

PROJECT No.: TCS/00553/11



CONTRACT NO. DC/2009/22
DRAINAGE IMPROVEMENT WORKS IN SHUEN WAN
(OPERATION PHASE)

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

MONTHLY ENVIRONMENTAL MONITORING AND
AUDIT REPORT (NO.44) – FEBRUARY 2015

PREPARED FOR
KWAN LEE-KULY JOINT VENTURE

Quality Index

Date	Reference No.	Prepared By	Certified by
13 March 2015	TCS00553/11/600/R0416v1	 Ben Tam (Environmental Consultant)	 T.W. Tam (Environmental Team Leader)

Ver.	Date	Description
1	13 March 2015	First submission

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Ref.: DSDSHUWNEM00_0_0690L.15

16 March 2015

Drainage Services Department
Drainage Projects Division
44 & 45/F., Revenue Tower
5 Gloucester Road,
Wan Chai, Hong Kong

By Fax (2827 8700) and Post

Attention: Mr. H.K.Chan and Mr. So Chi Ho

Dear Sirs,

**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/2009/22 & DC/2010/02
Monthly Environmental Monitoring and Audit Report for February 2015**

Reference is made to Environment Team's submission of the Monthly Environmental Monitoring and Audit Report for February 2015 by Email on 13 March 2015 (entitled "DC/2010/02 - Monthly Impact EM&A Report (Contract 2) No.44 – February 2015").

Please be informed that we have no 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 Mr. Tony Cheng (3465 - 2822) 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

By Fax: 2959 6079
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EXECUTIVE SUMMARY

- ES.01. This is 44th Monthly Environmental Monitoring and Audit (EM&A) Report for designated works of *DSD Contract No. DC/2009/22* (hereafter “Contract 1”) and *DC/2010/02* (hereafter “Contract 2”) - *Drainage Improvement in Shuen Wan* under Environmental Permit No.EP-303/2008, covering a period from **1 to 28 February 2015** (hereinafter ‘the Reporting Period’).
- ES.02. In the Reporting Period, the EM&A programme for Contract 1 was conducted in Operation Phase and Contract 2 was continually performed in Construction Phase, which based on EPD, RE, IEC and ET agreement in December 2014. Moreover, Contract 2 has taken over all relevant EM&A programme for the project as ordered by DSD.

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

- ES.03. Environmental monitoring activities for the Project under the Construction and Operation Phases of EM&A programme in the Reporting Period are summarized in the following table.

Environmental Aspect	Monitoring Parameters / Inspection	Contract 1	Contract 2
		Operation Phase	Construction Phase
Construction Noise	$L_{eq(30min)}$ Daytime – M1, M2, M3, M4 & AL1	NA	25 Occasions
Water Quality	Local Stream Water Sampling (W1, W2, W3 and W4)	NA	11 days
	Hydrological characteristics measurement – H1, H2, H3 and H4	4 days	4 days
Inspection / Audit	Regular weekly site inspection by the RE and Main Contractor	NA	4 events
	Independent Environmental inspection by the ET	NA	4 events
Ecological	Ecological Monitoring	NA	NA
Landscape & Visual	Inspection by a registered Landscape Architect	NA	2 events

- ES.04. No ecological monitoring for Contracts 1 and 2 was conducted in the Reporting Period.
- ES.05. In Reporting Period, operation phase landscape and visual inspection for the Contract 1 was not yet commenced and it is planned to be undertaken on **2 March 2015**. Construction phase landscape and visual inspection for Contract 2 was carried out on **6 and 17 February 2015**. The monthly Landscape & Visual Report of Contract 2 (**February 2015**) has been signed by the registered Landscape Architect.

SITE INSPECTION

- ES.06. No joint site inspection was carried out by the RE, Main Contractor of Contract 2 and ET in the Reporting Period. However, regular weekly environmental site was performed by the Contractor and RE on **5, 12, 18 and 26 February 2015**. Moreover, ET was undertaken independent site inspection on **6, 10, 16 and 27 February 2015**.

ENVIRONMENTAL COMPLAINT

- ES.07. No written or verbal complaint was recorded in this Reporting Period.

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

- ES.08. No environmental summons or successful prosecutions were recorded in this Reporting Period.

REPORTING CHANGE

- ES.09. No report changes were made in this Reporting Period.

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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’). For the Project, construction works at Tung Tsz Road Shuen Wan 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. On the other hand, Shek Wu Wai San Tin is a non-designated project work.
- 1.02 The Works at Tung Tsz Road Shuen Wan was divided two DSD Contracts i.e. DC/2009/22 (hereinafter called the “Contract 1”) and DC/2010/02 (hereinafter called the “Contract 2”). The Project site boundary is shown in ***Appendix A***. The construction works of Contract 1 was commenced in ***August 2010*** and finished in ***November 2014***. Moreover, the construction works of Contract 2 was commencement in ***May 2011*** and still not yet finished. Hence, EM&A program implemented for Contract 1 is Operation Phase and Contract 2 is Construction Phase which based on EPD, RE and IEC with the ET of Contract 2 agreement in ***December 2014***.
- 1.03 As instructed by DSD, Action-United Environmental Services and Consulting (AUES) as the Environmental Team (ET) of Contract 2 would take over all relevant EM&A programmes of the Project since ***November 2014***.
- 1.04 This is the **44th** Monthly EM&A Report for Contract 1 and Contract 2 presenting the relevant monitoring results and inspection findings during the Reporting Period from ***1 to 28 February 2015***.

REPORT STRUCTURE

- 1.05 The Monthly Environmental Monitoring and Audit (EM&A) Report is structured into the following sections:-
- | | |
|-----------|--|
| SECTION 1 | INTRODUCTION |
| SECTION 2 | PROJECT ORGANIZATION AND WORKS PROGRESS AND SUBMISSION |
| SECTION 3 | EM&A PROGRAM REQUIREMENT FOR THE PROJECT |
| SECTION 4 | IMPACT MONITORING RESULTS |
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| SECTION 6 | ENVIRONMENTAL COMPLAINTS AND NON-COMPLIANCE |
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| SECTION 8 | CONCLUSIONS AND RECOMMENDATION |

2.0 PROJECT ORGANIZATION AND WORKS 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*.

WORKS PROGRESS

- 2.02 Since Contract 1 has entered Operation phase, so the Areas of Contract 1 is no construction activity. In this reporting period, refuse collection point reconstruction, general site cleaning and landscape establishment were conducted by Contract 2. The master construction programs of Contract 2 are enclosed in *Appendix C*.

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)	Notified EPD on 17 October 2011
2	Chemical Waste Producer Registration (WPN5213-727-K2972-02)	Approved on 28 October 2011
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

3.0 EM&A PROGRAM REQUIREMENT

3.01 EM&A requirements of the Construction and Operation Phases to according the PP, EIAR, Environmental Permit EP303/2008 (hereinafter ‘the EP’), and the associated updated EM&A Manual, is presented in below sub-section.

MONITORING PARAMETERS

3.02 According to the updated EM&A Manual of the Project, the Construction and Operation Phases monitoring requirement has showed in **Table 3-1**.

Table 3-1 Summary of Monitoring Parameters for the Project

Environmental Aspect	Construction Phase	Operation Phase
Construction Noise Monitoring	<ul style="list-style-type: none"> A-weighted equivalent continuous sound pressure level (30min) (hereinafter ‘Leq(30min)’ during the normal working hours 	No requirement
Water Quality Monitoring	<ul style="list-style-type: none"> In Situ Measurement - Temperature, Dissolved Oxygen, Dissolved Oxygen Saturation, pH and Turbidity Laboratory Analysis - Suspended Solids 	No requirement
Hydrological Characteristics Monitoring	<ul style="list-style-type: none"> In-situ measurement including water flow and depth 	<ul style="list-style-type: none"> In-situ measurement including water flow and depth
(*) Ecological Monitoring and Audit	<ul style="list-style-type: none"> Monitor and audit the proper implementation of mitigation measures stipulated in EIA report and the updated EM&A Manual 	<ul style="list-style-type: none"> Monitor and inspect including the vegetation, fauna (includes avifauna, herpetofauna, odonate and butterfly) and Stream (includes fish and macroinvertebrates)
(#) Landscape and Visual Monitoring	<ul style="list-style-type: none"> Inspect and audit the implementation and maintenance of landscape and visual mitigation measures 	<ul style="list-style-type: none"> Inspect and audit the implementation and maintenance of landscape and visual mitigation measures

Remarks:

(*) the monitoring is carried out by IEC

(#) The monitoring is carried out by the registered Landscape Architect

MONITORING LOCATIONS

3.03 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 Designated Monitoring Locations of the EM&A Programme

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 <ul style="list-style-type: none"> Co-ordinates: E839301, N836386 Existing River Bed Level: +1.75mPD).

Aspect	Location ID	Address
	W2	Between Tolo Harbour and Proposed Penstock <ul style="list-style-type: none"> Co-ordinates: E839542, N836184 Exiting River Bed Level: +1.48mPD)
	(*)W3	Upstream of Tung Tze Shan Road <ul style="list-style-type: none"> Co-ordinates: E838760, N836714 Exiting River Bed Level: +5.08mPD)
	W4	Wai Ha Village 29D <ul style="list-style-type: none"> Co-ordinates: E838865, N836621 Exiting River Bed Level: +4.05mPD)
Hydrological	H1	Between the Shuen Wan Marsh and ECA <ul style="list-style-type: none"> Coordinates: E839306, N836379)
	H2	Route 10 Sam Kung Temple <ul style="list-style-type: none"> Coordinates: E839163, N836433
	H3	Upstream of Tung Tze Shan Road <ul style="list-style-type: none"> Coordinates: E838760, N836714
	H4	Wai Ha Village 29D <ul style="list-style-type: none"> Coordinates: E838865, N836621
Ecology	Areas within 100m of the works boundary under Contract 1 and Contract 2	
Landscape & Visual	As within and adjacent to the construction sites and works areas under the Contract 1 and Contract 2	

MONITORING FREQUENCY OF CONSTRUCTION PHASE

3.04 According to the updated EM&A Manual, frequency and duration of the Construction Phase monitoring are summarized below.

Construction Noise

Frequency: Once a week during 0700-1900 on normal weekdays for $L_{eq(30min)}$

If the construction work undertake at restricted hour, the monitoring frequency of construction noise will be conducted in accordance with the related Construction Noise Permit requirement.

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: throughout construction phase of Contract 2 to underway (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

3.05 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

- 3.06 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 FREQUENCY OF OPERATION PHASE

Hydrological Characteristics

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

Duration: One year after the construction is complete as operation phase monitoring (in accordance with the Updated EM&A Manual Section 4.32).

Ecology

- 3.07 In according with Section 6.17 of the Updated EM&A Manual, the Operation Phase ecological monitoring would be to conduct by the Independent Environmental Checker (hereinafter 'IEC'). Regular checking and monitoring by quarter month would be performed for one year duration

Landscape & Visual

- 3.08 According to Section 7.5 of the Updated EM&A Manual, all landscape and visual mitigation measures would be monitored quarterly during the first year of the Operation Phase to check on the effectiveness of the mitigations.

MONITORING EQUIPMENT

Noise Monitoring

- 3.09 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 check with a portable wind speed meter, which capable to measure wind speed in m/s.

Water Quality Monitoring

- 3.10 **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.
- 3.11 **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.
- 3.12 **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.
- 3.13 **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.
- 3.14 **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.
- 3.15 **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).
- 3.16 **Suspended Solids Analysis** – Analysis of suspended solids shall be carried out in a HOKLAS or

other international accredited laboratory.

Hydrological Characteristics

- 3.17 **Water Depth Detector** - A portable, battery-operated echo sounder shall be used for the determination of water depth at each designated monitoring station.
- 3.18 **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.
- 3.19 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	YSI DO Meter 550A or YSI Professional Plus or YSI Sonde6820 / 650MDS
pH meter	YSI pH10N or YSI Professional Plus or YSI Sonde 6820 / 650MDS
Turbidimeter	Hach 2100Q or YSI Sonde 6820 / 650MDS
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

- 3.20 Noise measurements were taken in terms of the A-weighted equivalent sound pressure level (L_{eq}) measured in decibels (dB). Supplementary statistical results (L₁₀ and L₉₀) were also obtained for reference.
- 3.21 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)*.
- 3.22 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}). Leq_(30min) in six consecutive Leq_(5min) measurements were used as the monitoring parameter for the time period between 0700-1900 hours on weekdays; and also Leq_(15min) in three consecutive Leq_(5min) measurements is used as monitoring parameter for other time periods (e.g. during restricted hours), if necessary.
- 3.23 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.

- 3.24 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

- 3.25 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
- 3.26 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.
- 3.27 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
- 3.28 A portable YSI DO Meter 550A or YSI Professional Plus 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.
- 3.29 A portable YSI pH10N Meter or or YSI Professional Plus 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.
- 3.30 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.
- 3.31 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.
- 3.32 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.
- 3.33 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 Suspended Solids

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

- 3.34 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.
- 3.35 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.

OTHERS MONITORING IMPLEMENTATION FOR THE PROJECT

Ecology

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

Landscape and Visual

- 3.37 A registered Landscape Architect as member of the ET is employed by the Contractor to undertake site inspection. Site inspection will undertake once every three months during the first year of the Operation Phase to check on the effectiveness of the mitigations.

DETERMINATION OF ACTION/LIMIT (A/L) LEVELS

- 3.38 The re-established performance criteria for construction noise, water quality and hydrological, namely Action and Limit levels is used for the Project 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	Impact Station		
		W1	W2	W4
DO Concentration (mg/L)	Action Level	7.27	7.26	9.27
	Limit Level	4.00	4.00	4.00
pH	Action Level	NA	NA	NA
	Limit Level	6 - 9	6 - 9	6 - 9

Parameter	Performance Criteria	Impact Station		
		W1	W2	W4
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

Table 3-7 Action and Limit Levels 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)
Volumetric Flow Rate (Q), 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

3.39 The locations H3 and H4 are a reference measurement point 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.

3.40 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**.

EQUIPMENT CALIBRATION

3.41 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.

3.42 All the water quality monitoring equipment such as the DO, pH and Turbidity meters are calibrated by HOKLAS accredited laboratory of three month intervals.

3.43 A portable, water flow meter, brand named "GLOBAL WATER model FP211" is calibrated in yearly basis.

3.44 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

3.45 The meteorological information is obtained from Tai Po and Shatin Stations of the Hong Kong

Observatory (HKO) and the summary is shown *Appendix H*.

DATA MANAGEMENT AND DATA QA/QC CONTROL

- 3.46 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.
- 3.47 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.

4.0 MONITORING RESULTS OF CONTRACT 2 OF CONSTRUCTION PHASE

4.01 The monitoring schedule had been issued to relevant parties before each Reporting Period 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 In this Reporting Period, the noise monitoring results at the all designated locations M1, AL1, M2, M3 and M4 are summarized in *Table 4-1*. The detail monitoring data are presented in *Appendix I*. The graphical plot is shown in *Appendix J*.

Table 4-1 Summary of Construction Noise ($L_{Aeq30min}$) Monitoring Results, dB(A)

Date	M1 ^(*)	AL1 ^(*)	M2 ^(*)	M3 ^(*)	M4 ^(*)
6-Feb-15	64	63	66	62	50
12-Feb-15	65	59	59	58	50
16-Feb-15	63	62	58	58	49
27-Feb-15	62	60	59	54	50
Limit Level	75 dB(A)				

Remarks:

^(*) 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 all designated monitoring locations, therefore a façade correction of +3 dB(A) has been 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, 11 sampling days were performed at all designated measurement points 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 Monitoring results of 3 key parameters: dissolved oxygen (DO), turbidity and suspended solids in this Reporting Period, are summarized in *Tables 4-2, 4-3 and 4-4*.

Table 4-2 Water Quality Results Summary for Dissolved Oxygen (DO), mg/L

Sampling date	W1 (ebb)	W1 (flood)	W2	W3	W4
2-Feb-15	7.82	7.45	9.40	8.09	8.36
4-Feb-15	7.09	6.93	6.90	7.53	7.76
6-Feb-15	7.50	7.24	7.40	7.29	7.13
10-Feb-15	8.66	8.35	8.13	8.19	8.57
12-Feb-15	7.34	7.77	7.12	8.32	8.61
14-Feb-15	7.82	8.20	7.70	7.55	10.45
16-Feb-15	7.24	6.78	6.39	7.39	8.26
18-Feb-15	7.56	6.67	6.90	7.33	7.68
23-Feb-15	7.58	6.77	6.90	7.25	7.43
25-Feb-15	7.16	6.76	6.47	6.89	7.86
27-Feb-15	7.78	7.18	7.12	6.89	7.80

Remarks: **Bold and Italic is indicated exceeded Action Level**

Table 4-3 Water Quality Results Summary for Turbidity, NTU

Sampling date	W1 (ebb)	W1 (flood)	W2	W3	W4
2-Feb-15	<u>11.25</u>	<u>11.90</u>	<u>8.67</u>	7.66	<u>5.68</u>
4-Feb-15	<u>5.49</u>	<u>8.56</u>	<u>9.36</u>	5.52	<u>4.37</u>
6-Feb-15	<u>7.24</u>	3.34	<u>5.66</u>	3.28	3.00
10-Feb-15	<u>5.72</u>	<u>5.03</u>	<u>7.60</u>	4.24	<u>5.16</u>
12-Feb-15	<u>11.40</u>	<u>6.34</u>	<u>6.63</u>	3.63	<u>4.55</u>
14-Feb-15	<u>7.38</u>	<u>7.54</u>	<u>7.79</u>	1.60	1.63
16-Feb-15	<u>6.68</u>	<u>6.13</u>	<u>9.17</u>	3.11	2.86
18-Feb-15	<u>6.70</u>	<u>5.80</u>	<u>7.98</u>	4.23	<u>4.58</u>
23-Feb-15	<u>4.99</u>	<u>5.16</u>	<u>5.83</u>	3.10	2.89
25-Feb-15	<u>8.30</u>	<u>7.48</u>	<u>7.84</u>	4.19	<u>4.05</u>
27-Feb-15	<u>5.72</u>	<u>5.51</u>	<u>6.26</u>	4.42	<u>3.86</u>

• *Bold and Italic is indicated exceeded Action Level; Bold with underline is indicated exceeded Limit Level*

Table 4-4 Water Quality Results Summary for Suspended Solids (SS), mg/L

Sampling date	W1 (ebb)	W1 (flood)	W2	W3	W4
2-Feb-15	6.0	2.0	7.0	6.0	5.0
4-Feb-15	3.0	7.0	8.0	13.0	3.0
6-Feb-15	5.0	4.0	3.5	2.0	2.0
10-Feb-15	3.0	4.0	3.5	3.0	4.0
12-Feb-15	7.0	2.0	3.5	2.0	2.0
14-Feb-15	6.0	6.0	7.0	2.0	2.0
16-Feb-15	9.0	4.0	4.0	4.0	2.0
18-Feb-15	2.0	3.0	4.0	5.0	2.0
23-Feb-15	3.0	4.0	4.0	3.0	2.0
25-Feb-15	5.0	8.0	8.0	3.0	2.0
27-Feb-15	7.0	5.0	7.0	2.0	2.0

4.07 During the Reporting Period, field measurements showed that stream water temperatures were within 14.9°C to 22.1°C and pH values within 6.5 to 8.8.

4.08 A statistics of exceedances for the three parameters: dissolved oxygen (DO), turbidity and suspended solids are shown in *Table 4-5*.

Table 4-5 Statistics Water Quality Exceedance

Station	DO		Turbidity		SS		Total Exceedance	
	Action	Limit	Action	Limit	Action	Limit	Action	Limit
W1	10	0	3	18	0	0	13	18
W2	7	0	0	11	0	0	7	11
W4	10	0	3	4	0	0	13	4
No. of Exceedance	27	0	6	33	0	0	33	33

4.09 As shown in *Table 4-4*, Suspended Solids exceedance was not found in W1, W2 and W4. However, dissolved oxygen and turbidity were respectively recorded **27** and **39** exceedances in this Reporting Period. NOEs were issued to notify EPD, IEC, the Contractor and RE upon confirmation of the results.

4.10 According to the Contractor's information and onsite observation, construction activities undertaken in this reporting period is included minor defects rectify and reconstruction the refuse station. The active construction activities would not disturb the water body. The investigation results for the exceedances are summarized as follows:

- For the DO exceedances, the construction activities comprised none of DO depleting

characteristics. Hence, all exceedances of DO should be natural variation of the river and not related to the Project works.

- Impact monitoring point W2, there were total **11** (eleven) Limit Level of Turbidity exceedances detectable. Since Contract 1 has completed and no construction activities close to W2 was carried out by Contract 2, it is concluded that the exceedances were not project related.
- Impact monitoring point W4, total **7** exceedances of Turbidity were recorded which including 3 Action Level and 4 Limit Level exceedances. As reviewed *Table 4-4*, turbidity levels recorded in the control station (W3) at the same days are similar to W4 which less than 1 NTU difference. Therefore it is concluded that the exceedances at W4 were likely due to natural variation and not related to the project.
- For monitoring point W1, a total **21** exceedances of Turbidity (three Action and eighteen Limit Levels Exceedances) was recorded in the reporting period. Since Contract 1 has completed and W1 is located to nearly a sea-shore, marine water of Tolo Harbour during flood tidal should be to affect it. Therefore, it is considered that the exceedances in W1 were not related to the works under the Project

RESULTS OF HYDROLOGICAL CHARACTERISTICS MONITORING

4.11 In this Reporting Period, hydrological characteristics measurements were carried out on **6, 12, 16** and **27 February 2015**. The detailed measurement results in this Reporting Period are presented in *Tables 4-6*.

Table 4-6 Detailed monitoring results of hydrological characteristics at Designated Measurement Points

Measurement		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
Point	Time						
Date: 6 February 2015							
H1	10:44	Flood	5.50	0.45	2.4750	0.2	0.495
	14:01	Ebb	5.50	0.45	2.4750	0.1	0.248
H2	10:31	Flood	4.70	0.31	1.4570	0.1	0.146
	14:54	Ebb	4.70	0.30	1.4100	<0.1	<0.141
H3	10:09	Flood	7.45	0.25	1.8625	0.2	0.373
	14:39	Ebb	7.45	0.24	1.7880	0.1	0.179
H4	10:24	Flood	2.74	0.36	0.9864	0.2	0.197
	14:47	Ebb	2.74	0.35	0.9590	0.1	0.096
Date: 12 February 2015							
H1	10:00	Flood	5.50	0.34	1.8700	0.1	0.187
	17:16	Ebb	5.50	0.41	2.2550	0.2	0.451
H2	09:49	Flood	4.70	0.30	1.4100	<0.1	<0.141
	16:46	Ebb	4.70	0.31	1.4570	0.1	0.146
H3	09:35	Flood	7.45	0.33	2.4585	0.2	0.492
	16:31	Ebb	7.45	0.34	2.5330	0.2	0.507
H4	09:44	Flood	2.74	0.24	0.6576	0.2	0.132
	16:39	Ebb	2.74	0.25	0.6850	0.2	0.137
Date: 16 February 2015							
H1	13:52	Flood	5.50	0.41	2.2550	0.4	0.902
	09:12	Ebb	5.50	0.36	1.9800	0.3	0.594
H2	13:43	Flood	4.70	0.31	1.4570	0.1	0.146
	09:56	Ebb	4.70	0.30	1.4100	0.1	0.141
H3	13:08	Flood	7.45	0.34	2.5330	0.2	0.507
	09:42	Ebb	7.45	0.33	2.4585	0.2	0.492
H4	13:36	Flood	2.74	0.25	0.6850	0.2	0.137
	09:49	Ebb	2.74	0.24	0.6576	0.2	0.132

Measurement		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
Point	Time						
Date: 27 February 2015							
H1	15:29	Flood	5.50	0.43	2.3650	0.3	0.710
	09:04	Ebb	5.50	0.41	2.2550	0.2	0.451
H2	16:33	Flood	4.70	0.31	1.4570	0.1	0.146
	09:44	Ebb	4.70	0.30	1.4100	0.1	0.141
H3	16:00	Flood	7.45	0.37	2.7565	0.2	0.551
	09:31	Ebb	7.45	0.36	2.6820	0.2	0.536
H4	16:15	Flood	2.74	0.26	0.7124	0.3	0.214
	09:38	Ebb	2.74	0.25	0.6850	0.2	0.137

4.12 Hydrological characteristics results of the all measurement points are summarized in *Tables 4-7* and *4-8*.

Table 4-7 Summarized Hydrological Characteristics of Water Depth, m

Date	Mid-Flood				Mid-Ebb			
	H1	H2	H3	H4	H1	H2	H3	H4
6-Feb-15	0.45	0.31	0.25	0.36	0.45	0.30	0.24	0.35
12-Feb-15	0.34	0.30	0.33	0.24	0.41	0.31	0.34	0.25
16-Feb-15	0.41	0.31	0.34	0.25	0.36	0.30	0.33	0.24
27-Feb-15	0.43	0.31	0.37	0.26	0.41	0.30	0.36	0.25

Table 4-8 Summarized Hydrological Characteristics of Average Volumetric flow rate (Q), m³/s

Date	Mid-Flood				Mid-Ebb			
	H1	H2	H3	H4	H1	H2	H3	H4
6-Feb-15	0.495	0.146	0.373	0.197	0.248	<0.141	0.179	0.096
12-Feb-15	0.187	<0.141	0.492	0.132	0.451	0.146	0.507	0.137
16-Feb-15	0.902	0.146	0.507	0.137	0.594	0.141	0.492	0.132
27-Feb-15	0.710	0.146	0.551	0.214	0.451	0.141	0.536	0.137

4.13 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 change. Furthermore, no exceedance in water depth and water flow rate was found in this Reporting Period.

RESULTS OF ECOLOGICAL MONITORING

4.14 According to updated EM&A Manual Section 6.17, bi-monthly ecological monitoring is conducted by the IEC – ENVIRON Hong Kong Limited. In brief, the monitoring tasks include regular check on the retained and transplanted trees and shrubs, monitoring on fauna groups and aquatic fauna within the works area and any ecologically sensitive area within 100 m of the works boundary.

4.15 In the Reporting Period, no ecological monitoring was carried out by the IEC since bi-monthly ecological monitoring on the previous time was undertaken in *January 2015*.

5.0 MONITORING RESULTS OF CONTRACT 1 OF OPERATION PHASE

5.01 The Operation Phase monitoring schedule has issued to relevant parties before the Reporting Period and attached in *Appendix G*. The monitoring results are presented in the following sub-sections.

RESULTS OF HYDROLOGICAL CHARACTERISTICS MONITORING

5.02 For Contract 1 Operation Phase, hydrological characteristics measurement at H1 and H2 was conducted on **6, 12, 16 and 27 February 2015**. The detailed measurement results were presented in *Tables 4-6, 4-7 and 4-8* of *Section 4* of this report. Graphical Plots of Hydrological Characteristics shows in *Appendix D*.

RESULTS OF ECOLOGICAL MONITORING

5.03 According to updated EM&A Manual Section 6.20, quarterly ecological monitoring is conducted by the IEC – ENVIRON Hong Kong Limited. In brief, the monitoring tasks include regular check on the retained and transplanted trees and shrubs, monitoring on fauna groups and aquatic fauna within the works area and any ecologically sensitive area within 100 m of the works boundary of the Contract 1.

5.04 In the Reporting Period, no ecological monitoring under the *Contract 1* was carried out by the IEC. For the tentative schedule, ecological monitoring of operation phase will be carried out in *April 2015*.

6.0 WASTE MANAGEMENT

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

RECORDS OF WASTE QUANTITIES

6.02 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.

6.03 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*.

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	-

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

7.0 SITE INSPECTION

REGULAR SITE INSPECTION AND MONTHLY AUDIT

- 7.01 According to the Updated Environmental Monitoring and Audit Manual stipulation, regular site inspection to evaluate the project environmental performance should be carried out during Construction Phase but it is not required for the Operation Phase.
- 7.02 During joint site inspection by the Main Contractor, RE, IEC and ET with EPD on 4 December 2014, EPD accepted that EM&A programmes of DC/2009/22 (Contract 1) changed to operation phase in view of the construction works under the contract has completed. Since Wai Ha Tsuen pathway reinstatement and Wai Ha River minor defects rectify work under Contract 2 have not yet completed, EM&A programme for Contract 2 should be continued in the Reporting Period.
- 7.03 Regular weekly environmental site was performed by the Contractor and RE on **5, 12, 18 and 26 February 2015**. Moreover, ET was independently to undertake site inspection on **6, 10, 16 and 27 February 2015**. During site inspection by ET, no non-compliance was observed and the Contractor was reminded to maintain the work area cleanness and tidiness.

LANDSCAPE AND VISUAL INSPECTION

Operation Phase of Contract 1

- 7.04 According to Section 7.5 of the Updated EM&A Manual, quarterly landscape and visual inspection shall be carried out during the first year of the Operation Phase for **Contract 1**.
- 7.05 Since construction phase of Contract 1 was completed on **26 November 2014** which accepted by EPD on **4 December 2014**. Based on EM&A requirements, landscape and visual inspection was scheduled in February 2015 (this Reporting Period) but it was postponed to be carried out on **2 March 2015**. Therefore, no landscape and visual inspection was performed in the Reporting Period for **Contract 1**.

Construction Phase of Contract 2

- 7.06 In this Reporting Period, landscape and visual inspection for the **Contract 2** was carried on **6 and 17 February 2015**. The Landscape & Visual Report (**February 2015**) signed by the registered Landscape Architect is enclosed in *Appendix L*.
- 7.07 The next bi-weekly Landscape & Visual Monitoring in **March 2015** is scheduled to be conducted in the weeks of **2nd** and **16th March 2015**.

8.0 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

8.01 For the Project, no environmental complaint, summons and prosecution was received in this Reporting Period. The statistical summary table of environmental complaint for the **Contract 2** is presented in *Tables 8-1, 8-2 and 8-3*.

Table 8-1 Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
July 2011 –January 2015	1	1	Air Quality (1)
February 2015	0	1	Air Quality (1)

Table 8-2 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
July 2011 –January 2015	0	0	NA
February 2015	0	0	NA

Table 8-3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
July 2011 –January 2015	0	0	NA
February 2015	0	0	NA

9.0 IMPLEMENTATION STATUS OF MITIGATION MEASURES

9.01 According to the Updated Environmental Monitoring and Audit Manual, mitigation measures recommended for the Construction and Operation Phases 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

- (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 minimize the generation of waste from his work. Avoidance and minimization 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 recycling 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.

Ecology

- To minimize sedimentation, de-silting should be limited to the dry season
- Waste material produced during de-silting should be disposed of in a timely and appropriate manner

Landscape and visual

- Viewing area formation by planting with shrubs, grasses and benches along the area
- Architectural design of the pump house will help it fit into the existing suburban, natural to semi-natural surroundings
- Landscape design of pump house by providing sufficient planting around its boundary fence
- Enhancement planting along Tung Tsz Road with shrubs / trees of suitable species to help protect the stream and marshes;
- Construction of box culvert should be with at least 1.0m soil depth for enhancement planting
- Transplanting of existing affected trees to adjacent locations should be carried out
- Preparation for transplanting is needed to allow sufficient time for root pruning and rootball preparation prior to transplanting
- Reinstatement of affected area should be carried out to check that the works areas are properly reinstated

10.0 CONCLUSIONS AND RECOMMENTATIONS

CONCLUSIONS

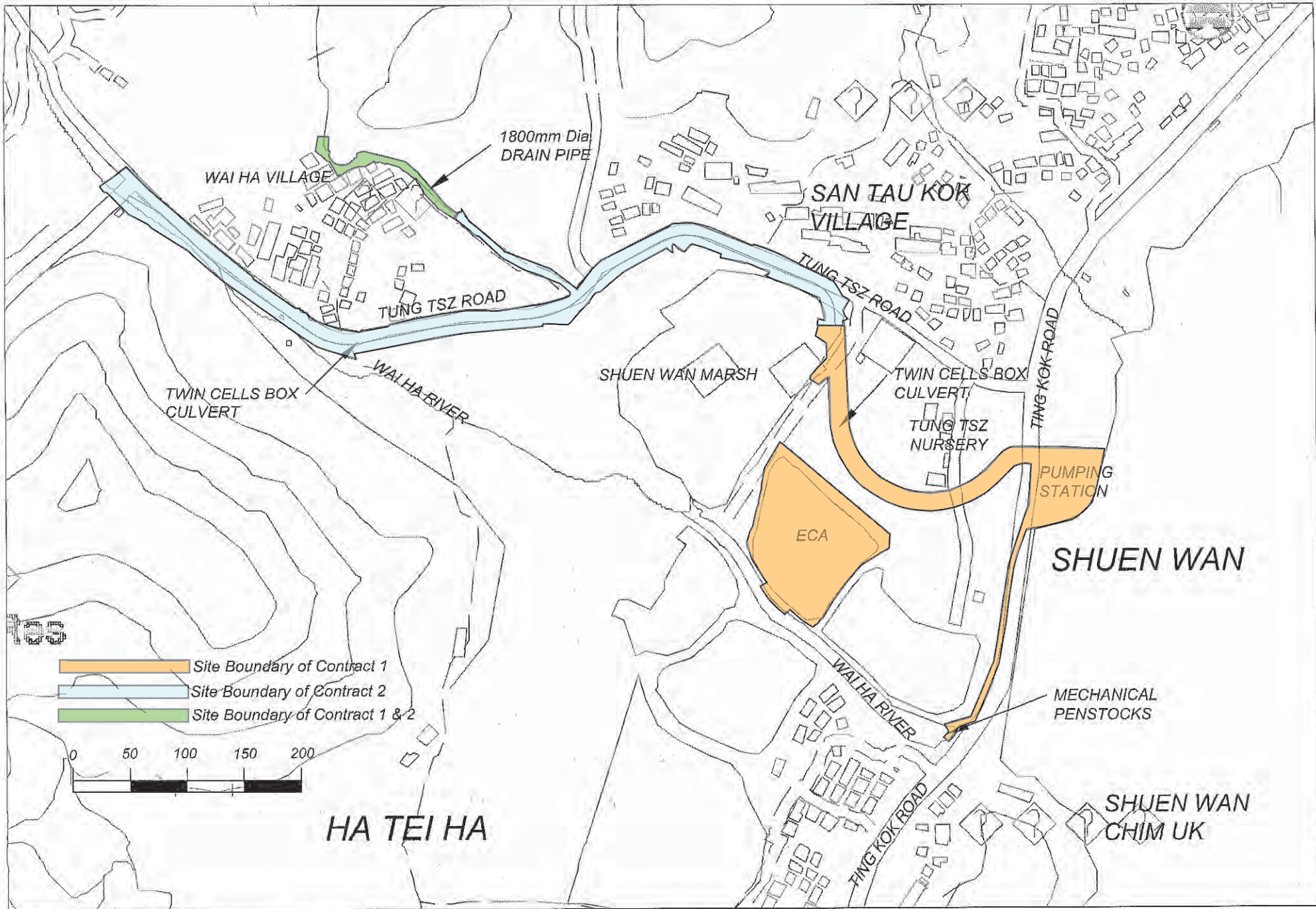
- 10.01 This is the 44th monthly EM&A report for the Contract 1 and Contract 2 presenting the Project Construction and Operation Phases monitoring results with inspection findings for the Reporting Period of 1 to 28 February 2015.
- 10.02 No noise complaint (which is an Action Level exceedance) was received in this Reporting Period.
- 10.03 The hydrological characteristics of water depth and water flow rate as compared baseline monitoring period, the currently water depth and volumetric flow rate has insignificant change.
- 10.04 In the Reporting Period, no ecological monitoring in area under the Project of Contract 1 and Contract 2 was performed.
- 10.05 Bi-weekly landscape and visual inspection for **Contract 2** was undertaken on 6 and 17 February 2015, and quarterly inspection of **Contract 1** is postponed on 2 March 2015. The monthly Landscape & Visual Report of **Contract 2** (February 2015) has been signed by the registered Landscape Architect.
- 10.06 Regular weekly environmental site was performed by the Contractor and RE on 5, 12, 18 and 26 February 2015. Moreover, ET was to undertake independent site inspection on 6, 10, 16 and 27 February 2015. For each event of the ET site inspection as covering Contract 2 Working Areas, minor defects rectify work at Wai Ha River and extra works of refuse collection station construction, are still in progress. No non-compliance has observed during the inspection. However, the Contractor was reminded to maintain the work area cleanness and tidiness.
- 10.07 No documented complaint, notification of summons or successful prosecution was received in the Reporting Period.

RECOMMENDATIONS

- 10.08 Due to Wai Ha River minor defects rectify work is still in progress. Mitigation measures for construction dust, noise and wastewater discharge with the required monitoring shall be properly to maintain and perform until to the Project Works completion.

Appendix A

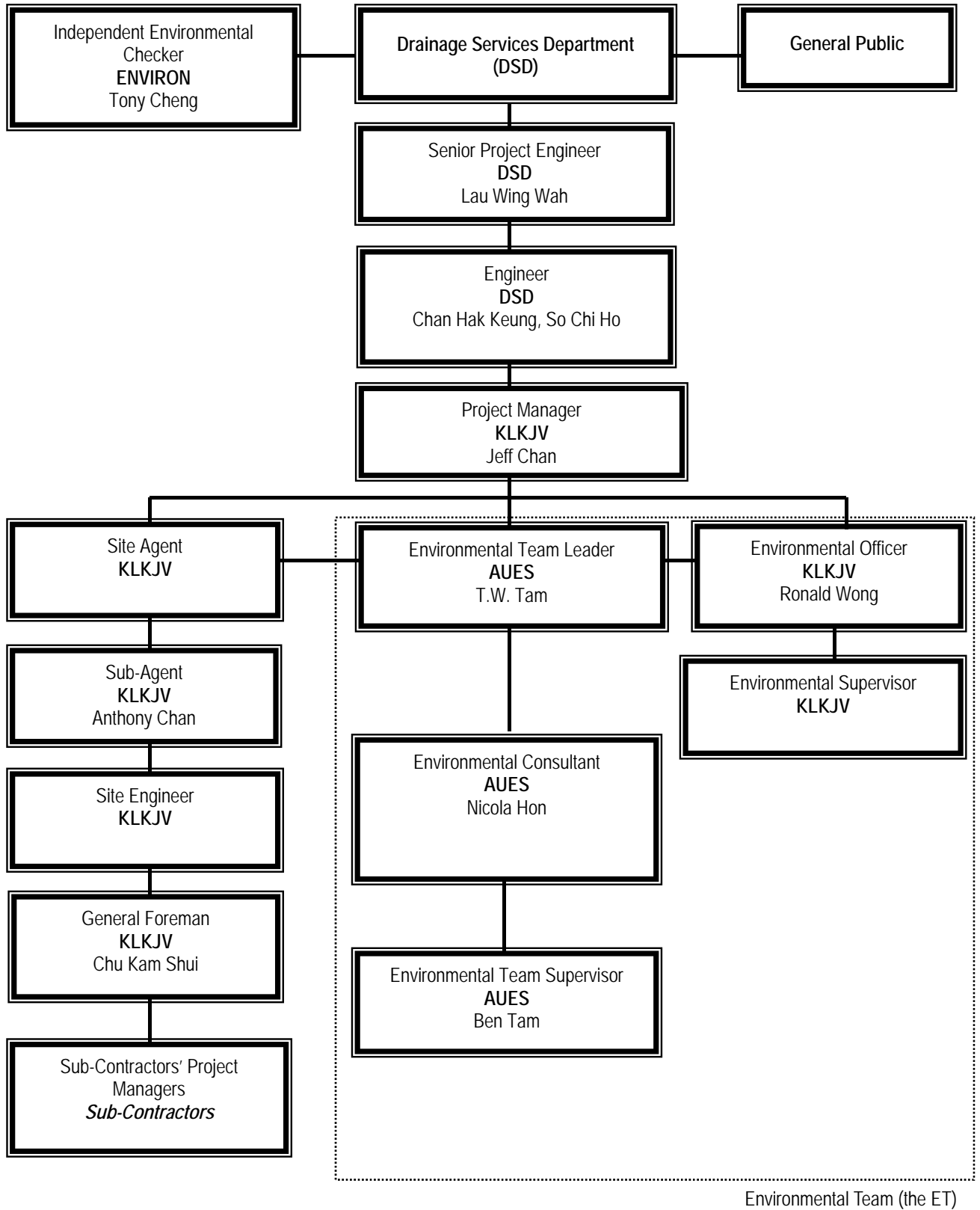
Project Location at Shuen Wan



Site Location Plan of DSD Contract 1 and Contract 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. Chan Hak Keung	2594 7596	2827 8700
DSD	Engineer	Mr. So Chi Ho	2594 7356	2827 8700
DSD	Senior Inspector	Mr. Tso Si On	6778 2708	2827 8700
ENVIRON	Independent Environmental Checker	Mr. Tong Cheng	3465-2888	3465-2899
KLKJV	Project Director	Mr. Poon Chi Yeung Francis	2674 3888	2674 9988
KLKJV	Project Manager	Mr. Jeff Chan	2674 3888	2674 9988
KLKJV	Sub- Agent	Mr. Anthony Chan	2674 3888	2674 9988
KLKJV	Site Forman	Mr. Chu Kam Shui	2674 3888	2674 9988
KLKJV	Environmental Officer	Mr. Ronald Wong	2674 3888	2674 9988
AUES	Environmental Team Leader	Mr. T.W. Tam	2959-6059	2959-6079
AUES	Environmental Consultant	Miss. Nicola Hon	2959-6059	2959-6079
AUES	Environmental Supervisor	Mr. Ben Tam	2959-6059	2959-6079

Legends:

DSD (Employer) – Drainage Services Department

DSD (Engineer) – Drainage Services Department

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

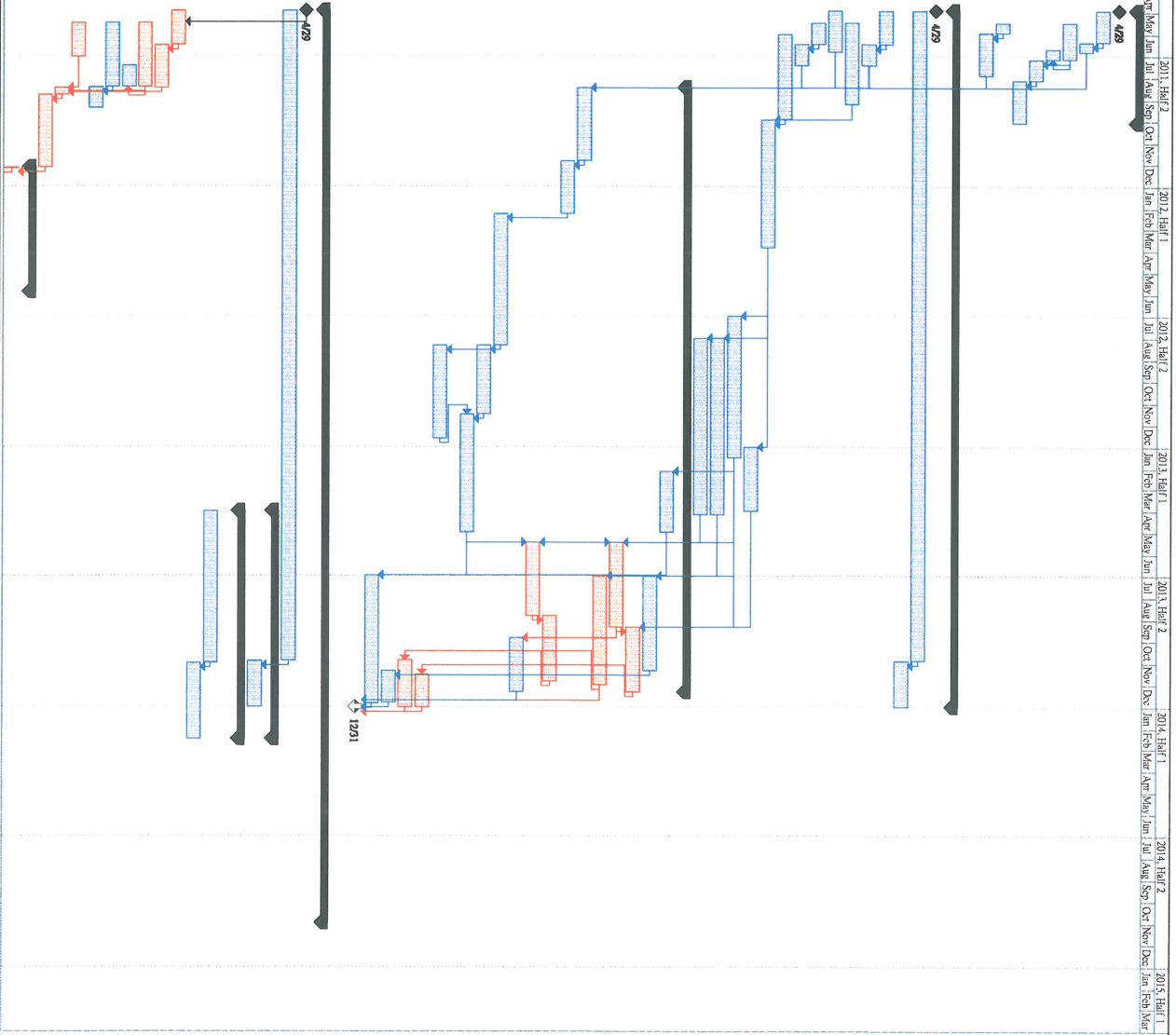
ENVIRON (IEC) – ENVIRON Hong Kong Limited

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

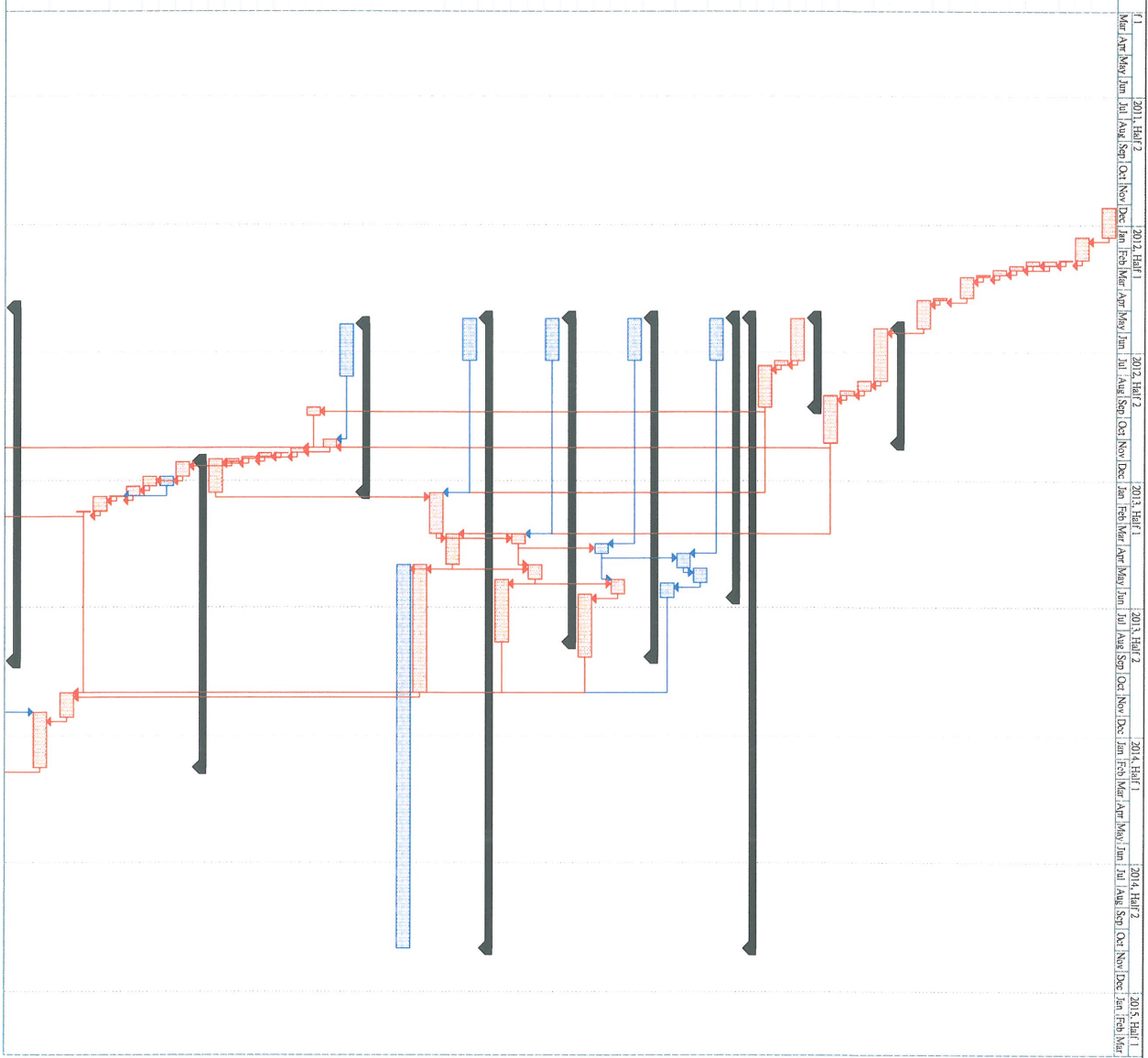
Appendix C

Master Construction Programs

ID	Task Name	Duration	Start	Finish	Predecessors
1	Preliminary Works	158 days	Fri 11 Apr 29	Mon 11 Oct 3	
2	Commencement of Works	0 days	Fri 11 Apr 29	Fri 11 Apr 29	
3	Site Clearance	44 days	Fri 11 Apr 29	Sat 11 Jun 11	
4	Record Survey	14 days	Sat 11 Jun 12	Sat 11 Jun 25	
5	Design & Construction of Hoarding	51 days	Mon 11 May 16	Tue 11 Jul 5	
6	Sitebound (Type B)	14 days	Wed 11 Jun 22	Tue 11 Jul 5	5FF
7	Design & Approval of Engineer's Site Office	30 days	Wed 11 Jun 22	Thu 11 Aug 4	
8	Construction of Engineer's Site Office	40 days	Fri 11 Aug 5	Mon 11 Oct 3	
9	Pre-construction Condition Survey	14 days	Mon 11 May 16	Sat 11 May 29	
10	Reduction of Existing Shires (2 Nos)	60 days	Mon 11 May 30	Tue 11 Jul 26	9
11					
12	Section I (Construction Works in Shuen Wan)	978 days	Fri 11 Apr 29	Tue 13 Dec 31	
13	Commencement of Works	0 days	Fri 11 Apr 29	Fri 11 Apr 29	
14	Original Contract Period	913 days	Fri 11 Apr 29	Sun 13 Oct 27	
15	Extension of Time - due to Judgment Waiver	65 days	Mon 13 Oct 28	Tue 13 Dec 31	
16	Design of TTA	47 days	Fri 11 Apr 29	Tue 11 Jun 14	
17	Submission of TTA to TM/CG for Approval	30 days	Fri 11 Apr 29	Fri 11 Jul 16	
18	Excavation Permit	115 days	Mon 11 May 16	Wed 11 Sep 7	
19	Submission & approval of calculation & MS for BC (including trench ELS/Scope)	58 days	Fri 11 Apr 29	Sat 11 Jun 25	
20	Notify EPD on commencement (one month advance notice)	30 days	Mon 11 May 16	Tue 11 Jun 14	
21	Tree Felling	30 days	Wed 11 Jun 15	Thu 11 Jul 14	20
22	Utility diversion and diversion programme	120 days	Wed 11 Jun 15	Wed 11 Sep 28	
23	Utilities coordination	180 days	Thu 11 Sep 29	Mon 12 Nov 26	18,22
24	Temporary disconnection of the hydrant (Bay 7)	90 days	Tue 13 Jan 1	Sun 13 Mar 21	23
25	CI-2's overhead pole diversion (Bay 1 to Bay 15)	199 days	Mon 12 Jul 1	Tue 13 Jan 15	23
26	Relocation diversion of light post (near Bay 13)	248 days	Wed 12 Aug 1	Fri 13 Apr 5	23
27	Relocation diversion of light post (near Bay 32)	248 days	Wed 12 Aug 1	Fri 13 Apr 5	23
28	Construction of Single Cell (approx. 72m)	869 days	Mon 11 Aug 15	Tue 13 Dec 10	
29	Inlet for Box Culvert - in progress	86 days	Mon 13 Feb 4	Tue 13 Apr 25	
30	from CI167 to CI127 (Bay 12,3,4,5)	133 days	Mon 13 Jul 1	Sat 13 Nov 10	25
31	from CI127 to CI151 (Bay 6,7)	91 days	Wed 13 Sep 11	Tue 13 Dec 10	22,24,25
32	from CI152 to CI207 (Bay 8,9,10,11)	159 days	Wed 13 Sep 15	Tue 13 Sep 10	4,25
33	from CI207 to CI297 (Bay 12,13,14,15,16,17,18,19)	179 days	Mon 13 Jul 1	Tue 13 Nov 20	26,25
34	from CI297 to CI334 (Bay 20,21,22) completed	104 days	Mon 11 Aug 15	Fri 11 Nov 5	17,19,21,110,4
35	from CI334 to CI395 (Bay 23,24,25,26,27) completed	74 days	Sat 11 Nov 26	Tue 12 Feb 7	34
36	from CI395 to CI419 (Bay 28,29)	92 days	Mon 13 Aug 28	Mon 13 Nov 27	
37	from CI419 to CI435 (Bay 30,31,32)	101 days	Wed 13 May 15	Sun 13 Aug 25	41,27
38	from CI435 to CI480 (Bay 33,34)	76 days	Thu 13 Sep 26	Mon 13 Aug 25	41,27
39	from CI480 to CI341 (Bay 35,36,37,38,39) completed	185 days	Wed 12 Aug 11	Tue 13 Dec 10	3,23,35,44 days
40	from CI341 to CI377 (Bay 40,41,42) completed	97 days	Sat 12 Aug 11	Tue 12 Nov 15	39
41	from CI377 to CI367 (Bay 43,44,45,46,47,48,49,50) in progress	166 days	Fri 12 Nov 16	Tue 13 Apr 30	40,23,35,44 days
42	RCP above Bay 6)	171 days	Sat 12 Aug 11	Wed 12 Dec 19	39
43	CCTV inspection	46 days	Sat 13 Nov 16	Tue 13 Dec 11	31,35,25 days
44	Installation of Type 2 Railing at Upstream (CI167 to CI19,40)	66 days	Sat 13 Oct 27	Tue 13 Dec 31	3,23,35,30 days,3,35,35,4
45	Landscape Schematic	45 days	Mon 13 Nov 11	Wed 13 Dec 25	30
46		180 days	Sun 13 Jan 30	Tue 13 Dec 26	29,4,13,5,6,48 days
47	Completion of Section 1	0 days	Tue 13 Dec 31	Tue 13 Dec 31	46,45,43,44,33,38
48					
49	Section II (Construction Works in Shek Wu Wai)	1281 days	Fri 11 Apr 29	Thu 14 Oct 30	
50	Commencement of Works	0 days	Fri 11 Apr 29	Fri 11 Apr 29	
51	Original Contract Period	913 days	Fri 11 Apr 29	Sun 13 Oct 27	
52	Extension of Time	320 days	Mon 13 Apr 1	Fri 14 Feb 14	
53	EOT due to inclement weather	65 days	Mon 13 Oct 28	Tue 13 Dec 31	51
54	Utilities in conflict with Construction of Box Culvert at downstream	320 days	Mon 13 Apr 1	Fri 14 Feb 14	
55	utilities diversions	213 days	Mon 13 Apr 1	Wed 13 Oct 30	
56	construction of remaining works	107 days	Thu 13 Oct 31	Fri 14 Feb 14	55
57	Design of TTA	48 days	Fri 11 Apr 29	Wed 11 Jun 15	50
58	Submission of TTA to TM/CG for Approval	60 days	Thu 11 Jun 16	Sun 11 Aug 14	57
59	Excavation Permit	90 days	Mon 11 May 16	Sat 11 Aug 13	59FF
60	Temp Work Design	30 days	Fri 11 Jul 15	Sat 11 Aug 13	59FF
61	Site Investigation for Utilities	90 days	Mon 11 May 16	Sat 11 Aug 13	59FF
62	Submit Program for Utilities Diversion	30 days	Sun 11 Aug 14	Mon 11 Sep 12	61
63	Site Clearance and Tree Felling	48 days	Sat 11 May 16	Sat 11 Jul 2	
64	Implement Stage 1 of TTA	10 days	Mon 11 Aug 15	Wed 11 Aug 24	58,59,63
65	Temp, Steel Decking and temporary carriageway	102 days	Mon 11 Aug 25	Sat 11 Dec 4	64
66	Box Culvert Construction	175 days	Mon 11 Dec 5	Sun 12 Mar 27	
67	Implement Stage 2 of TTA	189 days	Mon 11 Dec 5	Mon 11 Dec 5	65

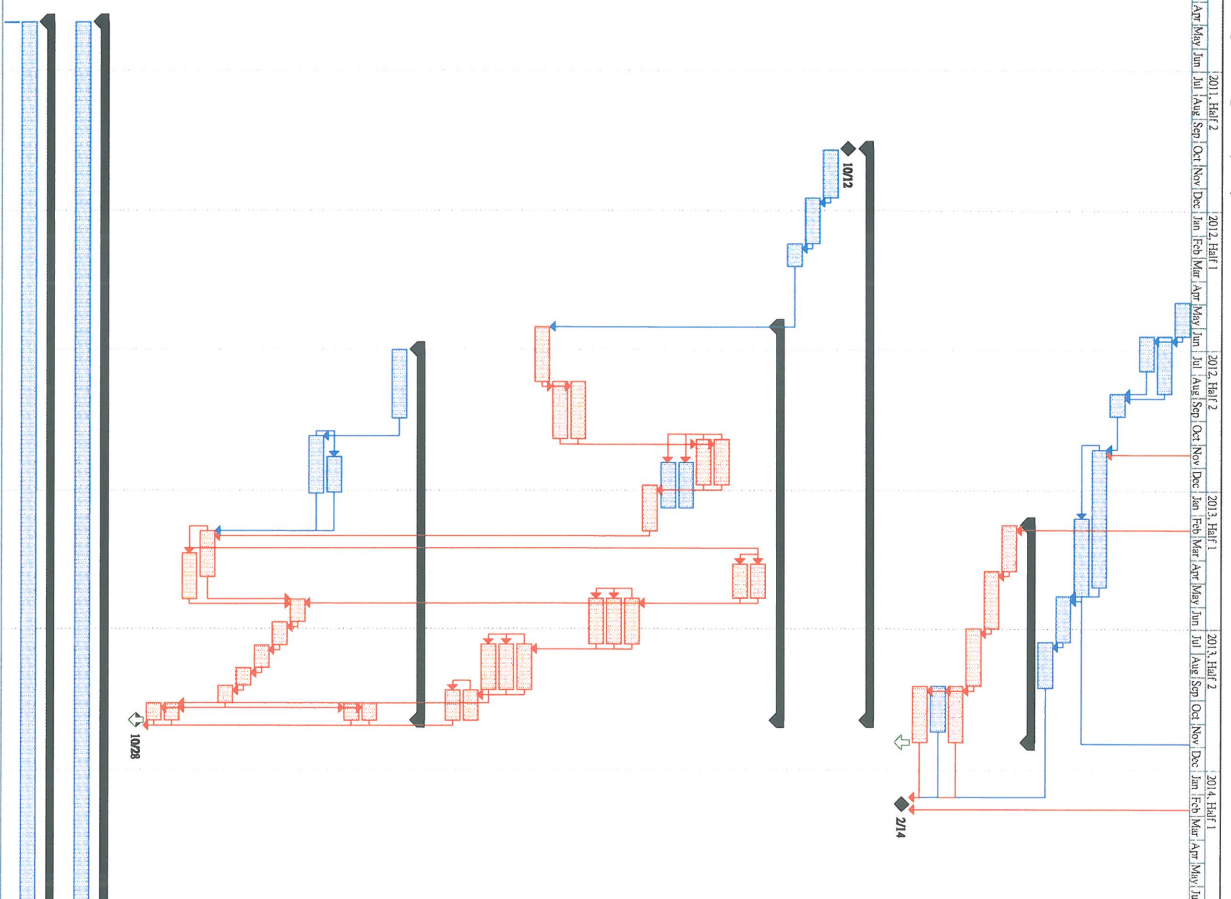


ID	Task Name	Duration	Start	Finish	Processors
68	Construction of Box Culvert along Castle Peak Road (West Bound) including demolition of B/C	41 days	Tue 11 Dec 6	Tue 12 Jun 17	67
69	Temporary accessways for stage 3 TTA	33 days	Wed 12 Jan 18	Sun 12 Feb 09	68
70	Implement Stage 3 of TTA	1 day	Mon 12 Feb 20	Mon 12 Feb 20	69
71	Trail pit for utilities	7 days	Tue 12 Feb 20	Mon 12 Feb 27	70
72	Construction of steel footbridge	7 days	Tue 12 Feb 20	Mon 12 Feb 27	70
73	Installation of steel sheet piles	6 days	Tue 12 Feb 28	Sun 12 Mar 4	72,71
74	Temporary support for utilities	7 days	Mon 12 Mar 5	Sun 12 Mar 11	73
75	Demolish Existing Box Culvert (East Bound)	3 days	Mon 12 Mar 5	Wed 12 Mar 14	74
76	Construction of Base Slabs & Wall of Box Culvert along Castle Peak Road (East Bound)	30 days	Tue 12 Mar 15	Fri 12 Apr 13	75
77	Remove Temporary flow diversion	3 days	Sat 12 Apr 14	Mon 12 Apr 16	76
78	Construction of 3.5m wide top slab of box culvert along Castle Peak Road (East Bound)	41 days	Tue 12 Apr 16	Sun 12 May 27	77
79	Construction of RW1 wing wall section	164 days	Mon 12 May 28	Wed 12 Nov 7	
80	C/P (overhead pole) - cable layme	75 days	Mon 12 May 28	Fri 12 Aug 28	78
81	C/P (overhead pole) - clearing over	14 days	Sat 12 Aug 11	Fri 12 Aug 24	80
82	C/P (overhead pole) - removal of overhead pole	7 days	Sat 12 Aug 25	Fri 12 Aug 31	81
83	Reclaiming wall RW1 - wing wall portion	68 days	Sat 12 Sep 1	Wed 12 Sep 17	82
84	Construction of RW2 (wing wall)	127 days	Mon 12 Sep 14	Mon 12 Sep 17	
85	PCCW - XP application	60 days	Mon 12 Sep 14	Tue 12 Jul 12	83
86	PCCW - demolition of existing joint box cable droopt	7 days	Fri 12 Jul 13	Mon 12 Sep 14	84
87	Reclaiming wall RW2 (wing wall)	60 days	Fri 12 Jul 20	Mon 12 Sep 17	85
88	Reclaiming wall RW2	60 days	Fri 12 Jul 20	Mon 12 Sep 17	86
89	Utilities Diversion by RW2	900 days	Mon 12 Sep 14	Thu 14 Oct 30	
90	C/P (2 no. 11kV cables) - XP application	60 days	Mon 12 Sep 14	Sun 13 Jan 16	87
91	C/P (2 no. 11kV cables) - ducting & cable works (near RW1)	21 days	Mon 13 May 14	Sun 13 May 26	92
92	C/P (2 no. 11kV cables) - ducting & cable works (near RW2)	21 days	Mon 13 Apr 15	Sun 13 May 5	90,97
93	C/P (2 no. 11kV cables) - changing over	21 days	Mon 13 May 27	Sun 13 Jun 16	91
94	NWT	484 days	Mon 12 May 14	Mon 13 Sep 9	
95	NWT - XP application	60 days	Mon 12 May 14	Tue 12 Jul 12	93
96	NWT - manholes & ducting construction works (near RW1)	21 days	Wed 13 May 22	Tue 13 Jun 11	97,101
97	NWT - manholes & ducting construction works (near RW2)	14 days	Mon 13 Apr 1	Sun 13 Apr 14	95,102
98	NWT - diversion & changing over	90 days	Wed 13 Sep 12	Wed 13 Sep 9	96
99	HQC	463 days	Mon 12 May 14	Mon 13 Aug 19	
100	HQC - XP application	60 days	Mon 12 May 14	Tue 12 Jul 12	94
101	HQC - manholes & ducting construction works (near RW1)	21 days	Wed 13 May 14	Tue 13 May 21	102,106
102	HQC - manholes & ducting construction works (near RW2)	14 days	Mon 13 May 18	Sun 13 May 31	100,107
103	HQC - diversion & changing over	90 days	Wed 13 Aug 22	Mon 13 Aug 19	101
104	PCCW	900 days	Mon 12 May 14	Thu 14 Oct 30	
105	PCCW - XP application	60 days	Mon 12 May 14	Tue 12 Jul 12	95
106	PCCW - manholes & ducting construction works (near RW1)	44 days	Mon 13 May 18	Tue 13 Apr 20	83,107
107	PCCW - manholes & ducting construction works (near RW2)	59 days	Fri 13 Jan 18	Sun 13 Feb 17	87,105,119
108	PCCW - diversion & changing over (oversea cables)	184 days	Wed 13 May 1	Wed 13 Oct 30	106
109	PCCW - diversion & changing over (oversea cables - about 4 nos) - to be handed up for construction of remaining Box Culvert	548 days	Wed 13 May 1	Tue 14 Oct 30	106
110	WSD	261 days	Tue 12 May 22	Thu 13 Jun 17	
111	WSD - material delivery	75 days	Tue 12 May 22	Sat 12 Aug 4	
112	WSD - pipes fabrication, installation & laying (near RW1)	12 days	Sat 12 Nov 3	Wed 12 Nov 14	83,85,5 days,11
113	WSD - pipes fabrication, installation & laying (near RW2)	12 days	Tue 12 Sep 18	Sat 12 Sep 29	87
114	WSD - occupation of connection points	7 days	Thu 12 Nov 15	Wed 12 Nov 21	112,113
115	WSD - occupation of connection points with WSD	1 day	Thu 12 Nov 22	Thu 12 Nov 22	114
116	WSD - inspection of connection points with WSD	6 days	Tue 12 Nov 22	Tue 12 Nov 29	114
117	WSD - swabbing / flushing / sterilization	3 days	Wed 12 Nov 28	Fri 12 Nov 30	116,115
118	WSD - shutdown & commissioning by WSD	4 days	Sat 12 Dec 1	Fri 12 Dec 4	117
119	WSD - removal of disused pipes/reinforcement	48 days	Sat 12 Jan 17	Thu 13 Jan 17	117
120	Remaining box culvert	437 days	Wed 12 Dec 5	Fri 14 Feb 14	
121	Construction of top slab of box culvert for East Bound	21 days	Wed 12 Dec 5	Tue 12 Dec 25	118
122	Construction of temp. forebay at downstream	14 days	Wed 12 Dec 26	Tue 13 Jan 8	121
123	Backfilling and removal of temporary works	14 days	Wed 12 Dec 26	Tue 13 Jan 8	121
124	Temporary road surface for East Bound	14 days	Wed 12 Dec 26	Tue 13 Jan 8	121
125	Resume the east bound traffic	1 day	Wed 13 Jan 9	Wed 13 Jan 9	121
126	Temporary road surface for West Bound	21 days	Wed 13 Jan 23	Wed 13 Jan 23	122,124
127	Resume Castle Peak Road traffic for both direction	1 day	Thu 13 Feb 14	Thu 13 Feb 14	126
128	Construction of remaining top slab of box culvert and footpath at downstream	35 days	Thu 13 Oct 31	Wed 13 Dec 4	127,106,93,98,103
129	Implementation of TTA, Permanent road surface & paving block for footpath and associated works	79 days	Thu 13 Nov 28	Fri 14 Feb 14	128,5,7 days,16
130	Reclaiming Wall RW1 & Access Ramp	505 days	Sun 12 Apr 29	Sun 13 Sep 15	



**Contract Title: Drainage Improvement Works in Shuen Wan and Shek Wu Wai
Updated Programme (No. 6)**

ID	Task Name	Duration	Start	Finish	Predecessors
131	Design & submission of TTA (San Tin Tsuen Road) for construction RW1	45 days	Sun 12 Apr 20	Tue 12 Jun 12	
132	Reduction of free surface	75 days	Wed 12 Jun 13	Sun 12 Aug 26	131
133	Construction with RKO & TD to finalize the implementation date of TTA at San Tin	45 days	Wed 12 Jun 13	Fri 12 Jul 21	
134	Site Road	30 days	Mon 12 Aug 27	Tue 13 Sep 25	132, 133
135	Implementation of TTA at San Tin Tsuen Road	180 days	Tue 12 Nov 6	Mon 13 May 6	134
136	Construction of access ramp	102 days	Wed 13 Feb 6	Sun 13 May 19	135
137	Construction of concrete parapet	60 days	Thu 13 Jul 18	Wed 13 Jul 17	136
138	Installation of railing and vehicular gate	60 days	Sun 13 Sep 15	Sun 13 Sep 15	137
139	Rehabilitate Wadi RW3 & RW4	264 days	Fri 13 Feb 15	Mon 13 Apr 15	137
140	Removal of steel road bridge at upstream	60 days	Fri 13 Feb 15	Mon 13 Apr 15	139
141	Construction of RW4	75 days	Tue 13 Apr 16	Sun 13 Jun 29	140
142	Construction of RW3	75 days	Thu 13 Jun 20	Thu 13 Jun 20	141
143	UU diversion permanent works	74 days	Fri 13 Sep 15	Mon 13 Nov 11	142
144	Installation of Type 2 railing and construction of flood wall	60 days	Fri 13 Sep 15	Mon 13 Nov 11	143
145	Rehabilitation of footpath and planter areas	74 days	Fri 13 Sep 15	Mon 13 Nov 11	144
146	Completion of Section II	0 days	Fri 14 Feb 14	Fri 14 Feb 14	141, 142, 143, 144, 145
147					
148	Section III (Construction Works in Wai Ha Village)	714 days	Wed 11 Oct 12	Mon 13 Oct 28	
149	Commence of Works	0 days	Wed 11 Oct 12	Wed 11 Oct 12	
150	Design of 2.4m x 0.9m Box Culvert	65 days	Thu 11 Oct 13	Wed 11 Dec 14	
151	Submission of design & works proposal for Approval	60 days	Thu 11 Oct 13	Sun 12 Feb 12	150
152	Site Clearance & trial pits	30 days	Mon 12 Feb 13	Tue 12 Mar 13	151
153	Construction of Box Culvert (approx. 200m) Bay 1 to Bay 16	515 days	Fri 12 Jan 1	Mon 13 Oct 28	152
154	Bay 1	45 days	Sun 13 Mar 7	Thu 13 Mar 21	153
155	Bay 2	45 days	Sun 13 Apr 7	Mon 13 Apr 21	154
156	Bay 3	45 days	Fri 12 Oct 26	Mon 12 Dec 24	155
157	Bay 4	45 days	Fri 12 Oct 26	Mon 12 Dec 24	156
158	Bay 5	45 days	Fri 12 Oct 26	Mon 12 Dec 24	157
159	Bay 6	45 days	Sun 12 Nov 25	Wed 13 Jan 23	158
160	Bay 7	45 days	Tue 12 Dec 25	Fri 13 Feb 22	159
161	Bay 8	45 days	Wed 13 Mar 22	Sat 13 Jul 20	160
162	Bay 9	45 days	Wed 13 Mar 22	Sat 13 Jul 20	161
163	Bay 10	45 days	Wed 13 Mar 22	Sat 13 Jul 20	162
164	Bay 11	45 days	Sun 12 Aug 12	Thu 12 Oct 25	163
165	Bay 12	45 days	Sun 12 Aug 12	Thu 12 Oct 25	164
166	Bay 13	45 days	Fri 12 Aug 11	Wed 13 Sep 18	165
167	Bay 14	45 days	Sat 13 Jul 21	Wed 13 Sep 18	166
168	Bay 15	45 days	Sat 13 Jul 21	Wed 13 Sep 18	167
169	Bay 16	45 days	Sat 13 Jul 21	Wed 13 Sep 18	168
170	Bay 17	40 days	Thu 13 Sep 19	Mon 13 Oct 28	169
171	Bay 18 and Outfall	40 days	Thu 13 Sep 19	Mon 13 Oct 28	170
172					
173	Construction of box culvert (1m x 1m) Bay 1 to Bay 8 (approx. 50m)	405 days	Sun 12 Jul 1	Mon 13 Oct 28	
174	Notification to villagers regarding traffic arrangement for construction of 1 m x 1 m box culvert	90 days	Sun 12 Jul 1	Fri 12 Sep 28	
175	Intake headwall	23 days	Sun 13 Oct 6	Mon 13 Oct 28	173
176	Bay 1	23 days	Sun 13 Oct 6	Mon 13 Oct 28	174
177	Bay 2	47 days	Sun 12 Nov 18	Thu 13 Jan 3	176
178	Bay 3	75 days	Mon 12 Oct 22	Fri 13 Jan 4	177
179	Bay 4	30 days	Thu 13 Mar 22	Sun 13 Jul 21	178
180	Bay 5	30 days	Sun 13 Jun 22	Sun 13 Jul 21	179
181	Bay 6	30 days	Mon 13 Jul 22	Thu 13 Aug 20	180
182	Bay 7	23 days	Wed 13 Aug 21	Thu 13 Sep 12	181
183	Bay 8	23 days	Fri 13 Sep 13	Sat 13 Oct 5	182
184	Bay 9	60 days	Tue 13 Apr 23	Wed 13 Mar 22	183
185	Bay 10	60 days	Sat 13 Apr 24	Wed 13 Mar 22	184
186	CCTV inspection of box culvert	23 days	Sun 13 Oct 6	Mon 13 Oct 28	185
187	Grouting of existing 900mm storm drain	23 days	Sun 13 Oct 6	Mon 13 Oct 28	186
188	Completion of Section III	0 days	Mon 13 Oct 28	Mon 13 Oct 28	187, 188
189					
190	Section IV (Gradient A1 and A2, Shuen Wan)	1345 days	Fri 11 Apr 29	Wed 14 Dec 31	
191	Landscape Establishment Works and preservation & protection of trees	1345 days	Fri 11 Apr 29	Wed 14 Dec 31	
192					
193	Section V (Gradient B, Shek Wu Wai)	1388 days	Fri 11 Apr 29	Sat 15 Feb 14	
194	Landscape Establishment Works and preservation & protection of trees	1388 days	Fri 11 Apr 29	Sat 15 Feb 14	
195					



Data Date: 09 Jun 2015
Printed on: 30 Mar 2015

Task: [Blue bar] Milestone: [Diamond] Summary: [Grey bar]

Critical Task: [Red bar] Rolled Up Critical Task: [Red bar]

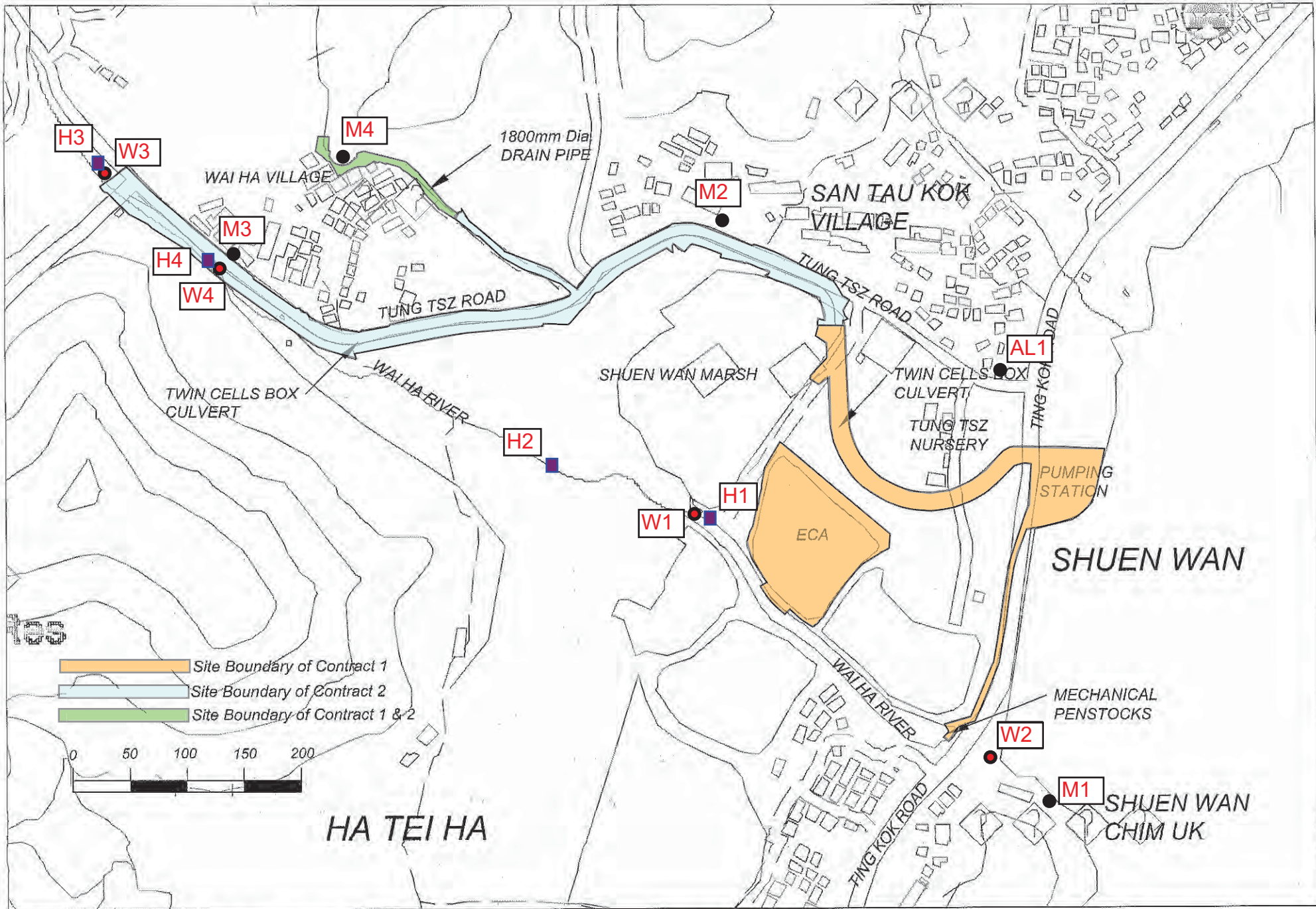
Roll Up Task: [Blue bar] Rolled Up Milestone: [Diamond] Rolled Up Progress: [Grey bar]

Split: [Grey bar] External Tasks: [Grey bar] Project Summary: [Grey bar] Group By Summary: [Grey bar] Inactive Task: [Grey bar] Progress: [Grey bar] Deadline: [Grey bar]

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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	Rion Sound Level Meter (Serial No. 00410247)	29 Apr 14	29 Apr 15
2		Rion Sound Calibrator (Serial No. 34246492)	28 Feb 14	28 Feb 15
3	Water	YSI Pro 20 (Serial No. 12C100570)	6 Jan 15	6 Apr 15
4		Turbidmeter HACH 2100Q (Serial No. 12060C018266)	13 Jan 15	13 Apr 15
5		pH meter 8685 (Serial No. 212632)	15 Jan 15	15 Apr 15

Note:

* This Appendix G presents only calibration certificates of new monitoring equipment or those expired and re-calibrated during the Reporting Period (**Renewed Item No. and Calibration dates will be highlighted for ease of checking**). No valid calibration certificates presented in the previous report will be dittoed under environmental consideration.

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"> 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, Contractor's working methods and any excavation works or dewatering processes; 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 working methods and any excavation works or dewatering processes; Consider changes in working methods and plans; 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, Contractor's working methods and any excavation works or dewatering processes; 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 working methods and any excavation works or dewatering processes; Consider changes in working methods and plans; 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 AFCD, IEC, Contractor and Engineer; Check monitoring data, and Contractor's working methods and any excavation works or dewatering processes; 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 working methods and any excavation works or dewatering processes; Consider changes in working methods and plans; 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 AFCD, IEC, Contractor and Engineer; Check monitoring data and Contractor's working methods and any excavation works or dewatering processes; 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 working methods and any excavation works or dewatering processes; Consider changes in working methods and plans; 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.

Appendix G

Monitoring Schedule in Reporting Period and the Coming Month

Monitoring Schedule in this Reporting Period – February 2015

Date		Stream Monitoring		Noise Monitoring	Weekly Site Inspection of ET
		Sampling and In-situ Measurement	Hydrological Characteristics		
Sun	1-Feb-15				
Mon	2-Feb-15	W1, W2, W3, W4			
Tue	3-Feb-15				
Wed	4-Feb-15	W1, W2, W3, W4	H1, H2, H3, H4	M1, AL1, M2, M3, M4	
Thu	5-Feb-15				
Fri	6-Feb-15	W1, W2, W3, W4			Contract 2
Sat	7-Feb-15				
Sun	8-Feb-15				
Mon	9-Feb-15				
Tue	10-Feb-15	W1, W2, W3, W4			Contract 2
Wed	11-Feb-15				
Thu	12-Feb-15	W1, W2, W3, W4	H1, H2, H3, H4	M1, AL1, M2, M3, M4	
Fri	13-Feb-15				
Sat	14-Feb-15	W1, W2, W3, W4			
Sun	15-Feb-15				
Mon	16-Feb-15	W1, W2, W3, W4	H1, H2, H3, H4	M1, AL1, M2, M3, M4	Contract 2
Tue	17-Feb-15				
Wed	18-Feb-15	W1, W2, W3, W4			
Thu	19-Feb-15	Chinese New Year			
Fri	20-Feb-15	Chinese New Year			
Sat	21-Feb-15	Chinese New Year			
Sun	22-Feb-15				
Mon	23-Feb-15	W1, W2, W3, W4			
Tue	24-Feb-15				
Wed	25-Feb-15	W1, W2, W3, W4			
Thu	26-Feb-15				
Fri	27-Feb-15	W1, W2, W3, W4	H1, H2, H3, H4	M1, AL1, M2, M3, M4	Contract 2
Sat	28-Feb-15				

	Monitoring Day
	Sunday or Public Holiday

Monitoring Schedule for next Reporting Period – March 2015

Date		Stream Monitoring		Noise Monitoring	Weekly Site Inspection of ET
		Sampling and In-situ Measurement	Hydrological Characteristics		
Sun	1-Mar-15				
Mon	2-Mar-15				
Tue	3-Mar-15	W1, W2, W3, W4,	H1, H2, H3, H4	M1, AL1,M2, M3, M4	Contract 2
Wed	4-Mar-15				
Thu	5-Mar-15	W1, W2, W3, W4			
Fri	6-Mar-15				
Sat	7-Mar-15	W1, W2, W3, W4			
Sun	8-Mar-15				
Mon	9-Mar-15				
Tue	10-Mar-15	W1, W2, W3, W4	H1, H2, H3, H4	M1, AL1,M2, M3, M4	Contract 2
Wed	11-Mar-15				
Thu	12-Mar-15	W1, W2, W3, W4			
Fri	13-Mar-15				
Sat	14-Mar-15	W1, W2, W3, W4			
Sun	15-Mar-15				
Mon	16-Mar-15	W1, W2, W3, W4	H1, H2, H3, H4	M1, AL1,M2, M3, M4	
Tue	17-Mar-15				
Wed	18-Mar-15	W1, W2, W3, W4			
Thu	19-Mar-15				
Fri	20-Mar-15	W1, W2, W3, W4			Contract 2
Sat	21-Mar-15				
Sun	22-Mar-15				
Mon	23-Mar-15	W1, W2, W3, W4			
Tue	24-Mar-15				
Wed	25-Mar-15	W1, W2, W3, W4			
Thu	26-Mar-15				
Fri	27-Mar-15	W1, W2, W3, W4	H1, H2, H3, H4	M1, AL1,M2, M3, M4	Contract 2
Sat	28-Mar-15				
Sun	29-Mar-15				
Mon	30-Mar-15	W1, W2, W3, W4			
Tue	31-Mar-15				

	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
1-Feb-15	Sun	Mainly cloudy and dry. Moderate to fresh northeasterly winds.	Trace	14.5	75	6.1	N/NE
2-Feb-15	Mon	Mainly cloudy and dry. Moderate to fresh northeasterly winds.	0	16.2	74.5	7.5	N/NE
3-Feb-15	Tue	Mainly cloudy and dry. Moderate to fresh northeasterly winds.	0	16.9	78.2	5.5	N/NE
4-Feb-15	Wed	Mainly cloudy and dry. Moderate to fresh northeasterly winds.	0	15.6	74.5	6.5	E/NE
5-Feb-15	Thu	Mainly cloudy with relatively low visibility. Moderate east to northeasterly winds.	Trace	13.6	62.5	8.9	N
6-Feb-15	Fri	Mainly cloudy overnight. Sunny periods with some haze during the day. Moderate east to northeasterly winds.	0.3	12.2	69.2	7	N/NE
7-Feb-15	Sat	Mainly cloudy overnight. Sunny periods with some haze during the day. Moderate east to northeasterly winds.	0	15.7	68	6.9	N
8-Feb-15	Sun	Fine and dry but hazy. Mild in the afternoon. Light to moderate northeasterly winds.	0	16.4	53	9.1	N/NE
9-Feb-15	Mon	Fine and dry but hazy. Mild in the afternoon. Light to moderate northeasterly winds.	0	14.5	64	7.5	E/NE
10-Feb-15	Tue	Mainly cloudy overnight. Sunny periods with some haze during the day. Moderate east to northeasterly winds.	0	13.2	70	5.2	E/SE
11-Feb-15	Wed	Fine and dry but hazy. Mild in the afternoon. Light to moderate northeasterly winds.	0	15.6	66.2	4.5	N/NE
12-Feb-15	Thu	Mainly fine. Very dry in the afternoon. Cloudy periods tonight. Moderate easterly winds.	0	16.8	53	7.5	NE
13-Feb-15	Fri	Mainly fine. Very dry in the afternoon. Cloudy periods tonight. Moderate easterly winds.	0	16	50.5	7	S/SE
14-Feb-15	Sat	Mainly cloudy with fog. Sunny periods during the day. Light winds.	0	17.4	48.5	9.1	E/SE
15-Feb-15	Sun	Mainly cloudy with fog. Sunny periods during the day. Light winds.	3.3	18.3	84.2	7.7	E/NE
16-Feb-15	Mon	Mainly cloudy with fog. Sunny periods during the day. Light winds.	0	19	90	5	N/NE
17-Feb-15	Tue	Mainly cloudy with fog. Sunny periods during the day. Light winds.	Trace	18.9	82.5	6.5	E/SE
18-Feb-15	Wed	Mainly cloudy with fog. Sunny periods during the day. Light winds.	Trace	18.2	77	8.8	E
19-Feb-15	Thu	Mainly fine. Very dry in the afternoon. Cloudy periods tonight. Moderate easterly winds.	Trace	17.5	73.7	10.8	E
20-Feb-15	Fri	Mainly fine. Very dry in the afternoon. Cloudy periods tonight. Moderate easterly winds.	Trace	17.2	87.5	10	E/NE
21-Feb-15	Sat	Cloudy and foggy. Bright periods in the afternoon. Moderate east to southeasterly winds.	0.2	19.3	89.5	7.3	E/NE
22-Feb-15	Sun	Cloudy and foggy. Bright periods in the afternoon. Moderate east to southeasterly winds.	15.6	20.2	91.7	7.7	E/NE
23-Feb-15	Mon	Cloudy and foggy. Bright periods in the afternoon. Moderate east to southeasterly winds.	10.2	18.9	91.7	9.9	E
24-Feb-15	Tue	Cloudy and foggy. Bright periods in the afternoon. Moderate east to southeasterly winds.	Trace	18.9	78	7.7	E/NE
25-Feb-15	Wed	Mainly cloudy. A few fog patches overnight. Light to moderate southeasterly winds.	0.8	19.1	80	6	N/NE
26-Feb-15	Thu	Cloudy and slightly cooler with a few rain patches. Misty at first. Fresh easterly winds.	0	21.6	87	7.5	N/NE
27-Feb-15	Fri	Cloudy and slightly cooler with a few rain patches. Misty at first. Fresh easterly winds.	1.2	19.6	92	10.6	E/SE
28-Feb-15	Sat	Cloudy to overcast with a few rain and mist patches. Moderate to fresh easterly winds.	0.4	18.3	89	8.2	E

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

Appendix I

Data Base of Monitoring Results

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}	Corrected* Leq _{30min}
6-Feb-15	11:00	61.2	59.6	63.7	59.8	59.3	60.3	60.9	64
12-Feb-15	10:16	62.2	64.9	62.5	61.4	61.6	58.0	62.2	65
16-Feb-15	14:01	57.9	58.8	59.3	63.9	58.1	59.6	60.2	63
27-Feb-15	13:22	58.3	59.7	58.0	58.2	60.8	60.7	59.4	62
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 – 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}	Corrected* Leq _{30min}
6-Feb-15	11:36	58.6	60.6	58.8	60.5	61.0	61.2	60.2	63
12-Feb-15	10:51	56.8	53.4	57.9	55.9	55.3	56.6	56.2	59
16-Feb-15	14:37	59.6	59.8	57.2	59.0	57.8	59.0	58.8	62
27-Feb-15	11:32	56.1	58.0	58.0	54.0	56.2	59.0	57.2	60
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 - 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}
6-Feb-15	15:17	61.6	63.2	61.1	62.0	64.2	64.6	63.0	66
12-Feb-15	11:26	56.0	54.9	57.8	57.6	56.4	53.5	56.3	59
16-Feb-15	15:10	54.8	56.0	55.8	52.4	56.1	56.3	55.4	58
27-Feb-15	11:00	53.4	55.8	56.8	54.7	55.4	58.3	56.0	59
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}
6-Feb-15	13:03	56.0	55.8	55.7	55.3	61.1	63.2	59.1	62
12-Feb-15	13:20	55.9	55.2	55.1	56.1	54.6	53.8	55.2	58
16-Feb-15	15:44	54.0	55.8	55.9	54.4	53.3	56.8	55.2	58
27-Feb-15	09:50	50.8	50.1	49.2	50.4	51.4	52.2	50.8	54
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}
6-Feb-15	14:38	49.2	43.8	48.1	45.2	46.3	49.5	47.5	50
12-Feb-15	13:58	49.3	47.4	44.5	45.4	46.2	44.1	46.5	50
16-Feb-15	16:49	47.8	45.8	47.3	46.1	45.6	45.0	46.4	49
27-Feb-15	10:26	47.6	47.3	48.4	47.8	45.6	47.0	47.4	50
Limit Level		-						> 75 dB(A)	

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

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

AUES

Location			DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
W1 (impact)	Action/ Limit Level		Action	7.27	Action	n/a	Action	4.77	Action	n/a	Action	9.73
			Limit	4	Limit	n/a	Limit	5.26	Limit	n/a	Limit	10.77
Action			7.26	Action	n/a	Action	2.46	Action	n/a	Action	8.89	
Limit			4	Limit	n/a	Limit	3.42	Limit	n/a	Limit	9.75	
W2 (impact)												
W3 (control)			n/a		n/a		n/a		n/a		n/a	
W4 (impact)			Action	9.27	Action	n/a	Action	3.32	Action	n/a	Action	6.98
			Limit	4	Limit	n/a	Limit	4.52	Limit	n/a	Limit	7.66

Date	2-Feb-15													
Location	Time	Depth (m)	Temp (oC)	DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)		
W1 - ebb (impact)	12:51	0.36	21	21.0	7.79	7.8	88.1	88.4	11.2	11.3	6.8	6.8	6	6.0
			21		7.84		88.6		11.3		6.8		6	
W1 - flood (impact)	9:18	0.41	20.2	20.2	7.46	7.5	90.6	90.3	12.2	11.9	6.7	6.7	<2	2.0
			20.2		7.44		89.9		11.6		6.7		<2	
W2-Edd (Impact)	12:38	0.36	21.3	21.2	9.19	9.3	99.4	100.2	9.92	10.0	6.7	6.7	6	6.0
			21		9.31		100.9		10.1		6.7		6	
W2-Flood (Impact)	9:03	0.42	20.5	20.5	9.65	9.6	106.1	105.2	7.17	7.3	6.9	6.9	8	8.0
			20.5		9.46		104.2		7.49		6.9		8	
W3 (control)	12:07	0.33	20.7	20.7	8.13	8.1	90.7	90.2	7.81	7.7	8.1	8.1	6	6.0
			20.7		8.04		89.6		7.5		8.1		6	
W4 (impact)	12:18	0.25	21.1	21.1	8.44	8.4	96.6	94.7	5.52	5.7	8	8.0	5	5.0
			21.1		8.28		92.8		5.83		8		5	

Date	4-Feb-15													
Location	Time	Depth (m)	Temp (oC)	DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)		
W1 - ebb (impact)	13:39	0.36	18.8	18.8	7.01	7.1	74.7	75.6	5.48	5.5	6.5	6.5	3	3.0
			18.8		7.16		76.5		5.49		6.5		3	
W1 - flood (impact)	10:41	0.42	18.6	18.6	6.87	6.9	73.5	74.1	8.59	8.6	6.6	6.6	7	7.0
			18.6		6.99		74.7		8.53		6.6		7	
W2-Edd (Impact)	13:22	0.39	18.9	18.9	7.11	7.1	75.8	75.3	11.3	11.6	7.1	7.1	9	9.0
			18.9		7		74.7		11.8		7.1		9	
W2-Flood (Impact)	10:26	0.44	18.6	18.6	6.59	6.7	70.5	72.1	7.33	7.2	6.7	6.7	7	7.0
			18.6		6.88		73.6		7		6.7		7	
W3 (control)	9:51	0.38	18.5	18.5	7.44	7.5	79.9	80.9	5.46	5.5	7.5	7.5	13	13.0
			18.5		7.62		81.9		5.57		7.5		13	
W4 (impact)	10:13	0.27	18.4	18.4	7.87	7.8	84.4	83.2	4.18	4.4	7.3	7.3	3	3.0
			18.4		7.65		81.9		4.55		7.3		3	

Date	6-Feb-15													
Location	Time	Depth (m)	Temp (oC)	DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)		
W1 - ebb (impact)	14:00	0.37	17.3	17.3	7.54	7.5	78.7	78.3	7.32	7.2	7	7.0	5	5.0
			17.3		7.469		77.8		7.15		7		5	
W1 - flood (impact)	10:46	0.44	14.9	14.9	7.32	7.2	72.4	71.6	3.35	3.3	6.9	6.9	4	4.0
			14.9		7.16		70.7		3.32		6.9		4	
W2-Edd (Impact)	14:18	0.46	17.4	17.4	7.17	7.1	75.9	75.6	5	5.1	6.7	6.7	3	3.0
			17.4		7.11		75.3		5.25		6.7		3	
W2-Flood (Impact)	11:00	0.51	14.6	14.6	7.84	7.7	77.1	76.7	6.31	6.2	6.8	6.8	4	4.0
			14.6		7.46		76.3		6.06		6.8		4	
W3 (control)	10:12	0.36	15.1	15.1	7.35	7.3	73.2	72.8	3.31	3.3	8	8.0	<2	2.0
			15.1		7.23		72.4		3.24		8		<2	
W4 (impact)	10:27	0.25	15	15.0	7.17	7.1	72	71.9	2.83	3.0	8.2	8.2	<2	2.0
			15		7.09		71.7		3.16		8.2		<2	

Date	10-Feb-15													
Location	Time	Depth (m)	Temp (oC)	DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)		
W1 - ebb (impact)	16:59	0.36	18.3	18.3	8.61	8.7	91.2	91.6	5.82	5.7	7.1	7.1	3	3.0
			18.3		8.7		91.9		5.61		7.1		3	
W1 - flood (impact)	10:37	0.45	19	19.0	8.32	8.3	87.4	87.3	4.98	5.0	7.4	7.4	4	4.0
			19		8.37		87.1		5.07		7.4		4	
W2-Edd (Impact)	17:13	0.38	18.1	18.1	8.32	8.3	88.7	89.1	8.48	8.4	6.9	6.9	3	3.0
			18.1		8.37		89.4		8.31		6.9		3	
W2-Flood (Impact)	10:52	0.47	18.8	18.8	7.95	7.9	84.3	83.9	6.73	6.8	7.3	7.3	4	4.0
			18.8		7.87		83.5		6.88		7.3		4	
W3 (control)	16:28	0.34	18	18.0	8.13	8.2	84.2	84.9	4.29	4.2	8.4	8.4	3	3.0
			18		8.25		85.5		4.19		8.4		3	
W4 (impact)	16:41	0.25	17.8	17.8	8.66	8.6	89.9	88.8	5.03	5.2	8.2	8.2	4	4.0
			17.8		8.48		87.6		5.28		8.2		4	

Date	12-Feb-15													
Location	Time	Depth (m)	Temp (oC)	DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)		
W1 - ebb (impact)	17:18	0.41	20.2	20.2	7.39	7.3	84	83.6	11.1	11.4	6.6	6.6	7	7.0
			20.2		7.29		83.1		11.7		6.6		7	
W1 - flood (impact)	10:02	0.34	17.5	17.5	7.88	7.8	82.4	81.2	6.23	6.3	6.8	6.8	2	2.0
			17.5		7.65		80		6.44		6.8		2	
W2-Edd (Impact)	17:33	0.45	20	20.0	7.66	7.6	86.1	85.7	5.93	6.0	7	7.0	3	3.0
			20		7.54		85.3		6.05		7		3	
W2-Flood (Impact)	10:16	0.37	16.9	16.9	6.65	6.6	68.4	68.2	7.13	7.3	7.1	7.1	4	4.0
			16.9		6.61		67.9		7.4		7.1		4	
W3 (control)	9:34	0.33	18	18.0	8.37	8.3	88.5	87.9	3.72	3.6	7.4	7.4	<2	2.0
			18		8.26		87.3		3.53		7.4		<2	
W4 (impact)	9:46	0.24	18.3	18.3	8.58	8.6	91.2	91.5	4.68	4.6	7.3	7.3	<2	2.0
			18.3		8.64		91.8		4.42		7.3		<2	

Date	14-Feb-15													
Location	Time	Depth (m)	Temp (oC)	DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)		
W1 - ebb (impact)	9:11	0.40	18.8	18.8	7.76	7.8	98.3	99.1	7.54	7.4	8.1	8.1	6	6.0
			18.8		7.87		99.8		7.22		8.1		6	

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Location	Action/ Limit Level				DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
W1 (impact)					Action	7.27	Action	n/a	Action	4.77	Action	n/a	Action	9.73
					Limit	4	Limit	n/a	Limit	5.26	Limit	n/a	Limit	10.77
W2 (impact)					Action	7.26	Action	n/a	Action	2.46	Action	n/a	Action	8.89
					Limit	4	Limit	n/a	Limit	3.42	Limit	n/a	Limit	9.75
W3 (control)					n/a		n/a		n/a		n/a		n/a	
W4 (impact)					Action	9.27	Action	n/a	Action	3.32	Action	n/a	Action	6.98
					Limit	4	Limit	n/a	Limit	4.52	Limit	n/a	Limit	7.66
W1- flood (impact)	15:02	0.45	19.6 19.6	19.6	8.17 8.23	8.2	103.3 104.1	103.7	7.81 7.26	7.5	8 8	8.0	6 6	6.0
W2-Edd (Impact)	15:18	0.48	18.6 18.6	18.6	8.04 8.13	8.1	101.8 103	102.4	7.98 7.86	7.9	8.1 8.1	8.1	6 6	6.0
W2-Flood (Impact)	9:23	0.54	19.5 19.5	19.5	7.35 7.27	7.3	93.1 92.1	92.6	7.74 7.56	7.7	8.2 8.2	8.2	8 8	8.0
W3 (control)	14:27	0.34	18.5 18.5	18.5	7.5 7.59	7.5	85.2 86.3	85.8	1.62 1.58	1.6	8.3 8.3	8.3	<2 <2	2.0
W4 (impact)	14:41	0.25	18.3 18.3	18.3	10.46 10.43	10.4	111.1 110.8	111.0	1.65 1.61	1.6	8 8	8.0	<2 <2	2.0

Date	16-Feb-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
W1 - ebb (impact)	9:14	0.36	18.9 18.9	18.9	7.28 7.19	7.2	95.8 94.6	95.2	6.56 6.79	6.7	8 8	8.0	9 9	9.0
W1- flood (impact)	13:14	0.41	21.3 21.3	21.3	6.76 6.8	6.8	89 89.6	89.3	6.22 6.04	6.1	8.1 8.1	8.1	4 4	4.0
W2-Edd (Impact)	9:32	0.44	18.9 18.9	18.9	6.78 6.81	6.8	89.1 89.7	89.4	8.17 8.12	8.1	8.1 8.1	8.1	5 5	5.0
W2-Flood (Impact)	14:08	0.50	21 21	21.0	6 5.98	6.0	79.1 78.8	79.0	10.4 9.97	10.2	7.9 7.9	7.9	3 3	3.0
W3 (control)	13:10	0.34	22.1 22.1	22.1	7.43 7.35	7.4	85.1 84.3	84.7	3.13 3.08	3.1	7.6 7.6	7.6	4 4	4.0
W4 (impact)	13:38	0.25	22 22	22.0	8.21 8.3	8.3	94.2 95.2	94.7	2.79 2.92	2.9	7.5 7.5	7.5	<2 <2	2.0

Date	18-Feb-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
W1 - ebb (impact)	10:18	0.44	19.7 19.7	19.7	7.48 7.63	7.6	94.5 96.4	95.5	6.76 6.64	6.7	7.9 7.9	7.9	2 2	2.0
W1- flood (impact)	16:31	0.40	21.9 21.9	21.9	6.68 6.66	6.7	86.5 86.2	86.4	5.87 5.72	5.8	7.5 7.5	7.5	3 3	3.0
W2-Edd (Impact)	10:33	0.53	19.6 19.6	19.6	7.14 7.33	7.2	92.9 95.4	94.2	8.65 8.99	8.8	8.3 8.3	8.3	3 3	3.0
W2-Flood (Impact)	16:05	0.49	21.8 21.8	21.8	6.48 6.64	6.6	86.6 88.7	87.7	7.21 7.08	7.1	8.1 8.1	8.1	5 5	5.0
W3 (control)	15:54	0.36	21.7 21.7	21.7	7.35 7.31	7.3	83.7 83.2	83.5	4.25 4.21	4.2	8.7 8.7	8.7	5 5	5.0
W4 (impact)	16:10	0.25	21.5 21.5	21.5	7.59 7.77	7.7	86.7 88.6	87.7	4.69 4.47	4.6	8.5 8.5	8.5	2 2	2.0

Date	23-Feb-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
W1 - ebb (impact)	17:40	0.39	20.4 20.4	20.4	7.61 7.55	7.6	96.5 95.8	96.2	5.01 4.97	5.0	7.9 7.9	7.9	3 3	3.0
W1- flood (impact)	10:37	0.48	19.9 19.9	19.9	6.82 6.71	6.8	87.4 86.9	87.2	5.13 5.18	5.2	7.7 7.7	7.7	4 4	4.0
W2-Edd (Impact)	17:59	0.41	20.6 20.6	20.6	6.53 6.57	6.6	93.8 93	93.4	6.18 6.16	6.2	8 8	8.0	4 4	4.0
W2-Flood (Impact)	10:49	0.53	19.7 19.7	19.7	7.29 7.2	7.2	88.3 88.5	88.4	5.48 5.51	5.5	7.9 7.9	7.9	4 4	4.0
W3 (control)	17:08	0.31	21.1 21.1	21.1	7.18 7.32	7.3	81.9 83.3	82.6	3.13 3.06	3.1	8.2 8.2	8.2	3 3	3.0
W4 (impact)	17:22	0.25	21 21	21.0	7.46 7.39	7.4	87.2 86.5	86.9	2.87 2.91	2.9	8.1 8.1	8.1	<2 <2	2.0

Date	25-Feb-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
W1 - ebb (impact)	16:12	0.40	20.1 20.1	20.1	7.23 7.09	7.2	92.7 91	91.9	8.32 8.28	8.3	8 8	8.0	5 5	5.0
W1- flood (impact)	15:01	0.42	20.1 20.1	20.1	6.8 6.71	6.8	87.4 86.2	86.8	7.44 7.51	7.5	8.2 8.2	8.2	8 8	8.0
W2-Edd (Impact)	16:30	0.50	19.9 19.9	19.9	6.79 6.88	6.8	86.2 87.5	86.9	7.96 8.03	8.0	7.8 7.8	7.8	9 9	9.0
W2-Flood (Impact)	15:18	0.53	19.8 19.8	19.8	6.11 6.08	6.1	77.7 77.3	77.5	7.71 7.64	7.7	8 8	8.0	7 7	7.0
W3 (control)	15:39	0.35	20.8 20.8	20.8	6.91 6.87	6.9	77.7 77.2	77.5	4.15 4.22	4.2	8.7 8.7	8.7	3 3	3.0
W4 (impact)	15:51	0.26	20.6 20.6	20.6	7.87 7.85	7.9	88.3 88.1	88.2	4.09 4.01	4.1	8.6 8.6	8.6	<2 <2	2.0

Date	27-Feb-15													
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DO (%)		Turbidity (NTU)		pH		SS(mg/L)	
W1 - ebb (impact)	9:08	0.41	18.2 18.2	18.2	7.85 7.7	7.8	100.3 98.4	99.4	5.73 5.7	5.7	8 8	8.0	7 7	7.0
W1- flood (impact)	15:31	0.43	18.9 18.9	18.9	7.15 7.2	7.2	91.4 92	91.7	5.54 5.48	5.5	7.8 7.8	7.8	5 5	5.0
W2-Edd (Impact)	9:14	0.46	18.1 18.1	18.1	7.29 7.42	7.4	93.1 94.8	94.0	6.62 6.57	6.6	8.3 8.3	8.3	6 6	6.0
W2-Flood	15:40	0.51	18.7	18.7	6.93	6.9	88.6	87.9	5.84	5.9	8.2	8.2	8	8.0

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 Summary of Water Quality Monitoring Results

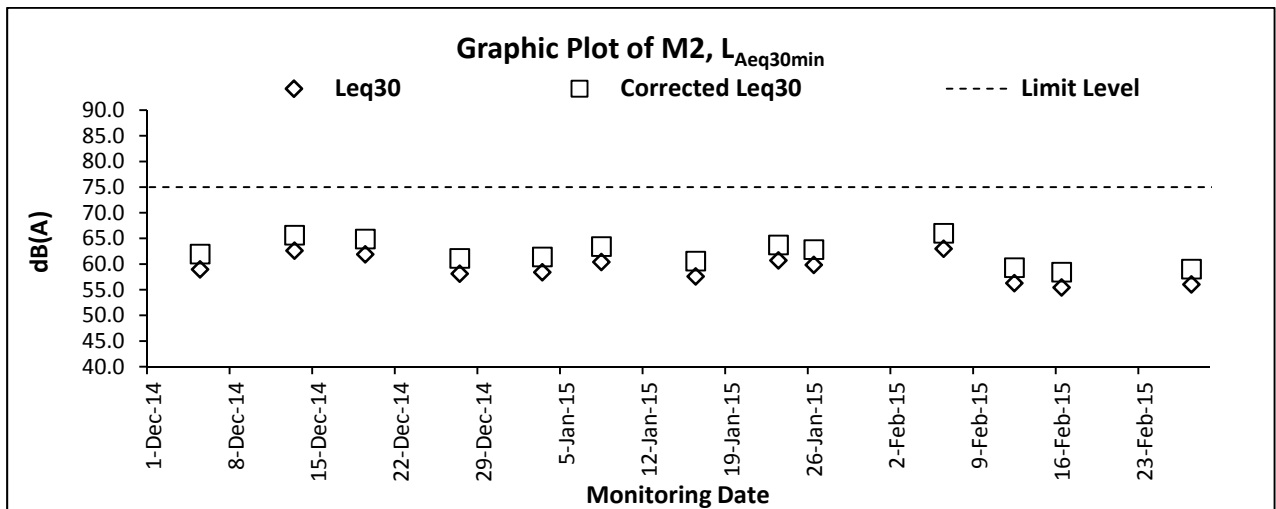
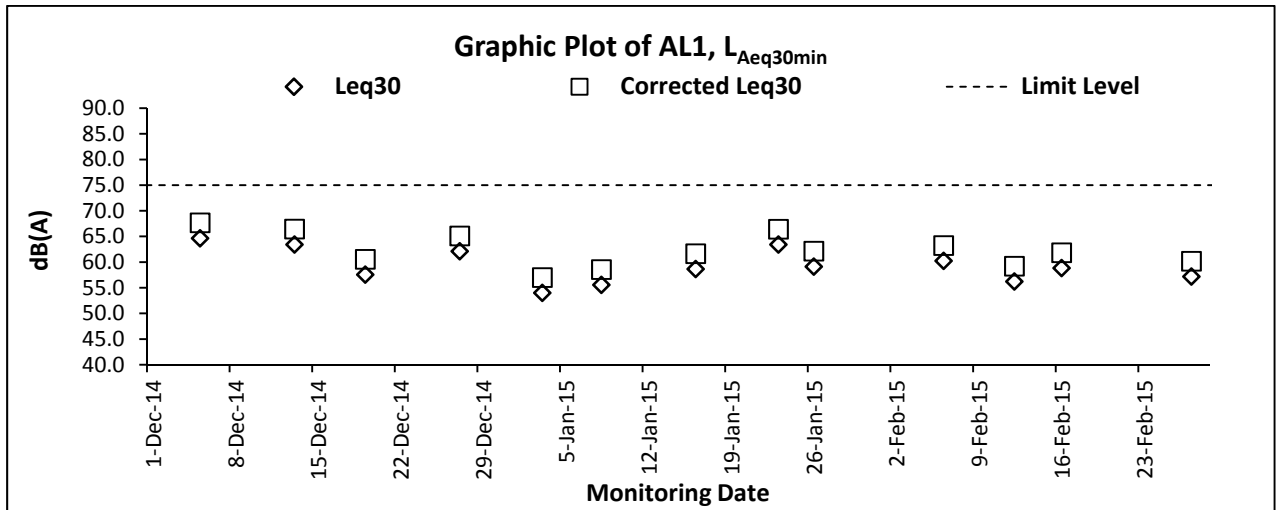
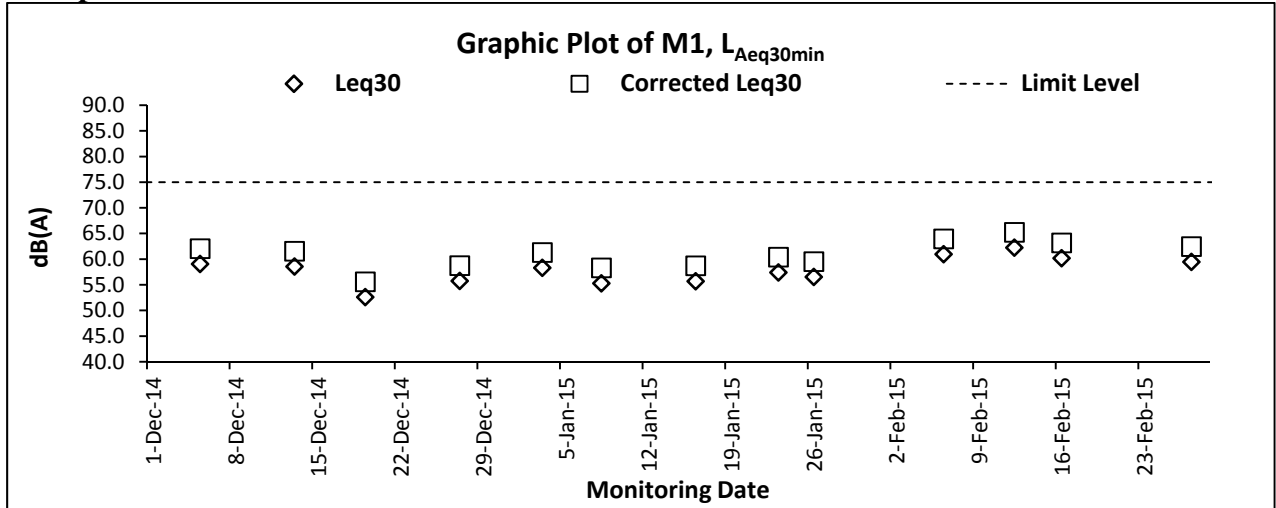
AUES

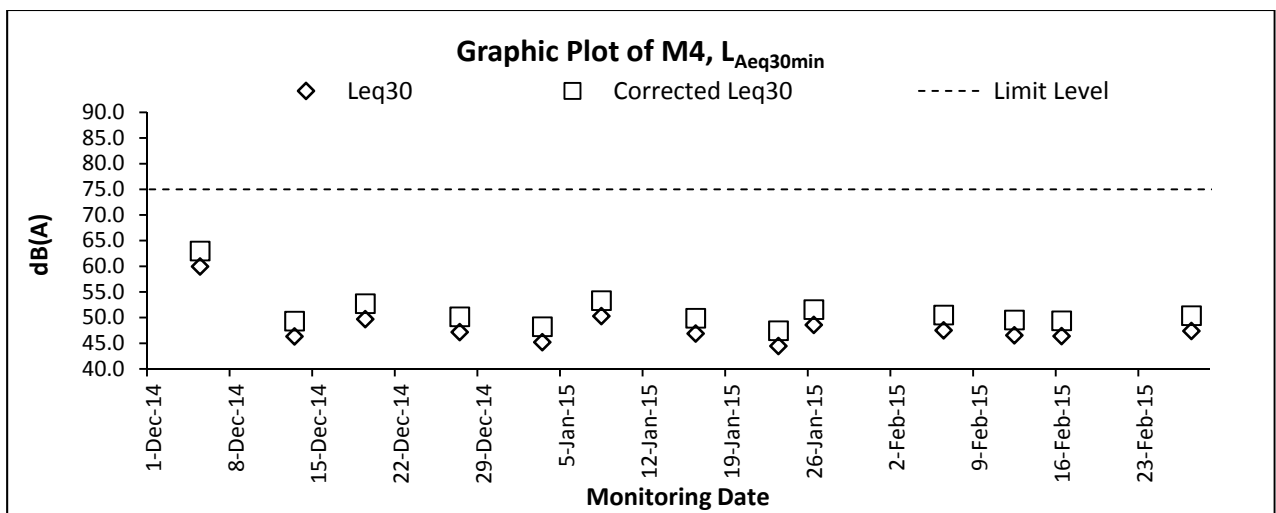
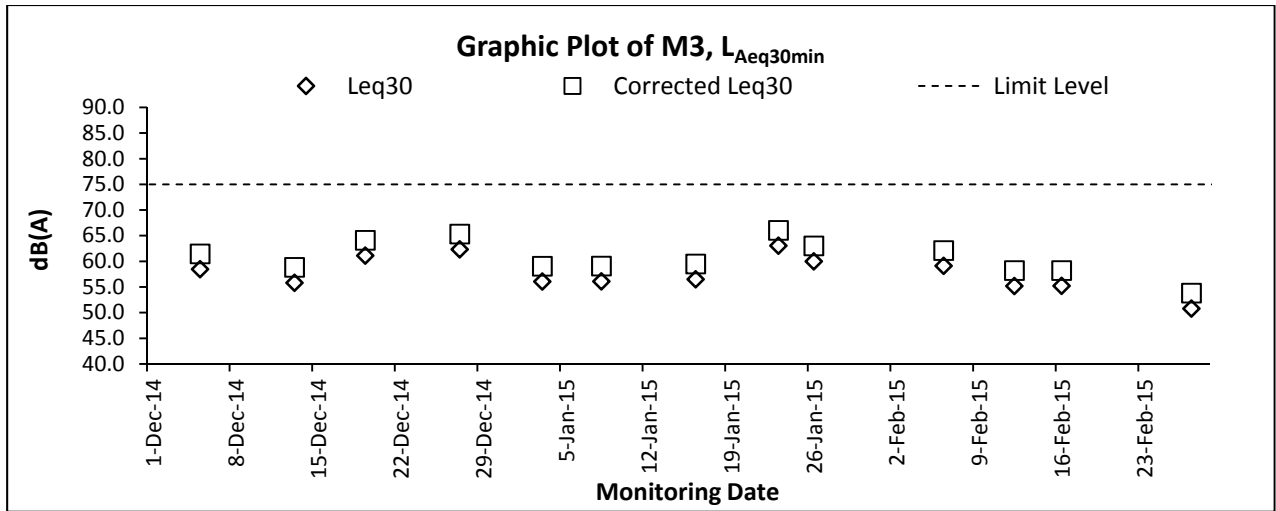
Location	DO (mg/L)				DO (%)				Turbidity (NTU)		pH		SS(mg/L)	
W1 (impact)	Action/ Limit Level				Action	7.27	Action	n/a	Action	4.77	Action	n/a	Action	9.73
					Limit	4	Limit	n/a	Limit	5.26	Limit	n/a	Limit	10.77
W2 (impact)					Action	7.26	Action	n/a	Action	2.46	Action	n/a	Action	8.89
					Limit	4	Limit	n/a	Limit	3.42	Limit	n/a	Limit	9.75
W3 (control)	n/a				n/a				n/a		n/a			
W4 (impact)					Action	9.27	Action	n/a	Action	3.32	Action	n/a	Action	6.98
					Limit	4	Limit	n/a	Limit	4.52	Limit	n/a	Limit	7.66
(Impact)	15.47	0.31	18.7	18.7	6.82	6.9	87.1	n/a	5.99	4.52	8.2	0.2	8	8.0
W3 (control)	16:02	0.37	19.6	19.6	6.91	6.9	75.5	75.3	4.45	4.4	8.5	8.5	2	2.0
			19.6		6.87		75.1		4.39		8.5		2	
W4 (impact)	16:17	0.26	19.4	19.4	7.76	7.8	84.8	85.2	3.81	3.9	8.8	8.8	2	2.0
			19.4		7.83		85.5		3.9		8.8		2	

Appendix J

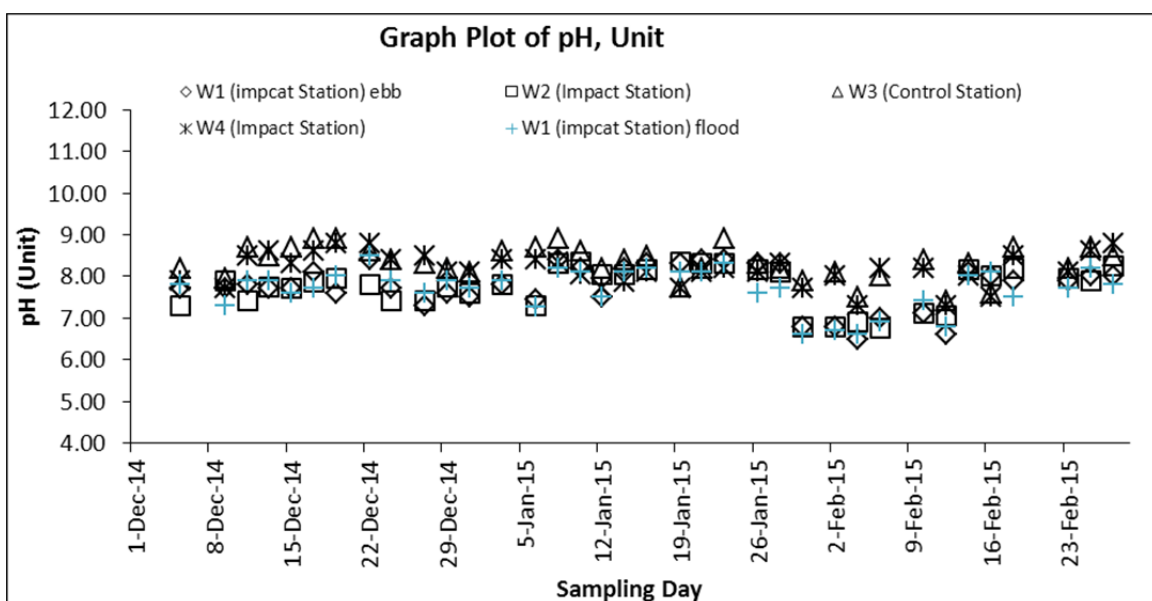
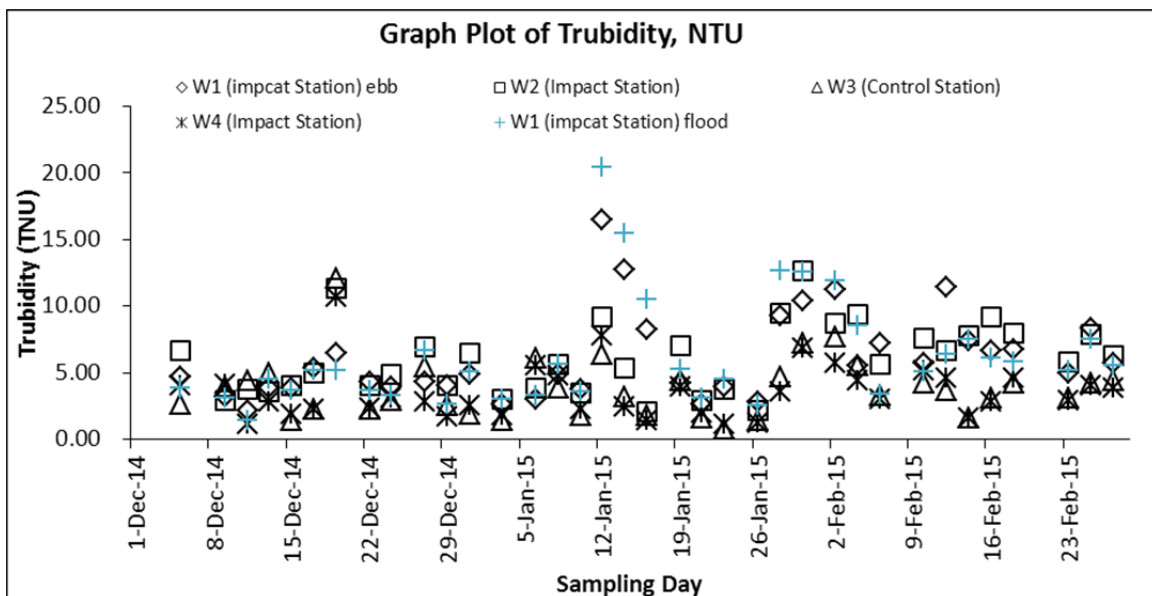
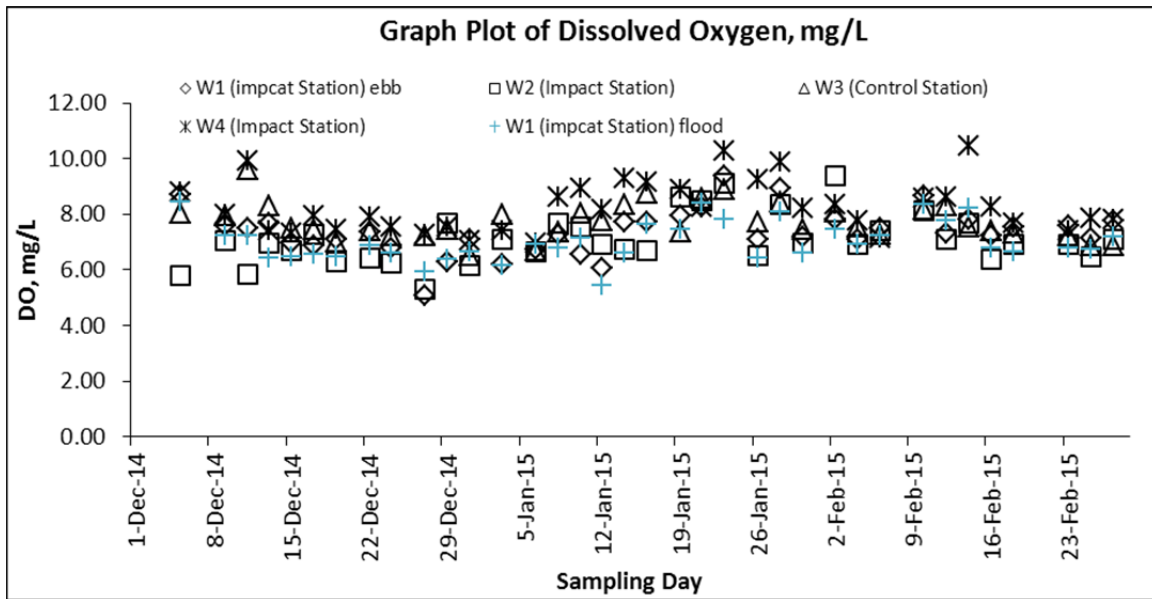
Graphical Plots of Impact Monitoring – Noise, Water Quality and Hydrological Characteristics

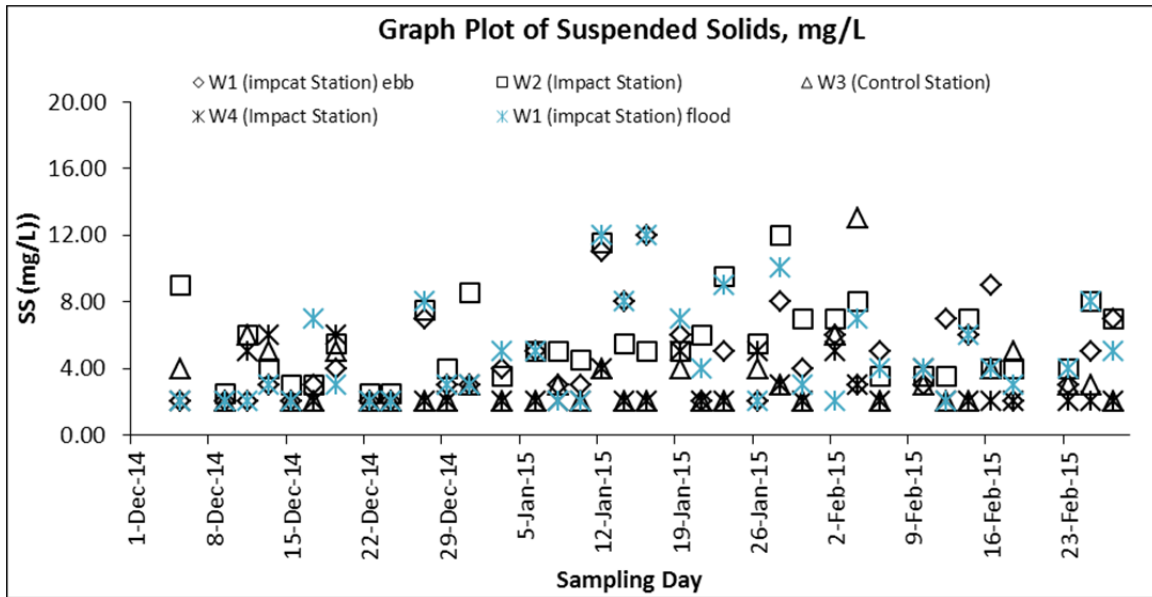
Graphic Plot – Construction Noise



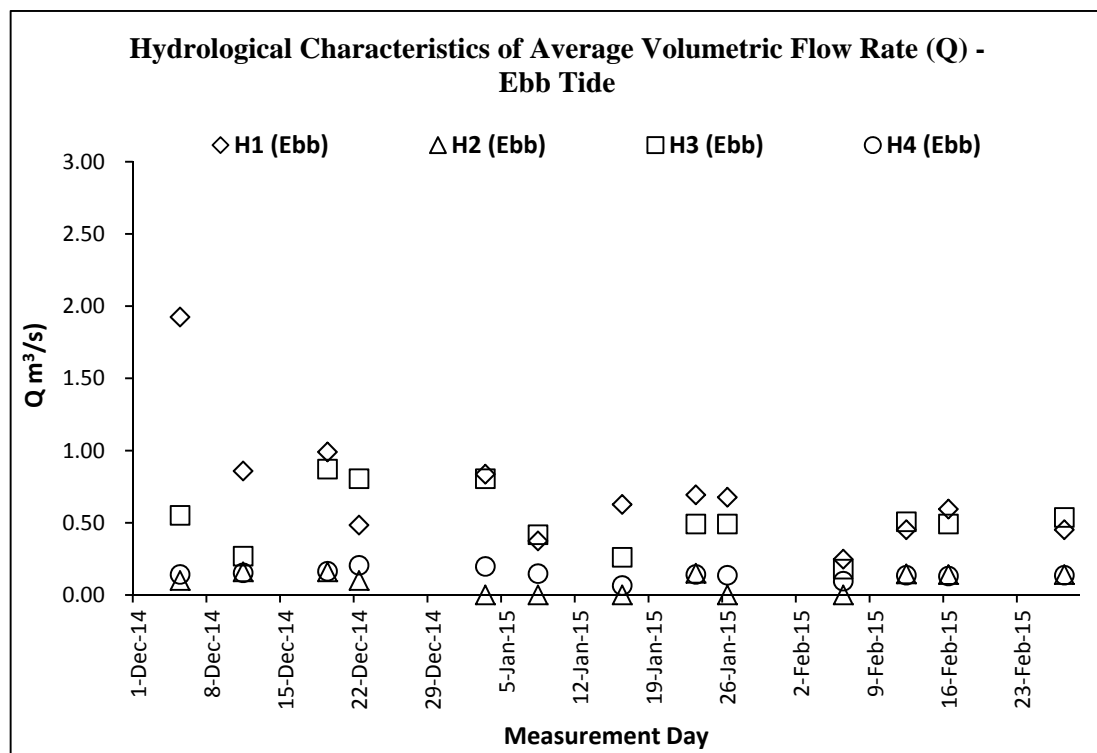
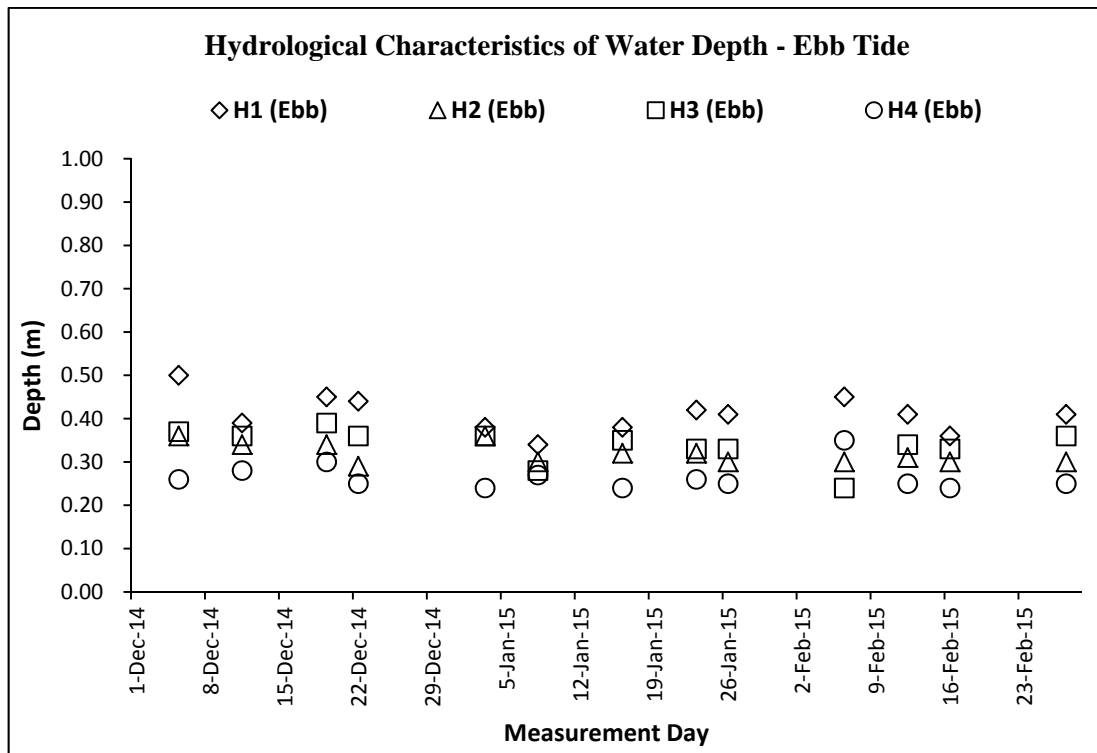


Graphic Plot – Water Quality

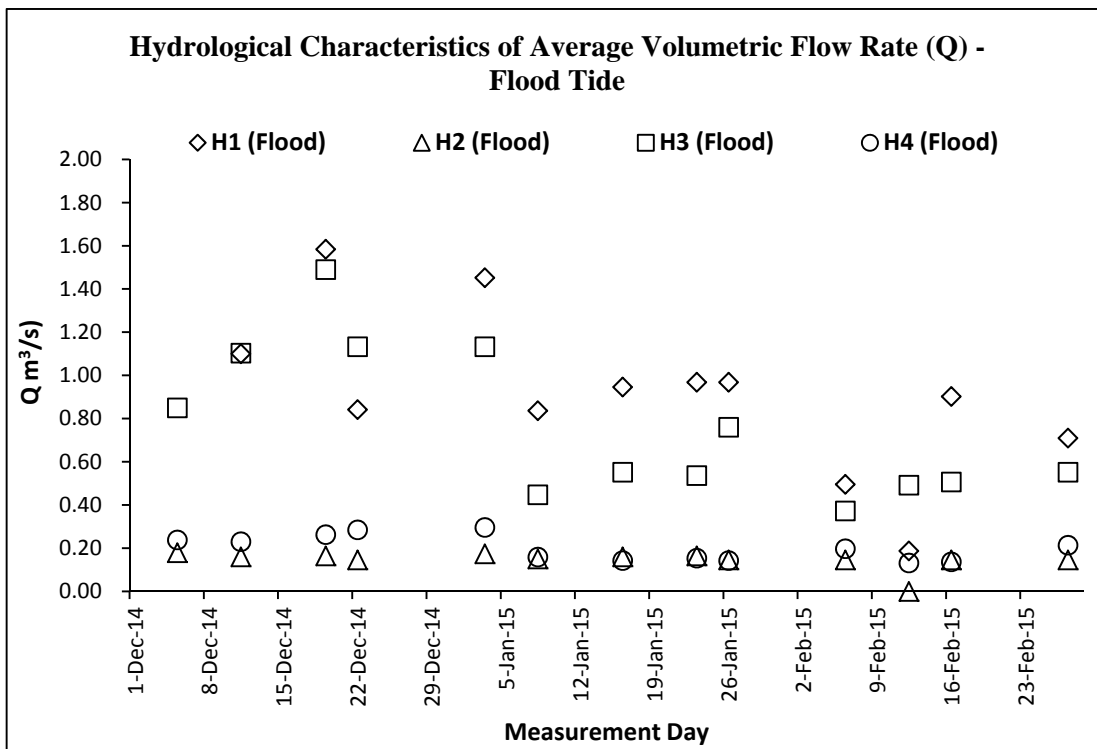
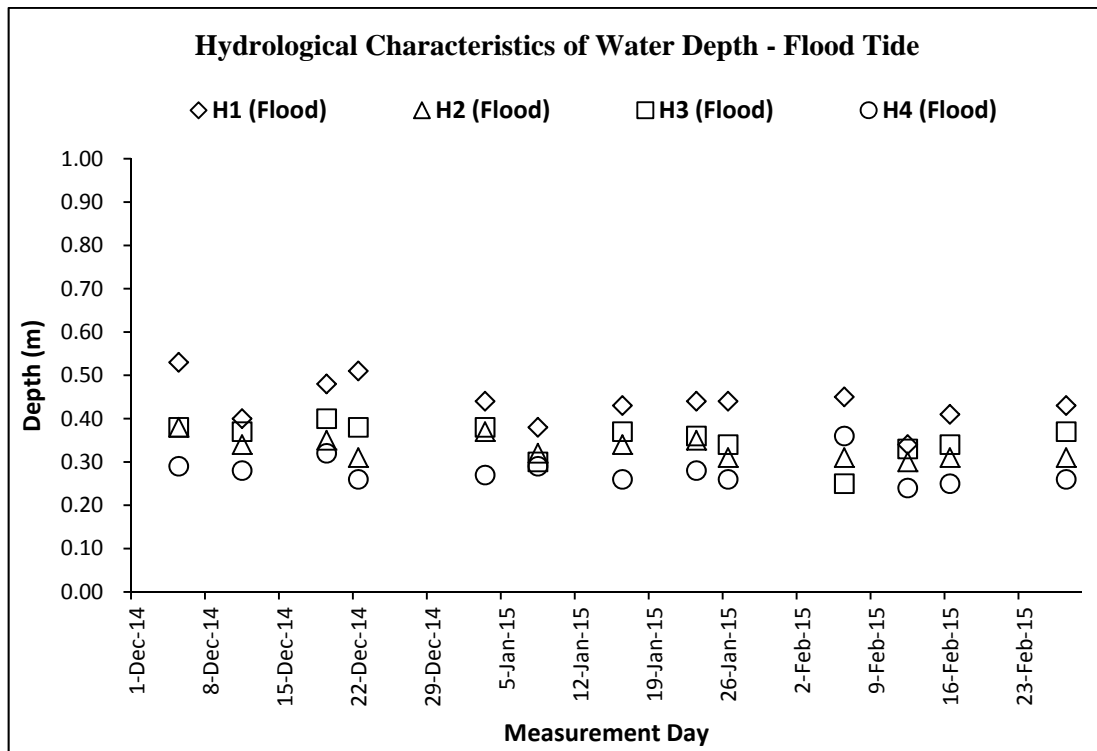




Graphic Plot – Hydrological Characteristics (Water Depth)



Graphic Plot – Hydrological Characteristics (Water Depth)



Appendix K

Monthly Summary Waste Flow Table

Monthly Summary Waste Flow Table

Month	Actual Quantities of Inert C & D Materials Generated Monthly						Actual Quantities of Inert C & D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Imported Fill	Metals	Paper/cardboard packaging	Plastics (see note 3)	Chemical Waste	Others, e.g. general refuse
	(in'000m ³)	(in'000m ³)	(in'000m ³)	(in'000m ³)	(in'000m ³)	(in'000m ³)	(in'000kg)	(in'000kg)	(in'000kg)	(in'000kg)	(in'000m ³)
Jan-14	0.435	-	-	-	-	0.435	-	-	-	-	0.015
Feb-14	0.215	-	-	-	-	0.215	-	-	-	-	0.000
Mar-14	0.036	-	-	-	-	0.036	-	-	-	-	0.000
Apr-14	0.333	-	-	-	-	0.333	-	-	-	-	0.000
May-14	0.333	-	-	-	-	0.333	-	-	-	-	0.000
Jun-14	1.776	-	-	-	-	1.776	-	-	-	-	0.000
Jul-14	0.461	-	-	-	-	0.461	-	-	-	-	0.000
Aug-14	2.187	-	-	-	-	2.187	-	-	-	-	0.000
Sep-14	0.000	-	-	-	-	0.000	-	-	-	-	0.000
Oct-14	0.680	-	-	-	-	0.680	-	-	-	-	0.000
Nov-14	0.000	-	-	-	-	0.000	-	-	-	-	0.090
Dec-14	0.000	-	-	-	-	0.000	-	-	-	-	0.015
Jan-15	0.000	-	-	-	-	0.000	-	-	-	-	0.120
Feb-15	0.000	-	-	-	-	0.000	-	-	-	-	0.000
Total	6.456	-	-	-	-	6.456	-	-	-	-	0.240
Forecast of Total Quantities of C & D Materials to be Generated from the Contract											
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Imported Fill	Metals	Paper/cardboard packaging	Plastics (see note 3)	Chemical Waste	Others, e.g. general refuse
	(in'000m ³)	(in'000m ³)	(in'000m ³)	(in'000m ³)	(in'000m ³)	(in'000m ³)	(in'000kg)	(in'000kg)	(in'000kg)	(in'000kg)	(in'000m ³)
	23	1	10	0	10	2	5	2	1	1	3

- Note:
- (1) The performance targets are given in PS Clause 26.23(14)
 - (2) The waste flow table shall also include C & D materials that are specified in the Contract to be imported for used at the Site
 - (3) Plastics refer to plastics bottles/containers, plastic sheets/foam from packaging materials
 - (4) The summary table shall be submitted to the Engineer's Representative monthly together with the Waste Flow Table for review and monitoring in accordance with the PS Clause 25.20A(4)

Summary Table for Work Processes or Activities Requiring Timber for Temporary Works

Contract No.:DC/2010/02

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

Item No.	Description of Works Process or Activity (see note (a) below)	Justifications for Using Timber in Temporary Construction Works	Est. Quantities of Timber used (m ³)	Actual Quantities used (m ³)	Remarks
1	Formwork for concreting	Easy handle by manpower	2	1.1	
2					
3					
4					
5					
6					
7					
Total estimated Quantity of timber Used			2		

- Notes:
- (a) The contractor shall list out all the work items requiring timber for use in temporary construction works. Several minor work items may be grouped into one for ease of updating
 - (b) The summary table shall be submitted to the Engineer's Representative monthly together with the Waste Flow Table for review and monitoring in accordance with the PS Clause 25.20A(5)

Appendix L

Landscape & Visual Inspection Report

Contract No. DC/2009/22 & DC/2010/02
Drainage Improvement Works in Shuen Wan and Shek Wu Wai
Bi-weekly Landscape & Visual Monitoring

EM&A (Landscape & Visual) Report (February 2015)
(Issue 1)

Job Ref.: 09/317/161A & 09/317/161D KLKJV-SW
Date: March 2015

Environmental
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26 March 2015

Kwan Lee - Kuly Joint Venture
Unit 6, 16/F, Yuen Long Trading Centre
33 Wang Yip Street West
Yuen Long, Hong Kong

Attn.: Nicola Hon

Our ref: 0125606_Cert01_20150326

Dear Shan,

*Contract No. DC/2010/02 -
Drainage Improvement in Shuen Wan, Tai Po - Contract 2
Monthly EM&A (Landscape & Visual) Report*

Reference is made to the Monthly EM&A (Landscape & Visual) Report -
Contract 2 for the month of February 2015, please kindly note that we have no
adverse comment on the report.

Should you have any queries, please feel free to contact Mr. Jon Binalay at
2271 3212.

Yours sincerely,
For ERM-Hong Kong, Limited



Kenneth Ng
Landscape Architect



Registered Office
ERM-Hong Kong, Ltd
16/F Berkshire House
25 Westlands Road
Quarry Bay
Hong Kong



Offices worldwide

**Contract No. DC/2009/22 & DC/2010/02
Drainage Improvement Works in Shuen Wan and
Shek Wu Wai
Bi-weekly Landscape & Visual Monitoring**

EM&A (Landscape & Visual) Report (February 2015)

(Issue 1)

March 2015

	Name	Signature
Prepared by:	Tracy HO	
Reviewed by:	Ida YU	
Date:	17th February 2015	

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LIST OF APPENDICES

Appendix A – Photographs

1 INTRODUCTION

- 1.1.1 The Landscape and Visual Monitoring of the Project is conducted to fulfill Clauses 5.2 and 5.4 of EP-303/2008 and the monitoring requirements in accordance with Section 7 of the approved updated EM&A Manual (approved by EPD on 31st May 2012) of the Project. A Baseline Review on updating the landscape and visual condition, and the mitigation measures of the Project (including Contracts 1 and 2 of the Project) was undertaken before the commencement of the Project. The review findings were updated in the Baseline Environmental Monitoring Report submitted to the EPD on 14th February 2011.
- 1.1.2 This monthly monitoring report will detail the scope of landscape and visual monitoring work, monitoring findings and observations, and any recommendation and advice on proper implementation of the landscape mitigation measures (during construction phase) in the works areas under Contract 2 of the Project. Besides, since the bi-weekly landscape & visual monitoring for Contract 1 works areas was ended in early December 2014 after the joint site inspection with EPD, which confirmed the completion of construction work within the Contract 1 works area (i.e. Areas A, B and C) on 4th December 2014, no construction phase monitoring within Contract 1 works area was conducted. However, an update of the site and tree condition within Contract 1 works area was presented under Section 3.2.

2 SCOPE OF MONITORING

2.1 Monitoring objectives

- 2.1.1 Landscape and Visual Monitoring of the Project should be conducted on a bi-weekly basis for checking the design, implementation and maintenance of the landscape and visual mitigation measures throughout the construction phase and in a quarterly basis during operational phase of the Project. Observations of any potential conflicts between the proposed mitigation measures and the project works carried out by the Contractors should be recorded. Recommendation and advice on proper implementation of the landscape mitigation measures should be provided to the Contractor for minimizing any potential impacts on the landscape and visual elements.

2.2 Monitoring during Construction Phase

- 2.2.1 The following landscape and visual mitigation measures should be implemented during the construction phase of the project to minimize the potential impacts:
- *Visual Screen* – Use of hoardings as visual screens for the construction in the works areas;
 - *Contaminant/ Sediment Control* – Use of temporary barriers, covers and drainage provision around the construction works as contaminant/ sediment control to prevent the contaminants and sediments from entering the sensitive water-based habitats;
 - *Pollution Control* – Implementation of pollution control measures to minimize any adverse environmental impacts to the surrounding habitats;
 - *Liaison with Nursery* (Not relevant to Contract 2 of the Project) – Liaison with the nursery operator as necessary to minimize any adverse impact to the daily operation and plant holding capacity of the nursery;
 - *Existing Trees within Works Area* – Maintenance and protection of the existing trees, especially their crowns, trunks and roots, within work sites; and

- Construction Light – Provision of construction light should be controlled at night to avoid excessive glare to the surrounding villages and to Plover Cove.

2.3 Monitoring during Operational Phase

2.3.1 The following landscape and visual mitigation measures should be implemented during the operational phase of the project to minimize the potential impacts:

- *Viewing Area Formation* - Planting of shrubs, grasses and building benches along Ting Kok Road along the shore;
- *Architectural Design for Pump House* – Architectural design to help the pump house fit into the existing suburban, natural to semi-natural surroundings (Not relevant to Contract 2 of the Project);
- *Landscape Design for Pump House* – Provide sufficient planting around its boundary fence (Not relevant to Contract 2 of the Project);
- *Enhancement Planting along Tung Tsz Road* – Planting of shrubs/ trees of suitable species to help protect the stream and marshes;
- *Soil Depth for Enhancement Planting* – Construction of box culvert should be with at least 1.0m soil depth for enhancement planting;
- *Transplanting of Trees to Adjacent Locations* – Transplanting of existing affected trees to adjacent locations should be carried out;
- *Preparation for Transplanting* – Preparation for transplanting is needed to allow sufficient time for root pruning and rootball preparation prior to transplanting; and
- *Reinstatement of Affected Area* – The works area should be properly reinstated to the satisfaction of relevant government departments.

3 LANDSCAPE & VISUAL MONITORING RESULTS

3.1 Monitoring Date(s)

3.1.1 This monthly Landscape and Visual Monitoring (February 2014) was conducted to cover only areas of Contract 2 of the Project (i.e. the construction of a twin-cell box culvert close to Shuen Wan Conservation Area and Wai Ha River along Tung Tsz Road, and a drainage pipe near Wai Ha Village). The bi-weekly monitoring was conducted on 6th and 17th February 2015.

3.1.2 All photos stated in this section are recorded in **Appendix A**.

3.1.3 The quarterly Landscape and Visual Monitoring (during Operational Phase) for Contract 1 (DC/2009/22) was conducted to cover Areas A, B and C of Contract 1 of the Project. The quarterly monitoring was conducted on 2nd March 2015. Area C (i.e. Ecological Compensatory Area (ECA)) was formally handed over to AFCD on 16th October 2012 for management and maintenance. No access into the ECA is allowed after the handover and hence, no quarterly monitoring was carried out in this area. Findings from this quarterly monitoring will be reported in the next Monthly EM&A Report for March 2015.

3.2 Update of Site and Tree Condition within Contract 1 works area

3.2.1 The last bi-weekly landscape & visual monitoring of Contract 1 works area (including Areas A, B and C) was completed on 26th November 2014. The building of pump house (Area A) and automatic mechanical penstock at Wai Ha River estuary, box culvert (Area B) and its

associated drainage pipes, and the Ecological Compensatory Area (Area C) were subsequently completed from 2012 to 2014. The proposed landscape planting in Contract 1 works area and reinstatement work (including the affected nursery part in Tung Tsz Nursery and planters along Ting Kok Road) were also completed in 2014. With the official handover of the Ecological Compensatory Area (16th October 2012), the pump house (early June 2014), the affected nursery part (early December 2014) and reinstated planters and the associated planting works along Ting Kok Road to AFCD, DSD, LCSD and HyD respectively, EPD announced the completion of construction phase of Contract 1 (Contract No. DC/2009/22) after the joint site inspection on 4th December 2014.

3.2.2 As reported in the last *Monthly EM&A Report for December 2014* and general site observation in February 2015, all landscape planting work (including planting of trees, shrubs, mangrove, groundcover and climbers, and hydroseeding) proposed in the approved Landscape Plan was already completed. Daily operation of the reinstated nursery part was resumed by the Nursery Operator. The transplanted and retained trees within the nursery were handed over to the Nursery and would be maintained by the Nursery Operator during the Operational Phase of the Project. As reported in the *Monthly EM&A Report for December 2015*, a retained tree U50 (*Ficus elastica*) located within Tung Tsz Nursery was removed by the nursery workers in December 2014. In addition, the Contractor also confirmed that the planted vegetation within the pump house (Area A) was formally accepted and handed over to DSD by end of January 2015.

3.2.3 As confirmed by the EPD, the construction phase of Contract 1 (DC/2009/22) was completed and the Operational Phase has commenced in December 2014. The first Landscape & Visual monitoring during the Operational Phase was conducted on 2nd March 2015, and the monitoring findings will be reported in the coming *Monthly EM&A Report for March 2015*.

3.3 Visual Screen

3.3.1 No follow-up action by the Contractor is required as from the *Monthly EM&A Report for January 2015*. The recommendations listed in Report for January 2015 are reminders for good site practices to be implemented by the Contractor throughout the construction phase.

Observation

3.3.2 Temporary hoardings, in the form of construction barriers, have been erected from west to east parts along Tung Tsz Road from the opposite side of Wai Ha to the opposite side of San Tau Kwok. The temporary hoardings lined along the construction site along the access road from Tung Tsz Road towards Treasure Spot Garden II were still erected in January and February 2015 (**Photo 1**). **Photos 2-3** show the views of the erected hoardings along the works area under Contract 2.

3.3.3 Almost all construction works for building the box culverts in the works areas along Tung Tsz Road opposite to Wai Ha and San Tau Kok, and next to Wai Ha River have been completed (**Photos 4-6**), leaving minor civil work continued along the path leading from Tung Tsz Road to Treasure Spot Garden II, and works opposite to Wai Ha area (**Photos 7-8**). Compensatory trees, together with some replacement planting for poor tree condition, were planted in October 2014 (**Photos 9-10**).

3.3.4 The temporary parking area which had been maintained at the end of the access path to Treasure Spot Garden Phase II was abandoned by the villagers since part of the parking area was demarcated with wire mesh fences by the villagers (**Photo 11**). The untagged leaning tree was isolated within the fenced area and still guyed (**Photo 12**).

3.3.5 Construction works have been stopped at the end of the Treasure Spot Garden II near the retained tree T103. The temporary construction barriers and chain-link fence next to T103 were already removed in December 2014, and villagers' vehicles were parked in this area (**Photo 13**).

3.3.6 As reported in the previous submitted Monthly EM&A Reports, a fenced area has been seen on the field next to the construction site along the access to Treasure Spot Garden since March 2014 (**Photo 14**). This area was still surrounded by chain-link fence and the adjacent areas were also fenced by the villagers. These areas were not fenced by the construction works related to the current project as reported by the Contractor.

3.3.7 No hoardings have been erected along the rest of the proposed works area since neither construction works nor any associated preparation works have been commenced.

Recommendations

3.3.8 No specific recommendation is required in regard to the observations made in February 2015. However, with regard to the previous dumping incident by other parties on the Taro field near the Treasure Spot Garden II as reported in previous Monthly EM&A Reports, the Contractor is recommended to check the site condition regularly to avoid any extent of dumping or paving of area within the project boundary throughout the construction phase.

3.3.9 For good site practices, the Contractor should also make sure there are no piled rocks, construction materials or programmed construction works influencing the existing trees within the Project Area or the wetland rehabilitation area throughout the construction phase. Otherwise, the Contractor should request the on-site workers to remove those piled rocks or construction materials. As a reminder, the Contractor should keep all construction works within the Project Boundary. The Contractor is also recommended to check the condition of the temporary construction barriers surrounding the works areas, and replace the broken barriers with new barriers.

3.4 Contaminant/ Sediment Control

3.4.1 No follow-up action by the Contractor is required as from the *Monthly EM&A Report for January 2015*. The recommendations listed in Report for January 2015 are reminders for good site practices to be implemented by the Contractor throughout the construction phase.

Observation

3.4.2 Major construction works in Contract 2 works area were completed in October 2014, leaving minor civil works in areas close to Treasure Spot Garden II and some next to Wai Ha. As observed on 6th February 2015, minor dredging work was carried out to remove the mud at the desilting part of the intake structure near the upper section of Wai Ha River (**Photo 15**). No excavated mud was found disposed into the River, but muddy water was sometimes observed being flow into the middle and lower sections of the River during the dredging work. As confirmed by the Contractor, the dredging work was instructed by DSD and was completed on the same day. No used water was released from the works area next to Wai Ha River as observed on 17th February 2015. The river water was clear (**Photos 16-17**).

Recommendations

3.4.3 For good site practice, the Contractor is suggested to conduct regular checking to ensure no direct discharge or leakage of contaminants or any polluted fluid into the adjacent Wai Ha

River and the nearby Shuen Wan marsh. The Contractor should maintain regular check (e.g. daily) on the sedimentation and filtration facilities and appropriate sedimentation beds and/or tanks throughout the construction phase (e.g. check the function of the sedimentation beds and remove surplus sand and gravels deposited along the beds or within the tanks) to make sure all discharged water was filtered appropriately prior to any discharge.

- 3.4.4 If any construction works were resumed, the Contractor should have *ad hoc* inspection and emergency measures for any accidental spillage of polluted fluid, contaminants or grease from the construction sites. To prevent the impact of the unclear discharge on the nearby vegetated area, it is suggested to overlay PVC liners along the site edge and remove any surplus sand and gravels deposited in the beds and tank even some parts of the construction works may be completed at this stage.

3.5 Pollution Control

- 3.5.1 No follow-up action by the Contractor is required as from the *Monthly EM&A Report for January 2015*. The recommendations listed in Report for January 2015 are reminders for good site practices to be implemented by the Contractor throughout the construction phase.

Observation

- 3.5.2 Major construction works in Contract 2 works area were completed, leaving minor civil works conducted in area near Treasure Spot Garden II and some next to Wai Ha. Minor dredging work was carried out to remove the mud at the desilting part of the intake structure near the upper section of Wai Ha River as observed on 6th February 2015 (**Photo 15**). No disposal of excavated mud was observed during the work, but muddy water was sometimes observed being flow into the middle and lower sections of the River. As confirmed by the Contractor, such dredging work was instructed by DSD and was completed on the same day.

- 3.5.3 No used water has been released from the works area nearby Wai Ha River. The river water was clear (**Photos 16-17**). No direct water discharge into the upper stream of Wai Ha River was observed as all major construction works in Contract 2 works area have been completed (**Photo 18**).

Recommendations

- 3.5.4 For good site practice, the Contractor should prevent any contaminant and sediment from entering the sensitive water-based habitats (i.e. Shuen Wan marsh and Wai Ha River) and implement pollution control measures to minimize any adverse environmental impacts to the water body throughout the construction phase. The Contractor should maintain appropriate sedimentation beds and/or tanks throughout the construction phase. The Contractor should adopt a good site practice in maintaining appropriate sedimentation beds and filtration tanks as recommended in the above Section for Contaminant/ Sediment Control. Muddy water pumped from the works area should be filtered appropriately through sedimentation beds, or other filtration system prior to the discharge.
- 3.5.5 The Contractor should have *ad hoc* inspection and emergency measures for any accidental spillage of polluted fluid, contaminants or grease from the construction sites. It is also recommended to overlay PVC liners along the site edge and remove any surplus sand and gravels deposited in the beds and tank so as to prevent the impact of the unclear discharge on the nearby vegetated area.

3.6 Liaison with Nursery

3.6.1 The construction undertaken within Tung Tsz Nursery is restricted under Contract 1 of the Project. This monitoring item is not applicable to Contract 2 of the Project.

3.7 Existing Trees within Works Areas

3.7.1 Individual trees retained within the active works area have been protected within TPZs. The protection measures (such as the establishment of TPZs) follow the recommendations stated in the *Monthly EM&A Report for January 2015*, including the removal of the dead co-dominant trunk of T093 at Treasure Spot Garden II as observed in February 2015. Particular observations are highlighted in the following paragraphs.

Observation

3.7.2 Most trees which are proposed to be retained within the Project Area were recorded generally in fair health condition and some of the retained trees and their canopies have been naturally covered by invasive climbers spreading from the adjacent natural habitats outside the project boundary.

3.7.3 As stated in Section 5.1, an untagged leaning tree, which has been reported in the submitted reports, was isolated and fenced within the recently fenced areas (previously as a temporary parking area) at Treasure Spot Garden Phase II (**Photo 12**). This tree was still guyed.

3.7.4 As reported in the submitted Reports, the retained trees T167 (*Litsea monopetala*) and T168 (*Celtis sinensis*) were topped after the vegetation clearance in the surrounding works area in November 2013. These trees have been monitored since the topping incident, and both were in fairly poor health condition with vigorous development of epicormics along trunks or branches (**Photo 19**) to form the tree canopies.

3.7.5 The civil works next to the two trees T093 and T094, which are located next to the access path in Treasure Spot Garden II, were completed and the construction materials were already removed in the past few months (**Photo 20**). The tree health of T093 had declined since June 2014 and one of the co-dominant trunks was found dead and with cracked tree bark and termite infestation. This dead co-dominant trunk, together with the remaining vigor tree parts of T093, was removed by the Contractor as inspected on 17th February 2015. The felled tree parts were piled on the slope nearby its original tree location (**Photos 21-22**).

3.7.6 Construction works at the end of Treasure Spot Garden II have been stopped since July 2014. As observed in the past few months, no excavated soil or rocks were piled around the trunk flare of T103. Rocks were lined around the remaining root ball of T103 (**Photo 23-24**). As reported since December 2014, the climbers overhanging on the tree canopy and a branch of T103 and the nearby hillside vegetation were removed and pruned by an unknown party with confirmation from the Contractor. Similar removal of vegetation on the nearby woodland edge by an unknown party was also noted in February 2015, hence influencing another two retained trees T097 (*Schefflera heptaphylla*) and T098 (*Aquilaria sinensis*) located, next to the access path in Treasure Spot Garden II (**Photo 25**).

3.7.7 Sheet piling works were conducted within the tree root zone of a retained tree T025 (*Celtis sinensis*) in June 2013. Due to the close proximity of the erected sheet piles to the tree, root damage by previous sheet piling works was anticipated. The tree was also over-pruned in June 2013. It had been temporarily guyed by strings so as to provide additional support to the tree until September 2014. The tree was quite stable at its location and it was in fair health condition (shed in dry season since it is a deciduous tree) as observed in February 2015 (**Photo 26**).

- 3.7.8 Concrete pavement, which was applied for additional parking area for the villagers, has been observed close to the root flare of the tree group T089-091, and the trees were in fair condition (**Photo 27**).
- 3.7.9 Excavation work was noted close to the tree group T181-T183 in May 2014 and its raised soil ground has been planted with ornamental plants by a third party so as to extend and decorate the access path adjacent to these trees (**Photo 28**). These trees have been surrounded by some stones to demarcate the tree group area since May 2014.
- 3.7.10 Outside the Project boundary, two untagged trees (*Cleistocalyx nervosum* and *Macaranga tanarius* var. *tomentosa*) near the tree group T181-T183 were also affected by the excavation work previously conducted by a party other than the Contractor of this Project. Such observation was reported in the submitted reports.
- 3.7.11 As reported in *Monthly EM&A Report for January 2015*, branches and trunks of a group of *Leucaena leucocephala* (T031-T036, all are proposed to be removed) along Tung Tsz Road were unskillfully pruned or cut. Further pruning of these trees were not noted in February 2015.
- 3.7.12 As observed and reported since December 2014, the tree trunk from the tree group of T085-T087 at the junction of Tung Tsz Road and Tung Tsz Shan Road was partly uprooted and significantly leaned towards Wai Ha River (**Photo 29**). The Contractor was contacted for immediate removal of the leaning tree part. The Contractor reported that its tree roots are in close contact with the underground high-voltage cables and there is a safety concern when removing the leaning tree part. As the leaning tree part is pointing towards Wai Ha River where no target is noted within the tree fall zone, removal of the leaning tree trunk will not be performed soon. Routine monitoring of its stability have to be continued throughout the construction phase.
- 3.7.13 All compensatory trees were planted in October 2014, leaving replacement of individual trees of poor condition to be conducted in early wet season. Some individuals of the planted tree species of *Cinnamomum burmannii*, *Litsea glutinosa* and *Sapium sebiferum* showed transplantation shock and replanting of new trees are required. Some bamboo stakes used to support the compensatory trees were quite loose. As it rained and the humidity was higher in February 2015, development of new buds and leaves were observed on some compensatory trees (**Photos 30-31**).
- 3.7.14 As inspected in February 2015, at least 15 compensatory trees (including *Sapium sebiferum*, *Hibiscus tiliaceus*, *Cleistocalyx operculatus* and *Cinnamomum burmannii*) were inundated with tidal water (**Photo 32**). Their tree health conditions were poor. The underground roots and overall tree health condition would be affected if the trees are inundated periodically during their establishment period. Other planted compensatory trees were in fair condition (**Photos 9-10**). However, lots of domestic rubbish was discarded by the villagers in the planting area opposite to San Tau Kok.
- 3.7.15 The planted mangrove seedlings of *Kandelia obovata* and *Aegiceras corniculatum* along the sloping area facing Shuen Wan Marsh were in fair condition (**Photo 33**).
- 3.7.16 No significant signs of damage on other existing tree crowns, trunks and roots resulting from the construction works were observed in this monthly monitoring.
- 3.7.17 As Area C under Contract 1 of the Project has been formally handed over to AFCD for management and maintenance since October 2012, no access into the ECA is allowed. Two

transplanted shrubs of *Pavetta hongkongensis* (PH-01 and PH-03) were inspected through the fence of Tung Tsz Nursery. PH01 has remained in satisfactory condition (**Photo 34**). The previously cut PH03 (cut during grass cutting by a third party who maintain the ECA) was cut again in November 2014 and no resprout was noted in February 2015 (**Photo 35**).

Recommendations

- 3.7.18 Within the active works area, maintenance of TPZs for the retained trees and recently planted compensatory trees should be maintained. Trunk bases of all retained trees and planted compensatory trees should be kept clear, with no stockpiled soil, construction equipments and rubbish allowed around the trunk bases and within the TPZs. If necessary, these retained trees shall be watered regularly to maintain their health, while all planted compensatory trees should be watered regularly by the appointed landscape contractor (e.g. at least three times per week during dry season). All fallen trees or tree parts of the existing trees maintained within the works area of Contract No. DC/2010/02 should be removed if they pose imminent hazards to the people/property or cause obstruction to the traffic. Any broken tree parts still attached to the trees could be pruned appropriately to prevent their potential hazard to the public and property.
- 3.7.19 Apart from the routine irrigation of the planted compensatory trees, the Contractor should request the appointed landscape contractor to regularly check the stability and condition of the bamboo stakes during each irrigation activity. Trees of poor quality should be replaced with heavy standard trees by following the standard quality as stipulated in Annex 4 of the approved Landscape Plan. However, for the trees which were affected by tidal water, the Contractor needs to reconsider planting these trees to the areas where will not be influenced by the tide.
- 3.7.20 Disturbance is prohibited in all TPZs. In any practical circumstances, the contractor should follow Section 8 of Annex 4 of the approved Landscape Plan for protecting the existing trees from any potential damages resulting from the construction works. In addition, the Contractor and the Project Proponent should have routine inspection on any tree remedial works conducted by other party on the trees within the Project Area.
- 3.7.21 Though the retained tree T103 was stable in structural condition as inspected in January 2015, the Contractor should have close monitoring of the stability and health condition of this tree.
- 3.7.22 With regard to the previous tree topping incident on the retained trees (such as T088, T089, T167 and T168), as well as T118 and T093 in which the construction work was undertaken close to the tree trunks or other tree parts as reported previously, and potentially damage the tree roots, the Contractor is reminded to monitor all trees protected within the project boundary regularly. The Contractor should also be aware of any potential damage on the trees within the Project Boundary by other contractor(s) undertaking construction work concurrently or tree damage by the villagers. In addition, the Contractor should design and programme the civil works by taking into consideration of providing adequate buffer zone between the tree dripline and the civil work. The works should avoid affecting the tree canopy, trunk and underground root zone with regard to tree dripline as far as possible. These routine tree inspection and site maintenance should be carried out throughout the construction phase.
- 3.7.23 Tree topping (like the case for T025, T167 and T168 reported previously) should be prohibited and the Contractor should appoint qualified landscape contractor to perform appropriate pruning practice. The pruning works should follow any local, national or international standards for pruning works and relevant tree remedial works. Given that the tree roots of

T025 could be damaged by previous sheet piling works and the topped tree exists with unbalanced tree form, the long-term tree stability and health condition should be checked after the previous removal of the guying in October 2014. The Contractor should have close monitoring of tree stability with regard to its unbalanced tree form and health condition.

- 3.7.24 As there were excavation works (either by the Project or by the third party) close to the trees within the construction works areas before (e.g. T118 as observed in February 2014, between T153 and T155 as observed in April 2014 and pruning work on T103 in December 2014), the Contractor should have close inspection of the stability and health condition of these trees. In addition, for the previous excavation work around tree group of T181-T183 conducted by the third party, the Contractor should regularly check the status of these trees and have close liaison with the third party for maintaining appropriate tree protection during the works.

3.8 Construction Light

- 3.8.1 No follow-up action on maintenance of construction light is required as from the *Monthly EM&A Report for January 2015*.

Observation

- 3.8.2 No construction light impact to the surrounding villages and to Plover Cove as all construction activities and construction sites are halted at 1800. No construction light at night is provided by the Contractor.

Recommendation

- 3.8.3 No specific recommendation is required.

4 AUDIT SCHEDULE

- 4.1.1 The next bi-weekly Landscape & Visual Monitoring in March 2015 is scheduled to be conducted in the weeks of 2nd and 16th March 2015.

Appendix A

Photographs



Photo 1 – Temporary hoardings were erected again along part of the access path towards Treasure Spot Garden II.



Photo 2 – Temporary hoardings erected along Tung Tsz Road and opposite to Wai Ha.



Photo 3 – Temporary hoardings erected opposite to Treasure Spot Garden II.



Photo 4 – Construction works opposite to San Tau Kok was already completed and fully vegetated.



Photo 5 –The box culvert and the associated drainage work were completed at the upper part of Wai Ha River.



Photo 6 – Construction work opposite to Wai Ha area was already completed.



Photo 7 – Minor civil work was still carried out in the works area opposite to Wai Ha.



Photo 8 – Minor civil work was conducted on the temporary access road in Treasure Spot Garden II.



Photo 9 – Compensatory trees were planted in area opposite to Wai Ha.



Photo 10 – Compensatory trees were planted along Tung Tsz Road.



Photo 11 – The parking area in Treasure Spot Garden II was abandoned by the villagers and demarcated with wire mesh fence by the villagers.



Photo 12 – The untagged tree was isolated within the fenced area next to the parking area.



Photo 13 – Construction work at the end of the access path in Treasure Spot Garden II was finished. The works area was parked with villagers’ cars.



Photo 14 - A fenced area, which was erected by the villagers, has been recorded next to the works area of this Project.



Photo 15 – Minor dredging work was carried out to remove the mud at the desilting part of the intake structure near the Wai Ha River.

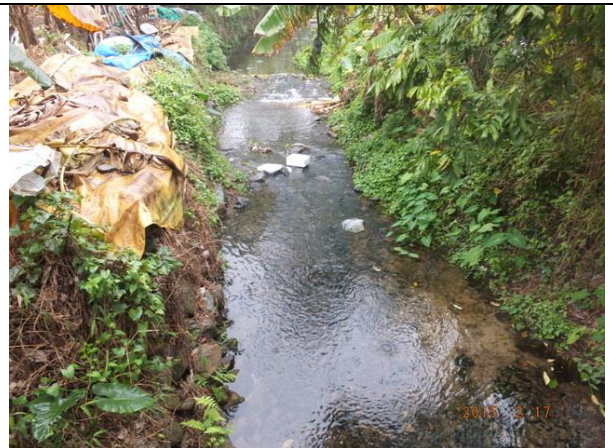


Photo 16 – No direct water discharge into the upper stream of Wai Ha River was observed.



Photo 17 – The river water was clear as observed on 17th February 2015.

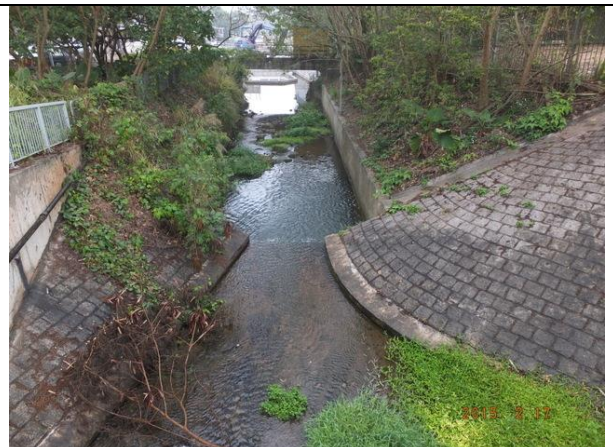


Photo 18 – The river water was clear at the upper section of Wai Ha River.

	
<p>Photo 19 – Topped trees T167 (indicated by Red arrow) and T168 (indicated by Blue arrow) were in poor health condition with vigorous development of epicormics to form canopies.</p>	<p>Photo 20 – The civil work next to the tree trees T093 and T094 was already completed and the construction materials were removed in the past few months.</p>
	
<p>Photo 21 – The whole tree of T093, which was reported to have a dead co-dominant trunk, was removed as observed on 17th February 2015.</p>	<p>Photo 22 – The cut tree parts of T093 were piled on the slope nearby its original tree location.</p>
	
<p>Photo 23 – The retained tree T103 was in fair condition, with some pruned branches observed in the past two months.</p>	<p>Photo 24 –Rocks were lined around the remaining root ball of T103.</p>



Photo 25 –The hillside vegetation and the retained trees T097 and T098 were cleared by an unknown party.



Photo 26 –The retained tree T025 was in fair condition. It shed in the dry season as it is a deciduous tree.



Photo 27 – Concrete pavement maintained for parking area for the villagers was still observed around the tree group T089-T091.



Photo 28 – Retained trees T181-T183 have been surrounded by some stones to demarcate the tree group area by the villagers.



Photo 29 – The tree trunk from the tree group of T085-T087 at the junction of Tung Tsz Road and Tung Tsz Shan Road was partly uprooted and significantly leaned towards Wai Ha River.



Photo 30 – Development of new buds and leaves of a compensatory tree.



Photo 31 – Close-up view of the newly developed buds and leaves on a compensatory tree.



Photo 32 – Planting area under the influence of tidal water located opposite to the entrance point of Treasure Spot Garden II.



Photo 33 – Mangrove seedlings were planted along the sloping area facing Shuen Wan Marsh.



Photo 34 – The transplanted shrub of *Pavetta hongkongensis* (PH01) in Area C under Contract 1 has remained in satisfactory condition.



Photo 35 – The transplanted shrub of *Pavetta hongkongensis* (PH03) was cut by the third party during the recent grass cutting work within Area C. No resprout on the cut specimen was noted.

Appendix M

Ecological Monitoring Report

(Not Used)