth)
Water Flow Rate (m ³ /s)	Action Level	120% of control station's water flow rate on the same day of measurement	120% of control station's water flow rate on the same day of measurement	120% of control station's water flow rate on the same day of measurement	120% of control station's water flow rate on the same day of measurement
	Limit Level	140% of control station's water flow rate on the same day of measurement	140% of control station's water flow rate on the same day of measurement	140% of control station's water flow rate on the same day of measurement	140% of control station's water flow rate on the same day of measurement

- 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 F**.

RE-ESTABLISHMENT OF ACTION/LIMIT (A/L) LEVELS FOR THE PROJECT

Re-establishment of Water Quality Performance criteria for Contract 2

- 3.46 Although the environmental performance criteria of water quality for the Project has been proposed by the ET of DC/2009/22, and verified and endorsed by the IEC, EPD and AFCD. There is a revision of the environmental performance criteria proposed by Contract 2. The environmental performance criteria of re-establishment are fully compliance with the *Updated EM&A Manual Table 4.5* stipulation. As referred Section 3.8 of this report, water quality monitoring point “W3” is the control station of Contract 2 and other monitoring points “W1”, “W2” and “W4” are the impact stations. Hence, Action/Limit Levels set only for monitoring stations W1, W2 and W4. **Table 3-8** is presented the re-established Action/Limit Levels of environmental performance criteria for the Project.

Table 3-8 Re-establishment Action/Limit Levels of Water Quality to be used in Contract 2

Parameter	Performance Criteria	Impact Station		
		W1	W2	W4
DO Concentration (mg/L)	Action Level	7.27	7.26	9.27
	Limit Level	7.05	6.44	7.98
pH	Action Level	NA	NA	NA
	Limit Level	6 - 9	6 - 9	6 - 9
Turbidity (NTU)	Action Level	4.77	2.46	3.32
	Limit Level	5.26	3.42	4.52
Suspended Solids (mg/L)	Action Level	9.73	8.89	6.98
	Limit Level	10.77	9.75	7.66

Notes:

- The proposed Action/Limit Levels of DO are established to be used 5%-ile/1%-ile of all the baseline data;
- The proposed Action/Limit Levels of Turbidity and SS are established to be used 95%-ile/99%-ile of all the baseline data;
- For DO, non-compliance of the water quality limits occur is when monitoring result lower than the action/limit levels;
- For turbidity and SS, non-compliance of the water quality limits occurs is when monitoring result higher than the limits; and
- For pH, non-compliance of the quality limit occur is when monitoring result lower than 6 and higher than 9; and
- All the figures given in the table are used for reference only and the EPD may amend the figures whenever it is considered necessary

3.47 The recommendation was formally wrote to IEC for verification and submitted to EPD to seek for approval.

Construction Noise

3.48 The construction noise Environmental Performance Criteria Action/Limit was established by Contract 1, it is agreed to be used for Contract 2 at all designated monitoring stations specially M2. The construction noise performance criteria are presented in **Table 3-9**.

Table 3-9 Proposal of Action and Limit Levels of Construction Noise Performance Criteria to be performed Contract 2

Time Period	Action Level in dB(A)	Limit Level in dB(A)
Daytime 0700 – 1900 hrs on normal weekdays	When one documented complaint is received	> 75* dB(A)
1900 – 2300 on all days and 0700 – 2300 on general holidays (including Sundays)		60/65/70 dB(A)**
2300 – 0700 on all days		45/50/55 dB(A)**

Note: * Reduces to 70dB(A) for schools and 65dB(A) during the school examination periods.

** To be selected based on the Area Sensitivity Rating of A/B/C, and the conditions of the applicable CNP(s) must be followed

Hydrological Characteristics

3.49 The Action/Limit levels for hydrological characteristics at the designated measurement locations H1 and H2 were set out in Contract 1 is agreed to be used for Contract 2. The established criteria are shown in **Table 3-10**.

Table 3-10 Action and Limit Levels Proposal for Hydrological Characteristics at Monitoring Stations to be performed Contract 2

Parameter	Acceptance Criteria	Monitoring Station	
		H1	H2
Water Depth (m)	Action Level	0.08 (80% of baseline water depth)	0.40 (80% of baseline water depth)
	Limit Level	0.06 (60% of baseline water depth)	0.30 (60% of baseline water depth)
Water Flow Rate (m ³ /s)	Action Level	120% of control station's water flow rate on the same day of measurement	120% of control station's water flow rate on the same day of measurement
	Limit Level	140% of control station's water flow rate on the same day of measurement	140% of control station's water flow rate on the same day of measurement

3.50 H3, H4 is recommended as a reference measurement in order to monitor any changes in the hydrological characteristics of Wai Ha River arising from the work Contract 2 to affect the Shuen Wan Marsh.

RECOMMENDATION MONITORING RESULTS SHARING

3.51 Environmental Permit EP-203/2008 was issued on 25 February 2008 by EPD which adopted for both Contracts 1 and 2 of DSD construction at Shuen Wan. Also, the EM&A program of both contracts are undertaken in accordance with the same updated EM&A Manual which has to be carried out during construction period. According to the updated EM&A manual, monitoring at designated monitoring locations M1 and AL1 for noise monitoring stations, W1 and W2 for water quality monitoring stations, and H1 and H2 for hydrological measurement would be performed at both Contracts 1 and 2. As Contract 1 has already commenced in January 2011, it is recommended to share the monitoring result collected from Contract 1 with Contract 2. The recommendation is accepted by IEC and submitted to EPD for approval.

EQUIPMENT CALIBRATION

- 3.52 The sound level meter and calibrator are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme in yearly basis.
- 3.53 All the water quality monitoring equipment such as the DO, pH and Turbidity meters are calibrated by HOKLAS accredited laboratory of three month intervals.
- 3.54 A portable, water flow meter, brand named “GLOBAL WATER model FP211” is calibrated in yearly basis.
- 3.55 All updated calibration certificates of the monitoring equipment used for the impact monitoring program in this reporting period are attached in *Appendix E*.

METEOROLOGICAL INFORMATION

3.56 The meteorological information during the construction phase is obtained from Tai Po and Shatin Stations of the Hong Kong Observatory (HKO). The meteorological data during the impact monitoring days are summarized in *Appendix H*

4.0 IMPACT MONITORING RESULTS

4.01 Further to instructions by KLKJV, the EM&A program was commenced on 20 July 2011 and the monitoring schedule had been issued to relevant parties on 18 July 2011 which presented in **Appendix G**. The works undertaken during the reporting period are illustrated in **Appendix C**. The monitoring results are presented in the following sub-sections.

RESULTS OF CONSTRUCTION NOISE MONITORING

4.02 The construction noise monitoring was started on 20 July 2011. All noise monitoring results at the designated locations M1, AL1, M2, M3 and M4 are summarized in **Table 4-1**. The detail monitoring data are presented in **Appendix I**.

Table 4-1 Summary of Construction Noise Monitoring Results, dB(A)

Date	Leq30min (dB(A))				
	M1 ^(#)	AL1 ^(#)	M2 ^(*)	M3 ^(*)	M4 ^(*)
20 July 2011			59.7	59.3	55.8
21 July 2011	58.1	62.0			
26 July 2011			59.3	59.6	52.1
28 July 2011	59.1	57.0			
Limit Level	>75 dB(A)				

Remarks:

- (#) The monitoring is undertaken under façade situation. No façade correction is added according to acoustical principles and EPD guidelines.
- (*) The monitoring is undertaken under free field situation. A façade correction of +3 dB(A) has been added according to acoustical principles and EPD guidelines

4.03 The sound meter was set in a free field situation at the designated monitoring locations M2, M3 and M4, therefore, a façade correction of +3 dB(A) has been added according to acoustical principles and EPD guidelines. For Location A1 and AN1, the monitoring is undertaken under façade situation. No façade correction is added according to acoustical principles and EPD guidelines.

4.04 No noise complaint (which is an Action Level exceedance) was received in this reporting period. As shown in **Table 4-1**, all the noise monitoring result are well below 75dB(A) and no Action or Limit Level exceedance was triggered during this reporting period. The graphical plot is shown in **Appendix J**.

RESULTS OF LOCAL STREAM WATER QUALITY MONITORING

4.05 In this Reporting Period, 5 sampling days have been carried out at four designated locations for local stream water quality monitoring. The monitoring results including in-situ measurements and laboratory testing results are provided in **Appendix I**. The graphical plots are shown in **Appendix J**.

4.06 During the Reporting Period, field measurements showed that stream water temperatures were within 25.7°C to 32.2°C and pH values within 6.24 to 8.48. Furthermore, salinity measured at W1 and W2 were detected respectively as 0.1-19.7 ppt and 2.8-19.6 ppt.

4.07 Monitoring results of 3 key parameters: dissolved oxygen (DO), turbidity and suspended solids in this Reporting Period, are summarized in **Table 4-2**.

Table 4-2 Water Quality Results Summary in Reporting Period

Sampling date	DO (mg/L)				Turbidity (NTU)				SS (mg/L)			
	W1	W2	W3*	W4	W1	W2	W3*	W4	W1	W2	W3*	W4
20-Jul-11	-	-	6.35	6.67			9.84	6.78			9.00	<2
21-Jul-11	8.41	6.9	-	-	9.90	3.50			3.20	4.00		
22-Jul-11	-	-	6.55	7.08			2.43	2.34			<2	<2
23-Jul-11	7.00	7.88	-	-	19.40	3.00			4.40	3.40		
26-Jul-11	5.59	5.62	7.35	8.04	29.60	38.20	4.81	2.45	3.40	4.00	2.00	<2

Sampling date	DO (mg/L)				Turbidity (NTU)				SS (mg/L)			
	W1	W2	W3*	W4	W1	W2	W3*	W4	W1	W2	W3*	W4
28-Jul-11	7.38	6.82	7.67	7.99	0.00	0.00	4.42	3.01	6.20	7.00	<2	<2
30-Jul-11	7.61	6.89	7.42	7.61	0.00	2.90	4.95	2.27	4.20	6.20	<2	<2

Remarks:

- (*) Control Station
- *Bold and Italic is exceeded Action Level*
- *Bold with underline is exceeded Limit Level*

4.08 A statistics of exceedances for the three parameters: dissolved oxygen (DO), turbidity and suspended solids is shown in **Table 4-3**.

Table 4-3 Statistics Water Quality Exceedance in the Reporting Period

Station	DO		Turbidity		SS		Total Exceedance	
	Action	Limit	Action	Limit	Action	Limit	Action	Limit
W1	0	2	0	3	0	0	0	5
W2	3	1	2	2	0	0	5	3
W4	2	3	0	1	0	0	2	4
No of Exceedance	5	6	2	6	0	0	7	12

During this reporting period, no Action/Limit Levels exceedance is recorded in Suspended Solids, however, 11 and 8 Action/Limit levels exceedances are recorded for DO and Turbidity respectively. NOEs were issued to notify EPD, IEC, the Contractor and RE upon confirmation of the results.

4.09 According to information provided by KLKJV, construction temporary haul road and driving sheet-piles at the proposed box culvert Bays 20 to 21 were carried out on the exceedance days. Precautionary measures such as laying geotextile filter below the temporary haul road to prevent particularly washouts of soil going into the nearby stream were maintained by KLKJV during the exceedance days. Moreover, no direct wastewater discharged or site runoff from the construction site to the Wai Ha River is occurred during the course of monitoring.

4.10 Furthermore, Since higher levels of turbidity and lower levels of DO in W4 were also recorded at in control station W3 and tidal effect were affecting the result in Stations W1(+1.75mPD) and W2 (+1.48mPD). It is concluded that all the exceedances were not due to the Project.

4.11 Anyhow, KLKJV should be fully implemented the required water quality mitigation measures in accordance with the updated EM&A Manual stipulation during construction under the Project. In particular when excavation and the associated box culvert construction works are undertaken near Wai Ha River, all construction wastewater or runoff generated from work area should be treated and drained to the designated discharge point.

RESULTS OF HYDROLOGICAL CHARACTERISTICS MONITORING

4.12 In this Reporting Period, hydrological characteristics monitoring were carried out on 20 July 2011 and 28 July 2011 at measurement points H3 and H4. As provided by Contract DC/2009/22, monitoring at measurement points H1 and H2 were carried out on 23 July 2011 and 30 July 2011. The monitoring data of H1 and H2 as provided by DC/2009/22 is presented in **Appendix I**.

4.13 The detailed H3 and H4 monitoring results in this Reporting Period is presented in **Tables 4-4**.

Table 4-4 Detailed monitoring results of hydrological characteristics at H3 and H4

Date	Measurement Time	Tide Condition	River Width (m)	Water Depth (m)	Cut Section (m ²)	Velocity Flow Rate (m/s)	Average Volumetric Flow Rate (Q), m ³ /s
Measurement Point: H3							
20-Jul-11	10:13	Flood	7.45	0.43	3.2035	0.30	0.961

Date	Measurement Time	Tide Condition	River Width (m)	Water Depth (m)	Cut Section (m ²)	Velocity Flow Rate (m/s)	Average Volumetric Flow Rate (Q), m ³ /s
28-Jul-11	16:26	Ebb	7.45	0.49	3.6505	0.30	1.095
	18:03	Flood	7.45	0.39	2.9055	0.20	0.581
	10:18	Ebb	7.45	0.42	3.1290	0.30	0.939
Measurement Point: H4							
20-Jul-11	10:20	Flood	2.74	0.29	0.7946	0.20	0.159
	16:31	Ebb	2.74	0.31	0.8494	0.30	0.255
28-Jul-11	18:15	Flood	2.74	0.30	0.8220	0.10	0.082
	10:28	Ebb	2.74	0.34	0.9316	0.30	0.279

Remarks: Tide information extract from Tai Po Kau Station

Date	Time	Height(m)	Time	Height(m)	Time	Height(m)	Time	Height(m)
20 July 2011	01:31	1.6	06:08	1.0	13:08	1.9	18:59	0.7
28 July 2011	06:08	2.1	14:41	0.5	21:45	1.3		

4.14 Hydrological characteristics results of the all measurement points are summarized in **Tables 4-5** and **4-6**.

Table 4-5 Summarized Hydrological Characteristics of Water Depth, m

Date	Mid-Flood				Mid-Ebb			
	H1	H2	H3	H4	H1	H2	H3	H4
20-Jul-11	-	-	0.43	0.29	-	-	0.49	0.31
23-Jul-11	~0.3	~0.5	-	-	~0.3	~0.6	-	-
28-Jul-11	-	-	0.39	0.30	-	-	0.42	0.34
30-Jul-11	<i>No result provide</i>		-	-	~0.5	~0.5	-	-

Table 4-6 Summarized Hydrological Characteristics of Average Volumetric flow rate (Q), m³/s

Date	Mid-Flood				Mid-Ebb			
	H1	H2	H3	H4	H1	H2	H3	H4
20-Jul-11	-	-	0.961	0.159	-	-	1.095	0.159
23-Jul-11	0.100	0.754	-	-	0.125	0.628	-	-
28-Jul-11	-	-	0.581	0.082	-	-	0.939	0.279
30-Jul-11	<i>No result provide</i>		-	-	0.150	1.507	-	-

4.15 To compare the monitoring data between the Reporting Period (rainy season) and baseline monitoring period, the currently water depth and volumetric flow rate has insignificant changed. Furthermore, water depth and water flow rate were found no exceedance in this reporting period.

5.0 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 *Table 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)	0	-

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)	0	-

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

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

6.0 SITE INSPECTION

- 6.01 According to the Updated Environmental Monitoring and Audit Manual, regular site inspection to evaluate the project environmental performance should be carried out during construction phase. Although the construction activity was commenced on 20 July 2011, weekly environmental site inspections had been carried out by the Contractor and the RE on 6, 13 and 19 July 2011. Furthermore, the RE, IEC, the Contractor and ET of joint site inspection is carried out on **19 July 2011**. No non-compliance was noted.
- 6.02 Observations for the site inspection and monthly audit within this Reporting Period are summarized in **Table 6-1** and monthly inspection checklist is attached in **Appendix L**. Moreover, weekly site inspection checklists provided by the Contractor are also showed in **Appendix L**.

Table 6-1 Site Observations

Date	Findings / Deficiencies	Follow-Up Status
19 July 2011	N/A	N/A

LANDSCAPE AND VISUAL INSPECTION

- 6.03 In this Reporting Period, landscape and visual inspection is not yet carried out by the registered Landscape Architect. Hence, no results and findings are provided in this report.

7.0 ENVIRONMENTAL COMPLAINT 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
20 – 31 July 2011	0	0	NA

Table 7-2 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
20 – 31 July 2011	0	0	NA

Table 7-3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
20 – 31 July 2011	0	0	NA

8.0 IMPLEMENTATION STATUS OF MITIGATION MEASURES

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

Noise Mitigation Measure

- (a) Only well-maintained plant should be operated on-site and plant shall be serviced regularly during the construction program;
- (b) Silencers or mufflers on construction equipment should be utilized and shall be properly maintained during the construction program;
- (c) Mobile plant, if any, should be sited as far from NSRs as possible;
- (d) Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;
- (e) Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs;
- (f) Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities;
- (g) Use of quieter plants to carry out the construction tasks proposed for the Project;
- (h) Use about 3.5m high of temporary noise barriers as screened the noisy PMEs to carry out construction of box culvert and site clearance.
- (i) Low Impact Method, such as using PMEs smaller in size and to be enclosed by noise enclosure, should be adopted for the construction of box culvert and pipe laying in Wai Ha; and
- (j) Use of noise enclosure during the works area for pipe laying in Wai Ha.

Dust Mitigation Measure

8.02 Implementation of mitigation measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices including but not limited to the following:

- (a) Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved road, with complete coverage, particularly during dry weather;
- (b) Use of frequent watering for particularly dusty static construction areas and areas close to ASRs;
- (c) Tarpaulin covering of all dusty vehicle loads transported to, from and between site location;
- (d) Establishment and use of vehicle wheel and body washing facilities at the exit points of the site;
- (e) Routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs;
- (f) Stockpiled excavated materials should be covered with tarpaulin and should be removed offsite within 24 hours to avoid any odour nuisance arising.

Local Stream Water Quality Mitigation Measure

- (a) Before commencing any site formation work, all sewer and drainage connections shall be sealed to prevent debris, soil, sand etc. from entering public sewers/drains;
- (b) Temporary ditches shall be provided to facilitate run-off discharge into appropriate watercourses, via a silt retention pond. No site run-off shall enter the fishponds at Shuen Wan;
- (c) Sand/silt removal facilities such as sand traps, silt traps and sediment basins shall be provided to remove sand/silt particles from runoff to meet the requirements of the Technical Memorandum standard under the Water Pollution Control Ordinance. The design of silt removal facilities shall be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures shall be inspected monthly and maintained to ensure proper and efficient operation at all times and particularly during rainstorms
- (d) Water pumped out from excavated pits shall be discharged into silt removal facilities;

- (e) During rainstorms, exposed slope/soil surfaces shall be covered by a tarpaulin or other means. Other measures that need to be implemented before, during, and after rainstorms as summarized in ProPECC PN 1/94 shall be followed
- (f) Exposed soil areas shall be minimized to reduce potential for increased siltation and contamination of runoff
- (g) Earthwork final surfaces shall be well compacted and subsequent permanent work or surface protection shall be immediately performed to reduce the potential of soil erosion;
- (h) Open stockpiles of construction materials or construction wastes on-site shall be covered with tarpaulin or similar fabric during rainstorms;
- (i) For the construction of the box culvert next to the existing channel of the Wai Ha River, sand bags should be deployed around the boundary of the works trench to prevent muddy water ingress into the adjacent CA or Wai Ha River. Sand bags should also be used to surround the excavated trench. Generally, the sand bags will be placed up to a height 01 300mm to provide adequate allowance for the built-up water level during rainstorm event. With sand bags in place surface runoff will be intercepted and flow to Wai Ha River or collected by the existing drainage system as usual;
- (j) For the construction of the box culvert in the extreme northeast corner of Shuen Wan Marsh Conservation Area sand bags should be deployed along the limit of the works area to prevent muddy water ingress into the CA. Sand bags should be placed to a height 0.1 at least 300mm from ground level and +2.5 mPD (whichever is greater) to provide adequate allowance for the built-up water level during rainstorm events Unpolluted surface runoff within the works area should then be collected and directed into the existing drainage system;
- (k) Sheet-piles, which would be installed around the works trench near the Conservation Area, would be extended above ground level for about 2m to serve as hoardings to isolate the works site;
- (l) Tarpaulin sheets would be used to cover the excavation areas during heavy rainstorms. This would prevent the ingress of rainwater into the trench minimizing the risk of muddy water getting into Wai Ha River and the adjacent Conservation Area;
- (m) Any concrete washing water would be contained inside the works site surrounded by the extended sheet piles. A pump sump at the bottom of the trench would be provided to pump any excess water during concrete washing;
- (n) Stockpiling the excavated materials adjacent to the Conservation Area would not be allowed. The excavated materials would be either removed off site immediately after excavation, or stockpile at location(s) away from the Conservation Area. The stockpile locations shall be approved by the site engineer;
- (o) Debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering the Wai Ha River and fish ponds at Shuen Wan. Stockpiles of cement and other construction materials should be kept covered when not being used.
- (p) Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities to prevent spillage of fuels and solvents to nearby water bodies, all fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank The bund should be drained of rainwater after a rain event
- (q) Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site. A licensed contractor would be responsible for appropriate disposal and maintenance of these facilities;
- (r) The excavation works within the upstream end of the existing river channel of the Wai Ha River for the construction of the proposed box culvert should be carried out in dry condition. Containment measures such as bunds and barriers shall be used within the affected length of the river channel and the excavation works restricted to within an enclosed dry section of the channel. The excavation works within Wai Ha River shall be restricted to the period from October to April

Waste Mitigation Measures

- (a) The Contractor shall observe and comply with the Waste Disposal Ordinance (WDO) and its subsidiary regulations.
- (b) The Contractor shall submit to the Engineer for approval a Waste Management Plan with appropriate mitigation measures including the allocation of an area for waste segregation and shall ensure that the day-to-day site operations comply with the approved waste management plan.
- (c) The Contractor shall minimise the generation of waste from his work. Avoidance and minimisation of waste generation can be achieved through changing or improving design and practices, careful planning and good site management.
- (d) The reuse and recycling of waste shall be practised as far as possible. The recycled materials shall include paper/cardboard, timber and metal etc.
- (e) The Contractor shall ensure that Construction and Demolition (C&D) materials are sorted into public fill (inert portion) and C&D waste (non-inert portion). The public fill which comprises soil, rock, concrete, brick, cement plaster/mortar, inert building debris, aggregates and asphalt shall be reused in earth filling, reclamation or site formation works. The C&D waste which comprises metal, timber, paper, glass, junk and general garbage shall be reused or recycled where possible and, as the last resort, disposal of at landfills.
- (f) The Contractor shall record the amount of wastes generated, recycled and disposed of (including the disposal sites). The Contractor shall use a trip ticket system for the disposal of C&D materials to any designated public filling facility and/or landfill.
- (g) In order to avoid dust or odour impacts, any vehicles leaving a works area carrying construction waste or public fill shall have their load covered.
- (h) To avoid the excessive use of wood, reusable steel shutters shall be used as a preferred alternative to formwork and falsework where possible.
- (i) The Contractor shall observe and comply with the Waste Disposal (Chemical Waste) (General) Regulation. The Contractor shall apply for registration as chemical waste producer under the Waste Disposal (Chemical Waste) (General) Regulation when chemical waste is produced. All chemical waste shall be properly stored, labeled, packaged and collected in accordance with the Regulation.

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

Table 8-1 Environmental Mitigation Measures

Issues	Environmental Mitigation Measures
Water Quality	<ul style="list-style-type: none"> • Wastewater were appropriately treated by treatment facilities; • Drainage channels were provided to convey run-off into the treatment facilities; and • Drainage systems were regularly and adequately maintained.
Air Quality	<ul style="list-style-type: none"> • 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; and • Tarpaulin covering of any dusty materials on a vehicle leaving the site.
Noise	<ul style="list-style-type: none"> • Good site practices to limit noise emissions at the sources; • Use of quiet plant and working methods; • Use of site hoarding or other mass materials as noise barrier to screen noise at ground level of NSRs; • Use of shrouds/temporary noise barriers to screen noise from relatively static PMEs; • Scheduling of construction works nearly Tung Tsz Road; and • Alternative use of plant items within one worksite, where practicable.

Issues	Environmental Mitigation Measures
Waste and Chemical Management	<ul style="list-style-type: none">• Excavated material should be reused on site as far as possible to minimize off-site disposal. Scrap metals or abandoned equipment should be recycled if possible;• Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner;• The Contractor should adopt a trip ticket system for the disposal of C&D materials to any designed public filling facility and/or landfill; and• Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.
General	<ul style="list-style-type: none">• The site was generally kept tidy and clean.

9.0 IMPACT FORCAST

CONSTRUCTION ACTIVITIES FOR THE FORTH-COMING MONTH

9.01 Construction activities planned to be carried out next month at Shuen Wan is listed as below:-

- Construction of Project Signboard at Tung Tsz Road;
- Installation of Sheet Piling;
- Excavation for Box Culvert Bay 20 to 23 at Tung Tsz Road;
- Formwork and concreting of Box Culvert;

9.02 Three months Rolling Construction Program is attached in *Appendix C*

KEY ISSUES FOR THE COMING MONTH

9.03 According to construction activities carry out in coming months, key issues to be considered include:

- Implementation of dust suppression measures at all times;
- 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 local stream 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.

10.0 CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

- 10.01 This is the 1st monthly EM&A report for Contract 2 presenting the monitoring results and inspection findings for the reporting period from **20 July 2011 to 31 July 2011**.
- 10.02 No noise complaint (which is an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in this Reporting Period. No NOE or the associated corrective actions were therefore issued.
- 10.03 During this reporting period, no Action/Limit Levels exceedance is recorded in Suspended Solids, however, 11 and 8 Action/Limit levels exceedances were recorded for DO and Turbidity respectively. NOEs were issued to notify EPD, IEC, the Contractor and RE upon confirmation of the results. According to information such as construction activities provided by KLKJV and the results of Control Station W3, all the exceedances are considered not due to the Project. Furthermore, the hydrological characteristics of water depth and water flow rate were found no exceedance in this reporting period.
- 10.04 No documented complaint, notification of summons or successful prosecution was received.
- 10.05 Although the construction activity was commenced on 20 July 2011, weekly environmental site inspections had been carried out by the Contractor and the RE on 6, 13 and 19 July 2011. Furthermore, the RE, IEC, the Contractor and ET of joint site inspection is carried out on **19 July 2011**. No non-compliance was indicated during the site inspection. In general, it was reminded that good house-keeping practice should be maintained. The environmental performance of the Project was therefore considered satisfactory.
- 10.06 The ET had carried out a site inspection on **19 July 2011**. No non-compliance was observed during the inspection. In general, it was reminded that good house-keeping practice should be maintained. The environmental performance of the Project was therefore considered satisfactory.
- 10.07 During this reporting period, no landscape and visual inspection was carried out by a registered Landscape Architect. Hence, no results or findings would be presented in this report.
- 10.08 No site visit was undertaken by any external party in this Reporting Period.

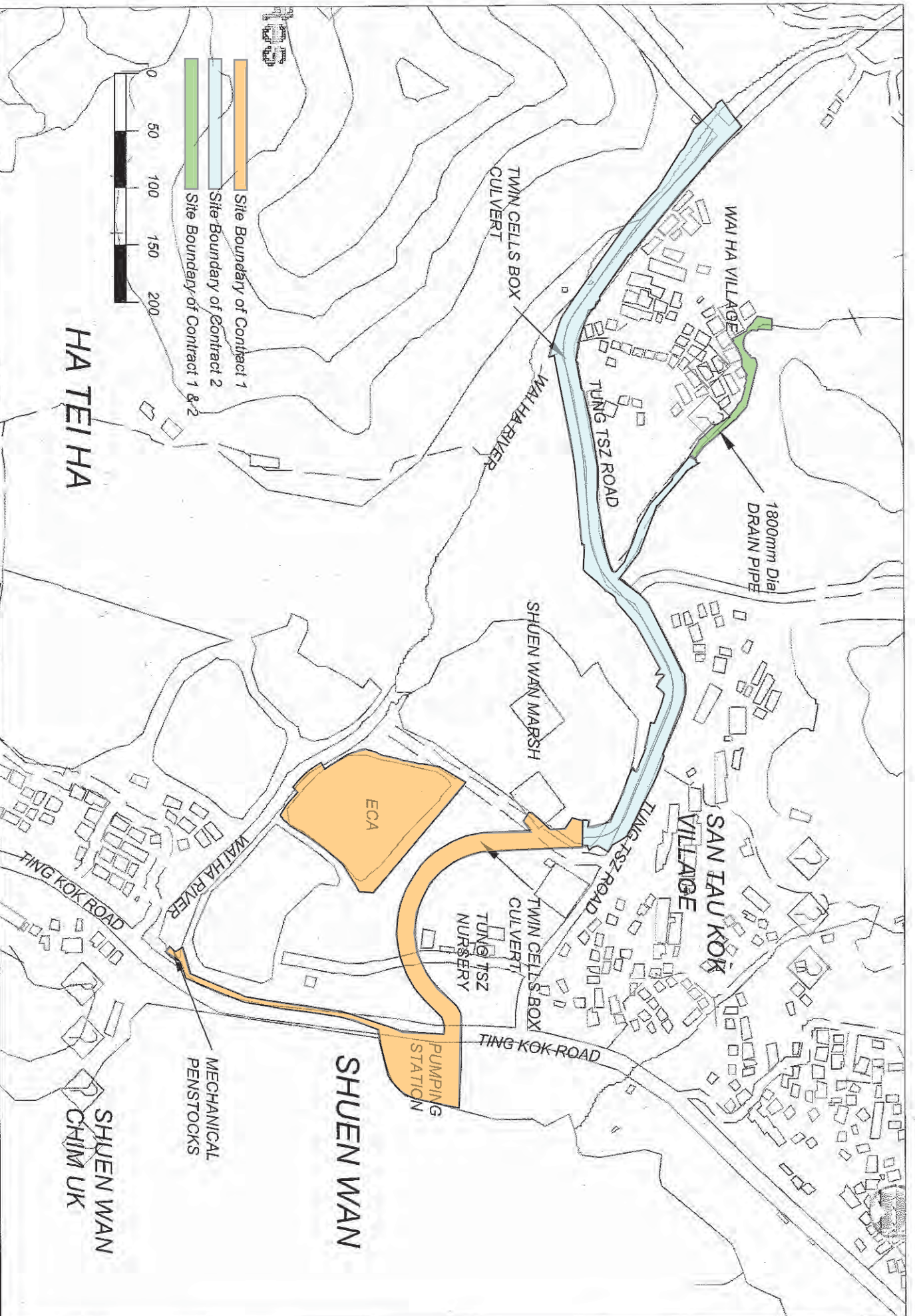
RECOMMENDATIONS

- 10.09 During wet season, excavation works of construction box culvert or trench, ingress of surface runoff into Wai Ha River to be the key issue in coming months. The contractor is reminded that mitigation measures for water quality and ecology should be fully implemented.
- 10.10 To control the site performance on waste management, the KLKJV 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 licence and the chemical waste producer registration. KLKJV is also reminded to implement the recommended environmental mitigation measures according to the Updated Environmental Monitoring and Audit Manual.
- 10.11 Baseline monitoring of water quality was conducted during typical Hong Kong dry season (November to March of next year). It is important that influence of the seasonal changes is taken into account when interpreting monitoring data of water quality obtained in the coming wet season. Review of the baseline conditions may need to be conducted regularly in particular during times of seasonal changes. If the baseline changes are evident, the environmental performance criteria should be re-established under agreement of the ER and IEC and submitted to the EPD for endorsement.

END OF TEXT

Appendix A

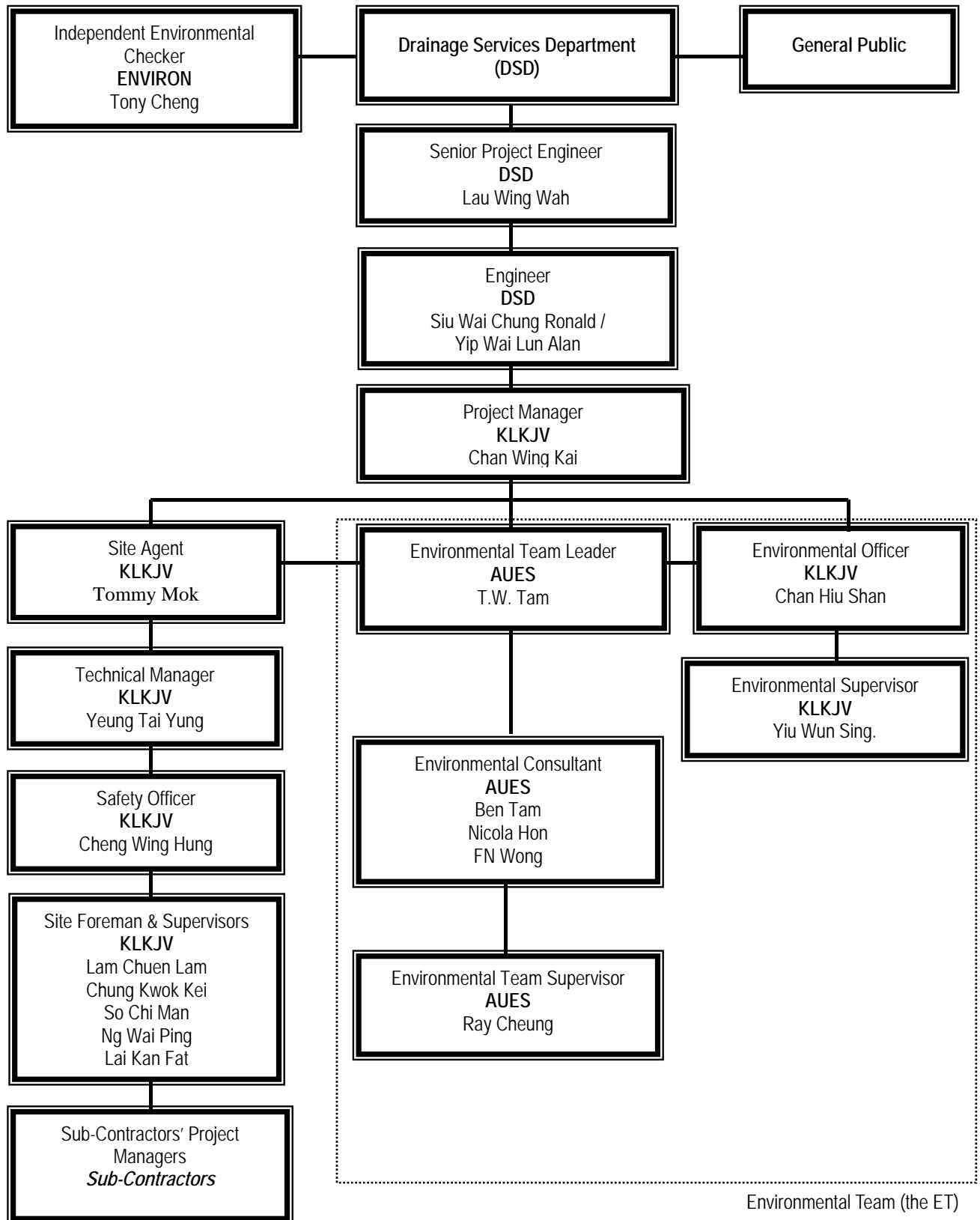
Site Location Plan (DSD Contract 1 and Contract 2 at Shuen Wan)



Site Location Plan of DSD Contract 1 and Contract 2 at Shuen Wan

Appendix B

Organization Chart and the Key Contact Person



Environmental Management Organization

Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
DSD	Employer	Mr. Luk Wai Hung	2594 7400	2827 8700
DSD	Senior Engineer	Mr. Lau Wing Wah	2594 7402	2827 8700
DSD	Engineer	Mr. Siu Wai Chung, Ronald	2594 7595	2827 8700
DSD	Engineer	Mr. Yip Wai Lun	2594 7359	2827 8700
DSD	Senior Inspector	Mr. Tso Si On	6778 2708	2827 8700
Environ	Independent Environmental Checker	Mr. Tong Cheng	3743-0788	3548-6988
KLKJV	Project Director	Mr. Poon Chi Yeung Francis	2674 3888	2674 9988
KLKJV	Project Manager	Mr. Chan Wing Kai	2674 3888	2674 9988
KLKJV	Site Agent	Mr. Mok Chu Hung Tommy	2674 3888	2674 9988
KLKJV	Technical Manager	Mr. Yeung Tai Yung	9674 9712	2674 9988
KLKJV	Site Forman	Mr. Cheung Wai Hung	2674 3888	2674 9988
KLKJV	Environmental Officer	Miss. Chan Hiu Shan	2674 3888	2674 9988
KLKJV	Environmental Supervisor	Mr. Yiu Wun Sing	2674 3888	2674 9988
AUES	Environmental Team Leader	Mr. T.W. Tam	2959-6059	2959-6079
AUES	Senior Environmental Consultant	Mr. Wong Fu Nam	2959-6059	2959-6079
AUES	Environmental Consultant	Miss Nicola Hon	2959-6059	2959-6079
AUES	Environmental Consultant	Mr. Ben Tam	2959-6059	2959-6079
AUES	Environmental Team Supervisor	Mr. Ray Cheung	2959-6059	2959-6079

Legends:

DSD (Employer) – Drainage Services Department

DSD (Engineer) – Drainage Services Department

KLKJV (Main Contractor) – Kwan Lee-Kuly Joint Venture

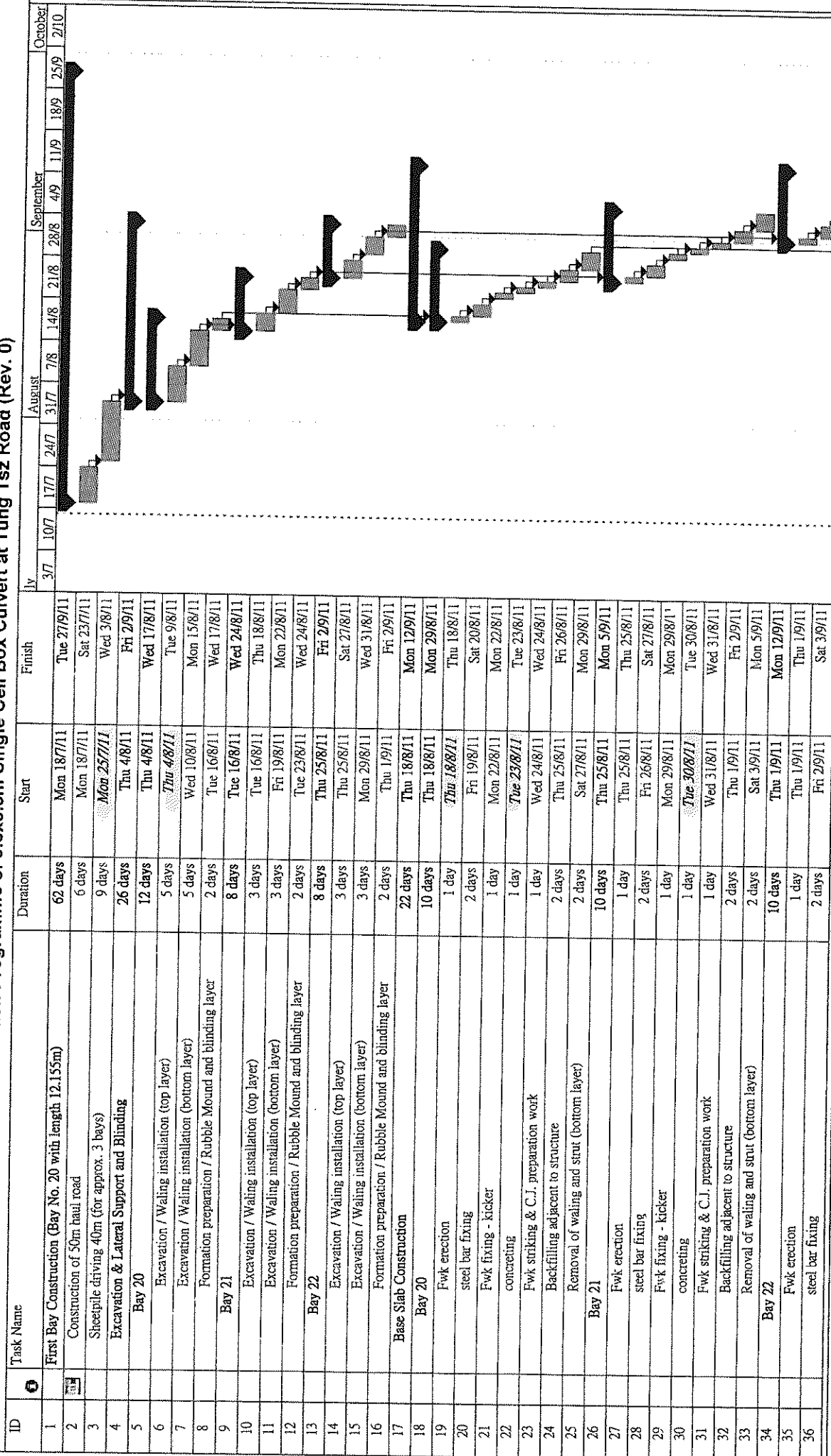
ENVIRON (IEC) – ENVIRON Hong Kong Limited

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

Appendix C

Master and Three Months Rolling Construction Programs

**Contract DC/2010/02
Drainage Improvement Works in Shuen Wan and Shek Wu Wai
Construction Programme of 3.5x3.5m Single Cell Box Culvert at Tung Tsz Road (Rev. 0)**



KLKJV
 Data Date: 2 July 2011
 Updated on: 16 July 2011

File: Construction Program of 3.5x3.5m Box culvert at Tung Tsz Road (Rev. 0)

Summary
 Project Summary

Progress
 Milestone

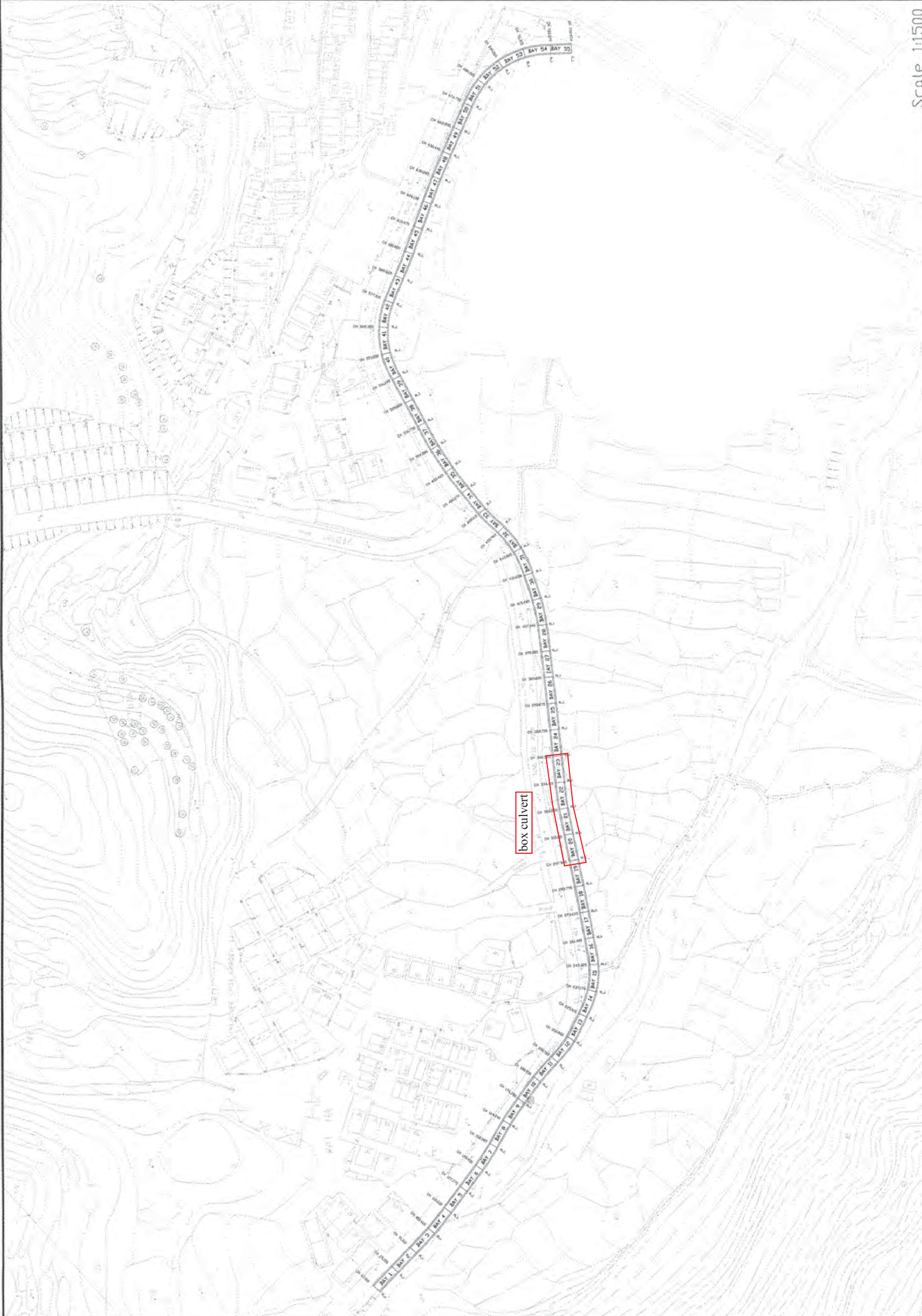
Task
 Split

External Tasks
 External Milestone

Deadline

Page 1 of 2

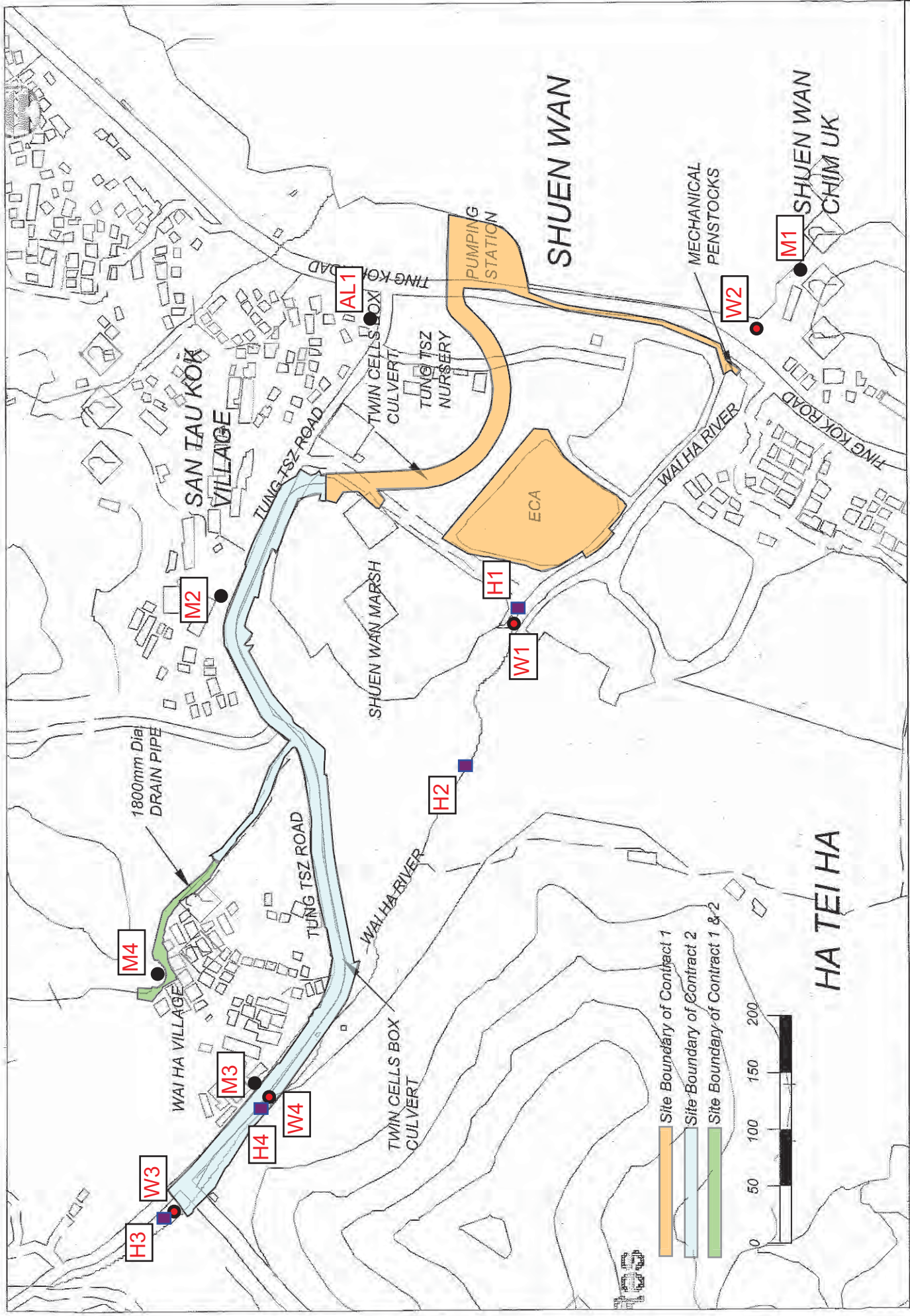
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Appendix D

Environmental Monitoring Locations



All Environmental Monitoring Locations

Appendix E

Calibration certificates of the monitoring equipment and Certificate of ALS Technichem (HK) Pty Ltd

Equipment Calibration List

Items	Aspect	Description of Equipment	Date of Calibration	Date of Next Calibration
1	Noise	Bruel & Kjaer Integrating Sound Level Meter (Serial No. 2285722)	18 May 11	18 May 12
2		Bruel & Kjaer Acoustical Calibrator (Serial No. 2326408)	04 May 11	04 May 12
3	Water	YSI DO Meter 55 (Serial No. 97F0837AM)	18 July 11	18 Oct 11
4		Extect EC500	18 Jul 11	18 Oct 11
5		Turbidimeter HACH 2100Q (Serial No.11030C008499)	13 Jun 11	13 Sep 11
6	Hydrological Characteristics	GLOBAL WATER model FP211 (Serial No.1124158766)	14 Jun 11	14 Jun 12

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



Hong Kong Accreditation Service
香港認可處

Certificate of Accreditation
認可證書

This is to certify that
特此證明

ALS TECHNICHEM (HK) PTY LIMITED

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

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

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

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

Environmental Testing
環境測試

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

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

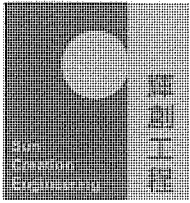
The common seal of the Hong Kong Accreditation Service is affixed hereto by the authority of the HKAS Executive
香港認可處根據認可處執行機關的權限在此蓋上通用印章

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

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

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





輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C112790

Certificate of Calibration

This is to certify that the equipment

Description : Integrating Sound Level Meter (EQ009)

Manufacturer : Bruel & Kjaer

Model No. : 2238

Serial No. : 2285722

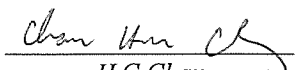
*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C112790.*

The equipment is supplied by

Co. Name : Action-United Environmental Services and Consulting

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

Date of Issue : 19 May 2011

*Certified by : 
H C Chan*

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

Calibration and Testing Laboratory of Sun Creation Engineering Limited

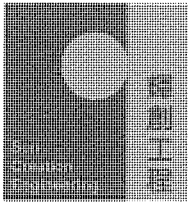
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C112790

Calibration Report

ITEM TESTED

DESCRIPTION : Integrating Sound Level Meter (EQ009)
MANUFACTURER : Bruel & Kjaer
MODEL NO. : 2238
SERIAL NO. : 2285722

TEST CONDITIONS

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

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 18 May 2011

JOB NO. : IC11-0947

TEST RESULTS

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

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

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

Tested by :


K C Lee

Date : 19 May 2011

The test equipment used for calibration are traceable to the National Standards as specified in this report.
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Calibration and Testing Laboratory of Sun Creation Engineering Limited

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

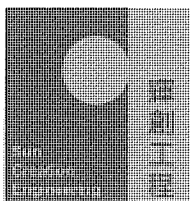
Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com

Page 1 of 4



Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

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

5. Test procedure : MA101N.

6. Results :

- 6.1 Sound Pressure Level

- 6.1.1 Reference Sound Pressure Level

- 6.1.1.1 Before Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L _{AFP}	A	F	94.00	1	94.1

- 6.1.1.2 After Self-calibration

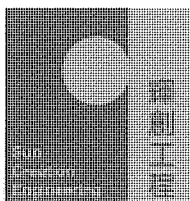
UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L _{AFP}	A	F	94.00	1	94.0	± 0.7

- 6.1.2 Linearity

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

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

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



Calibration Report

6.2 Time Weighting

6.2.1 Continuous Signal

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

6.2.2 Tone Burst Signal (2 kHz)

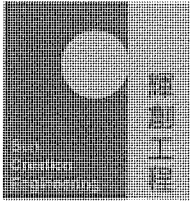
UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L _{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L _{AFMax}				200 ms	105.0	-1.0 ± 1.0
	L _{ASP}	S	Continuous		106.0	Ref.	
	L _{ASMax}		500 ms		102.0	-4.1 ± 1.0	

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{AFP}	A	F	94.00	31.5 Hz	54.5	-39.4 ± 1.5
					63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	92.8	-1.1 (+1.5 ; -3.0)
12.5 kHz	89.7	-4.3 (+3.0 ; -6.0)					

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



Calibration Report

6.3.2 C-Weighting

Range (dB)	UUT Setting			Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{CFP}	C	F	94.00	31.5 Hz	90.9	-3.0 ± 1.5
					63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	94.0	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.0
					4 kHz	93.1	-0.8 ± 1.0
					8 kHz	90.9	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.7	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

Range (dB)	UUT Setting			Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)
	Parameter	Frequency Weighting	Time Weighting	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
30 - 110	L _{Aeq}	A	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5
			60 sec.					90	89.9	± 0.5
			5 min.					80	79.0	± 1.0
								70	69.1	± 1.0

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

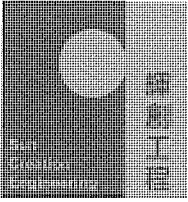
- Uncertainties of Applied Value :
 - 94 dB : 31.5 Hz - 125 Hz : ± 0.40 dB
 - 250 Hz - 500 Hz : ± 0.30 dB
 - 1 kHz : ± 0.20 dB
 - 2 kHz : ± 0.40 dB
 - 4 kHz : ± 0.50 dB
 - 8 kHz : ± 0.70 dB
 - 12.5 kHz : ± 1.20 dB
 - 104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
 - 114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
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

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

Note :

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

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



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C112473

Calibration Report

ITEM TESTED

DESCRIPTION : Acoustical Calibrator (EQ081)
MANUFACTURER : Bruel & Kjaer
MODEL NO. : 4231
SERIAL NO. : 2326408

TEST CONDITIONS

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

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 4 May 2011

JOB NO. : IC11-0947

TEST RESULTS

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

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

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

Tested by :


K C Lee

Date : 5 May 2011

The test equipment used for calibration are traceable to the National Standards as specified in this report.
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Calibration and Testing Laboratory of Sun Creation Engineering Limited

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

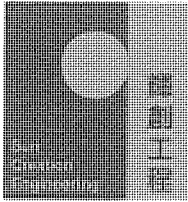
Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com

Page 1 of 2



Calibration Report

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

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

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

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

5.2 Frequency Accuracy

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

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

Note :

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



ALS Technichem (HK) Pty Ltd

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

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

WORK ORDER: HK1116558
LABORATORY: HONG KONG
DATE RECEIVED: 18/07/2011
DATE OF ISSUE: 22/07/2011

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 and Temperature
Description: YSI Multimeter
Brand Name: YSI
Model No.: YSI 55
Serial No.: 97F0837AM
Equipment No.: -
Date of Calibration: 18 July, 2011

NOTES

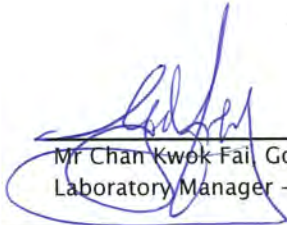
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Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

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Mr Chan Kwok Fai, Godfrey
Laboratory Manager – Hong Kong

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ALS TECHNICHEM (HK) PTY LTD Part of the ALS Laboratory Group A Campbell Brothers Limited Company

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1116558
Date of Issue: 22/07/2011
Client: ACTION UNITED ENVIRO SERVICES



Description: YSI Multimeter
Brand Name: YSI
Model No.: YSI 55
Serial No.: 97F0837AM
Equipment No.: -
Date of Calibration: 18 July, 2011

Date of next Calibration: 18 October, 2011

Parameters:

Dissolved Oxygen

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

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
6.77	6.87	0.10
7.06	7.10	0.04
7.68	7.56	-0.12
Tolerance Limit (\pm mg/L)		0.20

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical

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

Expected Reading ($^{\circ}$ C)	Displayed Reading ($^{\circ}$ C)	Tolerance ($^{\circ}$ C)
12.0	11.3	-0.7
24.0	23.0	-1.0
32.0	31.1	-0.9
Tolerance Limit ($^{\circ}$ C)		2.0

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



ALS Technichem (HK) Pty Ltd

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: MR DENNIS HO
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: HK1112942
LABORATORY: HONG KONG
DATE RECEIVED: 09/06/2011
DATE OF ISSUE: 14/06/2011

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: Turbidity
Description: Turbidity Meter
Brand Name: HACH
Model No.: 2100Q
Serial No.: 11030C008499
Equipment No.: --
Date of Calibration: 13 June, 2011

NOTES

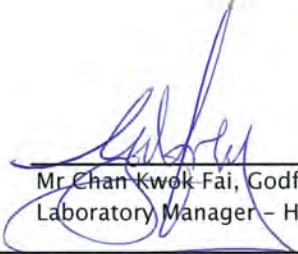
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Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

Address

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Kwai Chung
HONG KONG

Phone: 852-2610 1044
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Mr Chan Kwok-Fai, Godfrey
Laboratory Manager - Hong Kong

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1112942
Date of Issue: 14/06/2011
Client: ACTION UNITED ENVIRO SERVICES



Description: Turbidity Meter
Brand Name: HACH
Model No.: 2100Q
Serial No.: 11030C008499
Equipment No.: --
Date of Calibration: 13 June, 2011

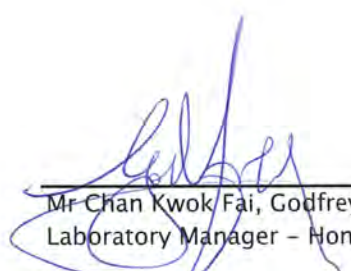
Date of next Calibration: 13 September, 2011

Parameters:

Turbidity

Method Ref: ALPHA 21st Ed. 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0.00	0.00	--
4.00	3.69	-7.8
40.0	39.9	-0.3
80.0	73.6	-8.0
400	376	-6.0
800	771	-3.6
	Tolerance Limit ($\pm\%$)	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: HK1116556
LABORATORY: HONG KONG
DATE RECEIVED: 18/07/2011
DATE OF ISSUE: 22/07/2011

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: pH
Description: pH Meter
Brand Name: Extech
Model No.: EC500
Serial No.: --
Equipment No.: --
Date of Calibration: 18 July, 2011

NOTES

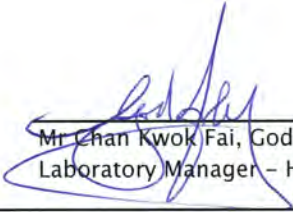
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ALS TECHNICHEM (HK) PTY LTD Part of the ALS Laboratory Group A Campbell Brothers Limited Company

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1116556
Date of Issue: 22/07/2011
Client: ACTION UNITED ENVIRO SERVICES



Description: pH Meter
Brand Name: Extech
Model No.: EC500
Serial No.: --
Equipment No.: --
Date of Calibration: 18 July, 2011

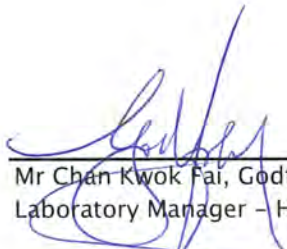
Date of next Calibration: 18 October, 2011

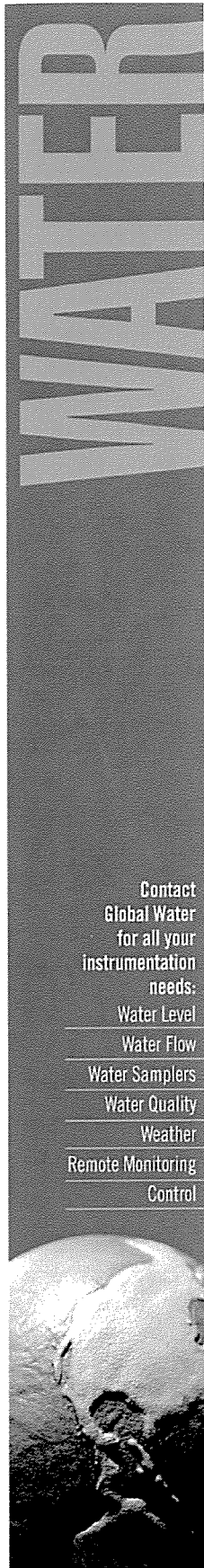
Parameters:

pH Value

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

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.00	3.88	-0.12
7.00	6.99	-0.01
10.0	10.07	0.07
	Tolerance Limit (\pm unit)	0.20


Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong



Certification of Warranty

The following product has been checked and compared to our standard test unit. We have found that this unit meets or exceeds our standard test unit's specifications.

Customer Name: Innotech Instrumentation Co., Ltd
ITEM DESCRIPTION: Flow Probe 5.5'-15'
SALES ORDER NUMBER: 074312
MODEL NAME/ NUMBER: FP211
PART NUMBER: BB1100
SENSOR RANGE: 0.3-19.9 FPS (0.1-6.1 MPS)
SENSOR OUTPUT: FTS/MPS Flow Display
ACCURACY: 0.1 FPS
POWER REQUIRED: Internal Lithium Battery
SERIAL NUMBER: 1124158766
CABLE LENGTH: 5' to 15'
CERTIFICATES: CE Compliant

Calibration Factor:317

QA INSPECTOR: *Nikhil Naidu*

Date: 6/14/2011

NOTE: Global Water Instrumentation, warrants that its products are free from defects in material & workmanship under normal use & service for a period of one year from date of original shipment from factory.



Global Water
The Leader in Water Instrumentation

In the U.S. call toll free
at 1-800-876-1172
International: 916-638-3429
Fax: 916-638-3270
Email: globalw@globalw.com

Visit our online catalog at:
www.globalw.com
Our Address:
11390 Amalgam Way
Gold River, CA 95670

Appendix F

Event and Action Plan

Event Action Plan for Construction Noise

EVENT	ACTION			
	ET Leader	IEC	ER	Contractor
Action Level	<ol style="list-style-type: none"> 1. Notify IEC and Contractor 2. Carry out investigation. 3. Report the results of investigation to the IEC, ER and Contractor. 4. Discuss with the Contractor and formulate remedial measures 5. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review the 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 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analyzed noise problem 4. Check remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC 2. Implement noise mitigation proposals
Limit Level	<ol style="list-style-type: none"> 1. Notify IEC, ER, EPD and Contractor 2. Identify source. 3. Repeat measurements to confirm findings 4. Increase monitoring frequency. 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly 3. Supervise the implementation of remedial measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analyzed noise problem 4. Check remedial measures properly implemented. 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to 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 the ER until the exceedance is abated

Event and action Plan for Water Quality

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

Event and action Plan for Hydrological Characteristics

Event	ET Leader	IEC	ER	Contractor
ACTION LEVEL				
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> 1. Repeat in-situ measurements to confirm findings; 2. Identify reasons for non-compliance and source(s) of impact; 3. Inform IEC, Contractor and Engineer; 4. Check monitoring data, Contractor's working methods and any excavation works or dewatering processes; 5. Discuss mitigation measures with IEC, Engineer and Contractor; 6. Ensure mitigation measures are implemented. 7. Repeat measurement on next day of exceedance. 	<ol style="list-style-type: none"> 1. Discuss mitigation measures with ET, Engineer and Contractor; 2. Review proposals on mitigation measures submitted by Contractor and advise the Engineer accordingly; 3. Assess effectiveness of implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss proposed mitigation measures with IEC, ET and Contractor; 2. Make agreement on mitigation measures to be implemented; 3. Assess effectiveness of implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Inform Engineer and confirm in writing notification of the non-compliance; 2. Rectify unacceptable practice; 3. Check working methods and any excavation works or dewatering processes; 4. Consider changes in working methods and plans; 5. Discuss with ET, IEC and Engineer and propose mitigation measures to IEC and Engineer within three working days; 6. Implement agreed mitigation measures.
Action level being exceeded by more than two consecutive sampling days	<ol style="list-style-type: none"> 1. Repeat in-situ measurements to confirm findings; 2. Identify reasons for non-compliance and source(s) of impact; 3. Inform IEC, Contractor and Engineer; 4. Check monitoring data, Contractor's working methods and any excavation works or dewatering processes; 5. Discuss mitigation measures with IEC, Engineer 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. 	<ol style="list-style-type: none"> 1. Discuss mitigation measures with ET, Engineer and Contractor; 2. Review proposals on mitigation measures submitted by Contractor and advise the Engineer accordingly; 3. Assess effectiveness of implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss proposed mitigation measures with IEC, ET and Contractor; 2. Make agreement on mitigation measures to be implemented; 3. Assess effectiveness of implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Inform Engineer and confirm in writing notification of the non-compliance; 2. Rectify unacceptable practice; 3. Check working methods and any excavation works or dewatering processes; 4. Consider changes in working methods and plans; 5. Discuss with ET, IEC and Engineer and propose mitigation measures to IEC and Engineer within three working days; 6. Implement agreed mitigation measures
LIMIT LEVEL				
Limit level being exceeded by one sampling day	<ol style="list-style-type: none"> 1. Repeat in-situ measurements to confirm findings; 2. Identify reasons for non-compliance and source(s) of impact; 3. Inform AFCD, IEC, Contractor and Engineer; 4. Check monitoring data, and Contractor's working methods and any excavation works or dewatering processes; 5. Discuss mitigation measures with IEC, Engineer and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit level. 	<ol style="list-style-type: none"> 1. Discuss mitigation measures with ET, Engineer and Contractor; 2. Review proposals on mitigation measures submitted by Contractor and advise the Engineer accordingly; 3. Assess effectiveness of implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss proposed mitigation measures with IEC, ET and Contractor; 2. Request Contractor to critically review the working methods; 3. Make agreement on mitigation measures to be implemented; 4. Assess effectiveness of implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Inform Engineer and confirm in writing notification of the non-compliance; 2. Rectify unacceptable practice; 3. Check working methods and any excavation works or dewatering processes; 4. Consider changes in working methods and plans; 5. Discuss with ET, IEC and Engineer and propose mitigation measures to IEC and Engineer within three working days; 6. Implement agreed mitigation measures.
Limit level being exceeded by more than two consecutive sampling days	<ol style="list-style-type: none"> 1. Repeat in-situ measurements to confirm findings; 2. Identify reasons for non-compliance and source(s) of impact; 3. Inform AFCD, IEC, Contractor and Engineer; 4. Check monitoring data and Contractor's working methods and any excavation works or dewatering processes; 5. Discuss mitigation measures with IEC, Engineer 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. 	<ol style="list-style-type: none"> 1. Discuss mitigation measures with ET, Engineer and Contractor; 2. Review proposals on mitigation measures submitted by Contractor and advise the Engineer accordingly; 3. Assess effectiveness of implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss proposed mitigation measures with IEC, ET and Contractor; 2. Request Contractor to critically review the working methods; 3. Make agreement on mitigation measures to be implemented; 4. Assess effectiveness of implemented mitigation measures; 5. Consider and if necessary instruct Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit Level. 	<ol style="list-style-type: none"> 1. Inform Engineer and confirm in writing notification of the non-compliance; 2. Rectify unacceptable practice; 3. Check working methods and any excavation works or dewatering processes; 4. Consider changes in working methods and plans; 5. Discuss with ET, IEC and Engineer and propose mitigation measures to IEC and Engineer within three working days; 6. Implement agreed mitigation measures; 7. As directed by the Engineer, slow down or stop all or part of the construction activities until no exceedance of Limit level.

Appendix G

Monitoring Schedule in Reporting Period (July 2011) and Coming Month (August 2011)

Monitoring Schedule in this Reporting Period – July 2011

Date		Stream Monitoring		Noise Monitoring
		Water Sampling	Flow Monitoring	
Fri	1-July-11			
Sat	2-July-11			
Sun	3-July-11			
Mon	4-July-11			
Tue	5-July-11			
Wed	6-July-11			
Thu	7-July-11			
Fri	8-July-11			
Sat	9-July-11			
Sun	10-July-11			
Mon	11-July-11			
Tue	12-July-11			
Wed	13-July-11			
Thu	14-July-11			
Fri	15-July-11			
Sat	16-July-11			
Sun	17-July-11			
Mon	18-July-11			
Tue	19-July-11			
Wed	20-July-11	W3, W4	H3, H4	M2, M3, M4
Thu	21-July-11	W1, W2		M1, AL1
Fri	22-July-11	W3, W4		
Sat	23-July-11	W1, W2	H1, H2	
Sun	24-July-11			
Mon	25-July-11			
Tue	26-July-11	W1, W2, W3, W4		M2, M3, M4
Wed	27-July-11			
Thu	28-July-11	W1, W2, W3, W4	H3, H4	M1, AL1
Fri	29-July-11			
Sat	30-July-11	W1, W2, W3, W4	H1, H2	
Sun	31-July-11			

	Monitoring Day
	Sunday or Public Holiday

Monitoring Schedule in coming month – August 2011

Date		Stream Monitoring		Noise Monitoring
		Water Sampling	Flow Monitoring	
Mon	1-Aug-11	W3, W4		M2, M3, M4
Tue	2-Aug-11	W1, W2		
Wed	3-Aug-11	W3, W4	H3, H4	
Thu	4-Aug-11	W1, W2		
Fri	5-Aug-11			
Sat	6-Aug-11	W1, W2, W3, W4	H1, H2	M1, AL1
Sun	7-Aug-11			
Mon	8-Aug-11			
Tue	9-Aug-11	W1, W2		
Wed	10-Aug-11			
Thu	11-Aug-11	W1, W2, W3, W4	H3, H4	
Fri	12-Aug-11			
Sat	13-Aug-11	W1, W2, W3, W4	H1, H2	M1, AL1, M2, M3, M4
Sun	14-Aug-11			
Mon	15-Aug-11	W3, W4		
Tue	16-Aug-11	W1, W2		
Wed	17-Aug-11	W3, W4	H3, H4	
Thu	18-Aug-11	W1, W2		
Fri	19-Aug-11	W3, W4		M2, M3, M4
Sat	20-Aug-11	W1, W2	H1, H2	M1, AL1
Sun	21-Aug-11			
Mon	22-Aug-11			
Tue	23-Aug-11	W1, W2, W3, W4		M2, M3, M4
Wed	24-Aug-11			
Thu	25-Aug-11	W1, W2, W3, W4	H3, H4	
Fri	26-Aug-11			
Sat	27-Aug-11	W1, W2, W3, W4	H1, H2	M1, AL1
Sun	28-Aug-11			
Mon	29-Aug-11			
Tue	30-Aug-11	W1, W2, W3, W4		
Wed	31-Aug-11			

	Monitoring Day
	Sunday or Public Holiday

Appendix H

Meteorological Data of Reporting Period

Meteorological Data in Reporting Period

Date		Weather	Total Rainfall (mm)	Tai Po Station		Shatin Station	
				Mean Air Temp. (°C)	Mean Relative Humidity (%)	Wind Speed (km/h)	Wind Direction
20-Jul-11	Wed	Mainly cloudy with showers.	15.2	26.5	89.5	9.1	S/SW
21-Jul-11	Thu	Sunny intervals during the day.	0	28.6	74.5	10.5	SW
22-Jul-11	Fri	Mainly fine and very hot.	4.2	28.5	77.5	8.5	S/SW
23-Jul-11	Sat	Mainly cloudy with showers	0	29.7	74.5	9	S/SW
24-Jul-11	Sun	Moderate westerly winds	0	29.8	57.5	11.5	S/SW
25-Jul-11	Mon	Light to moderate southerly winds.	0	30	75	9.5	S/SW
26-Jul-11	Tue	Mainly fine and very hot.	0	29.7	74.5	11	E
27-Jul-11	Wed	Moderate westerly winds	Trace	29.7	73.7	14.5	E/SE
28-Jul-11	Thu	Cloudy with squally showers and thunderstorms.	Trace	29.3	75.2	10.9	E/NE
29-Jul-11	Fri	Cloudy with squally showers and a few thunderstorms	12.4	27.5	84	15	E/SE
30-Jul-11	Sat	Fine and hot. Light winds.	Trace	27.3	84.7	8.5	E/SE
31-Jul-11	Sun	Hot with sunny periods	0	28.5	74.5	7.5	E/SE

* The record was extracted from The Hong Kong Observatory Weather Stations

Appendix I

Data Base of Monitoring Results

DSD Contract No. DC/2010/02
 Contract No. - Drainage Improvement in Shuen Wan and Shek Wu Wai
 Water Quality Monitoring Results Data

AUES

Date		20-Jul-11									
Location	Time	Depth (m)	Temp (oC)	DO (mg/L)	DO (%)	Turbidity (NTU)	pH	SS(mg/L)			
W1 (impact)											
W2 (impact)											
W3 (control)	11:13	0.43	25.9 25.9	6.36 6.33	78.3 77.9	9.94 9.73	8.49 8.47	9 9		9.0	
W4 (impact)	11:20	0.29	25.7 25.7	6.68 6.65	82.0 81.6	6.72 6.84	7.92 7.94	2 2		2.0	

Date		21-Jul-11									
Location	Time	Depth (m)	Temp (oC)	DO (mg/L)	DO (%)	Turbidity (NTU)	pH	SS(mg/L)			
W1 (impact)	14:32	<1	28.1 28.1	8.41 8.41	108.0 108.0	9.9 9.9	7.02 7.02	3.2 3.2		3.2	
W2 (impact)	15:12	1.00	28.9 28.9	8.59 8.59	92.0 92.0	3.5 3.5	7.45 7.45	4 4		4.0	
W3 (control)											
W4 (impact)											

Date		22-Jul-11									
Location	Time	Depth (m)	Temp (oC)	DO (mg/L)	DO (%)	Turbidity (NTU)	pH	SS(mg/L)			
W1 (impact)											
W2 (impact)											
W3 (control)	14:08	0.40	28.2 28.0	6.50 6.59	83.5 84.2	2.41 2.45	8.14 8.06	<2 <2		2.0	
W4 (impact)	14:30	0.30	27.5 27.5	7.08 7.08	89.7 89.6	2.31 2.36	8.04 8.00	<2 <2		2.0	

DSD Contract No. DC/2010/02
 Contract No. - Drainage Improvement in Shuen Wan and Shek Wu Wai
 Water Quality Monitoring Results Data

AUES

Date		23-Jul-11												
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
W1 (impact)	16:53	<1	30.5	30.5	7	7.0	95.0	95.0	19.4	19.4	6.32	6.3	4.4	4.4
			30.5	30.5	7	7.0	95.0	95.0	19.4	19.4	6.32	6.3	4.4	4.4
W2 (impact)	16:59	<1	32.2	32.2	7.88	7.9	110.0	110.0	3	3.0	6.56	6.6	3.4	3.4
			32.2	32.2	7.88	7.9	110.0	110.0	3	3.0	6.56	6.6	3.4	3.4
W3 (control)														
W4 (impact)														

Date		26-Jul-11												
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
W1 (impact)	10:11	1.00	28.9	28.9	5.59	5.6	73.0	73.0	29.6	29.6	6.98	7.0	3.4	3.4
			28.9	28.9	5.59	5.6	73.0	73.0	29.6	29.6	6.98	7.0	3.4	3.4
W2 (impact)	09:46	1.00	29.2	29.2	5.62	5.6	50.0	50.0	38.2	38.2	6.24	6.2	4	4.0
			29.2	29.2	5.62	5.6	50.0	50.0	38.2	38.2	6.24	6.2	4	4.0
W3 (control)	14:37	0.44	29.3	29.4	7.13	7.3	78.8	81.1	4.73	4.8	7.9	7.9	2	2.0
			29.5	29.5	7.56	7.3	83.4	81.1	4.89	4.8	7.9	7.9	2	2.0
W4 (impact)	14:48	0.31	30.0	30.1	8.12	8.0	88.8	87.8	2.47	2.4	7.4	7.4	<2	2.0
			30.2	30.1	7.95	8.0	86.8	87.8	2.42	2.4	7.3	7.4	<2	2.0

Date		28-Jul-11												
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
W1 (impact)	11:20	<1	29.8	29.8	7.38	7.4	89.0	89.0	0	0.0	6.56	6.6	6.2	6.2
			29.8	29.8	7.38	7.4	89.0	89.0	0	0.0	6.56	6.6	6.2	6.2
W2 (impact)	10:45	<1	30.1	30.1	6.82	6.8	100.0	100.0	0	0.0	6.33	6.3	7	7.0
			30.1	30.1	6.82	6.8	100.0	100.0	0	0.0	6.33	6.3	7	7.0
W3 (control)	17:03	0.39	27.8	28.0	7.80	7.7	85.9	84.3	3.61	4.4	7.7	7.8	<2	2.0
			28.1	28.0	7.54	7.7	82.6	84.3	5.23	4.4	7.9	7.8	<2	2.0
W4 (impact)	17:15	0.30	29.1	28.8	7.81	8.0	86.4	88.5	2.97	3.0	7.5	7.7	<2	2.0
			28.5	28.8	8.17	8.0	90.6	88.5	3.04	3.0	7.8	7.7	<2	2.0

DSD Contract No. DC/2010/02
 Contract No. - Drainage Improvement in Shuen Wan and Shek Wu Wai
 Water Quality Monitoring Results Data

AUES

Date	30-Jul-11											
	Location	Time	Depth (m)	Temp (oC)	DO (mg/L)		DO (%)	Turbidity (NTU)		pH		SS(mg/L)
W1 (impact)	12:25	1.00	29	29.0	7.61	7.6	108.0	0	0.0	6.53	6.5	4.2
			29		7.61		108.0	0		6.53		4.2
W2 (impact)	12:00	1.00	28.7	28.7	6.89	6.9	119.0	0	0.0	6.24	6.2	6.2
			28.7		6.89		119.0	0		6.24		6.2
W3 (control)	16:12	0.39	28.2	28.3	7.62	7.4	84.3	4.71	4.9	8.0	8.1	<2
			28.4		7.22		79.7	5.18		8.1		<2
W4 (impact)	16:12	0.31	28.6	28.6	7.69	7.6	84.3	2.07	2.3	7.7	7.7	<2
			28.5		7.53		81.9	2.46		7.7		<2

Construction Noise Measurement Data

Designated Monitoring Station – M1 (14, Shuen Wan Chim Uk)

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} *
21-Jul-11	10:00	-	-	-	-	-	-	58.1
28-Jul-11	12:00	-	-	-	-	-	-	59.1
Limit Level								> 75 dB(A)

(*)The monitoring is undertaken under façade situation. No façade correction is added according to acoustical principles and EPD guidelines.

Designated Monitoring Station – AL1 (Joint Village Office for Villages in Shuen Wan, Tai PO)

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} *
21-Jul-11	10:45	-	-	-	-	-	-	62.0
28-Jul-11	12:30	-	-	-	-	-	-	57.0
Limit Level								> 75 dB(A)

(*)The monitoring is undertaken under façade situation. No façade correction is added according to acoustical principles and EPD guidelines.

Designated Monitoring Station - M2 (150, San Tau Kok)

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}
20-Jul-11	13:22	56.2	58.3	55.7	56.5	55.8	57.1	56.7	59.7
26-Jul-11	14:32	54.2	55.3	55.7	58.3	57.2	56.1	56.3	59.3
Limit Level								> 75 dB(A)	

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

Designated Monitoring Station – M3 (31, Wai Ha)

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}
20-Jul-11	11:24	56.3	54.4	57.1	54.7	56.3	58.1	56.3	59.3
26-Jul-11	13:05	52.3	53.7	57.4	50.6	52.1	51.4	53.6	56.6
Limit Level								> 75 dB(A)	

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

Designated Monitoring Station – M4 (Block 15, Treasure Spot Garden)

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}
20-Jul-11	14:00	51.2	53.1	53.0	52.7	53.4	53.2	52.8	55.8
26-Jul-11	13:43	47.3	47.3	46.0	50.1	51.4	50.0	49.1	52.1
Limit Level								> 75 dB(A)	

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

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Environmental Pioneers and Solutions Limited

Noise Monitoring Data Sheet

Monitoring Location		M1	AL1
Monitoring Method		Façade	Façade
Date of Monitoring		21/7/2011	21/7/2011
Weather Condition		Sunny	Sunny
Measurement Start Time (hh:mm)		10:00	10:45
Measurement Time Length (mins)		30 mins	
SLM Model & S/N		SVAN 949	
Wind Speed (m/s)		0.7	0.5
Measurement Results	L _{eq} (dB(A))	58.1	62.0
	L ₁₀ (dB(A))	66.8	64.9
	L ₉₀ (dB(A))	45.2	48.2
Major Construction Noise Source(s) During Monitoring		- Drilling	-Drilling
Other Noise Source(s) During Monitoring		- Background Noise - Traffic Noise	- Background Noise - Traffic Noise

Name

Signature

Date

Perpared by:

Alisun Lai



2011/07/21

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Environmental Pioneers and Solutions Limited

Noise Monitoring Data Sheet

Monitoring Location		M1	AL1
Monitoring Method		Façade	Façade
Date of Monitoring		28/7/2011	28/7/2011
Weather Condition		Cloudy	Cloudy
Measurement Start Time (hh:mm)		12:00	12:30
Measurement Time Length (mins)		30 mins	
SLM Model & S/N		SVAN 949	
Wind Speed (m/s)		1.2	0.5
Measurement Results	L _{eq} (dB(A))	59.1	57.0
	L ₁₀ (dB(A))	58.5	59.2
	L ₉₀ (dB(A))	51.8	47.7
Major Construction Noise Source(s) During Monitoring		The measured noise level was dominated by the background noise in the immediate vicinity of the monitoring location due to its large distance from the construction activities	The measured noise level was dominated by the background noise in the immediate vicinity of the monitoring location due to its large distance from the construction activities
Other Noise Source(s) During Monitoring		– Background Noise – Traffic Noise	– Background Noise – Traffic Noise


Name

Signature

Date

Prepared by:

Alisun Lai



2011/07/28

Hydrological Characteristic Monitoring Result for H1 and H2

Location	Position	Tide	Date**	Time	Weather	Water Depth (m)*	Water Flow (m/s)	Water Flow (m ³ /s)
H1	Mid	Flood	23 July, 2011	11:50	Sunny	~0.3	0.08	0.100
H2	Mid	Flood	23 July, 2011	12:15	Sunny	~0.5	0.12	0.754
H1	Mid	Ebb	23 July, 2011	16:45	Sunny	~0.3	0.10	0.125
H1	Mid	Ebb	30 July, 2011	12:20	Cloudy	~0.5	0.12	0.150
H2	Mid	Ebb	23 July, 2011	16:15	Sunny	~0.6	0.10	0.628
H2	Mid	Ebb	30 July, 2011	11:45	Cloudy	~0.5	0.24	1.507

* : Since the water levels were too low for the depth detector to determine, a tape measure was used for estimation.

** : Only one mid-tide is within working hours of construction activity at 2, 9, 16 and 30 July 2011



CERTIFICATE OF ANALYSIS

Client	: ACTION UNITED ENVIRO SERVICES	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 3
Contact	: MS JAN KWOK	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1116835
Address	: RM A 20/F., GOLDEN KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street Kwai Chung, N.T., Hong Kong		
E-mail	: Jankwok@fordbusiness.com	E-mail	: Godfrey.Chan@alsenviro.com	Date Samples Received	: 21-JUL-2011
Telephone	: +852 2959 6059	Telephone	: +852 2610 1044	Issue Date	: 27-JUL-2011
Facsimile	: +852 2959 6079	Facsimile	: +852 2610 2021	No. of samples received	: 2
Project	: TCS00553_10	Quote number	: HK/1291a/2009 **	No. of samples analysed	: 2
Order number	: ----				
C-O-C number	: H016589				
Site	: ----				

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific comments for Work Order: **HK1116835**

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

Water sample(s) analysed and reported on an as received basis.

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Signatories

Position

Authorised results for

Fung Lim Chee, Richard

General Manager

Inorganics

ALS Laboratory Group

Trading Name: ALS Technichem (HK) Pty Ltd

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong

Tel: +852 2610 1044 Fax: +852 2610 2021 www.alsenviro.com

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Analytical Results

Sub-Matrix: WATER

				Client sample ID	W3 - 1 & 2 MIX	W4 - 1 & 2 MIX			
				Client sampling date / time	[20-JUL-2011]	[20-JUL-2011]			
Compound	CAS Number	LOR	Unit	HK1116835-001	HK1116835-002				
EA/ED: Physical and Aggregate Properties									
EA025: Suspended Solids (SS)	----	2	mg/L	9	<2				



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1887120)								
HK1116830-005	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	22	23	0.0
HK1116852-005	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	7	7	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 1887120)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	91.0	----	85	115	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: ACTION UNITED ENVIRO SERVICES	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 3
Contact	: MS JAN KWOK	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1117254
Address	: RM A 20/F., GOLDEN KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street Kwai Chung, N.T., Hong Kong		
E-mail	: Jankwok@fordbusiness.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2959 6059	Telephone	: +852 2610 1044	Date Samples Received	: 26-JUL-2011
Facsimile	: +852 2959 6079	Facsimile	: +852 2610 2021	Issue Date	: 01-AUG-2011
Project	: TCS00553_10	Quote number	: HK/1291a/2009 **	No. of samples received	: 2
Order number	: ----			No. of samples analysed	: 2
C-O-C number	: H016602				
Site	: ----				

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific comments for Work Order: **HK1117254**

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

Water sample(s) analysed and reported on an as received basis.

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Signatories

Position

Authorised results for

Fung Lim Chee, Richard

General Manager

Inorganics

ALS Laboratory Group

Trading Name: **ALS Technichem (HK) Pty Ltd**

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong

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Analytical Results

Sub-Matrix: WATER

				Client sample ID	553 - W3 - 1 & 2 MIX	553 - W4 - 1 & 2 MIX			
				Client sampling date / time	[22-JUL-2011]	[22-JUL-2011]			
Compound	CAS Number	LOR	Unit	HK1117254-001	HK1117254-002				
EA/ED: Physical and Aggregate Properties									
EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2				



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1892951)								
HK1117103-006	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	33	30	7.8
HK1117104-008	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	43	44	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 1892951)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	103	----	85	115	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: ACTION UNITED ENVIRO SERVICES	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 3
Contact	: MS JAN KWOK	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1117402
Address	: RM A 20/F., GOLDEN KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street Kwai Chung, N.T., Hong Kong		
E-mail	: Jankwok@fordbusiness.com	E-mail	: Godfrey.Chan@alsenviro.com		
Telephone	: +852 2959 6059	Telephone	: +852 2610 1044	Date Samples Received	: 27-JUL-2011
Facsimile	: +852 2959 6079	Facsimile	: +852 2610 2021	Issue Date	: 03-AUG-2011
Project	: TCS00553_10	Quote number	: HK/1291a/2009 **	No. of samples received	: 2
Order number	: ----			No. of samples analysed	: 2
C-O-C number	: H016609				
Site	: ----				

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 01-AUG-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific comments for Work Order: **HK1117402**

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

Water sample(s) analysed and reported on an as received basis.

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Signatories

Position

Authorised results for

Fung Lim Chee, Richard

General Manager

Inorganics

ALS Laboratory Group

Trading Name: **ALS Technichem (HK) Pty Ltd**

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong

Tel: +852 2610 1044 Fax: +852 2610 2021 www.alsenviro.com

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Analytical Results

Sub-Matrix: WATER

				Client sample ID	W3 - 1 & 2 MIX	W4 - 1 & 2 MIX			
				Client sampling date / time	[26-JUL-2011]	[26-JUL-2011]			
Compound	CAS Number	LOR	Unit	HK1117402-001	HK1117402-002				
EA/ED: Physical and Aggregate Properties									
EA025: Suspended Solids (SS)	----	2	mg/L	2	<2				



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1894804)								
HK1117398-011	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	3	3	0.0
HK1117440-001	Anonymous	EA025: Suspended Solids (SS)	----	2.0	mg/L	<2.0	<2.0	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 1894804)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	92.0	----	85	115	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: ACTION UNITED ENVIRO SERVICES	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 3
Contact	: MS JAN KWOK	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1117883
Address	: RM A 20/F., GOLDEN KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Jankwok@fordbusiness.com	E-mail	: Godfrey.Chan@alsglobal.com		
Telephone	: +852 2959 6059	Telephone	: +852 2610 1044	Date Samples Received	: 01-AUG-2011
Facsimile	: +852 2959 6079	Facsimile	: +852 2610 2021	Issue Date	: 05-AUG-2011
Project	: TCS00553_10	Quote number	: HK/1291a/2009 **	No. of samples received	: 2
Order number	: ----			No. of samples analysed	: 2
C-O-C number	: H016617				
Site	: NORTH DISTRICT				

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific comments for Work Order: **HK1117883**

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

Water sample(s) analysed and reported on an as received basis.

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Signatories

Position

Authorised results for

Fung Lim Chee, Richard

General Manager

Inorganics

ALS Laboratory Group

Trading Name: **ALS Technichem (HK) Pty Ltd**

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong

Tel: +852 2610 1044 Fax: +852 2610 2021 www.alsenviro.com

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Analytical Results

Sub-Matrix: WATER

				Client sample ID	W3 - 1 & 2 MIX	W4 - 1 & 2 MIX			
				Client sampling date / time	[28-JUL-2011]	[28-JUL-2011]			
Compound	CAS Number	LOR	Unit	HK1117883-001	HK1117883-002				
EA/ED: Physical and Aggregate Properties									
EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2				



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1898319)								
HK1117882-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.0
HK1117884-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	12	11	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 1898319)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	114	----	85	115	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: ACTION UNITED ENVIRO SERVICES	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 3
Contact	: MS JAN KWOK	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1118189
Address	: RM A 20/F., GOLDEN KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Jankwok@fordbusiness.com	E-mail	: Godfrey.Chan@alsglobal.com		
Telephone	: +852 2959 6059	Telephone	: +852 2610 1044	Date Samples Received	: 03-AUG-2011
Facsimile	: +852 2959 6079	Facsimile	: +852 2610 2021	Issue Date	: 09-AUG-2011
Project	: TCS00553_11	Quote number	: HK/1291a/2009 **	No. of samples received	: 4
Order number	: ----			No. of samples analysed	: 4
C-O-C number	: H016625				
Site	: ----				

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 05-AUG-2011

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific comments for Work Order: **HK1118189**

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

Water sample(s) analysed and reported on an as received basis.

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Signatories

Position

Authorised results for

Fung Lim Chee, Richard

General Manager

Inorganics

ALS Laboratory Group

Trading Name: **ALS Technichem (HK) Pty Ltd**

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong

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Analytical Results

Sub-Matrix: WATER

				Client sample ID	W3 - 1 & 2 MIX	W4 - 1 & 2 MIX	W3 - 1 & 2 MIX	W4 - 1 & 2 MIX	
				Client sampling date / time	[30-JUL-2011]	[30-JUL-2011]	[01-AUG-2011]	[01-AUG-2011]	
Compound	CAS Number	LOR	Unit		HK1118189-001	HK1118189-002	HK1118189-003	HK1118189-004	
EA/ED: Physical and Aggregate Properties									
EA025: Suspended Solids (SS)	----	2	mg/L		<2	<2	<2	<2	



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1901033)								
HK1118175-007	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.0
HK1118181-005	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	8	7	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 1901033)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	85.5	----	85	115	----	----

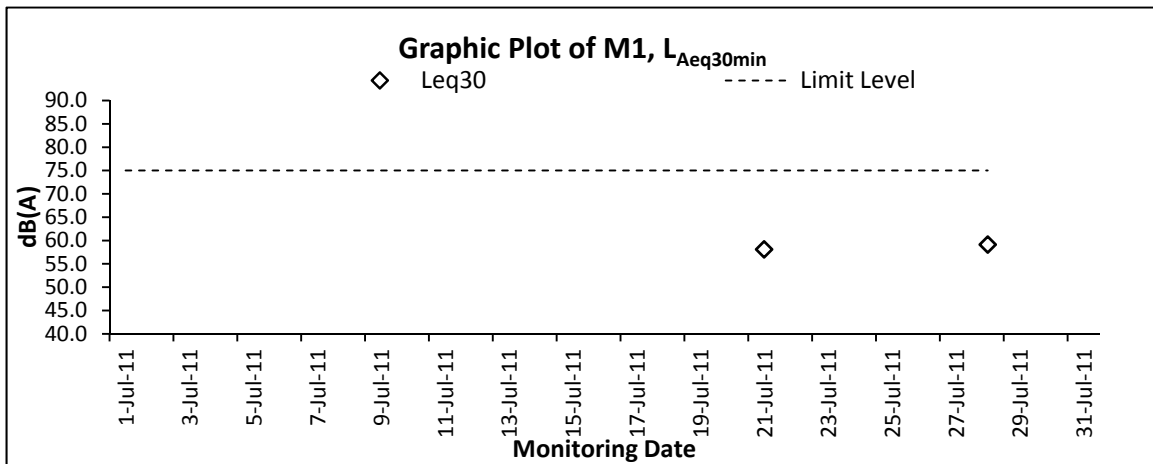
Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

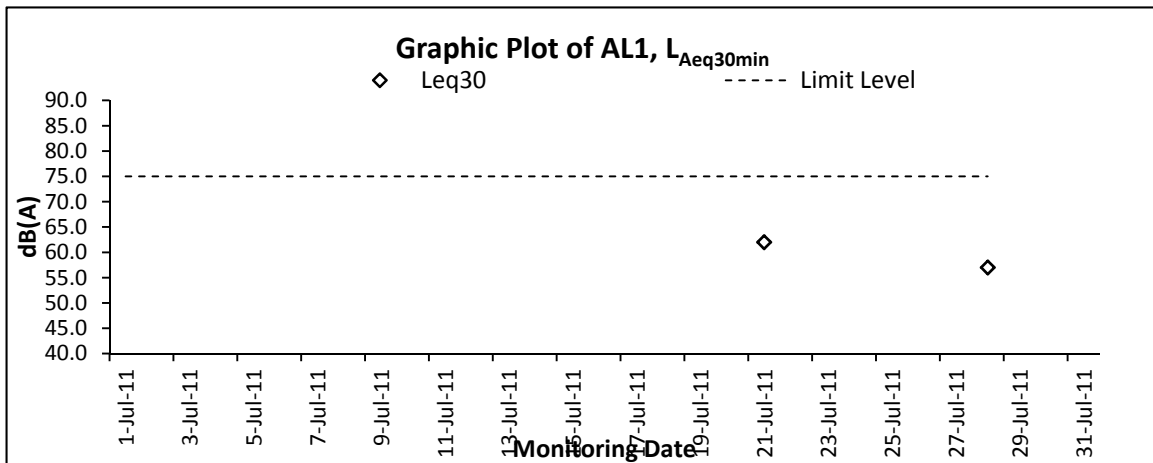
Appendix J

Graphical Plots of Impact Monitoring – Noise, Water Quality and Hydrological Characteristics

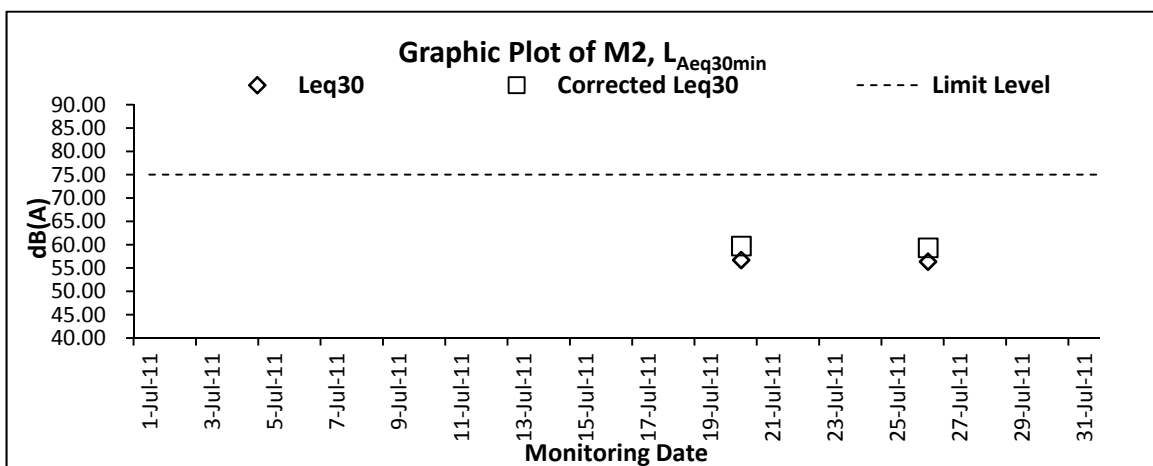
Graphic Plot – Construction Noise



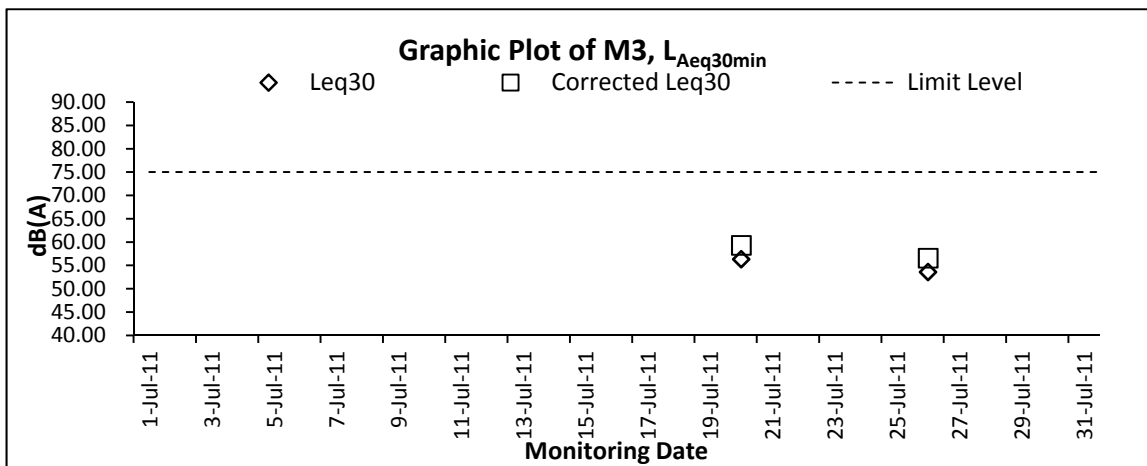
Remark: The monitoring is undertaken under façade situation. No façade correction is added according to acoustical principles and EPD guidelines.



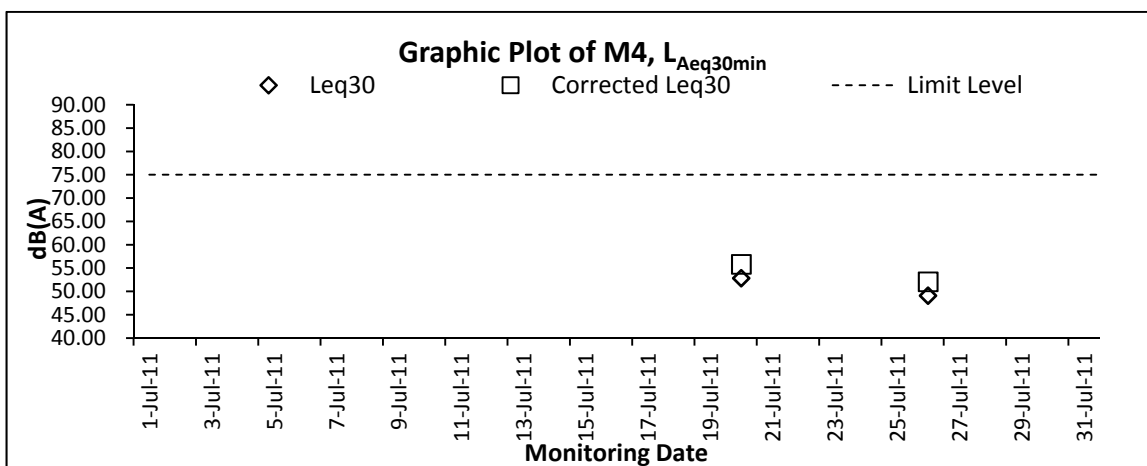
Remark: The monitoring is undertaken under façade situation. No façade correction is added according to acoustical principles and EPD guidelines.



Remark: The monitoring is undertaken under free field situation. A façade correction of +3 dB(A) has been added according to acoustical principles and EPD guidelines

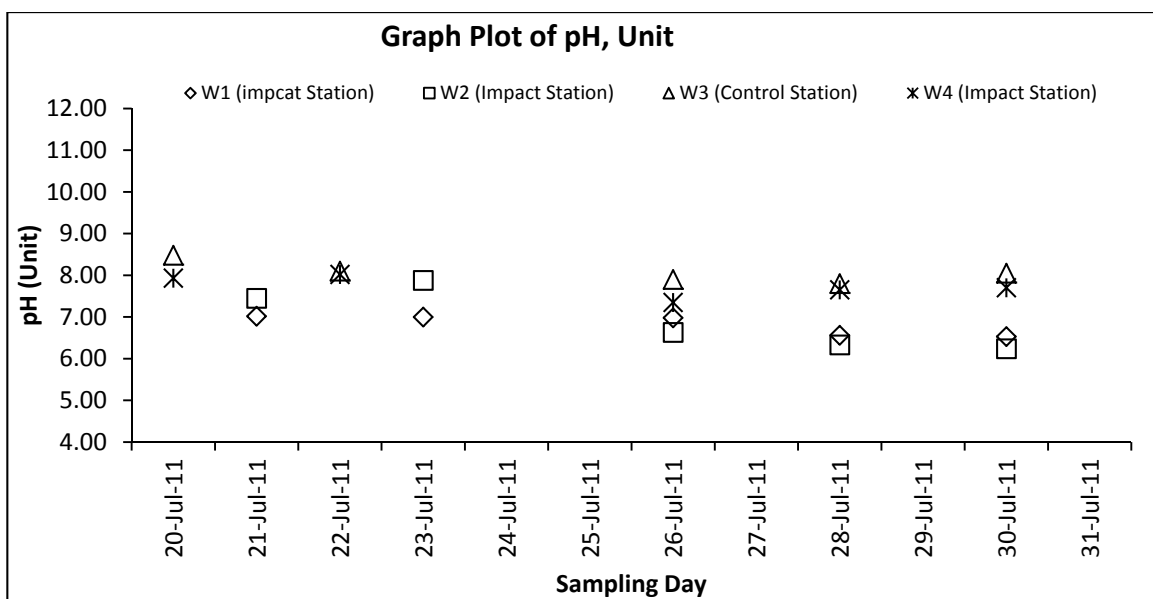
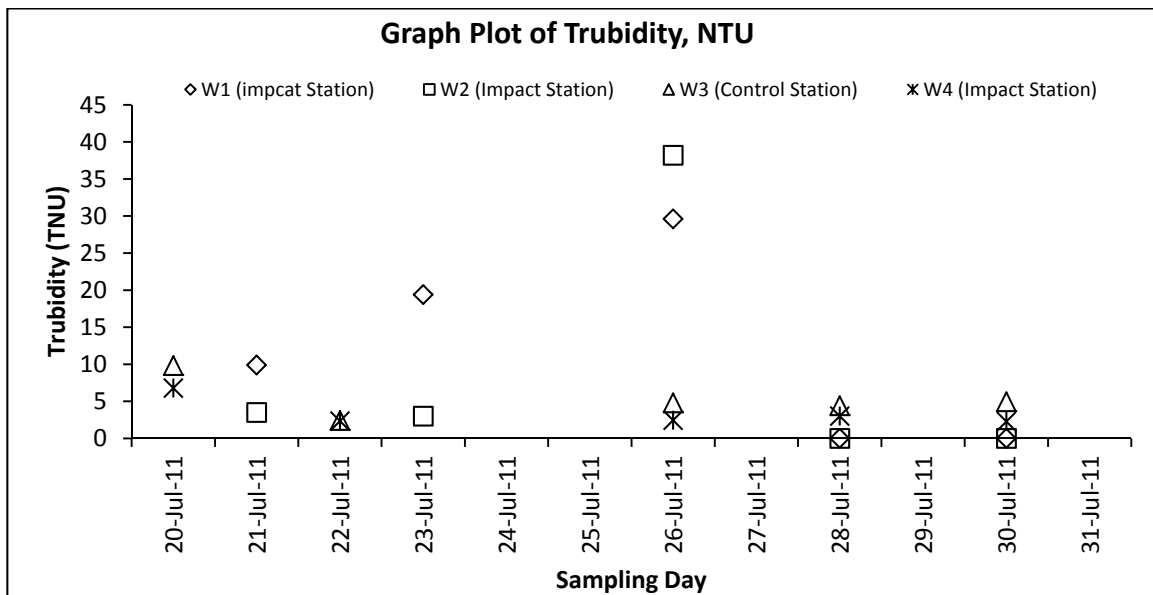
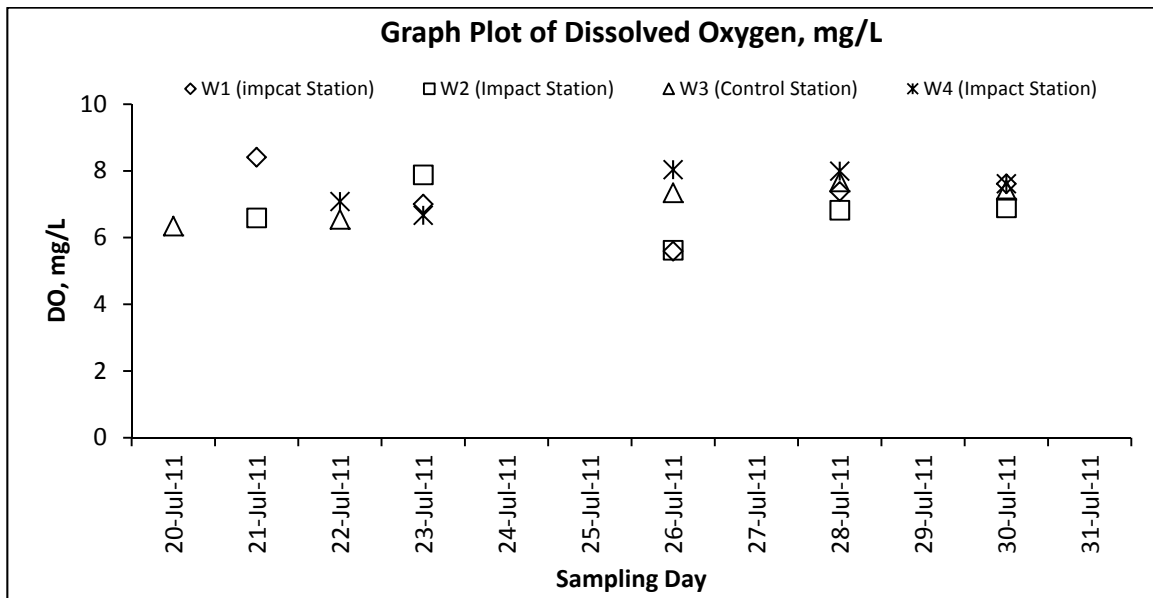


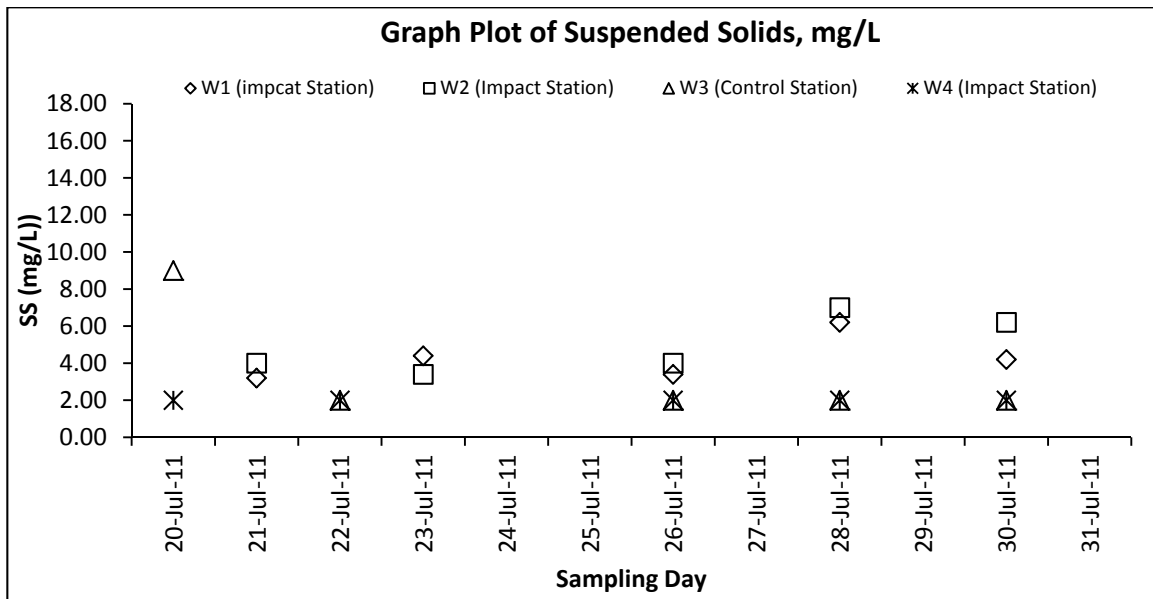
Remark: The monitoring is undertaken under free field situation. A façade correction of +3 dB(A) has been added according to acoustical principles and EPD guidelines



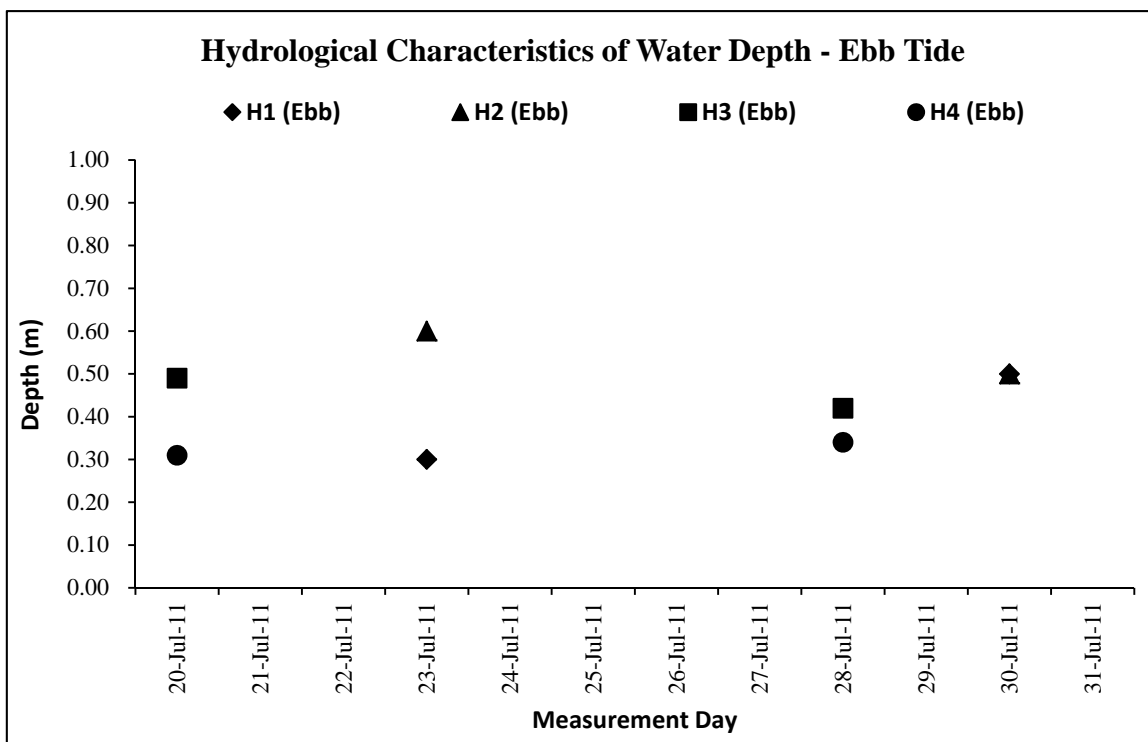
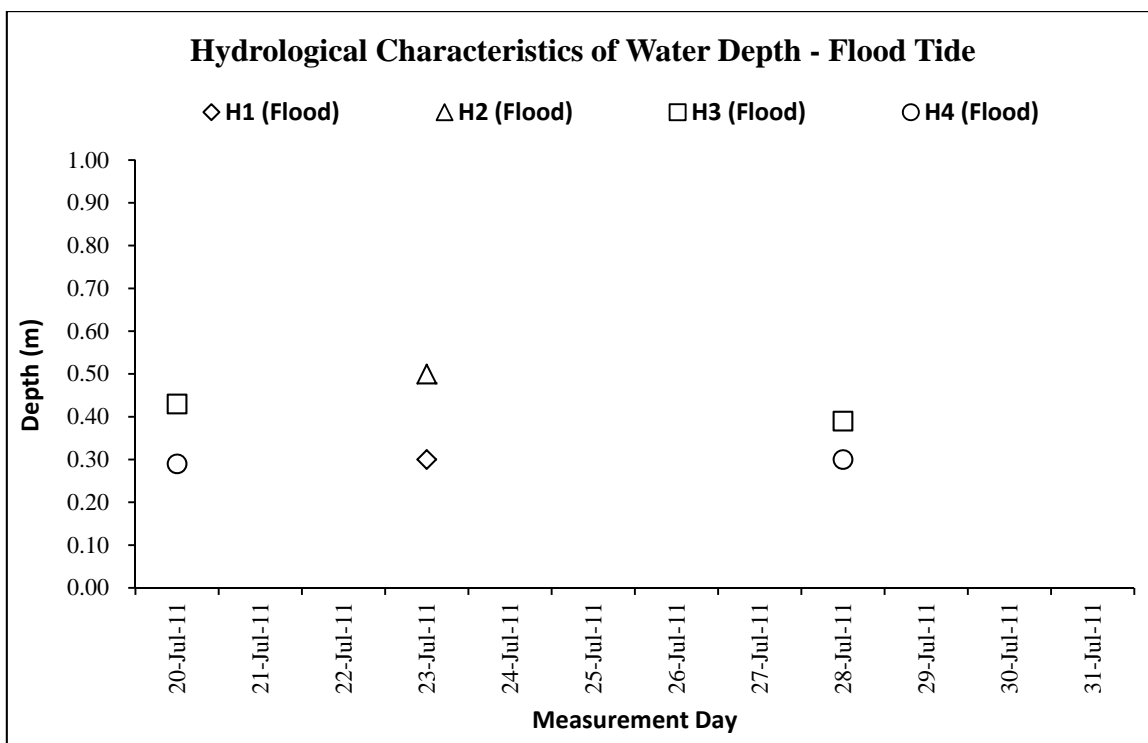
Remark: The monitoring is undertaken under free field situation. A façade correction of +3 dB(A) has been added according to acoustical principles and EPD guidelines

Graphic Plot – Water Quality

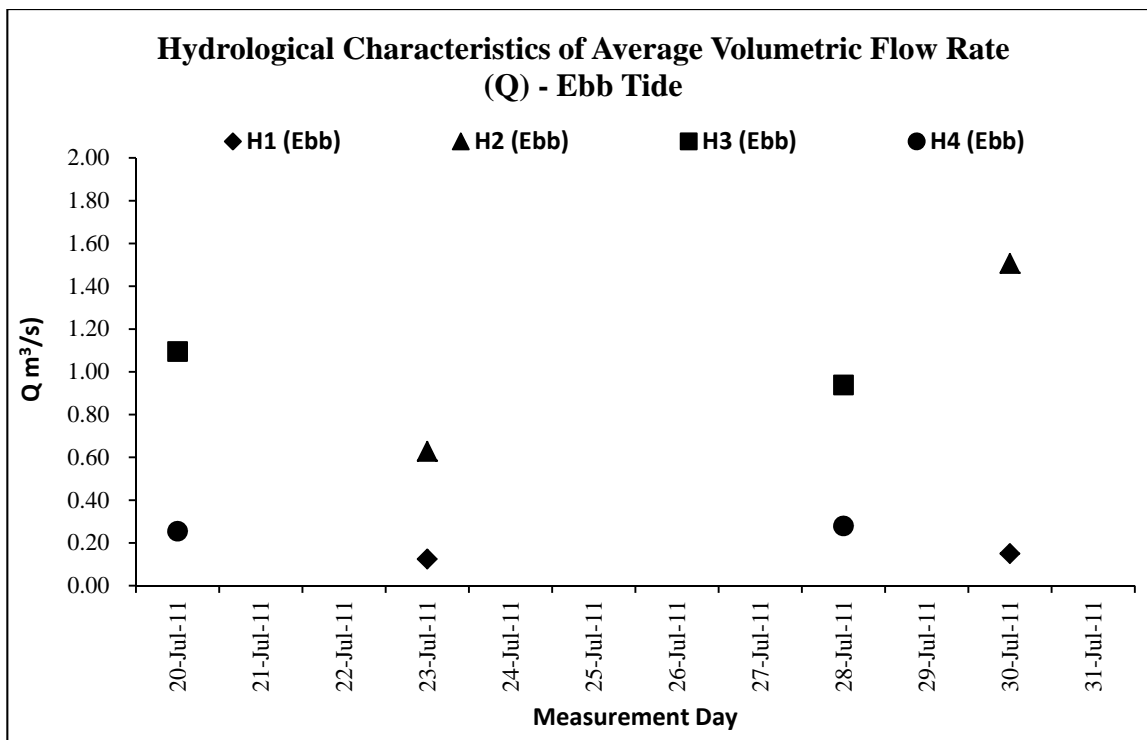
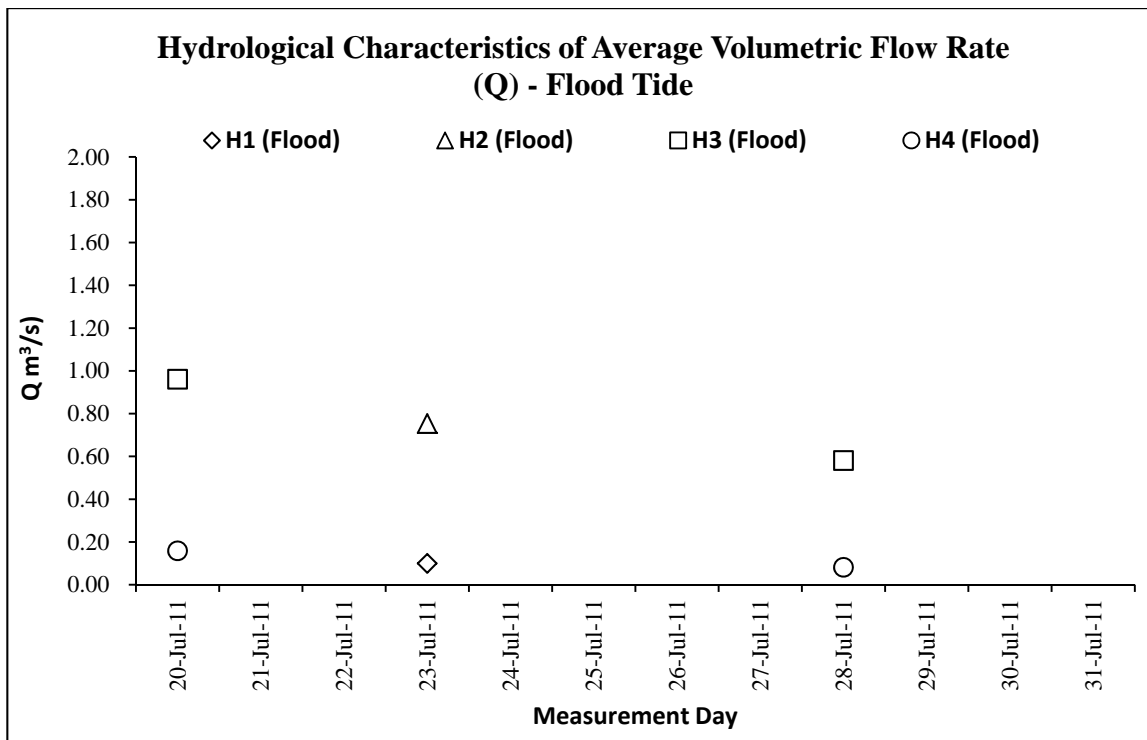




Graphic Plot – Hydrological Characteristics (Water Depth)



Graphic Plot – Hydrological Characteristics (Water Flow Rate)



Appendix K

Monthly Summary Waste Flow Table

Monthly Summary Waste Flow Table for 2011 (Year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly							Actual Quantities of C&D Wastes Generated Monthly					
	Total Quantity Generated (in '000m ³)	Hard Rock and Large Broken Concrete (in '000m ³)	Reused in the Contract (in '000m ³)	Reused in other Projects (in '000m ³)	Disposed as Public Fill (in '000m ³)	Imported Fill (in '000m ³)	Metals (in '000 kg)	Paper/ cardboard packaging (in '000kg)	Plastics (see Note 3) (in '000kg)	Chemical Waste (in '000kg)	Others, e.g. general refuse (in '000m ³)		
Apr	Nil	-	-	-	-	-	-	-	-	-	-		
May	Nil	-	-	-	-	-	-	-	-	-	-		
June	Nil	-	-	-	-	-	-	-	-	-	-		
July	Nil	-	-	-	-	-	-	-	-	-	-		
Sub-total	Nil	-	-	-	-	-	-	-	-	-	-		
Aug													
Sept													
Oct													
Nov													
Dec													
Total													
Forecast of Total Quantities of C&D Materials to be Generated from the Contract*													
Total Quantity Generated (in '000m ³)	Hard Rock and Large Broken Concrete (in '000m ³)	Reused in the Contract (in '000m ³)	Reused in other Projects (in '000m ³)	Disposed as Public Fill (in '000m ³)	Imported Fill (in '000m ³)	Metals (in '000 kg)	Paper/ cardboard packaging (in '000kg)	Plastics (see Note 3) (in '000kg)	Chemical Waste (in '000kg)	Others, e.g. general refuse (in '000m ³)			
23	1	10	0	10	2	5	2	1	1	3			

Notes:

- (1) The performance targets are given in ETWB Technical Circular PS Clause 6(14).
 - (2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
 - (4) The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000 m³. (ETWB Technical Circular PS Clause 5(4)(b) refers).
- [Delete Note (4) and the table above on the forecast, where inapplicable].

Appendix L

Inspection and Auditing Checklist

Environmental Site Inspection Checklist

Project: DSD Contract No. DC/2010/02
Drainage Improvement in Shuen Wan and Shek Wu Wai
Inspection Tung Tsz Road, Shuen Wan
Date: 19 July 2011
Time: 15:00

Inspected by _____
IEC/IEC's Representative: Justin Ye
RE/RE's Representative: Ronald Siu / Tso Si-on
ETL/ ET's Representative: T.W. Tam
EO/EO's Representative: Zenki Wong
Contractor's Representative: Chan Wing Kai / Tommy Mok

Checklist No. 072011-01

PART A:

GENERAL INFORMATION

Environmental Permit No.

Weather: Sunny Fine Cloudy Rainy Calm **EP-303/2008**

Temperature: °C

Humidity: High Moderate Low **N/A**

Wind: Strong Breeze Light

Area Inspected

1. Box Culvert Bay 20 - 22
- 2.
- 3.

PART B:

SITE AUDIT

Note: Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
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Section 1: Water Quality

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

Environmental Site Inspection Checklist

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

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

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5.03	Are surgery works carried out for the damaged trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 6: Ecology							
6.01	Gabion banks and base had been provide for channel linings and banks for typical sections of work area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
6.02	Prevent site effluent/runoff discharge to the seasonal wetlands at Wai Ha River?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.03	Stockpiling or disposal of materials, and any dredging or construction activities at the seasonal wetlands at Wai Ha River are prohibited?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 7: Others							
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Remarks

The construction work at Shuen Wan is planned to be commencement on 20 July 2011. Hence, the working site is overall acceptable. No any non-compliance or deficiency was observed during site inspection. Housekeeping as reminded to properly maintain regular.

IEC's representative

RE's representative

ET's representative

EO's representative

Contractor's representative



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(T.W. Tam)

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Kwan Lee - Kuly JV

Drainage Services Department

Contract No. DC/2010/02

Contract Title: Drainage Improvement Works in Shuen Wan and Shek Wu Wai

Weekly Environmental Walk (No. 007)

Environmental Inspection Checklist

Date of Inspection 6 July 2011

Time 9:00

Weather: : Sunny/Fine/Overcast/Drizzle/Rain/Storm/Hazy

Temperature: 32 °C

Wind: Calm/Light/Breeze/Strong

Humidity: High/Moderate/Low

Locations: a. SHEK WU WAI
b. TUNG TSZ ROAD
c. Area B

d. Area A

Person(s) making the inspection:

<u>Name in Block Letters</u>	<u>Designation</u>	<u>Organisation</u>
<u>LI CHI KEUNG</u>	<u>IOW</u>	<u>DSD</u>
<u>HO WING CHEONG</u>	<u>AIOW</u>	<u>DSD</u>
<u>WONG KA WAI</u>	<u>WSII</u>	<u>DSD</u>
<u>MOK CHU HUNG, TOMMY</u>	<u>SITE AGENT</u>	<u>KLKJV</u>
<u>ZENKI WONG</u>	<u>EO</u>	<u>KLKJV</u>
<u>CHEUNG KAM FAI</u>	<u>FOREMAN</u>	<u>KLKJV</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

	YES	NO	N/A	REMARK
1. GENERAL				
a. Environmental Permit (EP) copy at site entrance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. Environmental posters/notices at place of work	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c. Site kept clean and tidy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d. Engine shut off when not in use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e. Proper maintenance of site plant and equipment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f. Other: Please specify	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. AIR POLLUTION				
a. Site Perimeter Hoardings provided as required	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. Haul Road paved or kept wet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c. Water spraying during loading and unloading of dusty material	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d. Exposed stockpile & dusty materials in storage wetted or covered by tarpaulin as required	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e. Dust suppression measures taken and/or dust Screen erected for dusty site activities	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f. Wheel washing bays provided at site vehicle exits and maintained in good working order	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
g. Vehicle wheels washed before leaving site	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
h. Dump trucks fitted with mechanical tarpaulin cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
i. Dusty loads on vehicles covered by tarpaulin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
j. Vehicle speed control (8KM/hr) on site	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
k. Black smoke emission control from site plant	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
l. No opening burning of debris on site	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
m. Use of Ultra Low Sulphur Diesel (ULSD) for constructional plant and equipment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
n. Other: Please specify	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. WATER POLLUTION				
a. Tightly sealed closed grab excavator used for river channel excavation works	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. River excavation works sections by sections as required	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c. Splashing of sediment avoided during transfer	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d. Floating debris in river cleared	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e. Leakage from plant & vessel avoided	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f. Wheel washing bay desilted regularly	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
g. Temporary drainage diversion provided as required	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
h. Site run-off towards silt traps	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
i. Silt traps & drainages cleared Sand bags provided at site entrance and around road gullies as necessary	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
j. Water Discharge License applied as necessary	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
k. Wastewater treated as required	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	YES	NO	N/A	REMARK
l. Treated effluent reused and recycled	()	()	(✓)	
m. Chemical toilets provided as necessary	()	()	(✓)	
n. Heavy Rainstorm Response Procedure displayed	(✓)	()	()	
o. Other: Please specify	()	()	(✓)	
4. NOISE POLLUTION				
a. Temporary noise barriers installed at designated locations as required in EP	()	()	(✓)	
b. Noisy plant and equipment sited away from noisy sensitive receiver as possible	()	()	(✓)	
c. Air Compressors and portable percussive breakers with Noise Emission Labels	()	()	(✓)	
d. Pneumatic percussive breakers fitted with sound mufflers	()	()	(✓)	
e. Engine flap covers kept closed of construction plant during operations	()	()	(✓)	
Excavator breaker tip wrapped with sound insulating material for breaking work				
f. Noise baffles/screens to noisy machines/site activities as necessary	()	()	(✓)	
g. Valid Construction Noise Permits (CNP) for works in restricted hours	()	()	(✓)	
h. Full compliance with CNP conditions	()	()	(✓)	
i. Other: Please specify	()	()	(✓)	
5. RESOURCES MANAGEMENT				
a. Site Perimeter Hoardings made of metal	()	()	(✓)	
b. Restricted use of hardwood in formwork	()	()	(✓)	
c. Low VOC or water based paint selected as possible	()	()	(✓)	
d. Approved larvicide/insecticide for mosquito control work	(✓)	()	()	
e. Designated material storage containers/areas	(✓)	()	()	
f. Proper storage of materials	(✓)	()	()	
g. Other: Please specify	()	()	(✓)	
6. WASTE MANAGEMENT				
a. Designated area for sorting and temporary storage of C & D materials on site	(✓)	()	()	
b. Proper sorting of inert and non-inert materials	(✓)	()	()	
c. Recycle bins for recycling of different materials	(✓)	()	()	
d. Rubbish bins for general rubbish	(✓)	()	()	
e. Measures taken to avoid cross contamination of different wastes	(✓)	()	()	
f. Disposed of regularly to avoid excessive accumulation	(✓)	()	()	
g. Trip tickets and EPD chits duly completed and used in C & D waste disposal	()	()	(✓)	
h. Registration as Chemical Waste Producer as required	()	()	(✓)	
i. Chemical wastes properly labeled and packaged	()	()	(✓)	
j. Chemical wastes pending collection stored properly to avoid leakage	()	()	(✓)	
Used trip tickets kept for chemical waste disposal				
k. Proper handling of contaminated soil samples in land contamination investigation work	()	()	(✓)	
l. Proper storage of contaminated soil samples in land contamination investigation work	()	()	(✓)	
m. Other: Please specify	()	()	(✓)	
7. CHEMICALS MANAGEMENT				
a. Dangerous Goods kept below exempted quantities on site or otherwise suitable DG store provided	()	()	(✓)	
b. Proper containers for carrying plant fuel or site chemicals	(✓)	()	()	
c. Containers carrying plant fuel or site chemicals with suitable chemical labels	(✓)	()	()	
d. Fuel drums and containers carrying site chemicals kept closed when not in use	()	()	(✓)	
e. Chemicals stored in dry, cool and sheltered place	()	()	(✓)	
f. No smoking/ignition source notice displayed near fuel/chemical storage area	(✓)	()	()	
g. Suitable fire extinguishers put aside for ready use	(✓)	()	()	
h. Chemicals kept away from plant fuel	()	()	(✓)	
i. Containers carrying plant fuel or site chemicals placed on drip trays or otherwise store area suitably bunded	()	()	(✓)	
Emergency spillage procedure posted	()	()	(✓)	
j. Others: Please specify	()	()	(✓)	

YES NO N/A REMARK

8 OTHERS

- a. Existing trees and vegetation maintained and protected as required (✓) () ()
- b. Materials & Plant kept way from existing trees and vegetation (✓) () ()
- c. Target fauna species re-located and protected as required () () (✓)
- d. Topsoil conserved and re-use in landscape works () () (✓)
- e. Night-time lighting controlled to minimize glare () () (✓)
- f. Others: Please specify () () (✓)

9. OTHER COMMENTS

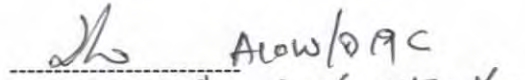
- a. _____
- b. _____
- c. _____

Signed By



Name: ZENKI WONG
Environmental Officer

Signed By



Name & Title: *Ho Wing Chan*
Engineer's Nominated Site Representative

Kwan Lee - Kuly JV

Drainage Services Department

Contract No. DC/2010/02

Contract Title: Drainage Improvement Works in Shuen Wan and Shek Wu Wai

Weekly Environmental Walk (No. 008)

Environmental Inspection Checklist

Date of Inspection 13 July 2011

Time 9:30

Weather: : Sunny/Fine/Overcast/Drizzle/Rain/Storm/Hazy

Temperature: 27 °C

Wind: Calm/Light/Breeze/Strong

Humidity: High/Moderate/Low

Locations: a. SHEK WU WAI
b. TUNG TSZ ROAD
c. Area 2

d. Area 1

Person(s) making the inspection:

<u>Name in Block Letters</u>	<u>Designation</u>	<u>Organisation</u>
<u>LI CHI KEUNG</u>	<u>IOW</u>	<u>DSD</u>
<u>HO WING CHEONG</u>	<u>AIOW</u>	<u>DSD</u>
<u>WONG KA WAI</u>	<u>WSII</u>	<u>DSD</u>
<u>MOK CHU HUNG, TOMMY</u>	<u>SITE AGENT</u>	<u>KLKJV</u>
<u>ZENKI WONG</u>	<u>EO</u>	<u>KLKJV</u>
<u>CHEUNG KAM FAI</u>	<u>FOREMAN</u>	<u>KLKJV</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

	YES	NO	N/A	REMARK
1. GENERAL				
a. Environmental Permit (EP) copy at site entrance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. Environmental posters/notices at place of work	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c. Site kept clean and tidy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d. Engine shut off when not in use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e. Proper maintenance of site plant and equipment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f. Other: Please specify	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. AIR POLLUTION				
a. Site Perimeter Hoardings provided as required	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. Haul Road paved or kept wet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c. Water spraying during loading and unloading of dusty material	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d. Exposed stockpile & dusty materials in storage wetted or covered by tarpaulin as required	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e. Dust suppression measures taken and/or dust Screen erected for dusty site activities	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f. Wheel washing bays provided at site vehicle exits and maintained in good working order	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
g. Vehicle wheels washed before leaving site	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
h. Dump trucks fitted with mechanical tarpaulin cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
i. Dusty loads on vehicles covered by tarpaulin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
j. Vehicle speed control (8KM/hr) on site	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
k. Black smoke emission control from site plant	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
l. No opening burning of debris on site	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
m. Use of Ultra Low Sulphur Diesel (ULSD) for constructional plant and equipment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
n. Other: Please specify	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. WATER POLLUTION				
a. Tightly sealed closed grab excavator used for river channel excavation works	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. River excavation works sections by sections as required	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c. Splashing of sediment avoided during transfer	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d. Floating debris in river cleared	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e. Leakage from plant & vessel avoided	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f. Wheel washing bay desilted regularly	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
g. Temporary drainage diversion provided as required	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
h. Site run-off towards silt traps	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
i. Silt traps & drainages cleared Sand bags provided at site entrance and around road gullies as necessary	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
j. Water Discharge License applied as necessary	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
k. Wastewater treated as required	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	YES	NO	N/A	REMARK
l. Treated effluent reused and recycled	()	()	(✓)	
m. Chemical toilets provided as necessary	()	()	(✓)	
n. Heavy Rainstorm Response Procedure displayed	(✓)	()	()	
o. Other: Please specify	()	()	(✓)	
4. NOISE POLLUTION				
a. Temporary noise barriers installed at designated locations as required in EP	()	()	(✓)	
b. Noisy plant and equipment sited away from noisy sensitive receiver as possible	()	()	(✓)	
c. Air Compressors and portable percussive breakers with Noise Emission Labels	()	()	(✓)	
d. Pneumatic percussive breakers fitted with sound mufflers	()	()	(✓)	
e. Engine flap covers kept closed of construction plant during operations	()	()	(✓)	
Excavator breaker tip wrapped with sound insulating material for breaking work				
f. Noise baffles/screens to noisy machines/site activities as necessary	()	()	(✓)	
g. Valid Construction Noise Permits (CNP) for works in restricted hours	()	()	(✓)	
h. Full compliance with CNP conditions	()	()	(✓)	
i. Other: Please specify	()	()	(✓)	
5. RESOURCES MANAGEMENT				
a. Site Perimeter Hoardings made of metal	()	()	(✓)	
b. Restricted use of hardwood in formwork	()	()	(✓)	
c. Low VOC or water based paint selected as possible	()	()	(✓)	
d. Approved larvicide/insecticide for mosquito control work	(✓)	()	()	
e. Designated material storage containers/areas	(✓)	()	()	
f. Proper storage of materials	(✓)	()	()	
g. Other: Please specify	()	()	(✓)	
6. WASTE MANAGEMENT				
a. Designated area for sorting and temporary storage of C & D materials on site	(✓)	()	()	
b. Proper sorting of inert and non-inert materials	(✓)	()	()	
c. Recycle bins for recycling of different materials	(✓)	()	()	
d. Rubbish bins for general rubbish	(✓)	()	()	
e. Measures taken to avoid cross contamination of different wastes	(✓)	()	()	
f. Disposed of regularly to avoid excessive accumulation	(✓)	()	()	
g. Trip tickets and EPD chits duly completed and used in C & D waste disposal	()	()	(✓)	
h. Registration as Chemical Waste Producer as required	()	()	(✓)	
i. Chemical wastes properly labeled and packaged	()	()	(✓)	
j. Chemical wastes pending collection stored properly to avoid leakage	()	()	(✓)	
Used trip tickets kept for chemical waste disposal				
k. Proper handling of contaminated soil samples in land contamination investigation work	()	()	(✓)	
l. Proper storage of contaminated soil samples in land contamination investigation work	()	()	(✓)	
m. Other: Please specify	()	()	(✓)	
7. CHEMICALS MANAGEMENT				
a. Dangerous Goods kept below exempted quantities on site or otherwise suitable DG store provided	()	()	(✓)	
b. Proper containers for carrying plant fuel or site chemicals	(✓)	()	()	
c. Containers carrying plant fuel or site chemicals with suitable chemical labels	(✓)	()	()	
d. Fuel drums and containers carrying site chemicals kept closed when not in use	()	()	(✓)	
e. Chemicals stored in dry, cool and sheltered place	()	()	(✓)	
f. No smoking/ignition source notice displayed near fuel/chemical storage area	(✓)	()	()	
g. Suitable fire extinguishers put aside for ready use	(✓)	()	()	
h. Chemicals kept away from plant fuel	()	()	(✓)	
i. Containers carrying plant fuel or site chemicals placed on drip trays or otherwise store area suitably bunded	()	()	(✓)	
Emergency spillage procedure posted	()	()	(✓)	
j. Others: Please specify	()	()	(✓)	

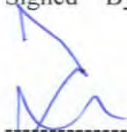
8 OTHERS

- | | | | | |
|---|-------------------------------------|--------------------------|-------------------------------------|--|
| a. Existing trees and vegetation maintained and protected as required | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| b. Materials & Plant kept away from existing trees and vegetation | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| c. Target fauna species re-located and protected as required | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| d. Topsoil conserved and re-use in landscape works | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| e. Night-time lighting controlled to minimize glare | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| f. Others: Please specify | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |

9. OTHER COMMENTS

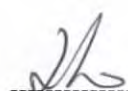
- a. _____
 b. _____
 c. _____

Signed By



Name: ZENKI WONG
 Environmental Officer

Signed By



ALOW/D19

Name & Title: HO WING CHEUNG
 Engineer's Nominated Site Representative

Kwan Lee - Kuly JV

Drainage Services Department

Contract No. DC/2010/02

Contract Title: Drainage Improvement Works in Shuen Wan and Shek Wu Wai

Weekly Environmental Walk (No. 009)

Environmental Inspection Checklist

Date of Inspection: 19 July 2011

Time 16:00

Weather: : Sunny/Fine/Overcast/Drizzle/Rain/Storm/Hazy

Temperature: 28 °C

Wind: Calm/Light/Breeze/Strong

Humidity: High/Moderate/Low

Locations: a. SHEK WU WAI
b. TUNG TSZ ROAD
c. Area 2

d. Area 1

Person(s) making the inspection:

Name in Block Letters	Designation	Organisation
SIU WAI CHUNG	ER	DSD
YIP WAI LUN	ER	DSD
TSO SI ON	SLOW	DSD
LI CHI KEUNG	IOW	DSD
LAU SIU CHUEN	WSI	DSD
WONG KA WAI	WSII	DSD
MOK CHU HUNG, TOMMY	SITE AGENT	KLKJV
ZENKI WONG	EO	KLKJV
CHAN HIU SHAN	ES	KLKJV
LAM CHUEN LAM	FOREMAN	KLKJV
T.W. TAM	E.T. LEADER	AUES
<u>JUSTIN YE</u>	IEC	ENVIRON

	YES	NO	N/A	REMARK
1 GENERAL				
a. Environmental Permit (EP) copy at site entrance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. Environmental posters/notices at place of work	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c. Site kept clean and tidy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d. Engine shut off when not in use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e. Proper maintenance of site plant and equipment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f. Other: Please specify	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. AIR POLLUTION				
a. Site Perimeter Hoardings provided as required	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. Haul Road paved or kept wet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c. Water spraying during loading and unloading of dusty material	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d. Exposed stockpile & dusty materials in storage wetted or covered by tarpaulin as required	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e. Dust suppression measures taken and/or dust Screen erected for dusty site activities	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f. Wheel washing bays provided at site vehicle exits and maintained in good working order	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
g. Vehicle wheels washed before leaving site	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
h. Dump trucks fitted with mechanical tarpaulin cover	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
i. Dusty loads on vehicles covered by tarpaulin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
j. Vehicle speed control (8KM/hr) on site	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
k. Black smoke emission control from site plant	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
l. No opening burning of debris on site	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
m. Use of Ultra Low Sulphur Diesel (ULSD) for constructional plant and equipment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
n. Other: Please specify	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3 WATER POLLUTION				
a. Tightly sealed closed grab excavator used for river channel excavation works	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. River excavation works sections by sections as required	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c. Splashing of sediment avoided during transfer	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d. Floating debris in river cleared	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e. Leakage from plant & vessel avoided	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f. Wheel washing bay desilted regularly	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
g. Temporary drainage diversion provided as required	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	YES	NO	N/A	REMARK
h. Site run-off towards silt traps	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
i. Silt traps & drainages cleared Sand bags provided at site entrance and around road gullies as necessary	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
j. Water Discharge License applied as necessary	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
k. Wastewater treated as required	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
l. Treated effluent reused and recycled	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
m. Chemical toilets provided as necessary	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
n. Heavy Rainstorm Response Procedure displayed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
o. Other: Please specify	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4. NOISE POLLUTION				
a. Temporary noise barriers installed at designated locations as required in EP	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b. Noisy plant and equipment sited away from noisy sensitive receiver as possible	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c. Air Compressors and portable percussive breakers with Noise Emission Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
d. Pneumatic percussive breakers fitted with sound mufflers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
e. Engine flap covers kept closed of construction plant during operations Excavator breaker tip wrapped with sound insulating material for breaking work	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
f. Noise baffles/screens to noisy machines/site activities as necessary	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
g. Valid Construction Noise Permits (CNP) for works in restricted hours	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
h. Full compliance with CNP conditions	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
i. Other: Please specify	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5. RESOURCES MANAGEMENT				
a. Site Perimeter Hoardings made of metal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b. Restricted use of hardwood in formwork	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c. Low VOC or water based paint selected as possible	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
d. Approved larvicide/insecticide for mosquito control work	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e. Designated material storage containers/areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f. Proper storage of materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
g. Other: Please specify	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
6. WASTE MANAGEMENT				
a. Designated area for sorting and temporary storage of C & D materials on site	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b. Proper sorting of inert and non-inert materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c. Recycle bins for recycling of different materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d. Rubbish bins for general rubbish	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e. Measures taken to avoid cross contamination of different wastes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f. Disposed of regularly to avoid excessive accumulation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
g. Trip tickets and EPD chits duly completed and used in C & D waste disposal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
h. Registration as Chemical Waste Producer as required	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
i. Chemical wastes properly labeled and packaged	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
j. Chemical wastes pending collection stored properly to avoid leakage Used trip tickets kept for chemical waste disposal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
k. Proper handling of contaminated soil samples in land contamination investigation work	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
l. Proper storage of contaminated soil samples in land contamination investigation work	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
m. Other: Please specify	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7. CHEMICALS MANAGEMENT				
a. Dangerous Goods kept below exempted quantities on site or otherwise suitable DG store provided	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b. Proper containers for carrying plant fuel or site chemicals	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c. Containers carrying plant fuel or site chemicals with suitable chemical labels	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d. Fuel drums and containers carrying site chemicals kept closed when not in use	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
e. Chemicals stored in dry, cool and sheltered place	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
f. No smoking/ignition source notice displayed near fuel/chemical storage area	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
g. Suitable fire extinguishers put aside for ready use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
h. Chemicals kept away from plant fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

	YES	NO	N/A	REMARK
i. Containers carrying plant fuel or site chemicals placed on drip trays or otherwise store area suitably banded	()	()	(✓)	
Emergency spillage procedure posted	()	()	(✓)	
j. Others: Please specify	()	()	(✓)	

8. **OTHERS**

a. Existing trees and vegetation maintained and protected as required	(✓)	()	()	
b. Materials & Plant kept way from existing trees and vegetation	(✓)	()	()	
c. Target fauna species re-located and protected as required	()	()	(✓)	
d. Topsoil conserved and re-use in landscape works	()	()	(✓)	
e. Night-time lighting controlled to minimize glare	()	()	(✓)	
f. Others: Please specify	()	()	(✓)	

9. **OTHER COMMENTS**

- a. _____
- b. _____
- c. _____

Signed By



Name: ZENKI WONG
Environmental Officer

Signed By



Mr. TSO Si-on (SIOW)

Name & Title:
Engineer's Nominated Site Representative