

**PROJECT NO.: TCS00409/08** 

DSD CONTRACT NO. DC/2007/08
DRAINAGE IMPROVEMENTS WORKS IN TAI PO TIN,
PING CHE, MAN UK PIN AND LIN MA HANG

28<sup>TH</sup> MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT FOR THE DESIGNATED WORKS UNDER THE PROJECT – JUNE 2011 CHANNELS MUP03A&B, MUP04A&B, MUP05 AND LMH01

PREPARED FOR

CHIU HING CONSTRUCTION & TRANSPORTATION COMPANY LIMITED

# **Quality Index**

Date	Reference No.	Prepared By	Certified by
14 July 2011	TCS00409/08/600/R0992v2	Rayer	Thin
		Ray Cheung Environmental Consultant	T.W. Tam Environmental Team Leader

Version	Date	Remarks	
1	11 July 2011	First Submission	
2	14 July 2011	Amended from IEC's comments on 14 July 2011	

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# ENVIRON

Ref.: DSDFANLGEM01\_0\_0969L.11

15 July 2011

By Fax (26598323) and By Post

Engineer's Representative Office Black & Veatch Hong Kong Ltd 503 Tai Po Tin, Ta Kwu Ling Fanling, New Territories

Attention: Mr. Gilbert Ying

Dear Mr. Ying,

Re: Contract No. DC/2007/08 (EP No. EP-277/2007/A)
Drainage Improvement Works at Tai Po Tin, Ping Che,
Man Uk and Lin Ma Hang
Monthly EM&A Report for Channels MUP03A&B, MUP04A&B, MUP05 and
LMH01 for June 2011 (Rev. 2)

Reference is made to the 28<sup>th</sup> Monthly EM&A Report (ref. no.: R0992v2) for the Designated Project Channels MUP03A&B, MUP04A&B, MUP05 and LMH01 provided by the Environmental Team by email on 14 July 2011.

We would like to inform that we have no comment on the captioned report.

Please also note that the Monthly EM&A Report had been verified in accordance with the Condition 3.4 of the Environmental Permit No. EP-277/2007/A.

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

Yours sincerely,

David Yeung

Independent Environmental Checker

c.c. AUES

Attn: Mr. T. W. Tam

Fax: 2959-6079

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#### **EXECUTIVE SUMMARY**

- ES.01 This is the 28<sup>th</sup> monthly EM&A Report for Channels MUP03A&B, MUP04A&B, MUP05 and LMH01 covering a period from 26 May 2011 to 25 June 2011 (the Reporting Period). These works are classified as Designated Projects under the Environmental Impact Assessment Ordinance (Cap. 499) and Environmental Permit No.EP277/2007/A.
- ES.02 As construction works were undertaken only at Channels MUP03A&B, MUP04A&B, MUP05 during the Reporting Period, environmental monitoring for air quality, construction noise, water quality and ecology was therefore performed at those channels only.
- ES.03 In air quality and noise monitoring, there were no Action/ Limit Level exceedance recorded in this reporting period.
- ES.04 In stream water quality monitoring, there was no Action/ Limit Level exceedance recorded in the reporting period. No associated corrective actions were required.

Ctation	D	0	Turb	idity	pH \	/alue	S	S	Total Exc	ceedance
Station	Action	Limit	Action	Limit	Action	Limit	Action	Limit	Action	Limit
MUP-W4 (a)	0	0	0	0	0	0	0	0	0	0
MUP-W5 (b)	0	0	0	0	0	0	0	0	0	0
MUP-W6 (b)	0	0	0	0	0	0	0	0	0	0
Exceedances	0	0	0	0	0	0	0	0	0	0

Remarks:

(a) impact station; (be) Temporary or mobile station

- ES.05 **Five** ecological general audits were performed in this reporting month at the nominated construction channel (MUP05). No non-compliance was observed during the auditing period and all of the mitigation measures were found effectively implemented.
- ES.06 No written or verbal complaint, notification of summons or successful prosecution was received (written or verbal) for each media during the Reporting Period. No adverse environmental impacts were observed during the weekly site inspection and environmental audit which indicated that the implemented mitigation measures for air quality, construction noise, water quality and ecology were effective. Minor deficiencies found during the weekly site inspection were in general rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.
- ES.07 As wet season has come, the coming excavation works of the channels, ingression of surface runoff into the river within MUP Channels continues to be the key issue in future months. The contractor is reminded that mitigation measures for water quality and ecology should therefore be fully implemented.
- ES.08 In addition, attention should be paid to noise impact during the construction work progress, and with other environmental issues identified in the EM&A Manual. Mitigation measures recommended in the Environmental Study Report (ESR) and summarized in Mitigation Measure Implementation Schedule should continually be applied.



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#### 1. INTRODUCTION

The Chiu Hing Construction & Transportation Company Limited (CHCT) was appointed by the Drainage Services Department (DSD) to perform a contract – Contract No. DC/2007/08 *Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang* (the Project). Total construction time is approximately 32 months.

The Project involves construction of various river channels: some classified as Designated Project (DP) and some Non-designated Project (Non-DP) under the Environmental Impact Assessment Ordinance (Cap. 499), as summarized in *Table 1-1*.

Table 1-1 Summary of the Channels under the Project

Channel ID	Location	Designated / Non-Designated
TKL02	Tai Po Tin	Non-Designated
TKL07	Ping Che / Ta Kwu Ling	Non-Designated
MUP01		Non-Designated
MUP02		Non-Designated
MUP03A and MUP03B	Man Uk Pin	Designated (EP277/2007/A)
MUP04A and MUP04B		Designated (EP277/2007/A)
MUP05		Designated (EP277/2007/A)
LMH01	Lin Ma Hang	Designated (EP277/2007/A)

This is the **28**<sup>th</sup> monthly report covering data from **26 May 2011 to 25 June 2011** to present the monitoring results of air quality, construction noise, water quality and ecology for the Designated Project of Channels MUP03A&B, MUP04A&B, MUP05 and LMH01 under the Environmental Monitoring & Audit Manual [382486/73//lssue2]. A set of location plans showing all DP works covered in this report are illustrated in *Appendix A*. Details of EM&A requirements for the Designated Project are summarized below:

- (a) Channel MUP03A&B NA
- (b) Channel MUP04A&B the scope of environmental monitoring includes construction noise, air quality and water quality
- (c) Channel MUP05 the scope of environmental monitoring includes construction noise, air quality, water quality and ecology
- (d) Channel LMH01 the scope of environmental monitoring includes construction noise, air quality, water quality and ecology

It has been agreed among the Engineer's Representative (ER), the Independent Environmental Checker (IEC), the Contractor (CHCT), the Environmental Team (ET) and the Environmental Protection Department (EPD) that 25<sup>th</sup> of each month is the cut-off day of each reporting month. Data collected after the 26<sup>th</sup> of every month will be reported in the next issue.

# 1.1 REPORT STRUCTURE

This report has been written in accordance with the requirements set out in the *Environmental Monitoring and Audit Manual* (the EM&A Manual) with the following structure:

Section 1	Introduction
Section 2	Basic Project Information
Section 3	Environmental status
Section 4	Summary of Impact EM&A Requirements
Section 5	Impact Monitoring Results
Section 6	Report on Non-Compliance (NC), Complaint, Notification of Summons (NOS) and Successful prosecution
Section 7	Conclusions and Recommendations



# 2. BASIC PROJECT INFORMATION

# 2.1 PROJECT ORGANIZATION

The organization chart and lines of communication with respect to the on-site environmental management and the management structure are shown in *Appendix B*.

# 2.2 MASTER CONSTRUCTION PROGRAM FOR THE PROJECT

The master construction program of the Project is shown in *Appendix C*. Environmental mitigation measures implemented are shown in *Appendix C*.

# 2.3 WORKS UNDERTAKEN DURING THE REPORTING MONTH

During this reporting month, the construction work undertaken at the designated work areas is listed as follows:

Channel MUP03A&B, MUP04A&B and MUP05	<ul> <li>Construction Work Activities</li> <li>Survey setting out</li> <li>Construction of site access</li> <li>Site clearance</li> <li>Construction of access ramp, footbridge, box culvert and gabion wall</li> </ul>
LMH01	Not yet commenced

Future construction works is provided in Appendix C.



#### 3. ENVIRONMENTAL STATUS

# 3.1 WORK UNDERTAKEN DURING THE MONTH WITH ILLUSTRATIONS

In this reporting month, the construction work was undertaken at Channels MUP03A&B, MUP04A&B and MUP05. All proposed construction channels are located at Man Uk Pin. The environmental mitigation Implement is shown in *Table 3-1*.

Table 3-1 Environmental Mitigation Measures Undertake in the Reporting Month

Location	Construction Activities	Environmental Mitigation Measures to be deployed
MUP03A&B, MUP04A&B and	Survey setting out	◆ Trees will be properly protected before works commenced.
MUP05	Construction of site access	◆ Excavated area and stockpile of soil material will be dampened/covered before dispose off-site
	Site clearance	<ul> <li>Water spraying will be provided before and during handling of excavated material.</li> </ul>
	Construction of access ramp, footbridge, box culvert and gabion wall	<ul> <li>Excavated area and stockpile of soil material will be dampened/covered before dispose off-site</li> <li>Water spraying will be provided before and during handling of excavated material.</li> <li>Retained tree will be properly protected before works commenced</li> </ul>

## 3.2 IMPLEMENTATION OF ENVIRONMENTAL PROTECTION AND POLLUTION CONTROL

The implementation of environmental protection and pollution control/mitigation measures as recommended in the EM&A Manual or ES is shown in *Appendix C*.

A summary status of the permits, licences, and/or notifications on environmental protection for this Project in this reporting month is presented in *Table 3-2*.

Table 3-2 Status of Environmental Licenses and Permits

Item	Item Description	Permit Status
1	Environmental Permit No.EP277/2007/A	Issued on 1 Dec 2009
2	Air Pollution Control (Construction Dust)	Notification to EPD on 27/12/2007
3	Chemical Waste Producer Registration	
	• 5213-652-C3251-04	Valid date: 23 July 2008
	• 5213-652-C3251-05	Valid date: 15 August 2008
4	Water Pollution Control (Discharge license)	
	• W5/1G34/1 Expiry date: 31 August 2013	
	• W5/1G35/1 Expiry date: 31 August 2013	
	• W5/1I324/1	Expiry date: 31 August 2013
	• W5/1I325/1	Expiry date: 31 August 2013
5	Account for Disposal of Construction Waste No. 7006522 Valid date: 9 January 2008	
6	Construction Noise Permit	Nil



#### 4. SUMMARY OF IMPACT MONITORING REQUIREMENTS

Environmental monitoring and audit for air quality, noise, water quality and ecology have been recommended in the EM&A Manual. They are summarized below.

#### 4.1 Monitoring Parameters

The monitoring parameters are summarized in Table 4-1.

Table 4-1 Summary of Monitoring Parameters

Environmental Issue	Parameters		
Air Quality	<ul><li>1-hour Total Suspended Particulate (1-hour TSP); and</li><li>24-hour Total Suspended Particulate (24-hour TSP)</li></ul>		
Construction Noise	<ul> <li>A-weighted equivalent continuous sound pressure level (30min) (Leq(30min)) during the normal working hours; and</li> <li>A-weighted equivalent continuous sound pressure level (5min) (Leq(5min)) for construction work during the Restricted Hours</li> </ul>		
Water Quality	In-situ     Measurement     Laboratory     Analysis	temperature, dissolved oxygen (DO), dissolved oxygen saturation (DOS), pH value, water depth, temperature & turbidity suspended solids (SS)	
Ecology	MUP05 and LMH01	<ul> <li>The stream conditions monitoring (in-situ measurements of DO, pH and turbidity; laboratory testing of SS);</li> <li>General site audit to reporting the mitigation measures are properly implemented during the construction phase</li> </ul>	

# 4.2 MONITORING LOCATIONS

# 4.2.1 Monitoring Locations Proposed in the EM&A manuals

Monitoring locations have been identified in the EM&A Manual. They are shown in *Appendix D* and summarized in *Table 4-2*.

Table 4-2 Monitoring Locations Proposed in the EM&A Manuals

Issue	Channel	Sensitive Receiver	Monitoring Location ID	Detailed Address
	MUP04A	MUP04A-2	MUP-A3	Village house near Loi Tung
Air	MUP05	MUP05-2 (same	MUP-A1 (same as	Village north of Loi Tung (same as Village house at
All		as MUP01/02-1)	MUP01/02-A1)	Man Uk Pin)
	MUP05	MUP05-4	MUP-A2a#	Village north of Loi Tung
	MUP04A	MUP04A-2	MUP-N4	Village house near Loi Tung
		MUP05-2 (same	MUP-N1 (same as	Village north of Loi Tung (same as Village house at
	MUP05	as MUP01/02-1)	MUP01/02-N1)	Man Uk Pin)
	MOFUS	MUP05-4	MUP-N2	Village north of Loi Tung
Noise		MUP05-6	MUP-N3	Village north of Loi Tung
NOISE		LMH01-1		Village of Lin Ma Hang(* Remark: Mobile station
	LMH01	LMH01-2		subject to the location of the construction works to
		LMH01-3	LMH-N1*	be measured at Sensitive Receiver LMH01-1 or LMH01-2 or LMH01-3 or LMH01-4 or LMH01-5)
		LMH01-4		
		LMH01-5		ENTITOT 2 OF ENTITOT 3 OF ENTITOT 4 OF ENTITOT 3 )
	MUP04A	Control Station	MUP-W3	Upstream of MUP04A works
		Control Station	MUP-W1 (same as MUP01/02-W1)	Upstream of MUP01 works
	MUP05	Control Station	MUP-W2 (same as MUP01/02-W2)	Upstream of MUP02 works
Water		Impact Station	MUP-W4	Downstream of MUP05 works immediately at the discharge point to River Indus
		Temporary / Mobile Station	MUP-W5	Within MUP05, downstream of the discharge point of MUP01/02 and upstream of the discharge point of MUP04A
		Temporary / Mobile Station	MUP-W6	Within MUP05, downstream of the discharge point of MUP01/02 and MUP04A



Issue	Channel	Sensitive Receiver	Monitoring Location ID	Detailed Address	
		Control Station	LMH-W1	Upstream of LMH01 works	
		Control Station	LMH-W2	Upstream of LMH01 works	
Water	LMH01	Impact Station	LMH-W3	Downstream of all LMH01 works immediately at the discharge point to Shenzhen River	
		Temporary / Mobile Station	LMH-W4	Upstream and downstream of particular group of LMH01 works	
		Temporary / Mobile Station	LMH-W5	Upstream and downstream of particular group of LMH01 works	
		Temporary / Mobile Station	LMH-W6	Upstream and downstream of particular group of LMH01 works	
	MUP05	Water Quality of Str	ream	Upstream and downstream of Construction site	
Ecology	and LMH01			Along stream channel, within 100m upstream and downstream of construction site	
	LMH01	Surveys of fish spe	cies	Along stream channel, within 100m upstream and downstream of construction site	

<sup>#</sup> Access to the original air quality monitoring location MUP-A2 has been denied. The nearby air quality sensitive receiver MUP05-4 is recommended to be the replacement of the denied MUP-A2 and named MUP-A2a for ease of reference.

#### 4.3 MONITORING FREQUENCY

The impact monitoring should be conducted during the construction activities pass through the contract period to ensure the ambient environmental conditions compliance with the environmental performance criteria i.e. Action and Limit Levels for the Project. The impact monitoring frequency specified in the EM&A Manual is summarized below.

## Air Quality

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

Frequency: Once every 6 days for 24-hour TSP & three times every 6 days for 1-hour TSP.

<u>Duration</u>: During the course of construction works

#### **Construction Noise**

<u>Parameters:</u> Leq(30 min) in six consecutive Leq(5 min) measurements.. <u>Frequency:</u> Once a week during 0700-1900 on normal weekdays:

<u>Duration</u>: During the course of construction works

# **Water Quality**

<u>Parameters</u>: Duplicate in-situ measurements of water depth, temperature, DO, pH & turbidity;

and laboratory testing of SS. Relevant data will also be measured time of

sampling, DO Saturation, weather conditions and special phenomena.

<u>Depths</u>: All measurements will be carried out at three water depths, namely, 1 m below

water surface, mid-water depth, and 1 m above river bed. If the water depth is less than 6 m, the mid-depth measurement will be omitted. If the depth is less

than 3 m, only the mid-depth measurement will be taken.

Frequency: 3 days a week with an interval of at least 36 hours between two consecutive

sampling days

<u>Duration</u>: During the construction period of the channel works

## **Ecology**

According to the EM&A Manual [382486/73/Issue2], ecology monitoring is only performed at the Channels MUP05 and LMH01 during the construction phase, the monitoring requirements are listed as following:

#### Parameters:

- (a) General site audit with emphasis on ecology mitigation measure;
- (ii) Water quality of stream (DO, pH, turbidity and SS); and
- (iii) Survey of fish species, which is only requested at Channel LMH01

#### Frequency:

- (b) Once a week for general site audit throughout the construction period;
- (ii) Three times per week for stream monitoring; and
- (iii) Once per week for survey of fish species.



#### Duration:

Throughout the whole construction period

#### 4.4 MONITORING EQUIPMENT

The monitoring equipment for air quality, construction noise, stream water quality and ecology are summarized below.

#### 4.4.1 Air Quality

A list of air quality monitoring equipments is shown in Table 4-3.

Table 4-3 Air Quality Monitoring Equipment

Equipment	Model
24-hour TSP	
High Volume Air Sampler (herein after 'HVS')	Grasby Anderson GMWS 2310 HVS
Calibration Kit	TISCH Model TE-5025A
1-hour TSP	
Portable Dust Meter	TSI DustTrak Model 8520

#### 4.4.2 Construction Noise

A list of construction noise monitoring equipments is shown in Table 4-4.

Table 4-4 Construction Noise Monitoring Equipment

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

# 4.4.3 Water Quality

Monitoring Equipment for water quality are shown in Table 4-5.

Table 4-5 Water Quality Monitoring Equipment

Equipment	Model / Description
In-situ Measurement	
Water Depth Detector	Eagle Sonar or steel ruler
Water Sampler	Teflon bailer / bucket
Thermometer & DO meter	YSI Multimeter
pH meter	Extech pH EC 500
Turbidimeter	Hach 2100p
Sample Container	High density polythene bottles (provided by laboratory)
Storage Container	'Willow' 33-litter plastic cool box
Laboratory Analysis	
Suspended Solids	HOKLAS accredited Laboratory

# 4.4.4 Equipment Calibration

The calibrations certificate of all monitoring equipment are used during the impact monitoring program are attached in *Appendix E* and the calibration requirement are described in below:

#### Air Quality

The calibration of the HVS is performed at a two month intervals in accordance with the manufacturer's instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model No.TE-5025A). The calibration data are properly documented and the associated records are maintained by the ET for future reference.

The 1-hour TSP meter is calibrated at a year intervals in accordance with the in-house method. Zero response of the equipment is checked before and after each monitoring event.



#### Noise

The sound level meters are calibrated using an acoustic calibrator prior to and after spot checking measurements. The meters are regularly calibrated by HOKLAS accredited laboratory. Prior to and following each noise measurement, the accuracy of the sound level meter is checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements are considered valid only if the calibration levels before and after the noise measurement agree to within 1.0 dB

#### Water Quality

In-situ monitoring instruments are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at 3 monthly intervals.

# 4.4.5 Ecology

The following equipment will be used for monitoring:-

- General: field note books and survey forms, digital camera; and
- Binoculars (7-10x and 8 x 30 magnification);

# 4.4.6 Others EM&A Requirement

Landscape & Visual and Cultural Heritage impact monitoring are also required for the Designated Project and stipulated in EM&A manual [382486/73//Issue2] **Section 7** and **Section 8** accordingly

#### Landscape & Visual

Landscape and visual mitigation measures should be implemented during construction phase according to the EM&A Manual. The construction phase landscape and visual EM&A shall be carried out as part of the site audit program. Site inspection will be undertaken at least once every two weeks throughout the construction period.

#### Cultural Heritage

Cultural heritage of the Terrance Wall (AAHB-855) at Lin Ma Hang (LMH01) is required to be carried out during the construction phase in accordance with the EM&A Manual [382486/73//lssue2].

#### 4.5 MONITORING PROCEDURE

The monitoring methodology and procedure during the impact monitoring are presented as below:

# 4.5.1 Air Quality

#### 1-hour TSP

Operation of the 1-hour TSP meter is follow manufacturer's Operation and Service Manual. The 1-hour TSP monitor, a TSI Dust Track Aerosol Monitor Model 8520, or Sibata LD-3 Laser Dust Meter is a portable, battery-operated laser photometer. The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 90° light scattering. The 1-hour TSP monitor consists of the following:

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

The 1-hour TSP meter using was within the valid period, calibrated by the manufacturer prior to purchasing. Zero response of the instrument was checked before and after each monitoring event.

#### 24 -hour TSP

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

- An anodized aluminum shelter:
- A 8"x10" stainless steel filter holder;



- A blower motor assembly;
- A continuous flow/pressure recorder;
- A motor speed-voltage control/elapsed time indicator;
- A 6-day mechanical timer, and
- A power supply of 220v/50 Hz

The HVS is calibrated prior the impact monitoring to following the manufacturer's instruction using the NIST-certified standard calibrator brand named Tisch Calibration Kit Model TE-5028A. Regular HVS operation and maintenance as well as filter paper installation and collection was performed by the ET's competent technicians, whereas laboratory analyses were conducted in a local HOKLAS accredited laboratory, ALS Technichem (HK) Pty Ltd (hereinafter 'ALS'). The analyzed 24-hour TSP filters were kept in ALS for six months prior to disposal.

#### Meteorological Information

All relevant data including temperature, pressure, weather conditions, elapsed-time meter reading for the start and stop of the sampler, identification and weight of the filter paper is recorded in detail.

Meteorological information is sourced from the Hong Kong Observatory (Ta Kwu Ling Station). The data included wind direction, wind speed, humidity, rainfall, air pressure and temperature etc that in general is required for evaluating the air quality for air quality monitoring.

#### 4.5.2 Construction Noise

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

All noise measurements are performed with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (Leq). Leq(30min) measurements are used as the monitoring parameter for the time period throughout the construction phase.

The sound level meter is set higher than 1.2m above the existing ground. 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 measurement point at impact locations is normally set close to the exterior of the building.

Immediately prior to and following each noise measurement the accuracy of the sound level meter is checked using an acoustic calibrator generating a known sound pressure level at a known frequency (94dBA). Measurements are accepted as valid due to the calibration levels from before and after the noise measurement agree to within 1.0dB.

#### 4.5.3 Water Quality

Water quality monitoring is conducted at the middle of the water columns (Mid-Depth) due to water columns at all sampling locations are less than 3.0 meters during monitoring.

#### Water Depth

Water depths are determined prior to measurement and sampling. A steel ruler with a suitable weight was dropped to the bottom of the water column to measure the water depth which is actually well below 1 meter.

#### Dissolved Oxygen (DO)

A portable Extech Instrument,  $ExStik^R$  DO600 DO Meter is used for in-situ DO measurement. The DO meter is capable of measuring DO in the range of 0 – 20 mg/L and 0 – 200 % saturation and checked against water saturated ambient air on each monitoring day prior to monitoring.

Although the DO Meter automatically compensates ambient water temperature to a standard temperature of 20°C for ease of comparison of the data under the changing reality, the temperature readings of the DO Meter is recorded.



#### рΗ

A portable Extech Instrument,  $ExStik^{TM}$  Models pH EC 500 or a Hanna HI98107 pH Meter is used for in-situ pH measurement. The pH meter is capable of measuring pH in the range of 0 – 14 and readable to 0.1. Standard buffer solutions of pH 7 and pH 10 are used for calibration of the instrument before and after measurement.

#### **Turbidity**

A portable Hach 2100p turbidity Meter is used for in-situ turbidity measurement. The turbidity meter is capable of measuring turbidity in the range of 0 – 1000 NTU.

# Suspended Solids (SS)

SS is determined by ALS using HOKLAS accredited analytical methods namely ALS Method EA-025. The limit of report is 2mg/L

#### Water Sampler

Water samples are collected by the ET using a plastic sampler to avoid metal contamination. Due to water depth for both sampling locations are lesser than 0.5m, a cleaned plastic beaker is used for sample collection. The sampler is rinsed before collection with the sample to be taken. 1,000mL water sample is collected from depth for laboratory analyses.

#### Sample Container

Water samples are contained in screw-cap PE (Poly-Ethylene) bottles as provided by ALS. The PE bottles are pretreated by laboratory in accordance with the corresponding analytical requirements of HOKLAS. Where appropriate, the sampling bottles are rinsed with the water to be contained. Water sample is transferred from the sampler to the sample bottles to 95% bottle capacity to allow possible volume expansion during delivery and storage.

#### Sample Storage and delivery

A 'Willow' 33-liter plastic cool box packed with ice is used to preserve the collected water samples prior to arrival at the laboratory. The temperature of the cool box is maintained as close to 4°C as possible without being frozen. Samples are delivered to the laboratory end of sampling day or following day within the maximum storage time requirement.

# Chemical Analysis

ALS Technichem (HK) Pty Ltd (HOKLAS No. 66) is appointed by ET to provide analytical services for this project. The analysis of suspended solids is carried out to follow the APHA Standard Methods for the Examination of Water and Wastewater 19ed 2540D. The sample preparation and analysis under the QA/QC control is follow the HOKLAS QA/QC requirements and undertaken by the laboratory.

# 4.5.4 Ecology

Weekly site audit covering the whole assessment area is conducted during the construction work at Channels MUP05 and LMH01, focusing on the status/condition of the study area and its immediate vicinity, especially those sensitive habitats that have been identified in the ESR and/or habitats of conservation importance as stated in the EIAO TM.

Any changes found during the site audit have been marked and reported in the Monthly EM&A Report, and for those changes will be predicted to possibly or probably have had an impact on flora and fauna distribution or numbers should be highlighted in the Monthly EM&A report.

Ecology of water quality monitoring at the stream as requested to undertake in upstream and downstream of construction site Channels MUP05 and LMH01. The location of monitoring stations and requirements are same as the Water Quality Monitoring at the Channels MUP05 and LMH01. The procedure of water monitoring is same as the Water Quality monitoring.

#### 4.6 ENVIRONMENTAL QUALITY PERFORMANCE LIMITS

Baseline EM&A monitoring was carried out from17 September to 13 October 2008, and ecological baseline monitoring for the habitat updating was performed on 16 September 2008 in accordance with the EM&A Manuals requirements. A summary of Action/Limit (A/L) Levels for air quality, construction noise, stream water quality, ecology and Landscape & Visual are shown in *Tables 4-6*, *4-7*, *4-8*, *4-9* and *4-10* respectively.



Table 4-6 Action and Limit Levels for Air Quality

Monitoring Station	Action Lev	/el (μg /m³)	Limit Level (µg/m³)		
Worldoning Station	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP	
MUP-A1	>307	>156	> 500	> 260	
MUP-A2a	>300	>149	> 500	> 260	
MUP-A3	>299	>150	> 500	> 260	

Table 4-7 Action and Limit Levels for Construction Noise

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

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

Table 4-8 Action and Limit Levels for Water Quality

Monitorir	Monitoring Location		DO (mg/L)		Turbidity (NTU)		pH (Unit)		SS (mg/L)	
ID	Station Type	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	
MUP-W1	Control	NA	NA	NA	NA	NA	NA	NA	NA	
MUP-W2	Control	NA	NA	NA	NA	NA	NA	NA	NA	
MUP-W3	Control	NA	NA	NA	NA	NA	NA	NA	NA	
MUP-W4	Impact	5.27	5.18	18.03	24.81	6.5 – 8.5	6.0 – 9.0	15.8	17.6	
MUP-W5	Mobile	4.42	4.37	7.88	8.54	6.5 – 8.5	6.0 – 9.0	6.0	6.0	
MUP-W6	Mobile	4.54	4.51	11.81	14.84	6.5 – 8.5	6.0 – 9.0	3.9	4.8	
LMH-W1	Control	NA	NA	NA	NA	NA	NA	NA	NA	
LMH-W2	Control	NA	NA	NA	NA	NA	NA	NA	NA	
LMH-W3	Impact	3.96	3.62	11.31	12.10	6.5 – 8.5	6.0 – 9.0	8.8	10.6	
LMH-W4	Mobile	4.34	3.98	5.33	5.95	6.5 – 8.5	6.0 – 9.0	3.0	3.0	
LMH-W5	Mobile	2.14	2.07	31.46	35.33	6.5 – 8.5	6.0 – 9.0	25.0	29.8	
LMH-W6	Mobile	2.67	2.65	12.32	13.02	6.5 – 8.5	6.0 – 9.0	4.8	6.6	

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

Table 4-9 Action and Limit Levels for Ecology in Construction Phase at Channels MUP05 and LMH01

Parameter	Action Level	Limit Level
<ul> <li>Any construction works do not cause adverse ecological impacts outside the work site of Channels</li> <li>Where natural banks are to be retained are protected from adverse effects of engineering works, including impacts to riparian vegetation along these banks</li> <li>The existing natural stream channel is protected from adverse effect of engineering works, including potential indirect impacts through increased sedimentation</li> <li>Rock/fines used to form the bottom of the widened channel have the appropriate physical characteristics to permit reestablishment of semi-natural stream conditions</li> <li>The recommended mitigation measures are properly implemented by the Contractor</li> </ul>	Non- conformity on one occasion	Repeated Non- conformity

<sup>-</sup> For SS and turbidity, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

<sup>-</sup> For pH, non-compliance of water quality limits occurs when monitoring result is exceeded the range of limits.



Table 4-10 Action Level for Landscape and Visual Impact in Construction Phase

Parameter	Action Level	Limit Level
Any trespass by the contractor outside the limit of the works,	Non-conformity	Repeated non-
including any damage to existing trees, woodland and vegetation	on one occasion	conformity

#### 4.7 EVENT AND ACTION PLANS

An Event Action Plan for air quality, construction noise, water quality and ecology has been implemented for this designated project. Details of the Event Action Plan are presented in **Appendix F**.

#### 4.8 Environmental Mitigation Measures

The project ESR has recommended environmental mitigation measures to minimize potential environmental impacts arising from the construction of the project. A full list of the mitigation measures is detailed in *Appendix C*.

#### 4.9 DATA MANAGEMENT AND DATA OA/OC CONTROL

The impact monitoring data is handled by the ET's systematic data recording and management, which complies with an in-house certified (ISO 9001:2000) Quality Management System. Standard Field Data Sheets (FDS) are used in the EM&A program.

The monitoring data recorded in the equipment e.g. 1-hour TSP meters and noise meters are downloaded directly 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 which require laboratory analysis, the responsible laboratory, ALS, follows the QA/QC requirements as set out under their HOKLAS scheme for all laboratory testing.



# 5. IMPACT MONITORING RESULTS

In this reporting month, construction works and environmental monitoring had started at Channels MUP03A&B, MUP04A&B and MUP05 located in Man Uk Pin. No impact monitoring has yet been undertaken at Channel LMH01 due to no construction activities during the month. In the future when the EM&A programme will cover all four channels once works in Channel LMH01 start.

The scheduled impact monitoring in this month is shown in *Appendix G* and the monitoring results are detailed in the following sub-sections. The meteorological data during the Reporting Period are summarized in *Appendix J*.

#### 5.1 AIR QUALITY

According to the EM&A Manual, air monitoring is only required to conduct at Channels MUP04A and MUP05 during the construction phase. In this reporting period, the results of impact air quality monitoring for 24-hour and 1-hour TSP are summarized in *Tables 5-1* and *5-2*. The detailed 24-hour TSP monitoring data are shown in *Appendix H* and the graphic plots are shown in *Appendix I*.

Table 5-1 Summary of 1-hour TSP Monitoring Results (µg/m³)

	MUP-A1 (MUP05)				MUP-A2a (MUP05)				MUP-A3 (MUP04A)			
Date	Start Measurement		Start	Start Measurement			Start Measuremen		ent			
	Time	1st	2 <sup>nd</sup>	3 <sup>rd</sup>	Time	1st	2 <sup>nd</sup>	3 <sup>rd</sup>	Time	<b>1</b> st	2 <sup>nd</sup>	3 <sup>rd</sup>
28-May-11	09:45	190	186	178	09:15	204	175	176	09:30	160	173	190
3-Jun-11	14:30	94	96	101	13:00	109	96	94	13:00	109	96	94
9-Jun-11	13:13	34	39	35	14:12	32	29	32	13:00	36	32	39
15-Jun-11	13:10	37	39	35	14:00	44	43	43	13:00	35	35	39
21-Jun-11	14:09	25	27	30	13:55	31	35	28	11:00	22	28	25
Average	76			78			74					
(range)		(25 - 1)	190)			(28 -	- 204)			(22 -	190)	

Table 5-2 Summary of 24-hour TSP Monitoring Results (µg/m³)

Date	MUP-A1 (MUP05)	MUP-A2a (MUP05)	MUP-A3 (MUP04A)
26-May-11	power failure#	power failure#	39
1-Jun-11	power failure#	power failure#	89
7-Jun-11	power failure#	power failure#	15
13-Jun-11	power failure#	power failure#	23
18-Jun-11	power failure#	power failure#	59
24-Jun-11	power failure#	power failure#	26
Average			42
(range)			(15 - 89)

<sup>#</sup> Power failure and no make up of lost samples.

As shown in *Tables 5-1* and *5-2*, there was no exceedance recorded in 1-hour TSP and 24-hour TSP during this reporting period. As a reminder, the Contractor is advised to increase the frequency of water spraying especially in the sunny and dry days. There were total 12 power failures incident recorded at Location MUP-A1 and MUP-A2a. It is noted by the Contractor they have tried to fix the problem from power supplier. However, they could not get contact to the residents who supply power all the time. We have constantly liaised with the Contractor to rectify the power supply problem and Contractor will deploy another power source as soon as possible. On the other hands, it is shown that there is no works near those locations in recent months. It is believed that the site area would not cause exceeding for monitoring results or significant impact for air quality



# 5.2 Construction Noise

According to the EM&A Manual, noise monitoring is only required to perform at Channels MUP04A and MUP05 during the construction phase. All noise monitoring results are summarized in *Tables 5-3* to *5-6* and graphic plot are shown in *Appendix I*.

Table 5-3 Results of Construction Noise Monitoring at Channels MUP-N1 / MUP01/02-N1 (MUP05)

Date	Start Time	1st Leq5	2 <sup>nd</sup> Leq5	3 <sup>rd</sup> Leq5	4 <sup>th</sup> Leq5	5 <sup>th</sup> Leq5	6 <sup>th</sup> Leq5	Leq30 dB(A)
28-May-11	11:27	60.5	65.0	61.1	53.9	52.9	53.8	60.2
3-Jun-11	14:29	59.3	58.0	57.9	58.0	60.0	60.0	59.0
9-Jun-11	10:49	57.9	56.7	54.3	51.6	53.0	49.7	54.7
15-Jun-11	11:29	52.7	56.4	54.8	54.0	49.3	54.7	54.1
21-Jun-11	11:35	51.4	51.3	54.0	52.1	51.6	51.8	52.1
Limit Level (	Leq30)				75 dB(A)			

Table 5-4 Results of Construction Noise Monitoring at Channels MUP-N2 (MUP05)

Date	Start Time	1st Leq5	2 <sup>nd</sup> Leq5	3 <sup>rd</sup> Leq5	4 <sup>th</sup> Leq5	5 <sup>th</sup> Leq5	6 <sup>th</sup> Leq5	Leq30 dB(A)
28-May-11	09:39	69.8	68.8	65.3	69	68.1	69.6	68.7
3-Jun-11	10:39	68.8	66.8	69.8	68.4	67.7	67.6	68.3
9-Jun-11	13:50	67.2	68.4	68.2	68.9	69.5	69.4	68.7
15-Jun-11	13:52	66.9	69.6	67.3	68.3	67.7	68.5	68.1
21-Jun-11	13:52	68.1	67.6	68.3	67.8	65.5	68.7	67.8
Limit Level (	Leq30)				75 dB(A)			

Table 5-5 Results of Construction Noise Monitoring at Channels MUP-N3 (MUP05)

Date	Start Time	1st Leq5	2 <sup>nd</sup> Leq5	3 <sup>rd</sup> Leq5	4 <sup>th</sup> Leq5	5 <sup>th</sup> Leq5	6 <sup>th</sup> Leq5	Leq30 dB(A)
28-May-11	10:54	63.9	64.1	62.2	64.6	64.3	65.8	64.3
3-Jun-11	11:16	67.7	68.2	61.8	64.8	62.6	64.1	65.5
9-Jun-11	14:27	63.0	62.1	60.1	64.6	61.5	61.1	62.3
15-Jun-11	14:31	58.4	58.8	60.5	60.0	58.1	61.6	59.7
21-Jun-11	14:28	57.8	58.7	60.0	58.0	60.8	57.1	58.9
Limit Level (	Leq30)				75 dB(A)			Ü

Table 5-6 Results of Construction Noise Monitoring at Channels MUP-N4 (MUP04A)

Date	Start Time	1st Leq5	2 <sup>nd</sup> Leq5	3 <sup>rd</sup> Leq5	4 <sup>th</sup> Leq5	5 <sup>th</sup> Leq5	6 <sup>th</sup> Leq5	Leq30 dB(A)
28-May-11	10:16	54.3	53.6	54.2	55.9	53	52.6	54.1
3-Jun-11	13:54	55.4	57.4	55.3	53	50.9	50.7	54.5
9-Jun-11	11:31	51	53.2	51.8	49.8	45.2	46.3	50.4
15-Jun-11	10:37	57.1	54	57.2	55.4	55.8	54.6	55.8
21-Jun-11	10:58	52.8	53.1	51.3	56.5	55.7	54.8	54.4
Limit Level (	Leq30)				75 dB(A)			

As shown in **Tables 5-3** to **5-6**, the construction noise levels fluctuated well below the Limit Level. No documented complaints against the construction noise were registered during the Reporting Period. No NOE or corrective actions were therefore required for the parameter



#### 5.3 WATER QUALITY

In this reporting month, a total of 13 sampling days were performed for stream water quality monitoring according to the EM&A Manual requirements. Detailed in-situ measurements and laboratory results are shown in **Appendix H** and graphic plots given in **Appendix I**.

There was no Action/Limit level exceedances recorded in the reporting period. No associated corrective actions were therefore required. A summary of exceedances in this reporting month is provided in *Table 5-7* below:

Table 5-7 Summary of Stream Water Quality Exceedances

Station	D	0	Turb	idity	pH V	/alue	S	S	Total Exc	eedance
Station	Action	Limit	Action	Limit	Action	Limit	Action	Limit	Action	Limit
MUP-W4 (a)	0	0	0	0	0	0	0	0	0	0
MUP-W5 (b)	0	0	0	0	0	0	0	0	0	0
MUP-W6 (b)	0	0	0	0	0	0	0	0	0	0
Exceedances	0	0	0	0	0	0	0	0	0	0

For pH measurements, the results shown that the range of pH unit was within 7.10 - 7.35 and within the lower or upper bounds of Action Limit Level.



#### 5.4 ECOLOGY

According According to the EM&A Manual [382486/73//Issue2], ecology monitoring is required for Channels MUP05 and LMH01 during the construction phase. In this reporting period, the construction works of Channels MUP05 has already been commenced on 10 March 2009. However construction works in Channel LHM01 has not yet started. So ecology monitoring was only undertaken for Channel MUP05 only. Once construction activities at Channel LMH01 start, ecology monitoring of the stream water will immediately take place.

In this reporting month, five site visits were carried out on 26 May 2011, 2 June 2011, 10 June, 17 June and 23 June 2011 by an ecological specialist. No non-compliance was observed during the auditing period and diversion and stream crossing structure has been properly installed in the stream section highlighted in previous reports. Moreover, stockpiling of excavated earth was noted next to the watercourse; and despite work in progress the contractor has been reminded to follow the requirements of the Section 6.5.22 of the EM&A Manual.

The detailed findings are listed in the table below and the checklists are attached in Appendix L.

Table 5-8 Summary of Defects and Deficiencies Identified and Follow-up Actions and Remedies Taken

Date of Audit	Defects and Deficiencies Identified	Recommendation	Follow-up Actions and Remedies Taken
26 May 2011	Stockpiling of excavated earth was noted next to the watercourse	Despite work in progress the contractor has been reminded to observe the requirements of the Section 6.5.22 of the EM&A Manual.	- n/a
2 June 2011	Stockpiling of excavated earth was noted next to the watercourse	Despite work in progress the contractor has been reminded to observe the requirements of the Section 6.5.22 of the EM&A Manual.	- n/a
10 June 2011	Stockpiling of excavated earth was noted next to the watercourse	Despite work in progress the contractor has been reminded to observe the requirements of the Section 6.5.22 of the EM&A Manual.	- n/a
17 June 2011	Stockpiling of excavated earth was noted next to the watercourse	Despite work in progress the contractor has been reminded to observe the requirements of the Section 6.5.22 of the EM&A Manual.	- n/a
23 June 2011	Stockpiling of excavated earth was noted next to the watercourse	Despite work in progress the contractor has been reminded to observe the requirements of the Section 6.5.22 of the EM&A Manual.	- n/a

#### 5.5 OTHER FACTORS INFLUENCING THE MONITORING RESULTS

There were no other noticeable external factors generally affecting the monitoring results in this reporting month.

# 5.6 QA/QC RESULTS AND DETECTION LIMITS

Not applicable.



# 6. REPORT ON NON-COMPLIANCE, COMPLAINT, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTION

#### 6.1 RECORD OF NON-COMPLIANCE OF ACTION AND LIMIT LEVELS

No Action or Limit Level exceedance was identified for air quality, construction noise as well as stream water quality monitoring. No associated corrective actions were therefore required.

#### 6.2 ENVIRONMENTAL COMPLAINTS

No written or verbal complaints were received (written or verbal) for each medium during the Reporting Period.

- 6.3 RECORD OF NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTION
  No notification of summons or successful prosecutions was recorded during the Reporting Period.
- 6.4 REVIEW OF REASONS FOR AND IMPLICATION OF NON-COMPLIANCE, COMPLAINT AND NOTICE OF SUMMONS No non-compliance, complaint or Notice of Summons was received in this reporting month.
- 6.5 DESCRIPTION OF FOLLOW-UP ACTIONS TAKEN
  It follows from **Sections 6.1** and **6.4** that no follow-up actions were necessary.

#### 6.6 OTHERS

# 6.6.1 Solid and Liquid Waste Management Status

The quantity of waste for disposal or reuse is summarized in **Tables 6-1** and **6-2.** The monthly summary of waste flow table is shown in **Appendix M**.

Table 6-1 Summary of Quantities of Waste for Disposal

Type of Waste	Quantity	Disposal Location
C&D Materials (Inert) (in '000m <sup>3</sup> )	-	Tuen Mun 38 Fill Bank
Cad Materials (mert) (iii 000m²)	0	Reused in other Projects
C&D Materials (Non-Inert) (in '000m <sup>3</sup> )	0	NENT
Chemical Waste (in '000kg)	0	NA
General Refuse (in '000m3)	0	NA

Table 6-2 Summary of Quantities of Waste for Reuse/Recycling

Type of Waste	Quantity	Disposal Location
Metals for Recycling (in '000kg)	0	NA
Paper for Recycling (in '000kg)	0	NA
Plastics for Recycling (in '000kg)	0	NA

There was no known site effluent discharged but it was assumed that an estimated volume of 50m<sup>3</sup> of waste water was discharged in this reporting month.



# 6.6.2 Site Inspection and Environmental Audit

A total of 5 weekly environmental site inspection and audit were conducted jointly by the ER, EO and ET during the Reporting Period on 26 May, 1, 9, 16 and 23 June 2011 and there was also an IEC audit undertaken on 16 June 2011. No adverse environmental impacts were observed which indicated that the mitigation measures implemented were effective. Minor deficiencies found in the site inspections and audit was promptly rectified within the specified deadlines. Findings of the site inspection and environmental audit are summarized below. Performa of the weekly ET site inspection and audit activities are presented in *Appendix K*.

Table 6-3 Summary of Findings of Site Inspection and Environmental Audit

Date	Findings / Deficiencies	Follow-Up Status
26 May 2011	A ponding of muddy water was observed. The Contractor was reminded to maintain good water mitigation measures especially during the excavation works.	The deficiencies have been found improved on the
	A piece of formwork material was observed. The Contractor was reminded to remove it properly to prevent blockage of the channel.	following site inspection.
1 June 2011	<ul> <li>Fugitive dust emission was observed. The Contractor was reminded to practice water spraying regularly.</li> <li>Tree preservation requires further improvement. The Contractor is reminded to proper fence the preserved tree.</li> <li>C&amp;D wastes near the channel are needed to be cleared.</li> </ul>	The deficiencies have been found improved on the following site inspection.
9 June 2011	<ul> <li>Dry haul road was observed. The Contractor was reminded to practice water spraying regularly.</li> <li>Turbid water was observed. The Contractor is reminded to provide proper water mitigation measure to improve the water quality.</li> </ul>	The deficiencies have been found improved on the following site inspection.
16 June 2011	<ul> <li>Turbid water was observed. The Contractor is reminded to provide water mitigation measures to reduce SS level of the water quality.</li> <li>Runoff of turbid water from wheel-washing facility was observed. The Contractor was reminded to replace the fresh water and maintain proper capacity of the facility.</li> </ul>	The deficiencies have been found improved on the following site inspection.
23 June 2011	<ul> <li>Tree branches and debris was accumulated on the site. The Contractor should maintain the site clearance</li> <li>C&amp;D materials were observed on the gabion wall. The Contractor was reminded to remove the material to avoid any dropping to the water stream.</li> </ul>	The deficiencies have been found improved on the following site inspection.

# 6.6.3 Works to be undertaken in the Forth-Coming Month

Works to be undertaken next month are shown in the construction program enclosed in *Appendix C*. In addition, the activities undertaken in the Reporting Period including construction, preparation and site clearance activities will also continue in the future. They are summarized below:

The forthcoming activities in the next two months:

- (a) Survey setting out;
- (b) Construction of footbridge, box culvert and gabion wall;
- (c) Site clearance;
- (d) Construction of site access
- (e) Tree transplant/felling

#### 6.6.4 Future Key Issues and Mitigation Measures for the Forth-Coming Month

As wet season has come, the coming excavation works of the channels, ingression of surface runoff into the river within MUP Channels continues to be the key issue in coming months. The contractor is reminded that mitigation measures for water quality and ecology should therefore be fully implemented.

In addition, attention should be paid to noise impact during the construction work progress, and



with other environmental issues identified in the EM&A Manual. Mitigation measures recommended in the Environmental Study Report (ESR) and summarized in Mitigation Measure Implementation Schedule should continually be applied.

#### 7 CONCLUSIONS AND RECOMMENDATIONS

This is the **28**<sup>th</sup> monthly EM&A Report for Channels MUP03A&B, MUP04A&B, MUP05 and LMH01 - Designated Project, covering a period from **26 May 2011** to **25 June 2011**.

In air quality and noise monitoring, there were no Action/ Limit Level exceedance recorded in this reporting period. No associated corrective actions were therefore required.

For water quality, there was no Action/Limit level exceedances recorded in the reporting period. No associated corrective actions were therefore required.

No written or verbal complaints, notifications of summons or successful prosecutions were received during the Reporting Period. No adverse environmental impacts were observed during the weekly site inspection and environmental audit, which indicated that the implemented mitigation measures for air quality, construction noise and water quality were effective. A few minor deficiencies found in the weekly site inspection and they were rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.

As wet season has come, the coming excavation works of the channels, ingression of surface runoff into the river within MUP Channels continues to be the key issue in coming months. The contractor is reminded that mitigation measures for water quality and ecology should therefore be fully implemented.

In addition, attention should be paid to noise impact during the construction work progress, and with other environmental issues identified in the EM&A Manual. Mitigation measures recommended in the Environmental Study Report (ESR) and summarized in Mitigation Measure Implementation Schedule should continually be applied.

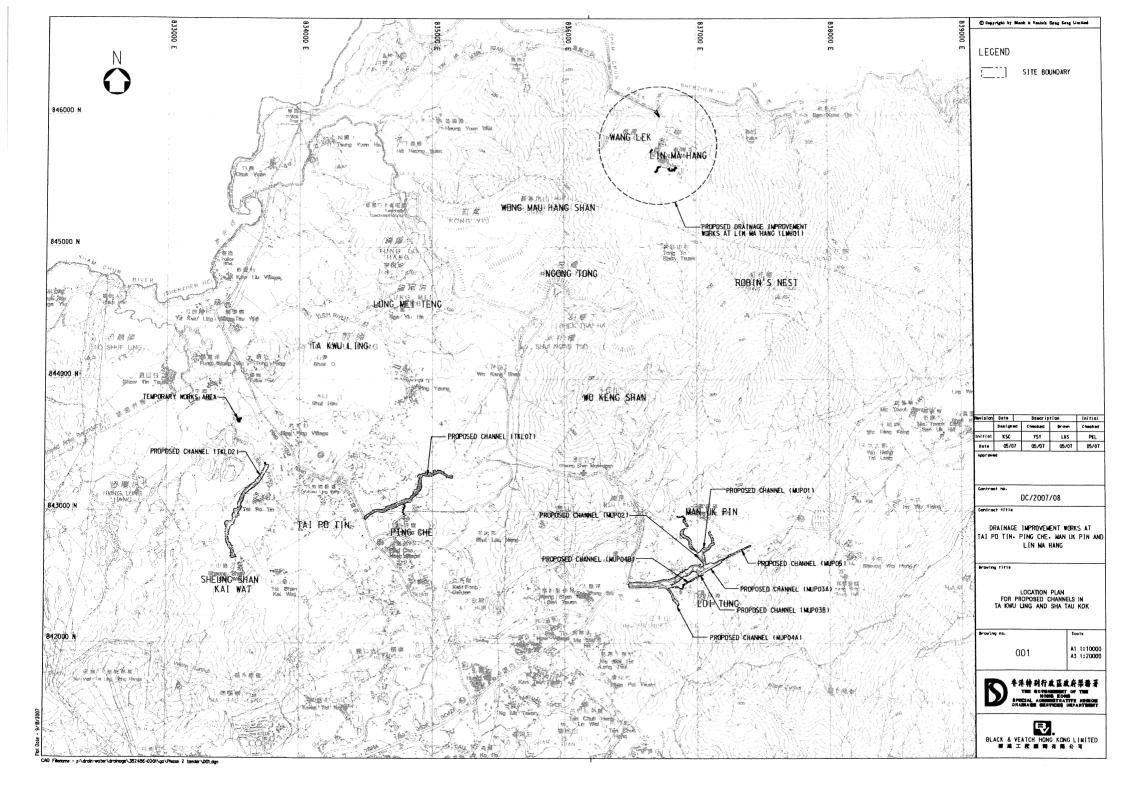
Impact monitoring should be immediately undertaken upon the construction works commencement at Channel LMH01 and will be reported in the coming month.

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# Appendix A

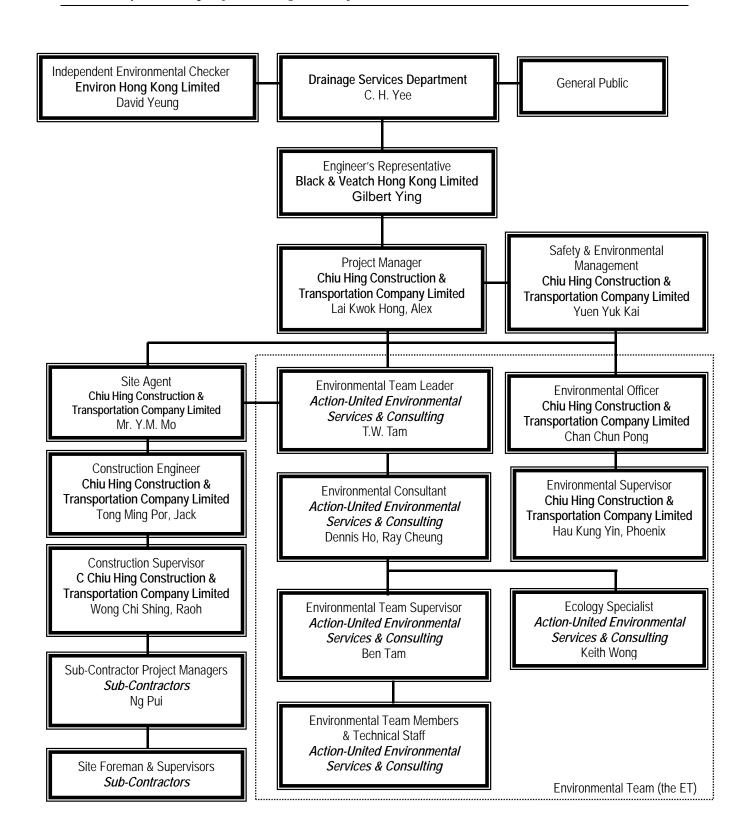
**Site Location Plan** 





# Appendix B

# **Environmental Management Organization and Contacts of Key Personnel**



**Environmental Management Organization** 



# **Contact Details of Key Personnel**

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
DSD	Employer	Mr. C. H. Yee	2594-7347	2827-8700
B&V	Engineer's Representative	Mr. Gilbert Ying	2659-8787	2659-8323
Environ	Independent Environmental Checker	Mr. David Yeung	3743-0788	3548-6988
CHCT	Project Manager	Mr. Lai Kwok Hong, Alex	2659-8221	2659-8232
CHCT	Safety & Environmental Manager	Mr. Yuen Yuk Kai	2659-8221	2659-8232
CHCT	Site Agent	Mr. Y.M. Mo	2659-8221	2659-8232
CHCT	Construction Engineer	Mr. Tong Ming Por, Jacky	2659-8221	2659-8232
CHCT	Construction Supervisor	Mr. Roah Wong	2659-8221	2659-8232
CHCT	Structural Engineer	Mr. Kwok Chin Ming	2659-8221	2659-8232
CHCT	Site Forman	Mr. Chung Ping Kai	2659-8221	2659-8232
CHCT	Environmental Officer	Mr. C. P. Chan	2659-8221	2659-8232
CHCT	Environmental Supervisor	Miss Phoenix Hau	2659-8221	2659-8232
Kin Tat	Sub-contractor Project Manager	Mr. Ng Pui	2659-8221	2659-8232
AUES	Environmental Team Leader	Mr. T.W. Tam	2959-6059	2959-6079
AUES	Environmental Consultant	Mr. Dennis Ho	2959-6059	2959-6079
AUES	Environmental Consultant	Mr. Ray Cheung	2959-6059	2959-6079
AUES	Environmental Team Supervisor	Mr. Ben Tam	2959-6059	2959-6079
AUES	Ecologist	Dr. Keith Wong	2959-6059	2959-6079

# Legends:

DSD (Employer) – Drainage Services Department

B&V (Engineer) – Black & Veatch Hong Kong Limited

CHCT (Main Contractor) - Chiu Hing Construction & Transportation Company Limited

Environ (IEC) – Environ Hong Kong Limited

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



# **Appendix C**

Master Construction Program
Future Construction Works &
Environmental Mitigation Implementation Schedule

DSD Contract DC/2007/08 – Drainage Improvement Works in Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang 28th Monthly EM&A Report for the Designated Project Works – June 2011



**Master Construction Program** 

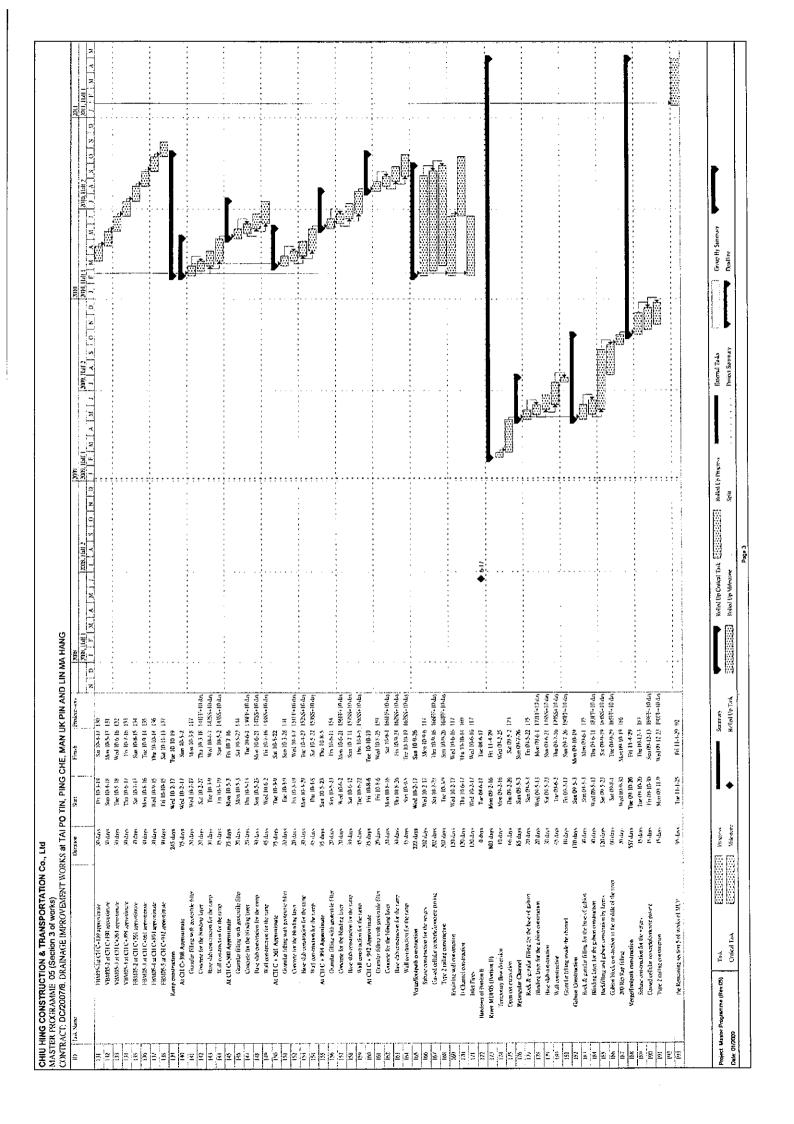
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Handover of Portion B
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Group My Summary Desilie. 2010 2010 3010 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Project Number Eucral Ticks 2008, Half 2 7 | A | S | O | N | D | J | F | M | A | M | J | L | A Rolled Un Propress Š Page 2 N D J F M A M I Relied Up Milestone MASTER PROGRAMME 05 (Section 3 of works) CONTRACT: DC/2007/B. DRAINAGE INFROVEMENT WORKS at TAI PO TIN, PING CHE, MAN UK PIN AND LIN MA HANG The 10-5-74 12555-10 day San De-4 11 - 12477-- 10 day The 10.2-2 (ITPE) - 5-days Thu 10-4-1 : 123(17-10-04) San forup 1901-101-by Fit ICLES: 10155-5 days Westernisch / HP+5 days Mention 11.2 / 728+5 days Intitution 7855-5 days Welltelley AFF-Stars More 02-14 75/F-5-days Ster 10.5-17 8 (SS-40 days Thu 10.5 27 RSSS+111 days PAULIN SASS-10 LE Thu 10.9.2 Office to Lay The Helick defendance Wed 10 3 33 10217-54to Rollef Up Tack The feet of 11888 The feet of 11888 Tec 10.2-16 117HF The 10.2 16 11N/19 Summer The Utility 115S Fil 10-2:26 117 Mon 10-4:27 172 Mes 10.5-18 161 Ter 10-15,19 91 May 10, 58, 6555 Sec 10-6 26 8755 Well (E) - 13 - 71 The (0.552-8) Wednakes 113 The 10 8 5 127 Sun 10-5-10 105 S.c. 10 6-19 10R The 10-1-18 117 78.05()-29.36 The POATS 103 NU PARTIE Mee 13 | 24 91 Ven 10:8-23 87 Fi 15 7 16 66 WellP9.23 53 December 3 Au Men 10-1-18 Per Thu O4-12-34 74 St 19447 83 Tec 10.8 (0.88) Pa (0.10) #9 The ID-11-25 90 \$4.101.125.98 Welts-1-22 9 Pn 10-7-9 The 10-2-2 Min 11-1-24 San 10-9-12 Fri 10-7-9 54 10-11-13 Tue 10-2-2 The 10 2 16 ET-11-01 15 The 10-8-5 Wed 10.2-17 Soi 18-2-29 The 10-2-9 Ter 10-129 Fn 10-3-19 Thu 10-458 San 10-5-23 Med 10-8-33 SA 10-7-17 SA 10-7-17 Pri 10.8.6 Tue 09-12-15 The 04-12-15 Ma 10 La Na 10 La 54 10 341. 51 10 341. San 10 6-20 San 194-3-14 Tra (0.4.2) Tra (0.4.2) Thum4 23 15:100:423 Fi(0.44.2) Fi(0.6.2) Wed 10.7-2 Man (19.3-2) Pri 04-9-4 The 8049-29 Sea 03-10-4 FA CR 12:25 Tha leb Ed F 174.35 Di 10.3.19 Mra 10.1.20 Par Keas #al 10:2:17 Thy 04.9 24 Men 03-11-30 Sar 00-12.5 Sar 00-12-5 No 1944 Wed 19-12-90 Tire 10-5-11 na 106-13 11 किस्ता की Men (0.3 25 Ti (PL12 & De 10-5-11 Mrn 10-5-31 H-5 (1) (5) Ved 10-2-17 Vol 10-2-17 Well Re 2-17 E BOT TH (PLIO) Set (10.13.5) Wal 10-2-17 distriction of the second 25.00.00 经旧租赁 Tue 10-7:27 Se 10-13 St 09-3-34 ESSECTION Postes. Oy days 7 days 20 days M0 days 270 days Mahy Mahy Galys to days 30 days 57 days 37 days 45 days (Aldays (f) days 38.45.5 38.45.0 707 thys Cdry Oppos 54.15 States. othe. (mpm) Miles į 24 5.0% S Trib Midays 42 chy Balay Stars Salas States Malor (d.b) S9 days er. fildays 41.14 Stars NO Pos CHIU HING CONSTRUCTION & TRANSPORTATION Co., Ltd Main River Construction (CH C-0.00 to C+974 approxima Constant 1X16Shim dia page at CHD-185 Approximate Bur culvert construction at CTI C+190 approximate VENENT-1 related a France of CFI D-48 Approximate VBN#H-2 whealer bridge at CEU2-11 Agrawinate Gabien block constaction in the middle of the river Chlem Block constitution in the poidible of the river Gabban Block constaction in the modific of the noer Rock & canalar filling for the base of gathern Pentralge/Vehicular Bralge Communical Rackfilling and gatheon to estimatest by Layers Bushing layer for the gableri constitution Grantlar filling with presently filler EBMO3-1 textbridge at CH E+60 Approximate VBM)S-1al CLC+Mapposimule Great cellular conditionmente primis Gassol cellular condefendative portre Chasel cellilar connectelamente cumas Rock & gandles filling for the tuse of galden Rock & gamble filling for the best of gabons Rick & greater filling for the base of gathon Backfelling and galvier overtiment by lawers Bedilling and private communicating the trans-Rickfilling and galven constraint by layers Blinda'z layer for the sobion construction Hinding Lype for the galtern constitution Blinding Lyer for the cabbon conductive Wall & Top Slab correlation Saisse construction for the water Subter construction for the verses Subsect retestration for the verges Gravel cellular controls poving Concepte for blus ling lavor temporary flow discenses Manhole Mill to MILL conduction Tyre? railing comments Cupalar Filling for the rise. Critical Disk Type 2 raiting exterior to a temperary flow diversion Type 2 reting construction Open est escarabian Verge/Yerspath construction Construct 1350mm dia. pripes Othern No. 1990 construction Vergerianish emainment forms that pape construction Temporary Flow Daversies Temperary Hew Diversion Imperny Phy Dyensky Over call excavation King assertated Works 7.5 River MUT038 (Pertion D) River MUNOSA (Portion D) River MULWER (Parties D) River MUNTS (Portion D) Open cut excessive 200 Rep Rup filling Over our endication Ортой ексимин NY Rio Kup Idling Att Nip Kap filling B.C. at CIT ESSY Project Meder Programme (Rev.05) Date: 01/2009 S 12 2 1 2 2 2 2 2 8 7 7 8 6 7 9 8 6 3 3 2222222



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Open exacation and construction for CH 04.01.
Open execution and construction for CH 04.01.
Open execution and construction for CH 64.01.
Open execution and construction for CH 74.01.
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Blinking layer for the gabion construction
Reckfilling and gabion construction
Reckfilling and gabion construction
Reckfilling and gabion construction
Reft Rep Sup laining to stabilise the river
Vergeforogals construction for the verges
Subsec construction for the verges
Gassed cellular conscrete/constrate paving Physics Milen Handover of Portion A
Section 4 & 5 of works - Lin Man Hang (Portion F)
Commonscented Date
landover of Portion F
Prelim Works
Reseline Manitoring Section 5 of works for Lin Ma Hang Construct Access Read Remove and Transplant the trees Underground Utility Survey River LM1901 CONTRACT: DC/2007/08 (The Woks) Temporary flow diversion Critical Task Site clearance Initial site survey T.3. Mobilisation Tire survey Project: Maréer Programme (Rev 05) Dale: 01/2000 Trik Many 

Gover by Summery Padin 300 lbit 2 J A J S | D | N | D Poput Summan Esterral Tasks N T N XXX 151(2 20%, 151(1) Relief Up Prepress Fis Noted the Option Text. [2008] [2008] Page Relial Up Milester 2008 2008, fair 1 1 | 8 | 31 | A MASTER PROCRAMME 05 (Section 3 of works)
CONTRACT: DC/2007/8, DRAINAGE IMPROVEMENT WORKS at TAI PO TIN, PING CHE, MAN UK PIN AND LIN MA HANG 12-21 Thirds 11 12 (985-10-less) Supplied 13.2 (685-10-lass) Se 02446 18FF-10 large Tue 00 & 16 19FF-10 large That 03-6-25 48 Sim 09-7-5 PVED+ 19 days Walth IS STRUM Man D1.6-29 5155+10 days Man Olive H. 2005-10145-v The 09-9-3 \$285+16 day Rolled Up Tack Walther B. 585- Ways Serbinary Nort Districts 1788 Sa(0×11-2) 21 The 10×125 23 The 10×16 24 Sun (20-10-4 Wed (20-4-2): 15 Tue (40-5-12): 57 Man (94.9-11 11 Sun (9-10-4 45 Tur (9.12.22 6) Fn 10-2-16 田克爾里 Wellowsky D Tag (0.11-17-54 Ph 10 i.1 35 Sim foliation So Mer 19-11-2-52 Man Robbill F609-11-13-21 Wed 19.4.22 15 The UP (-11 to 54097-11-31 Mon 1028-10 32 គាលា ចេន Red PHILES SH the Dife. 18 Sur (0:5:21 39 Tec 01.7.21 KI 11 (条件) 国家 The OLY IS IS 50.00-10-3-33 Slow FLS-17 G Ter 09 5-12, 29 PROPERTY 8 The Co.4.2 9 Sm (14-5-12-1) 2 06-4-30 Drug S.1 (8-9.6. 5 San 09-11-22 Tue 10-1-6 K (-0) nox Most (Pt.1-19 Sun (?)-10-4 Wed RE-4-30 Man (9)-6-1 Wed 00'2 11 Su (S. 17 Fue 10-4-6 Sar 09-2-21 Sen 10-1-11 Mon (9-11-2) )'n 11-4-29 Well 03-35 Jun 03-0-15 Men 195-1527 Thu (195.5.7 \$4.01.2 The 190-X-25 The (2) 8-25 Med DE 11-23 Med 09-3-2 wed 16-2-17 10 S Sur 09-2-22 141-39-2-23 Ph. 69-1-14 Mon (99-4-13 Mar (99-4-13 For 1935-12 Sur 1937-12 he 026.2 5.1(3).6.6 Fri 04 9-4 Sun (9-14)-4 Wed 08-4-30 Mexi 09.2.2 Sun 08-8-17 Mon 03:2:2 The OHALLS h JAL-30 flor 09.4.13 Sat 19-5-17 Fri 07-12-21 Med (B-12-4) Antibes.13 Thu 09.4.25 Welf#5.13 Thu 03 8-6 Von (9-1-15 Vet (02-23) 31-11-00 Page 10000 발표하시 SC-780 PS 00 TEXT PAR The part 1 N. 40 I.S. Fr PLAS SHOWER Men 09. 5.9 Tie (\*9-15 Seri (Pr. 11.22) Tac 00.9-15 Mon 09-4-13 Thu 09.4.23 Ter 09.8-11 11:13 Mrs (0-4-13 Men (Parta) Not 01 6-32 Sec. (0) 22 The 09-15-6 No. IR-L-W et they Silectors 304 days 201 days (7) days Salas į Fresh Hebry S, thy (Sidns S. Belive Matery States Relay 44.0 A) ş 30 days 30,135 SQ days CHIU HING CONSTRUCTION & TRANSPORTATION Co., Ltd Galtion North constrainen in the miskle of the most FRMO2-1 feedwilge at CTI 9-455 Approximate PUSG2-2 feedwilge at CTI 9-489 Approximate Ussest cellular concrete/concrete paying Cassed cellular concert/Gasynde paning Keek & paralar filling for the best of gabina Rock & gander felling for the base of gales of Rick & genelatifiling for the hise of galton Rechilling and gabien constructed by layers Blinding Lyer for the galvion construction Backtiffing and galvion constitution by Javers Reckfilling and palvin constructor by layer Blisher lays for the policy construction Blinding lawer for the gaboor construction ATI ASTS UC in CIRA-Itili Approximate Subtrac constitution for the vertex Rock & gauster filling for the base of gaborn University of helper concerns for records proving Subsic recollation for the empre-RW type D at CHE-525 Approximate Hindric layer for the gaborn concernation. Declibing and palone constrained by Layers Subsection in the the wages Francis & cred cheering support Type 2 railing construction fyre 2 railing construction Hashaver of Pretion A Section 3 - Man UK Pine (Pration D. & E) Commercement Date Removal and Transplanting of trees Collegensial Utility Survey Verge/fredpolit construction Verpalfespath construction Temperary Flow Diversives Critical Toda Tenparary Flow Disersect Type I railing construction Remark of the sheet piles. Verseffinitials constitution Subflive existing river bank Conpense the dimense River MUI'Ol (Parties D) Tempatan Flow Datesion Short phe incultative CONTRACT, DC/2007/08 (The Woks) Over the expension O'D Kap Kap Filling River MURUDA (Positive D) 600 IC constructive 蒼 Open aut pressation Main River of MUST/2 Thre-survey Constitut Arress Roed River MUIVO (Portion D) Filling of Rip Kap Markeles constructing Reseling Mariteting Mobbiotion Site elemente האוביובות נית ביתו Handowy of Petice D **JOUC construction** Application of XP Initial site survey MUI'02 Bypass Project: Maxier Programme (Rev.05) Hedin Works 2 2 3 S. 2. 2. 9 z 8. 8. 28282 3

DSD Contract DC/2007/08 – Drainage Improvement Works in Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang 28th Monthly EM&A Report for the Designated Project Works – June 2011



**Future Construction Program** 

CHIU HING CONSTRUCTION & TRANSPORTATION Co., Ltd MASTER PROGRAMME 12 CONTRACT: DC/2007/8. DRAINAGE IMPROVEMENT WORKS at TAI PO TIN, PING CHE, MAN UK PIN AND LINN MA HANG 1456 days Fri 21/12/07 Thu 15/12/11 CONTRACT: DC/2007/08 (The Woks) 0 days Fri 21/12/07 Fri 21/12/07 Handover of Portion A 
 260 days
 Fri 21/12/07
 Fri 5/9/08

 80 days
 Fri 21/12/07
 Sun 9/3/08

 150 days
 Fri 21/12/07
 Sun 18/5/08
 Prelim Works Mobilization and setting up 90 days Mon 10/3/08 Sat 7/6/08
25 days Sun 8/6/08 Wed 2/7/08
120 days Mon 10/3/08 Mon 7/7/08
180 days Mon 10/3/08 Fri 21/1207 Tue 20/5/08 Baseline Monitoring for Environmental Protection Monitoring point set up Structural Condition survey Apply XP for the Works carrying out at Hyds Road Section 5 - Works Area (Portion A) 7 days Fri 21/12/07 Thu 27/12/07 14 days Fri 28/12/07 Thu 10/1/08 Setting out for Works Area Initial Survey and Photos for Works Area 7 days Fri 11/1/08 Thu 17/1/08 Underground Utility Dectection 20 days Fri 11/1/08 Wed 6/2/08
14 days Thu 7/2/08 Wed 20/2/08
14 days Thu 7/2/08 Wed 20/2/08
14 days Thu 7/2/08 Wed 20/2/08
45 days Thu 7/2/08 Sat 22/3/08
14 days Sun 23/3/08 Sat 5/4/08
10 days Sun 11/5/08 Tue 20/5/08 Fencing/Hoarding construction Construct Run in/out access Construct Site drainage system Erection of Site Office at Works Area Install electricity and telephone line for site offices Project Signboard construction 1266 days Wed 30/4/08 Mon 17/10/11 Section 1 - Tai Po Tin (Portion B) 0 days Wed 30/4/08 Wed 30/4/08 Handover of Portion B - River TKL02 
 921 days
 Mon 22/9/08
 Thu 31/3/11

 60 days
 Mon 22/9/08
 Thu 20/11/08
 Main River Construction Temporary Flow Diversion Gabion Wall Construction at CH 0+0 to CH 90+0 Right Bank 70 days Mon 22/9/08 Sun 30/11/08 70 days Mon 1/12/08 Sun 8/2/09 Gabion Wall Construction at CH 0+0 to CH 90+0 Left Bank Gabion Wall Construction at CH 90+0 to CH 180+0 Right Bank 70 days Mon 9/2/09 Sun 19/4/09 70 days Mon 20/4/09 Sun 28/6/09 Gabion Wall Construction at CH 90+0 to CH 180+0 Left Bank Gabion Wall Construction at CH 180+0 to CH 270+0 Right Bank 70 days Mon 29/6/09 Sun 6/9/09 70 days Mon 7/9/09 Sun 15/11/09 70 days Mon 16/11/09 Sun 24/1/10 Gabion Wall Construction at CH 180+0 to CH 270+0 Left Bank Gabion Wall Construction at CH 270+0 to CH 360+0 Right Bank 80 days Mon 25/1/10 Wed 14/4/10 Gabion Wall Construction at CH 270+0 to CH 360+0 Left Bank Gabion Wall Construction at CH 360+0 to CH 450+0 Right Bank 45 days Thu 15/4/10 Sat 29/5/10 80 days Sun 30/5/10 Tue 17/8/10 Gabion Wall Construction at CH 360+0 to CH 450+0 Left Bank Gabion Wall Construction at CH 450+0 to CH 540+0 Right Bank 80 days Sat 2/10/10 Mon 20/12/10 Gabion Wall Construction at CH 450+0 to CH 540+0 Left Bank Gabion Wall Construction at CH 540+0 to CH 630+0 Right Bank 80 days Fri 13/3/09 Sun 31/5/09 Gabion Wall Construction at CH 540+0 to CH 630+0 Left Bank 80 days Mon 1/6/09 Wed 19/8/09 Gabion Wall Construction at CH 630+0 to CH 720+0 Right Bank 80 days Thu 20/8/09 Sat 7/11/09 45 days Sun 8/11/09 Tue 22/12/09 Gabion Wall Construction at CH 630+0 to CH 720+0 Left Bank 80 days Wed 23/12/09 Fri 12/3/10 Gabion Wall Construction at CH 720+0 to CH 810+0 Right Bank 80 days Sat 13/3/10 Mon 31/5/10 266 days Fri 9/7/10 Thu 31/3/11 Gabion Wall Construction at CH 720+0 to CH 810+0 Left Bank Rip Rap filling and gabion block installation in middle of River Chan 263 days Mon 12/7/10 Thu 31/3/11 Grassed cellular concrete paving 921 days Fri 10/4/09 Mon 17/10/11 River Associated Works 
 180 days
 Thu 15/4/10
 Mon 11/10/10

 60 days
 Thu 15/4/10
 Sun 13/6/10

 60 days
 Mon 14/6/10
 Thu 12/8/10
 Footbridge construction FBT02-3 at CH 406 approximate VBT02-1 at CH510 approximate FBT02-1 at CH662 approximate 60 days Fri 13/8/10 Mon 11/10/10 
 263 days
 Wed 21/10/09
 Sat 10/7/10

 109 days
 Wed 21/10/09
 Sat 6/2/10
 Ramp construction At CH 0+0 to CH 45+0 Approximate At CH 375+0 to CH 440+0 Approximate 60 days Mon 1/3/10 Thu 29/4/10 60 days Wed 28/4/10 Sat 26/6/10 60 days Wed 12/5/10 Sat 10/7/10 At CH 485+0 to CH 555+0 Approximate At CH 630+0 to CH 690+0 Approximate 173 days Wed 16/3/11 Sun 4/9/11
160 days Wed 16/3/11 Mon 22/8/11 Verge/footpath construction 160 days Wed 16/3/11 Mon 22/8/11
160 days Wed 16/3/11 Mon 22/8/11
150 days Fri 8/4/11 Sun 4/9/11
495 days Fri 10/4/09 Tue 17/8/10 Subase construction for the verges Gassed cellular concrete/concrete paving Type 2 railing construction Retaining wall construction 60 days Fri 10/4/09 Mon 8/6/09 90 days Fri 30/4/10 Wed 28/7/10 90 days Thu 20/5/10 Tue 17/8/10 At CHO Approximate At CH501 Approximate At CH800 Approximate 200 days Fri 1/4/11 Mon 17/10/11 U Channel construction 200 days Fri 1/4/11 Mon 17/10/11 200 days Fri 1/4/11 Mon 17/10/11 200 days Fri 1/4/11 Mon 17/10/11 600 UC at CH0 Approximate 450 UC at CH501 Approximate 300 UC at CH800 Approximate 1240 days Wed 30/4/08 Wed 21/9/11
1240 days Wed 30/4/08 Wed 21/9/11
0 days Wed 30/4/08 Wed 30/4/08 Section 2 - Ping Che (Portion C & E) Hand over of Portion C & E - River TKL07 965 days Fri 1/8/08 Wed 23/3/11 Main River Construction (CH80 to CH150 approximate) 14 days Fri 1/8/08 Thu 14/8/08 25 days Fri 15/8/08 Mon 8/9/08 Temporary Flow Diversion Open cut excavation 25 days Mon 25/8/08 Thu 18/9/08 25 days Thu 4/9/08 Sun 28/9/08 Rock & ganular filling for the base of gabion Blinding layer for the gabion construction 45 days Sun 14/9/08 Tue 28/10/08 Backfilling and gabion constrution by layers 30 days Thu 9/10/08 30 days Tue 22/2/11 Ganular Filling for the river Grassed cellular concrete paving **659 days Wed 19/8/09**25 days Wed 19/8/09 Main River Construction (CH270 to CH670 approximate) 25 days Wed 19/8/09 Sat 12/9/09 80 days Sun 13/9/09 Tue 1/12/09 Temporary Flow Diversion Open cut excavation 80 days Wed 23/9/09 Rock & ganular filling for the base of gabion 20 days Sat 12/12/09 Thu 31/12/09 Blinding layer for the gabion construction 180 days Tue 22/12/09 50 days Tue 11/5/10 60 days Thu 30/12/10 Backfilling and gabion constrution by layers Gabion block constuction in the middle of the river 200 Rip Rap filling 60 days Wed 15/12/10 166 days Sat 25/12/10 Granular fill for the Maintenance access Wed 8/6/11 Construction of Maintenance access 66 days Tue 25/1/11 Thu 31/3/11 66 days Tue 25/1/11 Thu 31/3/11 Rip Rap filling inside the Maintenance access Grassed cellular concrete paving 1120 days Thu 28/8/08
230 days Thu 28/8/08
10 days Thu 28/8/08
90 days Sun 7/9/08 River Associated Works **Tue 14/4/09**Sat 6/9/08
Fri 5/12/08 Box culvert construction at (CH685 to CH735 approximate) Temporary flow diversion Open cut excavation 30 days Sun 16/11/08 Mon 15/12/08 10 days Tue 16/12/08 Thu 25/12/08 Granular filling with geotextile filter Concrete for blindling layer 90 days Fri 26/12/08
90 days Mon 5/1/09
45 days Sun 1/3/09
245 days Sat 1/5/10
10 days Sat 1/5/10
120 days Tue 11/5/10
30 days Mon 19/7/10
21 days Wed 18/8/10
90 days Wed 8/9/10 Base slab construction Sat 4/4/09 Wall & Top Slab construction 45 days **245 days** Backfilling Fri 31/12/10 Box culvert construction at (CH735 to CH838 approximate) Mon 10/5/10
Tue 7/9/10
Tue 17/8/10
Tue 7/9/10 Temporary flow diversion Open cut excavation Granular filling with geotextile filte Concrete for blindling layer Base slab construction 122 days Wed 1/9/10 65 days Thu 28/10/10 Wall & Top Slab construction 65 days Thu 28/10/10 Fri 31/12/10

556 days Mon 5/1.09 Wed 14/7/10

30 days Mon 5/1.09 Tue 3/2/09

30 days Wed 4/2/09 Thu 5/3/09

30 days Fri 6/3/09 Sat 4/4/09

30 days Sun 5/4/09 Mon 4/5/09

30 days Tue 5/5/09 Wed 3/6/09

90 days Fri 16/4/10 Wed 14/7/10

277 days Sat 3/10/09 Tue 6/7/10

60 days Thu 15/10/09 Sun 13/12/09

60 days Sat 3/10/09 Tue 1/12/09

60 days Wed 18/11/09 Sat 16/1/10

90 days Thu 8/4/10 Tue 6/7/10

165 days Tue 1/3/11 Fri 12/8/11

135 days Mon 21/3/11 Tue 2/8/11

138 days Mon 28/3/11 Fri 12/8/11

290 days Thu 21/5/09 Sat 6/3/10

200 days Thu 21/5/09 Sat 6/3/10

200 days Thu 21/5/09 Sat 6/3/10

200 days Thu 21/5/09 Sat 6/3/10

205 days Tue 1/3/11 Wed 21/9/11

180 days Sat 26/3/11 Wed 21/9/11

180 days Sat 26/3/11 Tue 2/8/11

155 days Tue 1/3/11 Sun 11/9/11

155 days Tue 1/3/11 Tue 2/8/11 Footbridge construction FBT07-3 at CH317 approximate FBT07-4 at CH445 approximate FBT07-5 at CH600 approximate FBT07-6 at CH687 approximate FBT07-2 at CH250 approximate FBT07-1 at CH35 approximate Ramp construction At CH435 Approximate At CH517 Approximate At CH600 Approximate At CH35 Approximate Verge/footpath construction Subase construction for the verge Gassed cellular concrete/concrete paving Type 2 railing construction Retaining wall construction At CH35 to CH 105 Approximate Type D L-shaped RW construction Sat 6/3/10 Backfilling the RW U Channel construction 375&525 UC at CH352 Approximat Trench excavation Concrete for the U channel 180 days Sat 26/3/11 Wed 21/9/11

155 days Tue 1/3/11 Tue 2/8/11

145 days Tue 1/3/11 Sat 23/7/11

145 days Fri 11/3/11 Tue 2/8/11

185 days Tue 1/3/11 Thu 1/9/11

175 days Tue 1/3/11 Mon 22/8/11

175 days Fri 11/3/11 Thu 1/9/11

175 days Fri 11/3/11 Thu 1/9/11

175 days Sun 20/6/10 Sat 11/12/10

25 days Sun 20/6/10 Wed 14/7/10

25 days Thu 15/7/10 Sun 8/8/10

25 days Fri 3/9/10 Mon 27/9/10

25 days Tue 28/9/10 Fri 22/10/10

25 days Sat 23/10/10 Tue 16/11/10

25 days Wed 17/11/10 Sat 11/12/10 525UC at CH552 Approximate Trench excavation Concrete for the U channel 525&600 UC at CH690 Approximate Trench excavation Concrete for the U channel Inlet pipe at CH100 Approximate Inlet pipe at CH400 Approximate Inlet pipe at CH408 Approximate Inlet pipe at CH450 Approximate Inlet pipe at CH570 Approximate Inlet pipe at CH630 Approximate 25 days Wed 17/11/10 Sat 11/12/10 Inlet pipe at CH750 Approximate Section 3 - Man Uk Ping (Portion D & E) 1456 days Fri 21/12/07 Thu 15/12/11 0 days Wed 30/4/08 Wed 30/4/08 0 days Wed 30/4/08 Wed 30/4/08 300 days Wed 30/4/08 Mon 23/2/09 Commencement Date Handover of Portion D 90 days Wed 30/4/08 Mon 28/7/08 30 days Tue 29/7/08 Wed 27/8/08 30 days Thu 28/8/08 Fri 26/9/08 Baseline Monitoring Mobilisation Site clearance Initial site survey Tree survey Construct Access Road Remove and Transplant the trees Underground Utility Survey River MUP01 (Portion D) Temporary Flow Diversion 120 days Mon 16/3/09 Mon 13/7/09 Open cut excavation Rock & ganular filling for the base of gabion 120 days Thu 26/3/09 100 days Sat 25/4/09 Sun 2/8/09 180 days Tue 5/5/09 Sat 31/10/09 Blinding layer for the gabion construction Backfilling and gabion constrution by layers 400 days Sun 1/11/09 Sun 5/12/10 Verge/footpath construction Subase construction for the verges 100 days Sun 1/11/09 Mon 8/2/10 150 days Tue 9/2/10 Thu 8/7/10 150 days Fri 9/7/10 Sun 5/12/10 120 days Mon 19/7/10 Mon 15/11/10 Gassed cellular concrete/concrete paving Type 2 railing construction 300UC construction 445 days Sun 1/11/09 Wed 19/1/11 River MUP02 (Portion D) Stabilise existing river bank 360 days Sun 1/11/09 Tue 26/10/10 30 days Sun 1/11/09 Mon 30/11/09 20 days Tue 1/12/09 Sun 20/12/09 Temporary flow diversion Sheet pile installation 60 days Mon 21/12/09 Thu 18/2/10 Excavate & erect shoring support 90 days Fri 19/2/10 Wed 19/5/10 30 days Thu 20/5/10 Fri 18/6/10 Rock & ganular filling for the base of gabion Blinding layer for the gabion construction 120 days Sat 19/6/10 Sat 16/10/10 10 days Sun 17/10/10 Tue 26/10/10 Backfilling and gabion constrution by layers Removal of the sheet piles 
 381 days
 Mon 4/1/10
 Wed 19/1/11

 10 days
 Mon 4/1/10
 Wed 13/1/10
 MUP02 Bypass Temporary Flow Diversion 90 days Thu 14/1/10 Tue 13/4/10 Open cut excavation 60 days Wed 14/4/10 Sat 12/6/10 Rock & ganular filling for the base of gabion 21 days Sun 13/6/10 Sat 3/7/10 100 days Sun 4/7/10 Mon 11/10/10 75 days Tue 12/10/10 Sat 25/12/10 Blinding layer for the gabion construction Backfilling and gabion constrution by layers Filling of Rip Rap 
 200 days
 Sun 4/7/10
 Wed 19/1/11

 45 days
 Sun 4/7/10
 Tue 17/8/10
 Verge/footpath construction Subase construction for the verges 90 days Wed 18/8/10 Mon 15/11/10 Gassed cellular concrete/concrete paving 65 days Tue 16/11/10 Wed 19/1/11 Type 2 railing construction 379 days Sun 1/11/09 Sun 14/11/10 Main River of MUP02 14 days Sun 1/11/09 Sat 14/11/09 Temporary Flow Diversion 60 days Sun 15/11/09 Wed 13/1/10 Open cut excavation 60 days Wed 25/11/09 Sat 23/1/10 Rock & ganular filling for the base of gabion 60 days Sat 5/12/09 Tue 2/2/10 90 days Tue 15/12/09 Sun 14/3/10 Blinding layer for the gabion construction Backfilling and gabion constrution by layers 90 days Fri 25/12/09 Wed 24/3/10 30 days Thu 25/3/10 Fri 23/4/10 Gabion block constuction in the middle of the river 200 Rip Rap filling 45 days Sat 24/4/10 Mon 7/6/10 30 days Tue 8/6/10 Wed 7/7/10 200 days Mon 15/3/10 Thu 30/9/10 FBM02-1 footbridge at CH 8+455 Approximate RW type D at CH8+525 Approximate Verge/footpath construction 100 days Mon 15/3/10 Tue 22/6/10 100 days Thu 25/3/10 Fri 2/7/10 90 days Sat 3/7/10 Thu 30/9/10 45 days Fri 1/10/10 Sun 14/11/10 Subase construction for the verges Gassed cellular concrete/concrete paving Type 2 railing construction 300 &375 UC at CH8+400 Approximate 461 days Thu 25/3/10 Tue 28/6/11 River MUP03A (Portion D) 120 days Thu 25/3/10 Thu 22/7/10 90 days Fri 23/7/10 Wed 20/10/10 600UC construction Manholes construction 90 days Fri 31/12/10 Wed 30/3/11 90 days Thu 31/3/11 Tue 28/6/11 600mm dia. pipe construction 900mm dia. pipe construction 
 581 days
 Thu 25/3/10
 Wed 26/10/11

 20 days
 Thu 25/3/10
 Tue 13/4/10
 River MUP03B (Portion D) Temporary Flow Diversion Open cut excavation 30 days Wed 14/4/10 Thu 13/5/10 30 days Mon 19/4/10 Tue 18/5/10 30 days Sat 24/4/10 Sun 23/5/10 57 days Thu 29/4/10 Thu 24/6/10 Rock & ganular filling for the base of gabior Blinding layer for the gabion construction Backfilling and gabion constrution by layers 121 days Wed 31/3/10 Thu 29/7/10
45 days Sun 20/6/10 Tue 3/8/10
70 days Fri 25/6/10 Thu 29/10
120 days Wed 29/6/11 Wed 26/10/11 Gabion block constuction in the middle of the river 200 Rip Rap filling FBM03-1 footbridge at CH E+60 Approximate 135m high box culvert crossing construction 209 days Fri 25/6/10 Wed 19/1/11 Verge/footpath construction 49 days Fri 25/6/10 Thu 12/8/10
90 days Fri 13/8/10 Wed 10/11/10
70 days Thu 11/11/10 Wed 19/1/11
433 days Thu 25/3/10 Tue 31/5/11
15 days Thu 25/3/10 Thu 8/4/10 Subase construction for the verges Gassed cellular concrete/concrete paving Type 2 railing construction River MUP04A (Portion D) Temporary Flow Diversion Progress Milestone Summary Project Summary External Tasks External Milestone Page 1 The critical path as highlighted in red colour



DSD Contract DC/2007/08 – Drainage Improvement Works in Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang 28th Monthly EM&A Report for the Designated Project Works – June 2011



**Environmental Mitigation Implementation Schedule** 

## APPENDIX A IMPLEMENTATION SCHEDULE OF THE PROPOSED MITIGATION MEASURES

Table A1 Implementation Schedule of Air Quality Mitigation Measures

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Im	plementa Stages*	tion	Relevant
110	<u> </u>		Measures and Main Concerns to addressed	Timing	Agent	D	С	0	Legislation & Guidelines
AIF Q	uanty - Co	nstruction Phase			-		-l		<u> </u>
		Construction Dust				*	T		T
3.6.1	2.9.2	In order to comply with Air Pollution Control Ordinance (APCO), the Contractor should undertake at all times measures to prevent dust nuisance as a results of his activities. The Contractors are required to follow all the requirements for dust control stipulated in the Air Pollution Control (Construction Dust) Regulation. Dust suppression measures should be installed as part of good construction practice, and they should be incorporated in the Contract Specification and implemented to minimize dust nuisance to within acceptable levels arising from the works. The followings are examples of the dust suppression measures.  (i) The area in which excavation takes place shall be sprayed with water immediately prior to, during and immediately after the excavation to minimise dust generation.  (ii) The Contractor shall frequently clean and water the site to minimize fugitive dust emissions.	To prevent dust nuisance on ASRs during construction	All works site / during construction	Construction Contractor		<b>1</b>		Air Pollution Control Ordinanc Air Pollution Control (Construction Dust) Regulation

Δ		FS
	<b>U</b>	

EIA	EM&A		Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Im	olementa Stages*	tion	Relevant
Ref	Ref		Recommended Wittgation Weasawes	Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Legislation & Guidelines
		(iii)	Effective water sprays shall be used during the delivery and handling of aggregate, and other similar materials, when dust is likely to be created and to dampen all stored materials during dry and windy weather.							
		(iv)	Watering of exposed surfaces shall be conducted at least 2 times per day especially during dry and windy weather.							
		(v)	Areas within the site where there is a regular movement of vehicles must be regularly watered as often as necessary for effective suppression of dust or as often as directed by the Engineer.							
		(vi)	Where dusty material are being discharged to vehicle from a conveying system at a fixed transfer point, a three-sided roofed enclosure with a flexible curtain across the entry shall be provided. Exhaust fans shall be provided for this enclosure and vented to a suitable fabric filter system.							·
		(vii)	The Contractor shall restrict all motorised vehicles within the site, excluding those on public roads, to a maximum speed of 15 km per hour and confine haulage and delivery vehicles to designated roadways inside the site.		·					
s		(viii	) Wheel washing facilities shall be installed and used by all vehicles leaving the site. No earth, mud, debris, dust and the like shall be deposited on public roads. Water in the wheel cleaning							

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main	Location /	Implementation		plement: Stages		Relevant Legislation &
ļ			Concerns to addressed	Timing	Agent	D	.C	0	Guidelines
		facility shall be changed at frequent intervals and sediments shall be removed regularly. The Contractor shall submit details of proposals for the wheel cleaning facility. Such wheel washing facilities shall be usable prior to any earthworks excavating activity on the site. The Contractor shall also provide a hard-surfaced road between any washing facility and the public road.							
		(ix) All vehicle exhausts should be directly vertically upwards or directed away from the ground.							
		(x) Any materials dropped on paved roads will need to be cleaned up immediately to prevent dust nuisance.							
		Odow							
3.6.2	2.9.3	In the event that excavated materials are found to be odourous, the following measures should be implemented by the Contractor.	To prevent odour nuisance on ASRs during construction	All works site / during construction	Construction Contractor		4		Air Pollution Control Ordinance Environmental Impact Assessment Ordinance
		(i) Place odorous excavated material as far away (say, at least 20m) from air sensitive receivers as possible.		, .					Orumanec
		(ii) Temporary stockpiles of odorous excavated material should be properly covered with tarpaulin and should be removed off-site as soon as practically possible within 24 hours to						,	

DSD Contract DC/2007/08 – Drainage Improvement Works in Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang The Designated Works under the Project

<b>AUES</b>
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EIA	EM&A	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation		Relevant Legislation &		
Ref	Ref	Accommodical Carage Control	Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Guidelines
		avoid any odour nuisance arising.							
Air Q	uality - Op	erational Phase				···	Т	I .	
		N/A							

Table A2 Implementation Schedule of Noise Mitigation Measures

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Im	plement: Stages*		Relevant
	Construction	The state of the s	Measures and Main Concerns to addressed	Timing	Agent	D	С	0	Legislation & Guidelines
110136 **	Constructio						•		
4.6.2 – 4.6.5	Table 3.4	effective ways of alleviating construction noise impact. The Contractor should use quiet plant with sound power level lower than that stipulated in the TM-GW as the Level 1 mitigation for construction noise. The quiet plant used in the construction noise calculation is shown in Appendix B. The Contractor can propose other suitable alternative equipment with similar or lower sound power level.	noise during construction	All works site / during construction	Construction Contractor		.1	÷	Environmental Impact Assessmen Ordinance ETWB TCW No. 19/2005
		The use of mini or lower power rating equipment (e.g. mini excavator) should also be considered where practical. This technique would be feasible and practical at some locations given the limited space available for using large size construction equipment and the small scale works involved (e.g. localised bank improvement at LMH01, U-channel and drainage pipes at MUP03 & 04B).  The contractor should take note of ETWB TCW No. 19/2005 on the use of QPME.							

EIA	EM&A	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Imp	olementa Stages*	tion	Relevant Legislation &
Ref	Ref		Measures and Main Concerns to addressed	Timing	Agent	D	С	0	Guidelines
		Level 2 Mitigation - Use of Temporary Noise Barriers							1
4.6.7 4.6.8	Table 3.4	Since most of the NSRs within the Project area are typically low-rise village houses of not more than 3 storeys tall, it would be effective to have noise screening structures or temporary noise barriers purposely-built along the site boundary to provide additional protection to NSRs close to the construction site boundary. This could be in the form of purposely-built site hoarding constructed from appropriate materials with a minimum superficial density of 7 kg/m². Noise barrier should be provided for noisy construction activities that would be undertaken close (about 25m or less) to NSRs. With the exception of NSRs MUP04A-2 and MUP05-6, the noise barrier should have a vertical height of at least 2.5 m or (depending on the height of the NSRs to be protected) a height ensuring that the operating equipment can be shielded from the view of the NSRs. For NSR MUP04A-2, the temporary noise barrier should have a minimum height of 3.5m with a small cantilevered upper portion. For MUP05-6, the temporary noise barrier should have a minimum height of 3m with a small cantilevered upper portion. The temporary noise barrier should have no gaps or opening at joints. The Contractor should regularly inspect and maintain the noise		All works site located at 25m or less from NSRs as shown in Figures 4.4 – 4.6 / during construction	Construction Contractor		~		Environmental Impact Assessment Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main	Location /	Implementation	Im	plement: Stages*		Relevant
			Concerns to addressed	Timing	Agent	D	C	0	Legislation & Guidelines
		barrier to ensure its effectiveness.							
		For the construction works which have the potential to exceed the noise standards on nearby NSR and whose line of sight cannot be effectively blocked by the temporary noise barrier, movable (mobile) barriers should be provided. Movable barriers of at least 2.5 m height with a small cantilevered upper portion and skid footing can be located within a few meters of stationary plant (e.g. generator, compressor) and within about 5 m or more of a mobile equipment (e.g. excavator, mobile crane), such that the line of sight to the NSR is blocked by the barriers.							
		Good Site Practices						. <del></del> .	
4.6.11	Table 3.4	In general, potential construction noise impact can be minimised or avoided by imposing a combination of the following good site practices as mitigation measures:	To protect NSRs from noise during construction	All works site / during construction	Construction Contractor	. ;	4		Environmental Impact Assessment Ordinance
		(a) Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction period.	•	·			٠	1	
		(b) Construction plant should be sited away from NSRs.							

EIA	EM&A		Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Im	olementa Stages*		Relevant
Ref	Ref		Recommended manigation measures	Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Legislation & Guidelines
1		(c)	Machines and plant that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum.							
		(d)	Equipment known to emit sound strongly in one direction should be orientated such that the noise is directed away from nearby NSRs.							
		(e)	Material stockpiles and other structures (such as site offices) should be effectively utilised to shield on-site construction activities.							
		(f)	Stationary equipment should be located within the channel when weather conditions permit (e.g. dry season).							
		(g)	The Contractor shall devise, arrange methods of working and carrying out the works in such manner as to minimise noise impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these measures are implemented properly.							
		(h)	In the event that new schools are built near the works area, the Contractor should minimize construction noise exposure to the schools (especially during examination periods). The Contractor should liaise with the school and the Examination Authority to							

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Im	plementa Stages*		Relevant
	Itel		Measures and Main Concerns to addressed	Timing	Agent	D	C	Environmental Impact Assessmen Ordinance  Environmental Impact Assessmen Ordinance  Environmental Impact Assessmen Ordinance	
		ascertain the exact dates and times of all examination periods during the course of the contract and to avoid noisy activities during these periods.							
4.6.13 - 4.6.14	Table 3.4	To adopt good public relation with the local communities and maintain effective communication channel with the public such as setting up a 24-hour hotline system for enquiry and complaint.	To promote good public relation and maintain effective communication during construction	All works site / during construction	Project Office (Engineer) & Construction Contractor		1		Impact Assessment
4.6.17 & 4.6.18	Table 3.4	Further mitigation by restricting concurrent usage of several equipment at the same time.	To further mitigate construction noise at NSRs MUP04A-2 & MUP04B-2	For works within 20m of NSRs MUP04A-2 & MUP04B-2 / during construction	Construction Contractor		4		Impact Assessment
4.6.19	Table 3.4	The use of purpose built temporary noise barriers would not be practicable for works at LMH01 as the works are small scale, short duration and within village environs with very limited working space. It may also hamper access causing inconvenience to the villagers. The process of installing and dismantling the noise barriers itself would create additional noise nuisance. The use of light-weight mobile barrier is considered more preferable.	To protect NSRs at LMH01 from noise during construction	All works site located at 25m or less from NSRs as shown in Figure 4.6 / during construction	Construction Contractor	,	٠.		Impact Assessment

EIA	EM&A	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Im	plementa Stages*		Relevant
Ref	Ref	Accommodate Annighton Production	Measures and Main Concerns to addressed	Timing	Agent	D	C	О	Legislation & Guidelines
4.6.20 - 4.6.21	Table 3.4	Employ quiet working method (e.g. mini-concrete crusher, saw & lift) during demolition works of crossings, restrict concurrent usage of several equipment at the same time such as parking dump truck, concrete lorry mixer outside main village area. The use of dump truck or concrete lorry mixer will be limited to only about 1 trip every few	To further mitigate construction noise at NSRs for LMH01	Construction works at LMH01 / during construction	Construction Contractor		1		Environmental Impact Assessment Ordinance
4.8.4	Table 3.4	It is recommended that works programme should be scheduled such that only one crossing is constructed at any one time. Bank improvement work can be conducted concurrently.	To mitigate cumulative noise impact at LMH01	Crossing construction at LMH01 / during construction	Construction Contractor		1		Environmental Impact Assessment Ordinance
4.9.1	3.8.1	The Contractor should design, construct, operate and maintain the mitigation measures throughout the construction stage and as required by the Engineer. Before commencement of the works, the Contractor should submit to the Engineer for approval (as part of their method statement) details of the mitigation measures to be employed under the works. The Contractor's proposed mitigation measures should also be certified by the ET Leader and verified by the IEC to ensure the intended noise reduction effectiveness can be achieved.		All works site / during construction	Construction Contractor		1		Environmental Impact Assessment Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation		plementa Stages*		Relevant
			Measures and Main Concerns to addressed	Timing	Agent	D	C	О	Legislation & Guidelines
loise - O	perational	Phase							
		N/A							

\* D=Design, C=Construction, O=Operation
N/A Not applicable

D = Design, C = Construction, O = Operation

Table A3 Implementation Schedule of Water Quality Mitigation Measures

EIA	EM&A		Objectives of the Recommended	Location /	Implementation	Imp	lementa Stages*		Relevant Legislation &
Ref	Ref	Recommended Mitigation Measures	Measures and Main Concerns to addressed	Timing	Agent	D	Č	0	Guidelines
Water	Quality - (	Construction Phase							
5.6.2	4.9:2	General  The contractor shall observe and comply with the Water Pollution Control Ordinance (WPCO) and its subsidiary regulations. The contractor shall carry out the works in such a manner as to minimise adverse impacts on the water quality during execution of the works. In particular the contractor shall arrange his method of working to minimise the effects on the water quality within and outside the site and on the transport routes.	water quality impact during construction	All works site / during construction	Construction Contractor		4		Water Pollution Control Ordinance
5.6.3	4.9.3	The contractor shall follow the practices, and be responsible for the design, construction, operation and maintenance of all the mitigation measures below and as specified in ProPECC PN 1/94 - Construction Site Drainage. In particular, the contractor shall submit and implement an Erosion Control Plan (as part of the Environmental Management Plan) which shall incorporate details of the mitigation measures recommended below to reduce water quality impacts arising from construction works. The design of the mitigation measures and the Plan shall be submitted by the contractor to the Engineer for approval.	water quality impact during construction	All works site / during construction	Construction Contractor		1		ProPECC PN 1/94 ETWB TCW No. 19/2005

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Im	plementa Stages*		Relevant
			Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Legislation & Guidelines
		Site Surface Runoff					<del> </del>	<del> </del>	
5.6.4	4.9.4	Proper construction site drainage management measures shall be implemented to control site runoff and drainage, and thereby prevent high sediment loadings from reaching downstream sections of the river and adjacent agricultural land.	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		1		ProPECC PN 1/94
5.6.5	4.9.5	Turbid water from construction sites must be treated to minimise the solids content before being discharged. Advice on the handling and disposal of site discharge is given in the ProPECC Note PN 1/94 - Construction Site Drainage.	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		1		ProPECC PN 1/94
5.6.6	4.9.6	In general, surface run-off from construction sites should be discharged into waterbodies via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels or earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries should be provided to intercept storm run-off from outside the site so that it will not wash across the site (or into the proposed channel works area). Catchpits and perimeter channels should be constructed in advance of earthworks.	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor	,	1		ProPECC PN 1/94

EIA	EM&A		Objectives of the Recommended	Location /	Implementation	Im	plementa Stages*		Relevant
Ref	Ref	Recommended Mitigation Measures	Measures and Main Concerns to addressed	Timing	Agent	D	Ć	0	Legislation & Guidelines
5.6.7	4.9.7	Silt removal facilities, channels should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to ensure proper functioning of these facilities at all times.	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		1		ProPECC PN 1/94
5.6.8	4.9.8	Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into the nearby waterbodies. Open stockpiles susceptible to erosion should be covered with tarpaulin or similar fabric and provided with containment such as bunds, sand bag barriers or equivalent measures, especially during the wet season (April – September) or when heavy rainstorm is predicted. Runoff to watercourses should be reduced by minimising flat exposed areas of permeable soil, and by forming pits or diversion channels into which runoff can flow to suitable treatment facilities before discharge.	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		1		ProPECC PN 1/94
ì		De-watering / Excavation of Streams and Removal of Sediment							
5.6.9	4.9.9	The use of containment structures such as earth bund or sand bag barriers wrapped with geotextile fabric or similar material or diversion channels is recommended to facilitate a dry or at least confined excavation within watercourses.	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		1		Water Pollution Control Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Im	plement: Stages		Relevant
			Measures and Main Concerns to addressed	Timing	Agent	D	С	0	Legislation & Guidelines
5.6.10	4.9.10	Excavation works at the existing stream section of MUP05 should be programmed to be carried out during periods of low flow (dry season from 1st October to 31st March) to minimise impacts on downstream water quality and sensitive receivers. For the ecologically sensitive stream of LMH01, the restriction period should be further extended for an additional month (i.e. excavation works allowed from 1st November to 31st March) to protect the aquatic fauna from silty runoff due to possible heavy rain during the transitional period of the wet / dry seasons.	To minimize adverse water quality impact from excavation works during wet season	MUP05 & LMH01 / during construction	Construction Contractor		1		Water Pollution Control Ordinance
5.6.11	4.9.11	In addition, the excavation works should be carried out in sections to reduce the area of exposed surfaces as described below. For MUP05, the first 300m upstream section will have no restriction. For the remaining sections of MUP05 (within existing stream course), the length would be restricted to 300m at any one time. For MUP04A, a 100m restriction should be imposed for the entire stream works area to cater for potential cumulative impact on MUP05.	Restrict length of excavation work to minimise impacts on downstream water quality and sensitive receivers	MUP05 & MUP04A / during construction	Construction Contractor		1		Water Pollution Control Ordinance
5.6.12	4.9.12	As for LMH01, given its relatively small scale works but sensitive nature of the stream, it is recommended that only either one portion of bank	To minimize adverse water quality impact on LMH01 during	LMH01 / during construction	Construction Contractor		√	· · · · · · · · · · · · · · · · · · ·	Water Pollution Control Ordinance

EIA	EM&A		Objectives of the Recommended	Location /	Implementation	Im	plementa Stages*		Relevant
Ref	Ref	Recommended Mitigation Measures	Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Legislation & Guidelines
		improvement works or one vehicular crossing reconstruction should be carried out at any one time.	construction						
5.6.14	4.9.14	After dewatering of the streams, the sediments should be allowed to dry before excavation (yet still maintain a moist state to avoid dust nuisance). This will facilitate excavation of the sediments and also minimise the risk of drained water flowing back into watercourses as the sediment is handled. Where time or weather constraints require handling of wet sediment, care should be taken in the removal of sediment and the storage area should be bunded to prevent silty runoff entering watercourses. Given its small quantity, all excavated sediment should be reused on-site as backfilling material.	To minimize adverse water quality impact during construction (in particular when excavating and handling sediments)	All works site where sediment removal is required / during construction	Construction Contractor		1		Water Pollution Control Ordinance
5.6.15	4.9.15	Excavated sediment will likely be temporarily stored on-site for reuse as backfilling material. This should be stored in a bunded area and covered during wet season or when rainstorm is forecasted to avoid inadvertent release of silts and suspended solids to nearby water bodies.	water quality impact during construction (in particular when	All works site where sediment removal is required / during construction	Construction Contractor		1		Water Pollution Control Ordinance
5.6.16	4.9.16	Regular monitoring of suspended solids and turbidity should be conducted during excavation works. Any exceedance of water quality in the	water quality impact	All works site / during construction	Construction Contractor		√		Water Pollution Control Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Im	plements Stages*		Relevant
	Kei	<i>*</i>	Measures and Main Concerns to addressed	Timing	Agent	D	Č	0	Legislation & Guidelines
	-	nearby water bodies caused by inadvertent release of site runoff should be rectified in accordance with EM&A programme for this Project.							
		Concreting Work				<del>_</del> ·			
5.6.17	4.9.17	Runoff should be carefully channelled to prevent concrete-contaminated water from entering watercourses. Adjustment of pH can be achieved by adding a suitable neutralising reagent to wastewater prior to discharge. Re-use of the supernatant from the sediment pits for washing out of concrete lorries should be practised.	To minimize adverse water quality impact during construction (in particular concreting works)	All works site / during construction	Construction Contractor		1		Water Pollution Control Ordinance
5.6.18	4.9.18	Any exceedance of acceptable range of pH levels in the nearby water bodies caused by inadvertent release of site runoff containing concrete should be monitored and rectified under the EM&A programme for this Project.	To minimize adverse water quality impact during construction (in particular concreting works)	All works site / during construction	Construction Contractor		. 1		Water Pollution Control Ordinance
5.6.19	4.9.19	To protect the sensitive stream of Lin Ma Hang, no concrete should be used during bank improvement works at LMH01.	To minimize adverse water quality impact on LMH01 during construction	LMH01 bank improvement works / during construction	Construction Contractor		. √		Environmental Impact Assessment Ordinance
		Site Workshop or Depot					-		•
5.6.20	4.9.20	Any contractor generating waste oil or other	To minimize adverse	All works site /	Construction		1		Water Pollution

EIA	EM&A		Objectives of the Recommended	Location /	Implementation	Im	olementa Stages*	tion	Relevant
Ref	Ref	Recommended Mitigation Measures	Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Legislation & Guidelines
Ì		chemicals as a result of his activities should register as a chemical waste producer and provide a safe storage area for chemicals on site. The storage site should be located away from existing water courses.	water quality impact during construction	during construction	Contractor		·		Control Ordinance
5.6.21	4.9.21	All compounds in works areas should be located on areas of hard standing with provision of drainage channels and settlement ponds where necessary to allow interception and controlled release of settled/treated water; and provision of bunding for all potentially hazardous materials on site including fuels. Hard standing compounds should drain via an oil interceptor. To prevent spillage of fuels or other chemicals to water courses, all fuel tanks and storage areas should be sited on sealed areas, within a bund of a capacity equal to 110% of the storage capacity of the largest tank. Disposal of the waste oil should be done by a licensed collector. Oil interceptors should be regularly inspected and cleaned to avoid wash-out of oil during storm conditions. A bypass should be provided to avoid overload of the interceptor's capacity. Good housekeeping practices should be implemented to minimise careless spillage and to keep the storage and the work space in a tidy and clean condition. Appropriate training including safety codes and relevant manuals should be given to the personnel who regularly handle the chemicals on site.	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor				Water Pollution Control Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Im	plementa Stages*		Relevant
Rei	Kei		Measures and Main Concerns to addressed	Timing	Agent	D	С	0	Legislation & Guidelines
				•					-
5.6.22	4.9.22	The contractor should prepare an emergency contingency plan (spill action plan) for the Project to contain and remove all accidental spillage of chemicals and hazardous materials on-site including fuels at short notice and to prevent or minimize the quantities of contaminants entering the stream water and affecting the habitats. The contractor should submit the emergency contingency plan to the ET for review & comment and the engineer for approval.	To prevent or minimize the quantities of contaminants entering the stream water and affecting the habitats in case of accidental spillage of chemicals and hazardous materials	All works site / during construction	Construction Contractor		√		Water Pollution Control Ordinance
5.6.24	4.9.24	Presence of Additional Population (Workers)  Sewage arising from the additional population of workers on site should be collected in a suitable storage facility, such as portable chemical toilets. An adequate number of portable toilets should be provided for the construction workforce. The portable toilets should be maintained in a state that will not deter the workers from using them. The collected wastewater from sewage facilities and also from eating areas or washing facilities must be disposed of properly, in accordance with the WPCO requirements. Wastewater collected should be discharged into foul sewers and collected by licensed collectors.	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		1		ProPECC PN 1/94  Water Pollution Control Ordinance

Table A4 Implementation Schedule of Waste Management Measures

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main	Location /	Implementation	Im	plement: Stages*		Relevant Legislation &
	<u> </u>		Concerns to addressed	Timing	Agent	D	С	0	Guidelines
Waste -	- Construc	tion Phase						<u>.</u>	
		General					T		
6.5.2 - 6.5.3	5.1.2 - 5.1.3	Upon appointment, the main contractor of each construction contract should prepare and implement an Environmental Management Plan (EMP) in accordance with ETWB TCW No. 19/2005 — Environmental Management on Construction Sites which should describe the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan should incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP should be submitted to the Engineer for approval. The contractor shall implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP should be reviewed regularly and updated (preferably monthly) by the contractor. The EMP should take into account the recommended mitigation measures in the EIA Report. The contractor also should refer to the Construction and Demolition Material Management Plan (C&DMMP) in Appendix D1 (of the EIA) to facilitate him in the preparation of the EMP of the Contract.	Waste reduction, reuse, recycling and proper disposal of waste	All works site / during construction	Construction Contractor		1		Waste Disposal Ordinance ETWB TCW No. 19/2005

EIA	EM&A	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Imp	olementa Stages*		Relevant Legislation &
Ref	Ref	Accommonded Management Accounts	Measures and Main Concerns to addressed	Timing	Agent	D	Č	0	Guidelines
6.5.4	5.1.4	Training of construction staff should be undertaken by the contractor about the concept of site cleanliness and appropriate waste management procedures. The contractor should develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials. Requirements for staff training should be included in the EMP.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		1		Waste Disposal Ordinance ETWB TCW No. 19/2005
6.5.5	5.1.5	Good planning and site management practice should be employed to eliminate over ordering or mixing of construction materials to reduce wastage. Proper storage and site practices will minimise the damage or contamination of construction materials.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		1		Waste Disposal Ordinance ETWB TCW No. 19/2005
6.5.6	5.1.6	Where waste generation is unavoidable, the potential for recycling or reuse should be rigorously explored. If wastes cannot be recycled, disposal routes described in the EMP should be followed. A recoding system for the amount of waste generated, recycled and disposed (including the disposal sites) should be implemented. In order to monitor the disposal of C&D material and solid wastes at public filling facilities and landfills and to control fly-tipping, a trip-ticket system should be included.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		٨		Waste Disposal Ordinance ETWB TCW No. 19/2005 31/2004
6.5.7	5.1.7	Regular cleaning and maintenance of the waste storage area should be provided.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		1		Waste Disposal Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Im	plementa Stages*		Relevant
	1		Measures and Main Concerns to addressed	Timing	Agent	D	C	О	Legislation & Guidelines
			,						ETWB TCW No. 19/2005
		On-site Sorting, Reuse and Recycling							
6.5.8	5.1.8	All waste materials should be segregated into categories covering:	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		1		Waste Disposal Ordinance
		excavated materials suitable for reuse on-site;							ETWB TCW No.
		excavated materials suitable for public filling facilities;							19/2005
		remaining C&D waste for landfill;							
		chemical waste; and							
		general refuse for landfill.							
6.5.9	5.1.9	Proper segregation and disposal of construction waste should be implemented. Separate containers	Waste reduction, reuse, recycling and proper	All work sites / during	Construction Contractor		1		Waste Disposal Ordinance
		should be provided for inert and non-inert wastes.	disposal of waste	construction		j			ETWB TCW No. 19/2005
· · · · · · · · · · · · · · · · · · ·				1			<u>-</u> _		
6.5.10	5.1.10	Sorting is important to recover materials for reuse and recycling. Specific area should be allocated for on-site sorting of C&D materials and to provide a	Waste reduction, reuse, recycling and proper	All work sites / during construction	Construction Contractor		. 1		Waste Disposal Ordinance
		temporary storage area for those sorted materials	disposal of waste	construction				ĺ	ETWB TCW No. 19/2005, 31/2004

EIA	EM&A	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Implementation Stages*			Relevant Legislation &
Ref	Ref	Accommodate Alligation Management	Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Guidelines
		such as metals, concrete, timber, plastics, glass, excavated spoils, bricks / tiles and waste papers. If area is limited, all C&D materials should at least be sorted on-site into inert and non-inert component. Non-inert materials (C&D waste) such as bamboo, timber, vegetation, packaging waste and other organic materials should be reused and recycled wherever possible and disposed of to designated landfill only as a last resort. Inert materials (public fill) such as concrete, stone, clay, brick, soil, asphalt and the like should be separated and reuse in this or other projects (subject to approval by the relevant parties in accordance with the ETWB TCW No. 31/2004) before disposed of at a public filling facility operated by Civil Engineering and Development Department (CEDD). Steel and other metals should be recovered from demolition waste stream and recycled.							
6.5.11	5.1.11	The reuse of inert materials such as soil, rock and broken concrete should be maximised. Waste should be separated into fine, soft and hard materials. With the use of a crusher coarse material can be crushed to make it suitable for use as fill material where fill is required in the works. This minimises the use of imported material and maximises use of the C&D material produced.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		7		Waste Disposal Ordinance ETWB TCW No. 19/2005
6.5.12	5.1.12	Prior to export of material from the site, the	Waste reduction, reuse,	All work sites /	Construction		4		Waste Disposal

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation	Implementation Stages*			Relevant
Rei	Rei				Agent	D	С	0	Legislation & Guidelines
		potential for it to be reused should be assessed. With the exception of excavated clay most C&D material can easily be reused. Waste separation methods should be followed to ensure that C&D waste is separated at source. Suitable soft materials should be used for landscaping and grading of embankments. Fine material should be separated out and used as topsoil.	recycling and proper disposal of waste	during construction	Contractor				Ordinance  ETWB TCW No. 19/2005
6.5.13	5.1.13	The feasibility of using recycled aggregates in lieu of virgin materials should be rigorously considered during the detailed design and construction stages as stipulated in WBTC No. 12/2002 and ETWB TCW No. 24/2004. In general, recycled aggregates are suitable for use as fill materials in earthworks, road sub-base formation, and drainage works. Recycled aggregates can also be used in concrete (up to Grade 35) for mass concrete walls and other minor structures such as planter boxes, toe wall planters and pavement, etc.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		1		Waste Disposal Ordinance ETWB TCW No. 19/2005, 24/2004 WBTC No. 12/2002
6.5.14	5.1.14	Recycled inert C&D material should be used in the works as sub-bases for access roads and footpaths of the proposed channels. Recycled aggregates should be considered for use in concrete as outlined in the above mentioned technical circulars. Some recycled rock material can be reused in the gabions, as rock fill or as stream bed material. This is dependent on size of rock fragments but can be	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor	-	1		Waste Disposal Ordinance ETWB TCW No. 19/2005

EIA	EM&A Ref		Objectives of the Recommended Measures and Main Concerns to addressed	Location /	Implementation	Implementation Stages*			Relevant Legislation &
Ref				Timing	Agent	D	С	0	Guidelines 1
		achieved by appropriate use of a crusher.							
		Site Clearance / Demolition Materials							
		Excavated Materials							
6.5.15	5.1.15	All C&D materials should be sorted on-site into inert and non-inert components by the contractor.	Waste reduction, reuse, recycling and proper	All work sites / during	Construction Contractor		1		Waste Disposal Ordinance
		inert and non-inert components by the contractor. Non inert materials (C&D waste) such as wood, glass and plastic should be reuse and recycle before disposal to a designated landfill as a last resort (currently assume to be the nearby NENT Landfill). Inert materials (public fill) such as soil, rubble, sand, rock, brick and concrete should be separated and where appropriate broken down to size suitable for subsequent filling. Suitable C&D material should be use as pipe bedding or for backfilling of retaining walls, box culvert and formation of channel embankments. Excavated rocks from existing streams should be reuse for rip-rap lining and gabion lining. Inert materials should be reused on-site or in other projects approved by relevant	disposal of waste	construction	Communication				ETWB TCW No. 19/2005, 31/2004
A CONTRACTOR OF THE CONTRACTOR		parties in accordance with the ETWB TCW No. 31/2004 before disposed of at public filling facilities. Steel and other metals should be recovered from C&D materials and recycled.							
6.5.16	5.1.16	Excavated sediment from existing stream should be reuse on-site as backfilling material.	Reuse of excavated sediment to minimize offsite disposal	MUP04A / during construction	Construction Contractor		1		Waste Disposal Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation	Implementation Stages*			Relevant Legislation &
					Agent	D	С	0	Guidelines
·									
6.5.17	5.1.17	Good quality reusable topsoil should be stockpiled for later landscaping works. Stockpiles should be less than 2 m in height, formed to a safe angle of repose and hydroseeded or covered with tarpaulin to prevent erosion during the rainy season and to minimise dust generation.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor	,	1		Waste Disposal Ordinance ETWB TCW No: 19/2005
6.5.18	5.1.18	Control measures for temporary stockpiles on-site should be taken in order to minimize the noise, generation of dust, pollution of water and visual impact. These measures include:	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		1		Waste Disposal Ordinance ETWB TCW No. 19/2005
		<ul> <li>surface of stockpiled soil should be regularly wetted with water especially during dry season;</li> </ul>					-		137,2003
		<ul> <li>disturbance of stockpiled soil should be minimized;</li> </ul>		·					
		<ul> <li>stockpiled soil should be properly covered with tarpaulin especially when heavy rain storms are predicted;</li> </ul>	s are						
		<ul> <li>stockpiling areas should be enclosed where space is available;</li> </ul>		· · · · · · · · · · · · · · · · · · ·				`	
		<ul> <li>stockpiling location should be away from the water bodies; and</li> </ul>							
		an independent surface water drainage system				į			

EIA	EM&A	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location /	Implementation	Implementation Stages*			Relevant Legislation &
Ref	Ref			Timing	Agent	D	Ċ	0	Guidelines
i		equipped with silt traps should be installed at the stockpiling area.							
6.5.19	5.1.19	The identification of final disposal sites for C&D materials generated by the construction works will be considered during the detailed design stage of the Project when the volume and types of C&D materials can be more accurately estimated. The Public Fill Committee of CEDD should be consulted on designated outlets (e.g. public filling area) for public fill, whilst EPD should be consulted on landfills for C&D waste. Disposal of C&D waste to landfill must not have more than 50% (by weight) inert material. The C&D waste delivered for landfill disposal should contain no free water and the liquid content should not exceed 70% by weight.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		7		Waste Disposal Ordinance ETWB TCW No. 19/2005
6.5.20	5.1.20	In order to avoid dust or odour impacts, any vehicle leaving a works area carrying C&D waste or public fill should have their load covered before leaving the construction site.	recycling and proper	All work sites / during construction	Construction Contractor		1		Waste Disposal Ordinance ETWB TCW No. 19/2005 WBTC No. 19/2001
6.5.21	.5.1.21	C&D materials should be disposed of at designated public filling facilities or landfills. Disposal of	Waste reduction, reuse, recycling and proper	1	Construction Contractor		1		Waste Disposal Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation	Implementation Stages*			Relevant
		these materials for use at other construction			Agent	D	C	0	Legislation & Guidelines
		projects is subject to the approval of the EPD, Engineer and/or relevant authorities, such as LandsD, PlanD, etc. Furthermore, unauthorized disposal of C&D materials in particular on private agricultural land is prohibited and may be subject to relevant enforcement and regulating actions. The contractor shall refer and strictly follow the tripticket system for the disposal of C&D material as stipulated in the ETWB TCW No. 31/2004.		construction					ETWB TCW No. 19/2005, 31/2004
		Chemical Waste					i		
5.5.22	5.1.22	chemical waste producer. Wastes classified as chemical wastes are listed in the Waste Disposal (Chemical Waste) (General) Regulation. These wastes are subject to stringent disposal routes. EPD requires information on the particulars of the waste	Waste reduction, reuse, recycling and proper disposal of chemical waste	All work sites / during construction	Construction Contractor		√		Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging
		generation processes including the types of waste produced, their location, quantities and generation rates. A nominated contact person must be registered with EPD. An updated list of licensed chemical waste collector can be obtained from EPD.			1				Labelling and Storage of Chemical Waste
5.23	5.1.23	Storage, handling, transport and disposal of chemical W							
			••	All work sites / luring	Construction Contractor		1		Waste Disposal (Chemical Waste)

			Objectives of the Recommended	Location /	Implementation	Implementation Stages*			Relevant Legislation &
EIA Ref	EM&A Ref	Recommended Mitigation Measures	Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Guidelines
		Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published by EPD, and should be collected by a licensed chemical waste collector.	disposal of chemical waste	construction					Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Waste
6.5.24	5.1.24	Suitable containers should be used for specific types of chemical wastes, containers should be properly labelled (English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations), resistance to corrosion, stored safely and closely secure. Stored volume should not be kept more than 450 liters unless the specification has been approved by the EPD. Storage area should be enclosed by three sides by a wall, partition of fence that is at least 2 m height or height of tallest container with adequate ventilation and space.		All work sites / during construction	Construction Contractor		7		Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Waste
6.5.25	5.1.25	Hard standing, impermeable surfaces draining via oil interceptors should be provided in works area compounds. Interceptors should be regularly emptied to prevent release of oils and grease into the surface water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain. Oil and fuel bunkers should be bunded and/or enclosed on three sides to prevent discharge due to accidental spillages or breaches of tanks. Bunding	recycling and proper disposal of chemical waste	During	Construction Contractor		1		Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Waste

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main	Location /	Implementation	Im	plementa Stages*	tion	Relevant
		should be of sufficient capacity to accommodate	Concerns to addressed	Timing	Agent	D	C	0	Legislation & Guidelines
6.5.26		of the total volume of the largest container or 20% of the total volume of waste, whichever is largest. Waste collected from any grease traps should be collected and disposed of by a licensed contractor.							
0.3.20	5.1.26	Lubricants, waste oils and other chemical wastes are likely to be generated during the maintenance of vehicles and mechanical equipment. Used lubricants should be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place. If possible, such waste should be sent to oil recycling companies, and the empty oil drums collected by appropriate companies for reuse or refill.	1, 10,000,	All work sites / during construction	Construction Contractor		1		Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Waste
5.5.27		be collected by licensed collectors. The licensed collector should regularly take at a six and a		All work sites / during construction	Construction Contractor		1		Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Waste
5.28	5.1.28	No lubricants, oils, solvents or paint products vishould be allowed to discharge into water courses,		All work sites /	Construction		1		Waste Disposal

		A Jastin time Manager	Objectives of the Recommended	Location /	Implementation	Imp	olementa Stages*	tion	Relevant Legislation &
EIA Ref	EM&A Ref	Recommended Mitigation Measures	Measures and Main Concerns to addressed	Timing	Agent	D	С	0	Guidelines
Ť		either by direct discharge, or as contaminants carried in surface water runoff from the construction site.	disposal of chemical waste	construction					(General) Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Waste
6.5.29	5.1.29	Concrete Waste  Dry concrete waste (considered as public fill) should be sorted out from the other wastes and recycled for reuse or sorted out for disposal at designated public filling facilities.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		1		Waste Disposal Ordinance ETWB TCW No. 19/2005, 33/2002
6.5.30	5.1.30	Wooden Materials  All wooden materials used on-site should be kept separate from other wastes to avoid damage and to facilitate reuse. Timber which cannot be reused should be sorted out from other waste and stored separately from all inert waste before being disposed of to landfill.	recycling and proper disposal of waste	1	Construction Contractor				Waste Disposal Ordinance ETWB TCW No. 19/2005, 33/2002
6.5.31	5.1:31	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of	recycling and proper disposal of waste	1	Construction Contractor		1		Waste Disposal Ordinance ETWB TCW No. 19/2005, 33/2002

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main	Location / Timing	Implementation	Im	plementa Stages*	ition	Relevant
		timber used on construction sites. Metallic alternatives to timber are readily available and	Concerns to addressed	l Anning	Agent	D	C	0	Legislation & Guidelines
		should be used rather than new timber. Recast concrete units should be adopted wherever feasible to minimize the use of timber formwork.							
6.5.32	5.1.32	Only waste material need be taken to a landfill. It should be separated from recyclable wood and steel materials. As for all waste types these materials should be reused on-site or other approved sites before disposal is considered as an option.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		1		Waste Disposal Ordinance
		Disposal to landfill should only be considered as a final option. Contractors are responsible for storage of re-useable materials on-site.							ETWB TCW No. 19/2005, 33/2002
i.5.33		from other construction and chemical wastes and disposed of at designated landfill. A temporary	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		1		Waste Disposal Ordinance
		refuse collection point should be set up by the contractor to facilitate the collection of refuse by licensed contractors. The removal of waste from the site should be arranged on a daily or at least on every second day by the contractor to minimise any potential odour impacts, minimise the presence of cests, vermin and other scavengers and prevent unsightly accumulation of waste.		***					ETWB TCW No. 19/2005

Table A5 Implementation Schedule of Ecological Impact Measures

			Objectives of the	Location /	Implementation	Imp	plementa Stages*	tion	Relevant Legislation &
EĮA Ref	EM&A Ref	Recommended Mitigation Measures	Recommended Measures and Main Concerns to addressed	Timing	Agent	D	Ĉ	Ο	Guidelines
Ecology	- Construct	ion Phase					1	Γ	
7.9.3	6.5.2	Civen the ecological importance of Lin Ma Hang stream, it is proposed that construction works at LMH01 should be restricted to the dry season period from 1 <sup>st</sup> November – 31 <sup>st</sup> March. The small scale of works should allow all construction to be completed within dry season to ensure that the risk of erosion and sedimentation due to heavy rain on the works areas, as well as disturbance impacts to surrounding areas, will be minimised.	impacts during construction at LMH01	All works sites at LMH01 / during construction	Construction Contractor		4		Environmental Impact Assessment Ordinance
7.9.4	6.5.3	In addition, the breaking of existing shotcrete banks at LMH01 should be restricted to hand-held equipment. Concrete should not be used for construction of the gabion banks.	impacts during	All works sites at LMH01 / during construction	Construction Contractor		7		Environmental Impact Assessment Ordinance
7.9.5	6.5.4	Potential disturbance impacts to surrounding habitats and pollution risks (water quality impacts) to the stream should be minimised by adoption of appropriate site managemen procedures, as detailed in ETWB TCW No 5/2005; including among others the location of access to the site and storage of materials, and treatment of construction site waste to prevent	impacts during construction at LMH01 t f f	All works sites at LMH01 / during construction	Construction Contractor		1		Environmental Impact Assessment Ordinance

Ref	Ref	Recommended Mitigation Measures	Recommended Measures and Main	Location / Timing	Implementation	Im	Implementation Stages*		Relevant	
		pollution of the stream. These site management		1 ming	Agent	D	C	0	Legislation & Guidelines	
7		measures are listed in the subsequent section.								
		MUP05 (natural stream section) Streambed								
7.9.9		One of the main benefits of the proposed stream widening measures is that the existing natural stream bed is left undisturbed. Accordingly, works should be carried out in such a way that as much as possible of the natural stream bed should be left undisturbed and that where disturbance is essential this should be minimised in terms of area, magnitude and duration to minimise potential impacts to stream fauna and to ensure refuges for these species during the period of the works. Avoidance of the stream bed can be achieved by conducting the earthworks to widen the stream from the landward side, by not lowering the widened channel to the same level as, or below, the existing channel, and by leaving the existing stream untouched except during the final stage, when the newly formed widened	impacts during construction at	All works sites at MUP05 / during construction	Construction Contractor		<b>V</b>		Environmental Impact Assessment Ordinance	
.9.10	6.5.9	In addition, the widened stream bottom should be floored with natural materials (natural rock and innes of varying sizes) to approximate as closely as	mpacts during	All works sites at MUP05 / during construction	Construction Contractor		٧ .	1	Environmental Impact Assessment Ordinance	

			Objectives of the Recommended	Location /	Implementation	Implementation Stages*		tion	Relevant Legislation &
EIA Ref	EM&A Ref	Recommended Mitigation Measures	Measures and Main Concerns to addressed	Timing	Agent	D	С	0	Guidelines
		deposited naturally.							
7.9.11	6.5.10	In order to minimise potential impacts to stream fauna during excavation of the widened "two-stage" channel, this work should be limited to the dry season as far as possible, between 1st October and 31st March. As rainfall is low at this time, erosion is less likely and deposition of sediment downstream of the works should be minimised. This also avoids the time when stream fauna are at the most vulnerable stage in their life cycle (eggs and young larvae). Any essential works outside the dry season should be temporarily isolated from the stream to prevent the risk of pollution or sedimentation affecting the ecological integrity of the stream.		All works sites at MUP05 / during construction	Construction Contractor		7		Environmental Impact Assessment Ordinance
7.9.12	6.5.11	As required to minmize potential water quality impacts (Section 5.6), excavation works at the stream section of MUP05 should be restricted to 300m length at any one time. No restriction is considered necessary for the first 300m upstream concrete drains section. Excavation works a MUP04A should be restricted to 100m to cater fo potential cumulative impact on MUP05.	construction at MUP05	All works sites at MUP05 / during construction	Construction Contractor		1		Environmental Impact Assessment Ordinance
7.9.13	6.5.12	Appropriate site management procedures during the construction phase should be adopted, a	Minimize ecological impacts during	All works sites at MUP05 / during	Construction Contractor		1		Environmental Impact Assessment

,	recommended in ETWB TCW No. 5/2005, to	Measures and Main				_Stages*		Relevant
	To the state of th	Concerns to addressed construction at		Agent	D	C	0	Legislation & Guidelines
	pollution risks (water quality impacts) to the stream. This should include the location of access to the site and storage of materials, and treatment of construction site waste to prevent pollution of the stream. These site management pressures are	MUP05	construction					Ordinance
19 &	The loss of bankside trees and		·					!
i	transplanting existing trees to suitable locations wherever possible, and through supplemental planting of native trees and bamboos in locations where the project area includes sufficient space adjacent to the stream but outside the channel itself (in addition to retaining in-situ as much trees as possible). The appropriate species of trees and	bankside trees and associated riparian	MUP05 / during construction	Construction Contractor				Environmental Impact Assessmen Ordinance
-	Celtis tetranda (sinensis)							
•	Ficus hispida							
	4							
					:	.		•
-								
-	·			j				
	19 & e 6.6	the stream. These site management measures are listed in the subsequent section.  The loss of bankside trees, and associated riparian habitats, should be mitigated through transplanting existing trees to suitable locations wherever possible, and through supplemental planting of native trees and bamboos in locations where the project area includes sufficient space adjacent to the stream but outside the channel itself (in addition to retaining in-situ as much trees as possible). The appropriate species of trees and bamboos include.  Celtis tetranda (sinensis)  Ficus microcarpa  Litsea glutinosa  Sapium discolor  Schleffera arboricolar (octophylla)	of Construction site waste to prevent pollution of the stream. These site management measures are listed in the subsequent section.  The loss of bankside trees, and associated riparian habitats, should be mitigated through transplanting existing trees to suitable locations wherever possible, and through supplemental planting of native trees and bamboos in locations where the project area includes sufficient space adjacent to the stream but outside the channel itself (in addition to retaining in-situ as much trees as possible). The appropriate species of trees and bamboos include.  Celtis tetranda (sinensis)  Ficus microcarpa  Litsea glutinosa  Sapium discolor  Schleffera arboricolar (octophylla)	The loss of bankside trees, and associated riparian habitats, should be mitigated through transplanting existing trees to suitable locations wherever possible, and through supplemental planting of native trees and bamboos in locations where the project area includes sufficient space adjacent to the stream but outside the channel itself (in addition to retaining in-situ as much trees as possible). The appropriate species of trees and bamboos include.  - Celtis tetranda (sinensis) - Ficus microcarpa - Litsea glutinosa - Sapium discolor - Schleffera arboricolar (octophylla)	19 & the loss of bankside trees, and associated riparian habitats, should be mitigated through transplanting existing trees to suitable locations wherever possible, and through supplemental planting of native trees and bamboos in locations where the project area includes sufficient space adjacent to the stream but outside the channel itself (in addition to retaining in-situ as much trees as possible). The appropriate species of trees and bamboos include.  **Celtis tetranda (sinensis)**  **Ficus microcarpa**  **Litsea glutinosa**  **Sapium discolor**  **Schleffera arboricolar (octophylla)**	the stream. These site management measures are listed in the subsequent section.  Mitigate the loss of bankside trees, and associated riparian habitats, should be mitigated through transplanting existing trees to suitable locations wherever possible, and through supplemental planting of native trees and bamboos in locations where the project area includes sufficient space adjacent to the stream but outside the channel itself (in addition to retaining in-situ as much trees as possible). The appropriate species of trees and bamboos include.  Celtis tetranda (sinensis)  Ficus microcarpa  Litsea glutinosa  Sapium discolor  Schleffera arboricolar (octophylla)	the stream. These site management measures are listed in the subsequent section.  Mitigate the loss of bankside trees, and associated riparian habitats, should be mitigated through transplanting existing trees to suitable locations wherever possible, and through supplemental planting of native trees and bamboos in locations where the project area includes sufficient space adjacent to the stream but outside the channel itself (in addition to retaining in-situ as much trees as possible). The appropriate species of trees and bamboos include.  ■ Celtis tetranda (sinensis)  ■ Ficus microcarpa  ■ Litsea glutinosa  ■ Sapium discolor  ■ Schleffera arboricolar (octophylla)	19 & The loss of bankside trees, and associated riparian habitats, should be mitigated through transplanting existing trees to suitable locations wherever possible, and through supplemental planting of native trees and bamboos in locations where the project area includes sufficient space adjacent to the stream but outside the channel itself (in addition to retaining in-situ as much trees as possible). The appropriate species of trees and bamboos include.  ■ Celtis tetranda (sinensis)  ■ Ficus microcarpa  ■ Litsea glutinosa  ■ Sapium discolor  ■ Schleffera arboricolar (octophylla)

			Objectives of the Recommended	Location /	Implementation		lementa Stages*	tion	Relevant Legislation &
EIA Ref	EM&A Ref	Recommended Mitigation Measures	Measures and Main Concerns to addressed	Timing	Agent	D	С	0	Guidelines
		Bambusa eutuldoides							
7.9.21	6.5.20	The proposed landscape compensatory planting of about 740 trees (approximately 1,100 m²) along the MUP channels will serve dual purpose of landscape impact mitigation as well as mitigating the loss of riparian trees.	Dual purpose of landscape impact mitigation and mitigate the loss of riparian trees at the MUP channels	MUP channels / during construction	Construction Contractor		√		Environmental Impact Assessment Ordinance
				All works site /	DSD (or its	1	1	<del>                                     </del>	Environmental
7.9.22	6.5.21	The Landscape Plan to be submitted prior to commencement of planting or landscaping works	To ensure the recommended plant	during detailed	appointed				Impact Assessment Ordinance
Table 7.29	Table 6.6	should take into account the recommended pl	species are taken into account in the	design and construction	Detailed Design Engineer)				
(8.11.27	(7.5.11)	species.	Landscape Plan						
)					Construction Contractor to				
1					implement the				
					approved planting plan				
									Environmental
7.9.23	6.5.22	The recommended site management measures are generally good site practices and proper water quality control / waste management measures to be implemented by the contractor for all works near stream courses. These measures include:	to minimize ecological	All works sites at LMH01 and MUP05 / during construction	Construction Contractor		7		Environmental Impact Assessmen Ordinance
		Construction activities should be restricted t works area that should be clearly demarcated	0						

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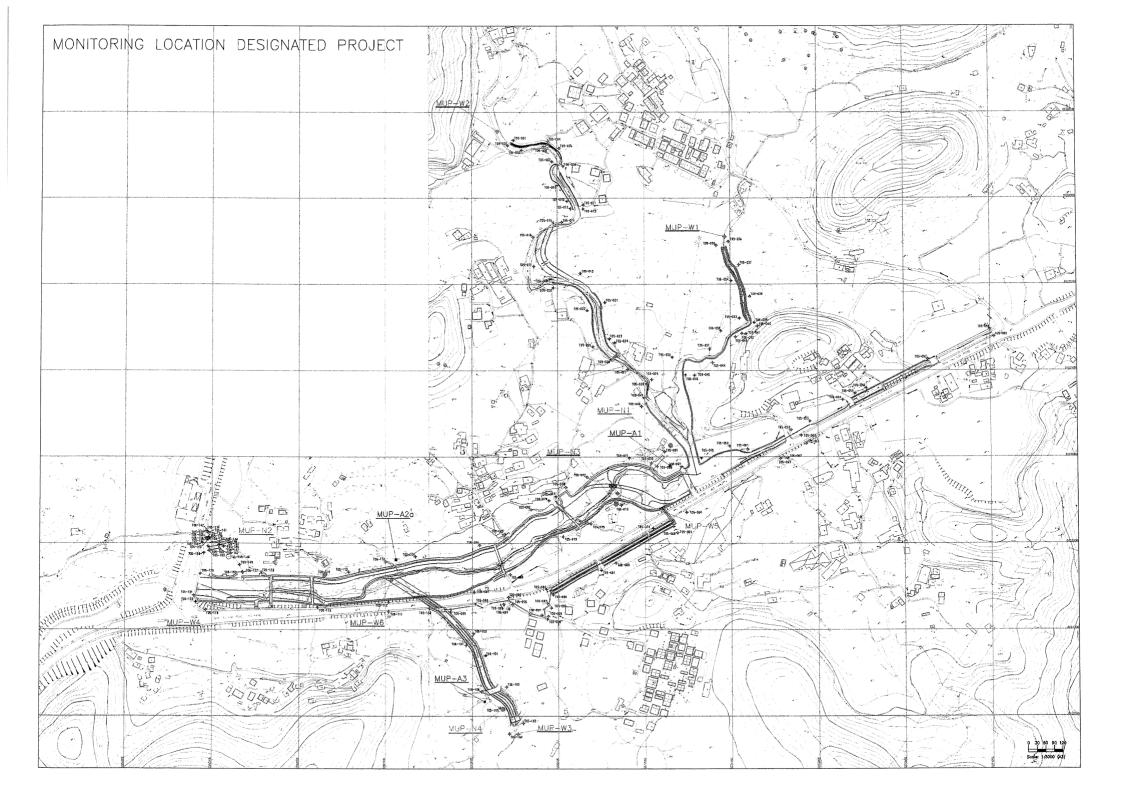
EIA Ref ·	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Imp	plementa Stages*		Relevant Legislation &
		Excavation works should be carried out during the dry season where stream flow is low. Where adequate space is available, works should be carefully phased such that only one side of the channel is constructed. Temporary diversion should be provided to ensure continuous water flow to the downstream section.						0	Guidelines
		The proposed works site inside or in the proximity of natural streams should be temporarily isolated, such as using bunds or sandbag barriers (wrapped with geotextile fabric) or other similar techniques, to prevent adverse impacts on the stream water quality.							
	e,	For the stream section where the existing natural stream bed and bank will be left untouched, no disturbance to the stream bed and bank should be allowed from construction works, equipment or workers. If temporary access track on streambed is unavoidable, this should be kept to the minimum width and length. Temporary stream crossings should be supported on stilts above the stream bed.							
		Adequate temporary drainage measures including sediment and oil/grease traps should be provided to prevent contaminated site run-off entering the water bodies.							
	-	Stockpiling of construction materials, spoils and waste should be properly covered and located away from water bodies to prevent silty runoff and other pollutants from entering							

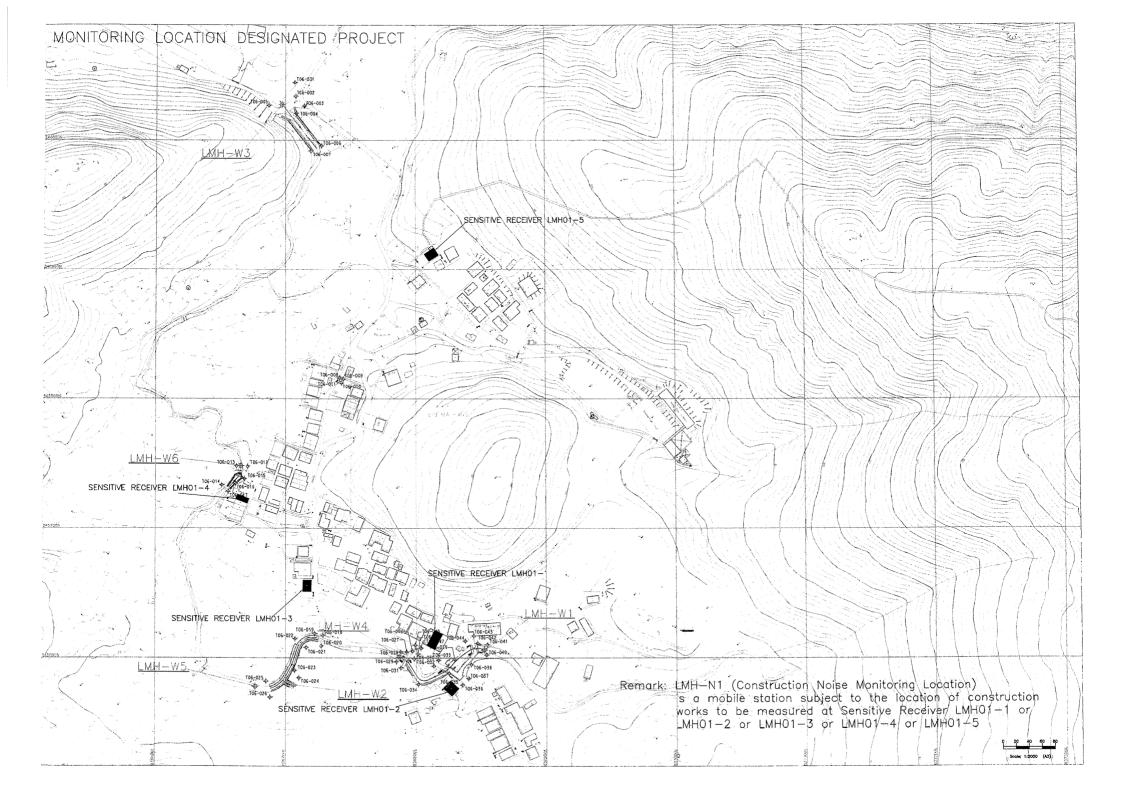
			Objectives of the Recommended	Location /	Implementation		olementat Stages*	іоп	Relevant Legislation &
EIA Ref	EM&A Ref	Recommended Mitigation Measures	Measures and Main Concerns to addressed	Timing	Agent	D	C	О	Guidelines
		the water bodies during rain storms.							
		<ul> <li>Construction effluent, site run-off and sewage should be properly collected, treated and disposed.</li> </ul>			:				·
		Supervisory staff of the contractor should be assigned to station on site to closely supervise and monitor the construction works. All workers should be regularly briefed to avoid disturbing the flora and fauna near the works area.							1
7.9.24	6.5.23	The contractor should provide details of the mitigation measures to be implemented during construction stage as part of their working method statement to the Engineer for approval. This should be reviewed by the Environmental Team Leader.	construction at LMH01 and MUP05	All works sites at LMH01 and MUP05 / during construction	Construction Contractor		1		Environmental Impact Assessment Ordinance
Ecology	- Operatio	n Phase				1	<u>'.</u>	1	
7.9.6	6.5.5	LMH01  Very little or no management / maintenance of the completed sections of LMH01 are expected Removal of obstruction should be undertaken only when flooding or safety issues have been identified.	operation of LMH01	LMH01 / during operation stage	DSD (or DSD's maintenance contractor)	-		1	Environmental Impact Assessment Ordinance
		HUDDIA A							



# Appendix D

**Environmental Monitoring Locations** 







# **Appendix E**

**Certificates of Calibration** 



#### **Equipment Calibration List**

Items	Aspect	Description of Equipment	Date of Calibration	Date of Next Calibration
1#		TSP Sampler Calibration Spreadsheet for MUP-A1	14 Mar 11	14 May 11
2#		TSP Sampler Calibration Spreadsheet for MUP-A2	25 Aug 10	25 Nov 10
3	Air	TSP Sampler Calibration Spreadsheet for MUP-A3	30 April 11	30 June 11
4		TSI SideTak Model AM510 EQ101	17 Aug 2010	17 Aug 2011
5		TSI SideTak Model AM510 EQ102	6 Aug 2010	6 Aug 2011
6		TSI SideTak Model AM510 EQ103	6 Aug 2010	6 Aug 2011
7		Bruel & Kjaer Integrating Sound Level Meter (Serial No. 2285690)	4 May 11	4 May 12
8	Noise	Bruel & Kjaer Integrating Sound Level Meter (Serial No. 2713428)	18 Apr 11	18 Apr 12
9	Noise	NL-31 Rion Sound Level Meter EQ068 (Serial No. 00410247)	18 Apr 11	18 Apr 12
10		Bruel & Kjaer Acoustical Calibrator (Serial No. 2285721)	18 Apr 11	18 Apr 12
11		YSI Multimeter 55/12 FT (Serial No. 97F0837 AM)	19 Apr 11	19 July 11
12	Water	Extect pH Meter EC500	19 Apr 11	19 July 11
13		HACH Turbidimeter 2100p (Serial No. 950900008735)	19 Apr 11	19 July 11

<sup>\*</sup>Note: Calibration certificates will only be provided when monitoring equipment is re-calibrated or new. # Calibration could not conduct due to power failure.

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# Appendix F

**Details of the Event Action Plan** 

### **Event/Action Plan for Air Quality**

EVENT		ACTION		
EVEINI	ET Leader	IEC	ER	Contractor
ACTION LEVEL Exceedance for one sample  Exceedance for two or more consecutive samples	Identify source     Inform IEC, ER and Contractor     Repeat measurement to confirm findings     Increase monitoring frequency to daily     Identify source     Inform IEC, ER and Contractor     Repeat measurement to confirm findings     Increase monitoring frequency to daily     Discuss with IEC, Contractor and ER on remedial actions required     If exceedance continue, arrange meeting with IEC, ER and Contractor     If exceedance stops, cease additional monitoring	Check monitoring data submitted by ET Leader     Check Contractor's working method     Check monitoring data submitted by ET Leader     Check Contractor's working method     Discuss with ET Leader and Contractor on possible remedial measures     Advise the ER on the effectiveness of the proposed remedial measures     Supervise implementation of remedial measures	Notify Contractor      Confirm receipt of notification of failure in writing     Notify Contractor     Ensure remedial measure properly implemented	Rectify any unacceptable practice     Amend working methods if appropriate      Submit proposals for remedial actions to IEC and ER within 3 working days notification     Implement the agreed proposals     Amend proposal if apprpriate
LIMIT LEVEL Exceedance for one sample	Identify source     Inform IEC, ER, EPD and Contractor     Repeat measurement to confirm findings     Increase monitoring frequency to daily     Access effectiveness of Contractor's remedial actions and kept IEC, EPD and ER informed of results	Check monitoring data submitted by ET Leader     Check Contractor's working method     Discuss with ET Leader and Contractor on possible remedial measures     Advise the ER on the effectiveness of the proposed remedial measures     Audit implementation of remedial measures	Confirm receipt of notification of failure in writing     Notify Contractor     Ensure remedial measures properly implemented	Take immediate action to avoid for the exceedance     Submit proposals for remedial actions to IEC and ER within 3 working days of notification     Implement the agreed proposals     Amend proposal if appropriate
Exceedance for two or more consecutive samples	<ol> <li>Notify IEC, ER, Contractor and EPD</li> <li>Identify source</li> <li>Repeat measurement to confirm findings</li> <li>Increase monitoring frequency to daily</li> <li>Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented</li> <li>Arrange meeting with IEC, Contractor and ER to discuss the remedial actions to be taken</li> <li>Access effectiveness of Contractor's remedial actions and kept IEC, EPD and ER informed of results</li> <li>If exceedance stops, cease additional monitoring</li> </ol>	Discuss amongst ER, ET Leader and Contractor on the potential remedial actions     Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly     Audit the implementation of remedial measures	Confirm receipt of notification of failure in writing     Notify Contractor     In consultation with IEC, agree with the Contractor on the remedial measures to be implemented     Ensure remedial measures properly implemented     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.	Take immediate action to avoid for the exceedance     Submit proposals for remedial actions to IEC and ER within 3 working days of notification     Implement the agreed proposals     Resubmit proposals if problem still not under control     Stop the relevant portion of works as determined by the ER unit the exceedance is abate

### **Event/Action Plan for Water Quality**

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

#### **Event/Action Plan for Ecology**

EVENT		ACTION		
EVEIVI	ET Leader	IEC	ER	Contractor
Non-conformity on one occasion	<ol> <li>Identify source</li> <li>Inform the IEC and ER</li> <li>Discuss remedial actions with IEC, the ER and the Contractor</li> <li>Monitor remedial actions until rectification has been completed</li> </ol>	Check monitoring results     Check the Contractor's working method     Discuss with the ET and Contractor on possible remedial measures     Advise the ER on effectiveness of proposed remedial measures     Check the implementation of remedial measures	Notify Contractor     Ensure remedial measures are properly implemented     Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the works in the case of serous non-conformity until situation is rectified	<ol> <li>Take immediate action to avoid further problem</li> <li>Amend working methods if needed</li> <li>Submit proposals for remedial actions to ET, ER and IEC</li> <li>Rectify damage and implement the agreed remedial actions</li> </ol>
Repeated Non-confirmity	<ol> <li>Identify source</li> <li>Inform the IEC, ER, EPD and AFCD</li> <li>Increase monitoring frequency</li> <li>Discuss remedial actions with IEC, the ER and the Contractor</li> <li>Monitor remedial actions until rectification has been completed</li> <li>If exceedance stops, cease additional monitoring</li> </ol>	Check monitoring results     Check the Contractor's working method     Discuss with the ET and Contractor on possible remedial measures     Supervise the implementation of remedial measures     Advise the ER on effectiveness of proposed remedial measures and keep EPD and AFCD informed	Notify Contractor     Ensure remedial measures are properly implemented     Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the works in the case of serous non-conformity until situation is rectified	<ol> <li>Take immediate action to avoid further problem</li> <li>Amend working methods if needed</li> <li>Submit proposals for remedial actions to ET, ER and IEC</li> <li>Rectify damage and implement the agreed remedial actions</li> </ol>

#### **Event/Action Plan for Landscape and Visual Impact**

EVENT		ACTION		
EVEIVI	ET Leader	IEC	ER	Contractor
Non-conformity on one occasion	<ol> <li>Identify source</li> <li>Inform the IEC and the ER</li> <li>Discuss remedial actions with IEC, the ER and the Contractor</li> <li>Monitor remedial actions until rectification has been completed</li> </ol>	Check report     Check the Contractor's working method     Discuss with the ET and Contractor on possible remedial measures     Advise the ER on effectiveness of proposed remedial measures	Notify the Contractor     Ensure remedial measures are properly implemented.	Amend working methods if needed     Rectify damage and undertake remedial measures or any necessary replacement
Repeated Non-conformity	Identify source     Inform the IEC, ER, EPD and AFCD     Increase monitoring (site audit) frequency     Discuss remedial actions with IEC, the ER and the Contractor     Monitor remedial actions until rectification has been completed     If exceedance stops, cease additional monitoring (site audit)	Check report     Check the Contractor's working method     Discuss with the ET and Contractor on possible remedial measures     Advise the ER on effectiveness of proposed remedial measures.     Supervise the implementation of remedial measures	Notify Contractor     Ensure remedial measures are properly implemented	Amend working methods if needed     Rectify damage and undertake remedial measures or any necessary replacement

#### **Event/Action Plan for Construction Noise**

EV/ENT		Action		
EVENT	ET Leader	IEC	ER	Contractor
Action Level	<ol> <li>Notify IEC, Contractor and ER</li> <li>Carry out investigation and identify source</li> <li>Report the results of investigation to IEC, Contractor and ER</li> <li>Discuss with the Contractor and formulate remedial measures</li> <li>Increase monitoring frequency</li> <li>Check compliance to Action/limit Levels after application of mitigation measures</li> </ol>	Review the analysed results submitted by the ET Leader     Review the proposed remedial measures by the Contractor and advise the ER & ER accordingly     Review the implementation of remedial measures	Confirm receipt of notification of complaint in writing     Notify Contractor     Check monitoring data submitted by the ET     Require Contractor to propose remedial measures for the analysed noise problem     Ensure remedial measures are properly implemented	Submit noise mitigation proposals to ER and IEC within three working days     Liaise with the ER to ensure the effectiveness of the agreed mitigation     Amend proposal if required     Implement noise mitigation proposals
Limit Level	<ol> <li>Notify IEC, Contractor and ER</li> <li>Identify source</li> <li>Repeat measurement to confirm findings</li> <li>Increase monitoring frequency</li> <li>Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented</li> <li>Inform IEC, ER and EPD the causes &amp; actions taken form the exceedances</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results</li> <li>If exceedance stops, cease additional monitoring</li> </ol>	Check monitoring data submitted by ET     Discuss amongst ER, ET Leader and Contractor on the potential remedial actions     Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER & ET accordingly     Audit the implementation of remedial measures	1. Confirm receipt of notification of exceedance 2. Notify Contractor 3. Check monitoring data submitted by the ET 4. Require Contractor to propose remedial measures for the analysed noise problem 5. Discuss with ET, IEC and Contractor on proposed remedial actions to be implemented 6. Ensure remedial measures are properly implemented 7. Assess the effectiveness of the remedial actions and keep the Contractor informed 8. If exceedance continues, consider what protion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated	<ol> <li>Take immediate action to avoid further exceedance</li> <li>Submit proposals for remedial actions to ER within three working days of notification</li> <li>Liaise with the ER to ensure the effectiveness of the agreed mitigation</li> <li>Amend proposal if required</li> <li>Implement the agreed proposals</li> <li>Resubmit proposals if problem still not under control</li> <li>Stop the relevant portion of works as determined by the ER until the exceedance is abated</li> </ol>



# Appendix G

**Monitoring Schedule** 



#### Monitoring Schedule for Channels MUP in this Reporting Month

	Date	Air Q	uality	NOISE	WATER	ECOLOG	Y
	Date	1-hour TSP	24-hour TSP	LEQ 30MIN	QUALITY	Water Quality	ECOLOGY SURVEYS
Thu	26-May-11						
Fri	27-May-11						
Sat	28-May-11						
Sun	29-May-11						
Mon	30-May-11						
Tue	31-May-11						
Wed	1-June-11						
Thu	2-June-11						
Fri	3-June-11						
Sat	4-June-11						
Sun	5-June-11						
Mon	6-June-11						
Tue	7-June-11						
Wed	8-June-11						
Thu	9-June-11						
Fri	10-June-11						
Sat	11-June-11						
Sun	12-June-11						
Mon	13-June-11						
Tue	14-June-11						
Wed	15-June-11						
Thu	16-June-11						
Fri	17-June-11						
Sat	18-June-11						
Sun	19-June-11						
Mon	20-June-11						
Tue	21-June-11						
Wed	22-June-11						
Thu	23-June-11						
Fri	24-June-11						
Sat	25-June-11						

Monitoring Day
Sunday or Public Holiday

<u>Parameters</u>: <u>Location ID</u>

Air MUP-A1 (Same as MUP01/02-A1), MUP-A2a, MUP-A3,

Noise MUP05-N1 (Same as MUP01/02-N1), MUP-N2, MUP-N3, MUP-N4,

Water MUP-W1 (Same as MUP01/02-W1), MUP-W2 (Same as MUP01/02-W2),

MUP-W3, MUP-W4, MUP-W5, MUP-W6

Ecology Survey As location in MUP05



#### Monitoring Schedule for Channels MUP in coming month

,	Date	Air Q	uality	NOISE	WATER	ECOLOG	Y
		1-hour TSP	24-hour TSP	LEQ 30MIN	QUALITY	Water Quality	ECOLOGY SURVEYS
Sun	26-June-11						
Mon	27-June-11						
Tue	28-June-11						
Wed	29-June-11						
Thu	30-June-11						
Fri	1-July-11						
Sat	2-July-11						
Sun	3-July-11						
Mon	4-July-11						
Tue	5-July-11						
Wed	6-July-11						
Thu	7-July-11						
Fri	8-July-11						
Sat	9-July-11						
Sun	10-July-11						
Mon	11-July-11						
Tue	12-July-11						
Wed	13-July-11						
Thu	14-July-11						
Fri	15-July-11						
Sat	16-July-11						
Sun	17-July-11						
Mon	18-July-11						
Tue	19-July-11						
Wed	20-July-11						
Thu	21-July-11						
Fri	22-July-11						
Sat	23-July-11						
Sun	24-July-11						
Mon	25-July-11						

Monitoring Day
Sunday or Public Holiday

Parameters: Location ID

Air MUP-A1 (Same as MUP01/02-A1), MUP-A2a, MUP-A3,

MUP05-N1 (Same as MUP01/02-N1), MUP-N2, MUP-N3, MUP-N4, Noise Water

MUP-W1 (Same as MUP01/02-W1), MUP-W2 (Same as MUP01/02-W2),

MUP-W3, MUP-W4, MUP-W5, MUP-W6

**Ecology Survey** As location in MUP05



# Appendix H

**Detailed Impact Monitoring Data of Air Quality and Water Quality** 

# DSD CONTRACT NO. DC/2007/08 Drainage Improvements Works in Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang 24- hour TSP Monitoring Data

		1	1				1		T		1		T	T	T			1	1		
										STANDARD		BLANK	BLANK	BLANK	BLANK	INITIAL	FINAL	WEIGHT	Dust 24-hr TSP		
DATE	SAMPLE	ELAPSED	ELAPSED	ELAPSED	MIN	MAX	AVG	AVG	AVG	FLOW	AIR	SAMPLE	INTIAL	FINAL	DIFF	FILTER	FILTER	DUST	in Air		
	NUMBER	TIME	TIME	TIME	CHART	CHART	CHART	TEMP	PRESS	RATE	VOLUME	NUMBER	WEIGHT	WEIGHT	WEIGHT	WEIGHT	WEIGHT	COLLECTED			
		INITIAL	FINAL	(min)	READING	READING	READING	(oC)	(hPa)	(m3/min)	(std m3)		(g)	(g)	(g)	(g)	(g)	(g)	(ug/m3)	Action Level	Limit Level
	Monitoring Da	ta for MUP-A1	(same as MU	P01/02-A1)										•							
	power failure																		power failure	156	260
1-Jun-11	power failure																		power failure	156	260
7-Jun-11	power failure																		power failure	156	260
13-Jun-11	power failure																		power failure	156	260
18-Jun-11	power failure																		power failure	156	260
24-Jun-11	power failure																		power failure	156	260
24-hour TSP	Monitoring Da	ta for MUP-A2	a																		
26-May-11	power failure																		power failure	149	260
1-Jun-11	power failure																		power failure	149	260
7-Jun-11	power failure																		power failure	149	260
13-Jun-11	power failure																		power failure	149	260
18-Jun-11	power failure																		power failure	149	260
24-Jun-11	power failure																		power failure	149	260
	1.				ı	ı				ı		J				ı		I	1 -		
24-hour TSP	Monitoring Da	ta for MUP-A3																			
26-May-11	23748	3160.84	3184.06	1393.20	36	38	37	25.5	1009.1	1.2489	1739.94	NA	2.8294	2.8293	0.001	2.8476	2.9159	0.0683	39	150	260
1-Jun-11	23466	3184.06	3207.21	1389.00	34	36	35	27.9	1006.6	1.1947	1659.45	NA	2.8332	2.8334	0.001	2.7954	2.9447	0.1493	89	150	260
7-Jun-11	23790	3207.21	3230.38	1390.20	34	36	35	29.6	1007.1	1.1925	1657.80	NA	2.8299	2.8307	0.001	2.7780	2.8040	0.0260	15	150	260
13-Jun-11	23808	3230.38	3253.54	1389.60	35	37	36	28.7	1007.9	1.2188	1693.63	NA	2.8304	2.8295	0.001	2.7894	2.8290	0.0396	23	150	260
18-Jun-11	23792	3253.54	3276.7	1389.60	36	38	37	29	1005.8	1.2420	1725.95	NA	2.8294	2.8303	0.001	2.7598	2.8618	0.1020	59	150	260
24-Jun-11	23827	3276.7	3299.86	1389.60	36	38	37	28.5	1004.9	1.2424	1726.43	NA	2.8294	2.8303	0.001	2.7829	2.8281	0.0452	26	150	260

#### DSD CONTRACT NO. DC/2007/08 Drainage Improvements Works in Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang

#### Water Quality Monitoring Data for MUP05

Date	27-1	May-11												
Location	Time	Depth (m)	Temp	Temp(oC)		ng/L)	DOS	6(%)	Turbidity(NTU)		pH		SS	
MUP-W1 (Control)	11:20	0.2	27.2	27.2	3.38	3.4	53.00	52.8	7.26	7.1	7.20	7.2	<2	2.0
(MUP01/02-W1)	11:20	0.2	27.2	21.2	3.42	3.4	52.60	52.8	6.94	7.1	7.20	1.2	<2	2.0
MUP-W2 (Control)	10:02	0.3	26.9	26.9	5.09	5.1	63.00	63.5	5.64	5.8	7.10	7.1	<2	2.0
(MUP01/02-W2)	10.02	0.3	26.9	20.9	5.16	5.1	63.90	03.3	5.88	3.0	7.10	7.1	<2	2.0
MUP-W3 (Control)	11:38	0.2	27.2	27.2	3.01	3.1	50.60	50.9	8.97	9.1	7.20	7.2	10.00	10.0
WOP-WS (CONTO)	11.30	0.2	27.2	21.2	3.12	3.1	51.20	30.9	9.31	9.1	7.10	1.2	10.00	10.0
MUP-W4 (Impact)	10:27	0.45	27.2	27.2	5.29	5.3	63.40	62.8	5.93	6.0	7.20	7.2	<2	2.0
WOP-W4 (Impact)	10.27	0.45	27.2	21.2	5.33	5.5	62.20	02.0	6.07	6.0	7.20	1.2	<2	2.0
MUP-W5 (mobile)	10:48	0.3	26.9	26.9	4.58	4.6	56.30	56.6	5.86	5.8	7.30	7.3	<2	2.0
WOP-WS (Mobile)	10.40	0.3	26.9	20.9	4.62	4.0	56.90	30.0	5.77	3.0	7.20	1.3	<2	2.0
MUP-W6 (mobile)	10:37	0.25	27.2	27.2	4.79	4.7	58.10	57.0	6.15		7.20	7.3	<2	2.0
MUP-W6 (mobile)	10:37	0.25	27.2	27.2	4.61	4.7	57.50	57.8	6.29	6.2	7.30	7.3	<2	2.0

Date	30-1	May-11												
Location	Time	Depth (m)	Temp	Temp(oC)		ng/L)	DOS	(%)	Turbidit	y(NTU)	pH		S	s
MUP-W1 (Control)	11:06	0.25	26.3	26.3	3.34	3.4	54.00	53.6	7.03	6.9	7.30	7.3	<2	2.0
(MUP01/02-W1)	11.00	0.25	26.3	20.3	3.39	3.4	53.20	33.0	6.82	0.9	7.20	7.3	<2	2.0
MUP-W2 (Control)	09:50	0.25	26.0	26.0	5.19	5.2	62.10	62.3	5.39	5.5	7.10	7.2	<2	2.0
(MUP01/02-W2)	09.50	0.25	26.0	20.0	5.12	5.2	62.50	02.3	5.58	5.5	7.20	1.2	<2	2.0
MUP-W3 (Control)	11:15	0.3	26.6	26.6	3.15	3.2	50.60	51.2	9.12	9.2	7.30	7.3	10.00	10.0
WOF-WS (CONTO)	11.15	0.3	26.6	20.0	3.18	3.2	51.70	31.2	9.26	9.2	7.30	1.3	10.00	10.0
MUP-W4 (Impact)	10:15	0.4	26.3	26.3	5.29	5.3	64.40	64.6	6.51	6.6	7.20	7.3	2.00	2.0
WOP-W4 (Impact)	10.15	0.4	26.3	20.3	5.33	5.3	64.80	04.0	6.68	0.0	7.30	7.3	2.00	2.0
MUP-W5 (mobile)	10:38	0.3	26.5	26.5	4.63	4.7	57.30	57.6	5.96	6.0	7.20	7.2	<2	2.0
wide-wo (mobile)	10:38	0.3	26.5	20.5	4.69	4.7	57.90	57.6	6.10	0.0	7.20	1.2	<2	2.0
MUP-W6 (mobile)	10:25	0.3	26.4	26.4	4.72	4.8	58.70	59.0	6.78	6.7	7.30	7.3	2.00	2.0
MUP-W6 (Mobile)	10:25	0.3	26.4	26.4	4.80	4.8	59.20	59.0	6.61	6.7	7.20	7.3	2.00	2.0

Date	1-J	un-11												
Location	Time	Depth (m)	Tem	Temp(oC)		ng/L)	DOS(%)		Turbidity(NTU)		pH		SS	
MUP-W1 (Control)	11:05	0.25	27.3	27.3	3.28	3.3	53.10	53.3	7.01	6.9	7.30	7.2	<2	2.0
(MUP01/02-W1)	11.05	0.25	27.3	21.3	3.34	3.3	53.40	33.3	6.88	0.9	7.00	1.2	<2	2.0
MUP-W2 (Control)	09:45	0.25	26.8	26.8	5.15	5.2	59.30	60.1	5.18	5.2	7.20	7.2	3.00	3.0
(MUP01/02-W2)	09.45	0.25	26.8	20.0	5.18	5.2	60.80	00.1	5.29	3.2	7.20	1.2	3.00	3.0
MUP-W3 (Control)	11:20	0.25	27.2	27.2	3.06	3.1	51.20	51.0	9.33	9.5	7.30	7.4	11.00	11.0
MUP-W3 (Control)	11:20	0.25	27.2	21.2	3.16	3.1	50.80	51.0	9.67	9.5	7.40	7.4	11.00	11.0
MUP-W4 (Impact)	10:10	0.5	27.1	27.1	5.28	5.3	62.70	63.2	6.81	6.7	7.10	7.2	<2	2.0
WOP-W4 (Impact)	10.10	0.5	27.1	27.1	5.36	5.3	63.60	03.2	6.62	0.7	7.20	1.2	<2	2.0
MUP-W5 (mobile)	10:38	0.25	27.2	27.2	4.58	4.6	56.90	57.2	6.33	6.4	7.10	7.2	<2	2.0
MUP-W5 (MODILE)	10:38	0.25	27.2	21.2	4.70	4.6	57.50	57.2	6.42	0.4	7.20	1.2	<2	2.0
MUD M( (	10.04	0.3	27.0	27.0	4.69		57.40	50.0	6.71		7.20	7.0	<2	2.0
MUP-W6 (mobile)	10:24	0.3	27.0	27.0	4 77	4.7	58 60	58.0	6.58	6.6	7.20	7.2	< 2	2.0

Date	3-J	un-11												
Location	Time	Depth (m)	Tem	Temp(oC)		D0 (mg/L)		(%)	Turbidity(NTU)		pH		s	s
MUP-W1 (Control)	11:30	0.2	27.3	27.3	3.48	3.4	52.20	52.4	7.03	6.9	7.10	7.2	2.00	2.0
(MUP01/02-W1)	11.30	0.2	27.3	21.3	3.32	3.4	52.60	32.4	6.82	0.9	7.20	1.2	2.00	2.0
MUP-W2 (Control)	10:18	0.2	27.0	27.0	5.09	5.1	62.00	62.3	5.23	5.3	7.20	7.3	<2	2.0
(MUP01/02-W2)	10.10	0.2	27.0	27.0	5.13	3.1	62.50	02.3	5.39	3.3	7.30	7.3	<2	2.0
MUP-W3 (Control)	11:48	0.2	27.2	27.2	3.03	3.1	50.20	50.6	9.87	10.0	7.30	7.3	6.00	6.0
WOP-WS (COILLOI)	11.40	0.2	27.2	21.2	3.11	3.1	50.90	30.6	10.10	10.0	7.20	7.3	6.00	6.0
MUP-W4 (Impact)	10:42	0.4	27.4	27.4	5.31	5.4	58.60	58.3	5.98	6.1	7.20	7.2	2.00	2.0
WOP-W4 (Impact)	10.42	0.4	27.4	21.4	5.39	3.4	58.00	30.3	6.21	0.1	7.20	1.2	2.00	2.0
MUP-W5 (mobile)	11:05	0.35	27.5	27.5	4.58	4.6	54.90	55.3	7.03	7.1	7.30	7.3	3.00	3.0
wior-wo (mobile)	11:05	0.35	27.5	27.5	4.66	4.6	55.70	33.3	7.19	7.1	7.20	7.3	3.00	3.0
AND W. Garatila	10.54	0.0	27.3	27.2	4.72	4.0	57.20		6.23		7.20	7.0	<2	2.0
MUP-W6 (mobile)	10:56	0.3	27.3	27.3	4.79	4.8	56.90	57.1	6.39	6.3	7.30	7.3	<2	2.0

Date	7-J	un-11												
Location	Time	Depth (m)	Temp	(oC)	1) OD	ng/L)	DOS	(%)	Turbidit	y(NTU)	р	Н	S	s
MUP-W1 (Control)	11:00	0.2	27.3	27.3	3.36	3.4	51.90	52.4	7.21	7.1	7.20	7.3	<2	2.0
(MUP01/02-W1)	11.00	0.2	27.3	21.3	3.41	3.4	52.80	32.4	7.04	7.1	7.30	7.3	<2	2.0
MUP-W2 (Control)	09:46	0.2	27.3	27.3	5.16	5.1	61.60	61.4	5.21	5.3	7.20	7.3	<2	2.0
(MUP01/02-W2)	09.40	0.2	27.3	21.3	5.11	5.1	61.10	01.4	5.33	3.3	7.30	7.3	<2	2.0
MUP-W3 (Control)	11:20	0.25	27.6	27.6	3.11	3.2	48.90	49.4	10.10	10.2	7.20	7.2	26.00	26.0
WOF-WS (CONTO)	11.20	0.25	27.6	27.0	3.22	3.2	49.80	49.4	10.20	10.2	7.20	1.2	26.00	20.0
MUP-W4 (Impact)	10:14	0.4	27.4	27.4	5.28	5.3	63.00	63.3	6.24	6.3	7.20	7.3	3.00	3.0
MUP-W4 (Impact)	10:14	0.4	27.4	27.4	5.35	5.3	63.60	63.3	6.33	0.3	7.30	7.3	3.00	3.0
MUP-W5 (mobile)	10:35	0.25	27.5	27.5	4.69	4.7	56.60	56.3	6.72	6.8	7.20	7.2	<2	2.0
WOP-WS (Mobile)	10.33	0.25	27.5	27.5	4.61	4.7	56.00	30.3	6.93	0.0	7.20	1.2	<2	2.0
MUP-W6 (mobile)	10.04	0.3	27.4	27.4	4.77		58.70	50.0	6.19		7.20	7.2	2.00	2.0
WUP-W6 (MODILE)	10:24	0.3	27.4	27.4	4.63 4.7	57.60	58.2	6.33	6.3	7.20	7.2	2.00	2.0	

Date	9-J	lun-11												
Location	Time	Depth (m)	Temp	o(oC)	DO (r	ng/L)	DOS	(%)	Turbidit	ty(NTU)	р	Н	S	S
MUP-W1 (Control)	03:28	0.2	27.5	27.5	3.29	3.3	51.90	51.7	7.01	6.9	7.20	7.2	5.00	5.0
(MUP01/02-W1)	03:28	0.2	27.5	27.5	3.21	3.3	51.50	51.7	6.80	0.9	7.20	1.2	5.00	5.0
MUP-W2 (Control)	02:10	0.25	27.1	27.1	5.18	5.2	62.10	61.8	6.06	6.1	7.20	7.3	4.00	4.0
(MUP01/02-W2)	02:10	0.25	27.1	27.1	5.14	5.2	61.40	61.8	6.21	0.1	7.30	7.3	4.00	4.0
MUP-W3 (Control)	03:43	0.2	27.6	27.6	3.07	3.1	49.70	49.3	9.34	9.5	7.20	7.3	9.00	9.0
	03:43	0.2	27.6	27.6	3.18	3.1	48.90	49.3	9.60	9.5	7.30	7.3	9.00	9.0
MIID W/4 (1A)	00.00	0.25	27.5	27.5	5.26	5.3	63.30	/n r	6.81	6.7	7.20	7.2	3.00	2.0
MUP-W4 (Impact)	02:33	0.35	27.5	27.5	5.29	5.3	63.70	63.5	6.59	0.7	7.20	1.2	3.00	3.0
MUP-W5 (mobile)	02:56	0.3	27.6	27.6	4.56	4.5	54.70	55.2	6.33	6.3	7.20	7.2	4.00	4.0
MUP-W5 (MODILE)	02:56	0.3	27.6	27.6	4.50	4.5	55.60	55.2	6.24	6.3	7.20	1.2	4.00	4.0
MUP-W6 (mobile)			27.6		4.58		57.90		7.01		7.10		2.00	
	02:44	0.3	27.6	27.6	4.63	4.6	57.00	57.5	6.82	6.9	7.20	7.2	2.00	2.0

Date	11	lun-11												
Location	Time	Depth (m)	Temp	(oC)	D0 (r	ng/L)	DOS	(%)	Turbidi	ty(NTU)	р	Н	S	s
MUP-W1 (Control)	11:20	11:20	26.7	26.7	3.18	3.2	51.20	51.6	7.24	7.1	7.10	7.1	2.00	2.0
(MUP01/02-W1)	11.20	11.20	26.7	20.7	3.29	3.2	51.90	31.0	6.99	7.1	7.10	7.1	2.00	2.0
MUP-W2 (Control)	10:11	10:11	26.4	26.4	5.17	5.2	59.80	60.1	5.69	5.7	7.20	7.2	3.00	3.0
(MUP01/02-W2)	10.11	10.11	26.4	20.4	5.13	5.2	60.30	00.1	5.77	3.7	7.20	1.2	3.00	3.0
MUP-W3 (Control)	11:36	11:36	26.3	26.3	3.04	3.1	49.60	49.8	7.93	8.4	7.20	7.3	6.00	6.0
WOP-W3 (COILLOI)	11.30	11.30	26.3	20.3	3.11	3.1	49.90	47.0	8.84	0.4	7.30	7.3	6.00	6.0
MUP-W4 (Impact)	10:30	10:30	26.5	26.5	5.29	5.3	62.10	62.3	6.41	6.5	7.20	7.3	<2	2.0
WOP-W4 (Impact)	10.30	10.30	26.5	20.5	5.33	5.3	62.50	02.3	6.58	0.5	7.30	7.3	<2	2.0
MUP-W5 (mobile)	10:52	10:52	26.6	26.6	4.58	4.6	55.90	56.2	5.97	6.0	7.40	7.4	<2	2.0
WOP-WS (Mobile)	10.52	10.52	26.6	20.0	4.61	4.0	56.50	30.2	6.03	0.0	7.30	7.4	<2	2.0
MUP-W6 (mobile)	10:40	10:40	26.7	26.7	4.72	4.7	58.10	57.7	6.38	6.3	7.20	7.3	<2	2.0
WOP-W6 (Mobile)	10.40	10.40	26.7	20.7	4.64	4.7	57.20	37.7	6.24	0.3	7.30	7.3	<2	2.0

# DSD CONTRACT NO. DC/2007/08 Drainage Improvements Works in Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang

#### Water Quality Monitoring Data for MUP05

Date	13-	Jun-11												
Location	Time	Depth (m)	Temp	(oC)	DO (r	ng/L)	DOS	6(%)	Turbidit	ty(NTU)	р	Н	S	is
MUP-W1 (Control)	11:18	0.2	27.5	27.5	3.28	3.3	51.10	51.6	7.11	7.2	7.30	7.3	3.00	3.0
(MUP01/02-W1)	11:18	0.2	27.5	27.5	3.31	3.3	52.00	51.6	7.24	1.2	7.20	7.3	3.00	3.0
MUP-W2 (Control)	10:05	0.25	27.0	27.0	5.20	5.2	62.10	61.6	5.77	5.8	7.20	7.2	3.00	3.0
(MUP01/02-W2)	10.05	0.25	27.0	21.0	5.16	5.2	61.10	01.0	5.88	3.0	7.20	1.2	3.00	3.0
MUP-W3 (Control) 1	11:33	0.2	27.4	27.4	3.07	3.1	49.90	50.3	9.15	9.3	7.20	7.2	13.00	13.0
WOP-WS (CONTO)	11.33	0.2	27.4	21.4	3.20	3.1	50.60	30.3	9.38	9.3	7.20	1.2	13.00	13.0
MUP-W4 (Impact)	10:30	0.45	27.4	27.4	5.33	5.3	63.90	63.6	6.34	6.3	7.30	7.3	3.00	3.0
WOP-W4 (Impact)	10.30	0.45	27.4	21.4	5.29	5.5	63.20	03.0	6.30	0.3	7.30	1.3	3.00	3.0
MUP-W5 (mobile)	10:50	0.35	27.6	27.6	4.61	4.6	56.30	55.9	5.96	5.9	7.30	7.3	2.00	2.0
WOP-WS (Mobile)	10.50	0.35	27.6	21.0	4.52	4.0	55.50	33.9	5.88	3.9	7.30	1.3	2.00	2.0
MIID W// (mobile)	10:40	0.35	27.5	27.5	4.77	4.7	58.30	58.0	6.17	6.2	7.30	7.4	2.00	2.0
MUP-W6 (mobile)	10:40	0.35	27.5	21.5	4.66	4.7	57.60	00.0	6.29	0.2	7.40	7.4	2.00	2.0

Date	15	Jun-11												
Location	Time	Depth (m)	Temp	o(oC)	D0 (r	ng/L)	DOS	(%)	Turbidit	y(NTU)	р	Н	s	s
MUP-W1 (Control)	11:18	0.25	27.5	27.5	3.26	3.2	52.70	52.9	7.29	7.3	7.30	7.3	4.00	4.0
(MUP01/02-W1)	11.10	0.23	27.5	27.5	3.14	3.2	53.00	32.7	7.36	7.3	7.30	7.3	4.00	4.0
MUP-W2 (Control)	10:06	0.25	27.1	27.1	5.16	5.1	62.00	61.6	5.69	5.7	7.20	7.2	3.00	3.0
(MUP01/02-W2)	10.00	0.25	27.1	27.1	5.11	5.1	61.20	01.0	5.78	5.7	7.10	1.2	3.00	3.0
MUP-W3 (Control)	11:36	0.3	27.6	27.6	3.07	3.1	49.40	49.8	8.98	9.2	7.30	7.4	20.00	20.0
WOP-WS (CONTO)	11.30	0.3	27.6	27.0	3.12	3.1	50.20	47.0	9.35	9.2	7.40	7.4	20.00	20.0
MUP-W4 (Impact)	10:25	0.45	27.2	27.2	5.24	5.3	63.60	63.8	6.26	6.3	7.30	7.3	2.00	2.0
MOP-W4 (Impact)	10.25	0.45	27.2	21.2	5.34	5.5	63.90	03.0	6.35	0.3	7.20	7.3	2.00	2.0
MUP-W5 (mobile)	10:48	0.3	27.5	27.5	4.63	4.6	57.10	57.4	6.51	6.4	7.30	7.3	3.00	3.0
WUP-W5 (MODILE)	10:48	0.3	27.5	27.5	4.66	4.0	57.70	57.4	6.32	0.4	7.30	7.3	3.00	3.0
MUP-W6 (mobile)	10:38	0.3	27.3	27.3	4.69	4.7	58.60	59.0	7.11	7.1	7.20	7.2	3.00	3.0
WUP-W6 (MODILE)	10:38	0.3	27.3	21.3	4.72	4.7	59.40	59.0	7.02	7.1	7.20	1.2	3.00	3.0

Date	17	Jun-11												
Location	Time	Depth (m)	Temp	(oC)	D0 (r	ng/L)	DOS	(%)	Turbidi	ty(NTU)	р	Н	s	s
MUP-W1 (Control)	11:14	0.3	26.6	26.6	3.56	3.5	54.70	54.4	9.68	9.8	7.10	7.2	6.00	6.0
(MUP01/02-W1)	11.14	0.3	26.6	20.0	3.41	3.3	54.10	34.4	9.97	9.0	7.20	1.2	6.00	6.0
MUP-W2 (Control)	10:10	0.5	26.5	26.5	5.25	5.3	63.30	63.6	8.89	8.8	7.10	7.1	6.00	6.0
(MUP01/02-W2)	10.10	0.5	26.5	20.5	5.33	3.3	63.90	03.0	8.67	0.0	7.10	7.1	6.00	0.0
MUP-W3 (Control)	11:28	0.35	26.7	26.7	3.20	3.2	52.00	52.5	10.40	10.7	7.20	7.2	16.00	16.0
WOP-WS (COILLOI)	11.20	0.35	26.7	20.7	3.14	3.2	53.00	32.3	10.90	10.7	7.20	1.2	16.00	16.0
MUP-W4 (Impact)	10:31	0.65	26.8	26.8	5.51	5.5	65.80	65.4	9.98	10.1	7.10	7.2	5.00	5.0
MOP-W4 (Impact)	10.31	0.65	26.8	20.0	5.39	5.5	64.90	03.4	10.20	10.1	7.20	1.2	5.00	5.0
MUP-W5 (mobile)	10:50	0.45	26.2	26.2	4.82	4.8	58.10	57.8	6.49	6.9	7.20	7.3	3.00	3.0
wor-ws (mobile)	10:50	0.45	26.2	20.2	4.77	4.8	57.40	57.8	7.31	0.9	7.30	1.3	3.00	3.0
MIID W. (	10.40	0.5	26.7	0/ 7	4.94	4.0	60.40	50.0	9.27	0.5	7.20	7.0	3.00	2.0
MUP-W6 (mobile)	10:40	0.5	26.7	26.7	4.86	4.9	4 9 59 8	9.68	9.5	7.20	7.2	3.00	3.0	

Date	20	Jun-11												
Location	Time	Depth (m)	Temp	o(oC)	D0 (r	ng/L)	DOS	6(%)	Turbidit	ty(NTU)	р	Н	s	is
MUP-W1 (Control)	11:14	0.25	27.5	27.5	3.68	3.6	53.00	52.6	7.46	7.5	7.10	7.1	<2	2.0
(MUP01/02-W1)	11:14	0.25	27.5	27.5	3.52	3.6	52.10	52.6	7.51	7.5	7.10	7.1	<2	2.0
MUP-W2 (Control)	10:02	0.3	27.2	27.2	5.12	5.1	63.00	62.9	6.59	6.5	7.30	7.3	2.00	2.0
(MUP01/02-W2)	10.02	0.3	27.2	21.2	5.15	6	62.70	02.9	6.43	0.5	7.20	1.3	2.00	2.0
MUP-W3 (Control)	11:33	0.3	27.6	27.6	3.13	3.2	50.60	51.2	9.94	10.0	7.30	7.3	13.00	13.0
	11.33	0.3	27.6	27.0	3.26	3.2	51.80	31.2	10.10	10.0	7.30	1.3	13.00	13.0
MUP-W4 (Impact)	10:26	0.5	27.6	27.6	5.33	5.4	64.40	64.6	8.04	7.8	7.20	7.3	<2	2.0
WOP-W4 (Impact)	10.26	0.5	27.6	27.0	5.39	3.4	64.80	04.0	7.63	7.0	7.30	1.3	<2	2.0
MUP-W5 (mobile)	10:45	0.35	27.8	27.8	4.68	4.7	56.60	56.8	7.01	7.1	7.10	7.2	2.00	2.0
wior-wo (mobile)	10:45	0.35	27.8	21.8	4.75	4.7	56.90	30.8	7.23	7.1	7.20	1.2	2.00	2.0
	10.05	0.0	27.6	27.6	4.87	4.0	58.40	50.4	6.94		7.10	7.0	2.00	2.0
MUP-W6 (mobile)	10:35	0.3	27.6	27.6	4.81	4.8	57.70	58.1	6.78	6.9	7.20	7.2	2.00	2.0

Date	22	Jun-11												
Location	Time	Depth (m)	Temp	(oC)	D0 (r	ng/L)	DOS	(%)	Turbidit	y(NTU)	р	Н	s	s
MUP-W1 (Control)	11:06	0.25	26.4	26.4	3.54	3.6	54.40	53.8	9.03	8.9	7.20	7.2	4.00	4.0
(MUP01/02-W1)	11.00	0.25	26.4	20.4	3.61	3.0	53.10	33.0	8.84	0.9	7.10	1.2	4.00	4.0
MUP-W2 (Control)	10:00	0.3	26.3	26.3	5.26	5.2	63.30	63.2	7.95	7.9	7.10	7.1	4.00	4.0
(MUP01/02-W2)	10.00	0.3	26.3	20.3	5.19	5.2	63.00	03.2	7.88	7.9	7.10	7.1	4.00	4.0
MUP-W3 (Control)	11:20	0.35	26.7	26.7	3.33	3.3	52.30	52.7	15.10	15.0	7.20	7.3	23.00	23.0
WOP-WS (CONTO)	11.20	0.35	26.7	20.7	3.21	3.3	53.10	32.7	14.90	15.0	7.30	7.3	23.00	23.0
MUP-W4 (Impact)	10:22	0.45	26.7	26.7	64.60	64.8	64.60	64.8	8.79	8.9	7.20	7.3	5.00	5.0
WOP-W4 (Impact)	10.22	0.45	26.7	20.7	64.90	04.0	64.90	04.0	9.03	0.9	7.30	7.3	5.00	5.0
MUP-W5 (mobile)	10:41	0.35	26.5	26.5	57.30	57.5	57.30	57.5	7.16	7.2	7.30	7.3	<2	2.0
WOP-W5 (HOBILE)	10.41	0.35	26.5	20.5	57.60	37.3	57.60	37.3	7.23	1.2	7.30	7.3	<2	2.0
MUP-W6 (mobile)	40.04	0.25	26.3	24.2	58.60	57.0	58.60	F7.0	8.31	8.2	7.30	7.3	3.00	3.0
WUP-W6 (MODILE)	10:31	0:31 0.35 26.3 26.3 57.20 57.9	57.20	57.9	8.15	8.2	7.20	7.3	3.00	3.0				

Date	24	Jun-11												
Location	Time	Depth (m)	Temp	o(oC)	DO (r	ng/L)	DOS	(%)	Turbidit	ty(NTU)	р	Н	S	is
MUP-W1 (Control)	11:28	0.3	27.3	27.3	3.53	3.5	54.00	53.7	7.82	7.8	7.10	7.2	4.00	4.0
(MUP01/02-W1)	11:28	0.3	27.3	21.3	3.39	3.5	53.30	53.7	7.72	7.8	7.20	1.2	4.00	4.0
MUP-W2 (Control)	10:08	0.3	27.5	27.5	5.18	5.2	63.20	62.8	8.11	8.1	7.10	7.2	<2	2.0
(MUP01/02-W2)	10.00	0.3	27.5	27.5	5.12	5.2	62.40	02.0	8.03	0.1	7.20	1.2	<2	2.0
MUP-W3 (Control)	11:46	0.25	28.0	28.0	3.18	3.2	51.20	51.7	13.40	13.5	7.30	7.3	52.00	52.0
wor-ws (control)	11.40	0.25	28.0	20.0	3.24	3.2	52.10	31.7	13.60	13.5	7.30	1.3	52.00	32.0
MUP-W4 (Impact)	10:36	0.45	27.6	27.6	5.30	5.4	64.30	65.0	8.01	7.9	7.20	7.3	3.00	3.0
MOP-W4 (Impact)	10.30	0.45	27.6	27.0	5.40	3.4	65.70	65.0	7.88	7.9	7.30	1.3	3.00	3.0
MUP-W5 (mobile)	10:55	0.3	27.8	27.8	4.58	4.6	57.90	58.3	7.28	7.3	7.30	7.3	2.00	2.0
wor-ws (mobile)	10:55	0.3	27.8	21.8	4.63	4.6	58.60	30.3	7.39	7.3	7.30	1.3	2.00	2.0
MUP-W6 (mobile)	10.45	0.25	27.9	27.0	4.86	4.8	60.40	100	9.02	9.0	7.30	7.3	2.00	2.0
	10:45	0.35	27.9	27.9	4.72	4.8	61.30	60.9	8.91	9.0	7.20	7.3	2.00	2.0



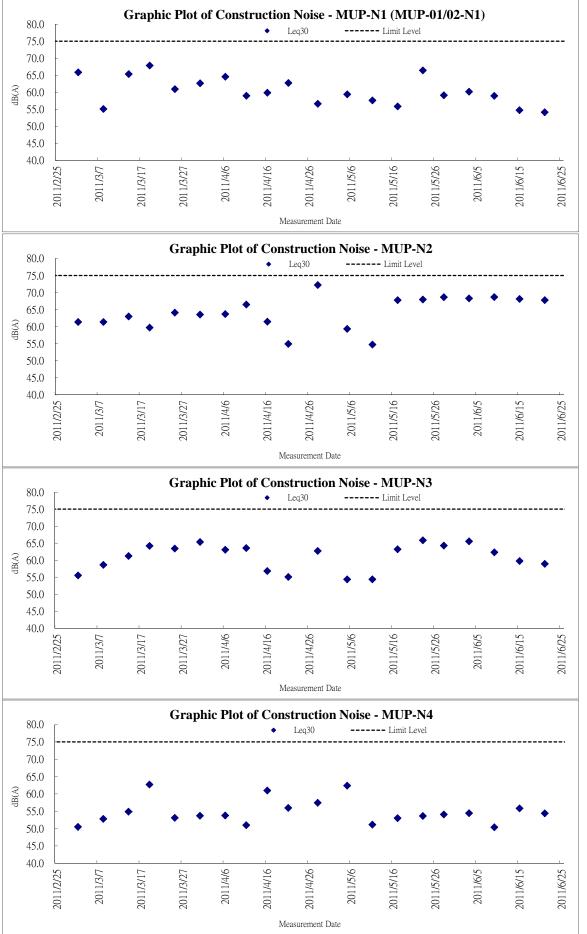
### Appendix I

# **Graphic Plot of Monitoring**

- 1. Construction Noise
- 2. Air Quality
- 3. Water Quality

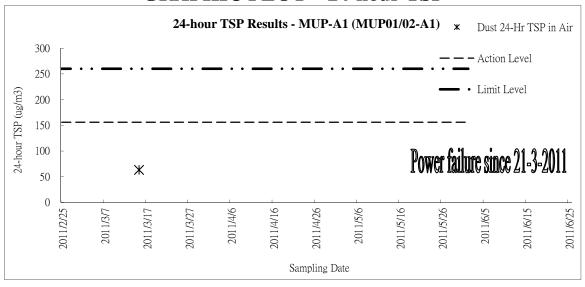


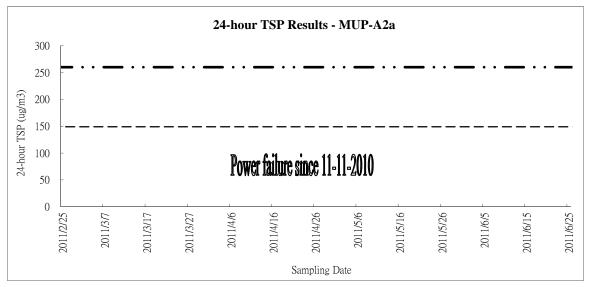
## **Graphic Plot of Monitoring - Construction Noise**

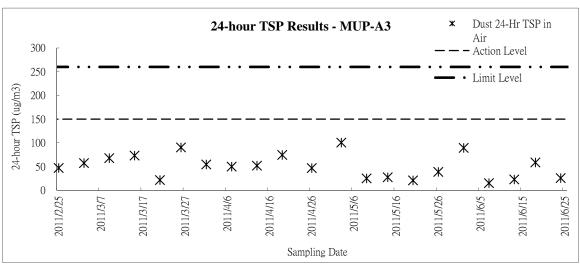




# **Graphic Plot of Monitoring - Air Quality GRAPHIC PLOT – 24-hour TSP**

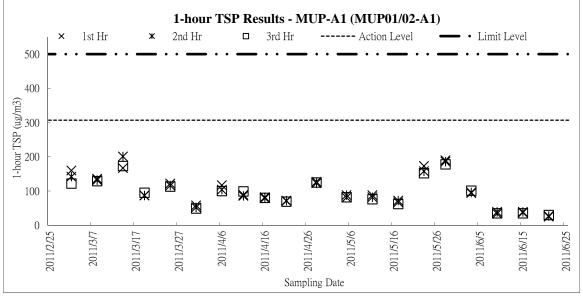


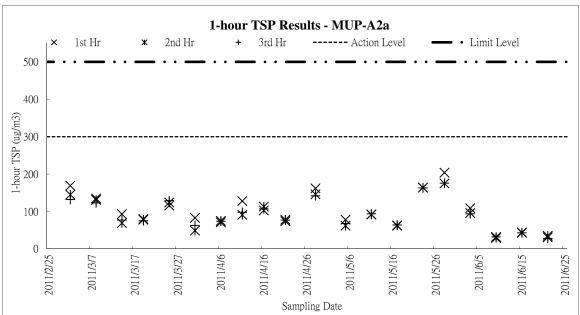


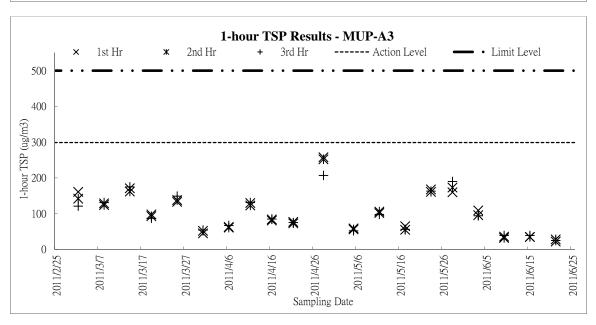




#### **GRAPHIC PLOT – 1-hour TSP**

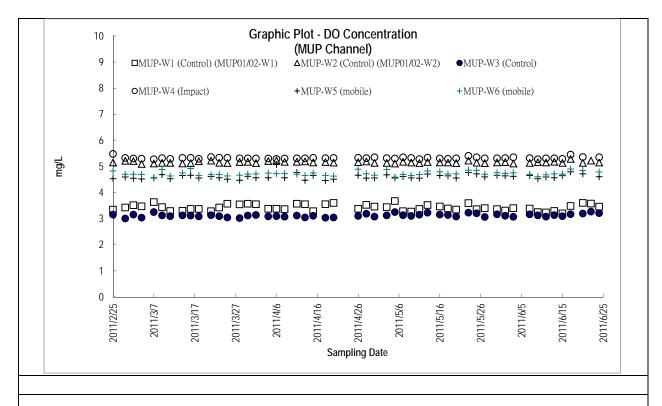


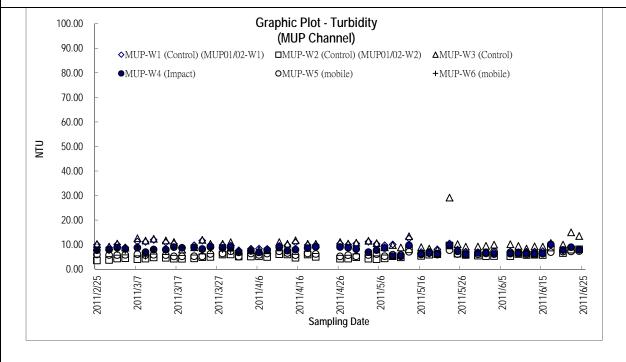




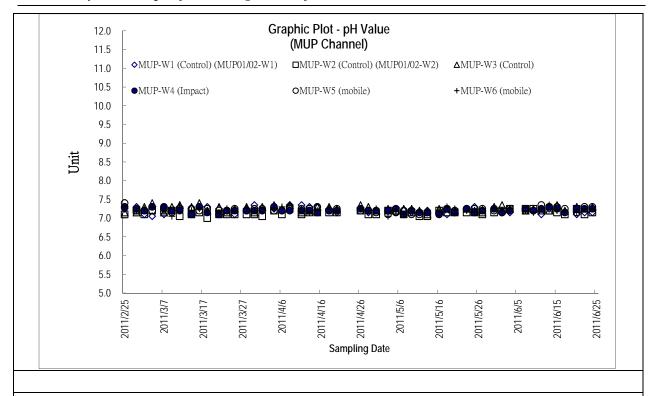


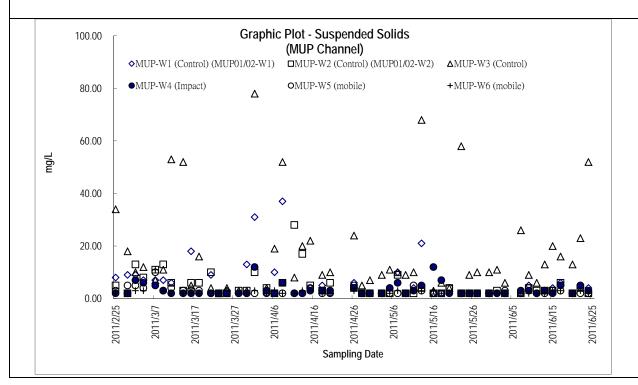
### **Graphic Plot of Monitoring - Water Quality**













# Appendix J

**Meteorological Records** 



#### Meteorological Data in this Reporting Month

					Ta K	wu Ling	
Date	<b>;</b>	Weather	Total Rainfall (mm)	Mean Air Temp. (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
26-May-11	Thu	Fine but with some haze.	0	25.5	6.6	69	N/NW
27-May-11	Fri	Light to moderate westerly winds.	0	26.3	6.1	69	N/NW
28-May-11	Sat	Hot with sunny periods.	0	26.7	7.2	81	E/SE
29-May-11	Sun	Moderate south to southwesterly winds.	0	25.3	12	747.5	E/SE
30-May-11	Mon	Mainly fine and dry.	0	26.2	9.8	60.7	E/SE
31-May-11	Tue	Light to moderate northerly winds.	0	26.5	9.1	64	N/NW
1-Jun-11	Wed	Moderate south to southeasterly winds	0	28.1	5.9	68.7	Е
2-Jun-11	Thu	squally thunderstorms	0	27.8	8	81	Е
3-Jun-11	Fri	Moderate to fresh southeasterly winds.	0	28.5	5.7	71.7	S/SW
4-Jun-11	Sat	Mainly cloudy with a few showers.	0	28.9	7.8	72.7	S/SW
5-Jun-11	Sun	Hot with a few showers.	Trace	29.3	4.8	77.7	S/SW
6-Jun-11	Mon	Moderate south to southwesterly winds.	Trace	29.1	8.1	76.5	S/SW
7-Jun-11	Tue	A few showers with isolated thunderstorms.	Trace	29.2	7.5	74.5	S/SW
8-Jun-11	Wed	Hot with sunny periods.	Trace	29.5	5.5	78	S/SW
9-Jun-11	Thu	Moderate southerly winds.	2.8	29.7	8.5	77.2	E/SE
10-Jun-11	Fri	Sunny periods tomorrow	0	29.4	8	66.7	E/SE
11-Jun-11	Sat	Cloudy with occasional showers and squally thunderstorms	11.6	29	7.5	74.5	S/SE
12-Jun-11	Sun	Mainly cloudy with a few showers.	28.4	27.3	5	82	S/SE
13-Jun-11	Mon	Moderate southerly winds.	5.9	29	5.6	76.5	E/SE
14-Jun-11	Tue	Mainly cloudy with a few showers.	2.4	28.8	8.5	79	S/SW
15-Jun-11	Wed	Cloudy with a few showers.	2.4	29.3	9	75.7	S/SW
16-Jun-11	Thu	Cloudy with rain	64.7	25.6	6	88	E/SE
17-Jun-11	Fri	Hot with sunny periods	77.5	27.6	7.5	89.2	E/SE
18-Jun-11	Sat	Sunny periods.	1.2	29.2	6.6	78.5	E/SE
19-Jun-11	Sun	Moderate west to southwesterly winds.	Trace	29.4	8.2	78.7	E/NE
20-Jun-11	Mon	Fresh east to northeasterly winds	0	29.2	7.5	74.2	E/NE
21-Jun-11	Tue	Cloudy with squally showers and a few thunderstorms.	8.3	29.8	10	73.5	E/NE
22-Jun-11	Wed	Mainly cloudy with squally showers	41.4	27	16.7	86	E/NE
23-Jun-11	Thu	Moderate to fresh east to southeasterly winds.	Trace	28.1	18	81.2	E/SE
24-Jun-11	Fri	Sunny periods.	0.6	29.2	9.7	77	Е
25-Jun-11	Sat	Mainly fine apart from one or two showers	0	28.9	5.2	78.7	W/SW

<sup>\*</sup> The record was extracted from The Hong Kong Observatory Weather Stations # missing (less than 24 hourly observations a day)



# **Appendix K**

**Proforma of the Weekly ET Site Inspection Checklist** 

### Environmental Team – Weekly Site Inspection and Audit Checklist



Projec	et: DSD Contract No. DC/2007/08	Inspe	ected by		Chec	klist No.	DC200708-260511
	Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang		EC's Repre RE's Repre			ım Tang	
Inspec		_	ET's Repre			nis Ho	
Date:	26 May 2011	E0/ I	EO's Repre				
Time:	_10:00am		ractor's esentative	:	Y. M	. Мо	
PAR	T A: GENERAL INFORMATION			Е	nvironment	al Permit	No. EP-277/2007/A
Weat		Rainy	c	alm			
Temp	erature: 24 °C idity: High ✓ Moderate Low				N/A		
Wind		Calm					
Ch	annel	Area Insp	ected				
MUI	.07 P01/02 P05						
PART		1					
Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
Section	on 1: Water Quality						
1.01	Is an effluent discharge license obtained for the Project?						
1.02	Is the effluent discharged in accordance with the discharge licence?	$\overline{\checkmark}$					
1.03	Is the discharge of turbid water avoided?		$\checkmark$				
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?		$\checkmark$				
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?		$\overline{\checkmark}$				
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?		$\checkmark$				
1.07	Is drainage system well maintained?		$\checkmark$				
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?		$\checkmark$				
1.09	Are temporary exposed slopes properly covered?		$\checkmark$				
1.10	Are earthworks final surfaces well compacted or protected?		$\checkmark$				
1.11	Are manholes adequately covered or temporarily sealed?	$\checkmark$					
1.12	Are there any procedures and equipment for rainstorm protection?		$\checkmark$				
1.13	Are wheel washing facilities well maintained?		$\checkmark$				
1.14	Is runoff from wheel washing facilities avoided?		$\checkmark$				
1.15	Are there toilets provided on site?		$\checkmark$				
1.16	Are toilets properly maintained?		$\checkmark$				
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?		$\checkmark$				
1.18	Is the oil leakage or spillage avoided?		$\checkmark$				
1.19	Are there any measures to prevent leaked oil from entering the drainage system?		$\checkmark$				
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	$\checkmark$					



Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	$\checkmark$					
1.22	Are the oil interceptors/grease traps maintained properly?	$\checkmark$					
1.23	Is used bentonite recycled where appropriate?	$\checkmark$					
1.24	Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m3 capacities for sedimentation.		$\checkmark$				
1.25	No excavation is undertaken in the settlement area.		$\checkmark$				
1.26	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	$\checkmark$					
1.27	Mobile toilets should provide on site and located away the stream course.		$\checkmark$				
1.25	License collector should be employed for handling the sewage of mobile toilet.		$\checkmark$				
Section	on 2: Air Quality						
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?		$\checkmark$				
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?		$\checkmark$				
2.03	Are the excavated materials sprayed with water during handling?		$\checkmark$				
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?						
2.05	Is the exposed earth properly treated within six months after the last construction activities?		$\checkmark$				
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?		$\checkmark$				
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?		$\checkmark$				
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?		$\checkmark$				
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?		$\checkmark$				
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?		$\checkmark$				
2.11	Is dark smoke emission from plant/equipment avoided?		$\checkmark$				
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	$\checkmark$					
2.13	Are site vehicles travelling within the speed limit not more than 15km/hour?		$\checkmark$				
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	$\checkmark$					
2.15	Is open burning avoided?		$\checkmark$				
2.16	Excavated materials from the stream must remove form site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.		$\checkmark$				
Section	n 3: Noise						
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?		$\checkmark$				
3.02	Is silenced equipment adopted?		$\checkmark$				
3.03	Is idle equipment turned off or throttled down?		$\checkmark$				
3.04	Are all plant and equipment well maintained and in good condition?		$\checkmark$				
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	$\checkmark$					
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	$\checkmark$					
3.07	Are air compressors fitted with valid noise emission labels during operation?	$\checkmark$					



Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
3.08	Are flaps and panels of mechanical equipment closed during operation?		<b>V</b>				
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	$\checkmark$					
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?		$\checkmark$				
3.11	Are valid Construction Noise Permit(s) posted at site entrances?		$\checkmark$				
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	$\checkmark$					
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	$\checkmark$					
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	$\checkmark$					
Section	n 4: Waste/Chemical Management						
4.01	Waste Management Plan had been submit to Engineer for approval.		$\checkmark$				
4.02	Are receptacles available for general refuse collection?		$\checkmark$				
4.03	Is general refuse sorting or recycling implemented?		$\checkmark$				
4.04	Is general refuse disposed of properly and regularly?		V				
4.05	Is the Contractor registered as a chemical waste producer?	$\checkmark$					
4.06	Are the chemical waste containers properly labelled?	$\checkmark$					
4.07	Are the chemical containers stored in proper storage areas?		$\checkmark$				
4.08	Is the chemical waste storage area properly labelled?		$\checkmark$				
4.09	Is the chemical waste storage area used for storage of chemical waste only?		$\checkmark$				
4.10	Are incompatible chemical wastes stored in different areas?	$\checkmark$					
4.11	Are the chemical wastes disposed of by licensed collectors?	$\checkmark$					
4.12	Are trip tickets for chemical wastes disposal available for inspection?	$\checkmark$					
4.13	Are chemical/fuel storage areas bunded?		$\checkmark$				
4.14	Are designated areas identified for storage and sorting of construction wastes?		$\checkmark$				
4.15	Are construction wastes sorted (inert and non-inert) on site?		$\checkmark$				
4.16	Are construction wastes reused?		$\checkmark$				
4.17	Are construction wastes disposed of properly?		$\checkmark$				
4.18	Are site hoardings and signboards made of durable materials instead of timber?		$\checkmark$				
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?		$\checkmark$				
4.20	Are appropriate procedures followed if contaminated material exists?		$\checkmark$				
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?		$\checkmark$				
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.		$\checkmark$				
4.23	Contaminated sediments will be managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.		$\checkmark$				



Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
Section	on 5: Landscape & Visual						
5.01	Are retained and transplanted trees in health condition?		$\checkmark$				
5.02	Are retained and transplanted trees properly protected?		$\checkmark$				
5.03	Are surgery works carried out for the damaged trees?					$\checkmark$	
5.04	Is damage to trees outside site boundary due to construction activities avoided?		$\checkmark$				
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?		$\checkmark$				
Section	on 6: Ecology						
6.01	Gabion banks and base had been provide for channel linings and banks for typical sections?	$\checkmark$					
6.02	Prevent site effluent/runoff discharge to the seasonal wetlands?	$\checkmark$					
6.03	Stockpiling or disposal of materials, and any dredging or construction activities at the seasonal wetlands are prohibited?	$\checkmark$					
Section	on 7: Others						
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?		V				

#### Remarks

Follow-Up of Last Site Inspection:



Photo 1: Drainage channel has been diverted in order to prevent occurrence of muddy water [TKL07]



Photo 2: Refuse was being removed from the channel.. [TKL07]



#### Findings of Site Inspection on 26 May 2011:



Photo 1: A ponding of muddy water was observed. The Contractor was reminded to maintain good water mitigation measures especially during the excavation works.



Photo 2: A piece of formwork material was observed. The Contractor was reminded to remove it properly to prevent blockage of the channel.

IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's representative	
		A			
( )	( William Tang)	( Dennis Ho )	( CP Chan )	( Y. M. Mo )	



Projec	t: DSD Contract No. DC/2007/08	Inspe	ected by		Chec	Checklist No. <u>DC200708-010611</u>			
	Drainage Improvement Works at Tai Po Tin, Ping Che,		EC's Repre						
Inspec	Man Uk Pin and Lin Ma Hang	•	RE's Repre ET's Repre			am Tang nis Ho			
Date:	1 June 2011		EO's Repre						
Time:	10:00am	Cont	ractor's esentative		Y. M				
PAR	T A: GENERAL INFORMATION	•		Er	vironment	al Permit	No. EP-277/2007/A		
Weat	ther: Sunny Fine Cloudy F	Rainy	C	alm					
Temp	erature: 27.9 °C								
Humi	idity: High				N/A				
Wind		Calm							
		Area Insp	ected						
TKL TKL MUF	07 P01/02								
PART	B: SITE AUDIT								
Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks		
Sectio	n 1: Water Quality								
1.01	Is an effluent discharge license obtained for the Project?								
1.02	Is the effluent discharged in accordance with the discharge licence?	$\checkmark$							
1.03	Is the discharge of turbid water avoided?		$\overline{\checkmark}$						
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?		$\checkmark$						
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?		$\checkmark$						
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?		$\checkmark$						
1.07	Is drainage system well maintained?		$\overline{\checkmark}$						
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?		$\checkmark$						
1.09	Are temporary exposed slopes properly covered?		$\checkmark$						
1.10	Are earthworks final surfaces well compacted or protected?		$\checkmark$						
1.11	Are manholes adequately covered or temporarily sealed?	$\checkmark$							
1.12	Are there any procedures and equipment for rainstorm protection?		$\checkmark$						
1.13	Are wheel washing facilities well maintained?		$\checkmark$						
1.14	Is runoff from wheel washing facilities avoided?		$\checkmark$						
1.15	Are there toilets provided on site?		$\checkmark$						
1.16	Are toilets properly maintained?		$\checkmark$						
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?		$\checkmark$						
1.18	Is the oil leakage or spillage avoided?		$\checkmark$						
1.19	Are there any measures to prevent leaked oil from entering the drainage system?		$\checkmark$						
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	$\checkmark$							



Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	<b>V</b>					
1.22	Are the oil interceptors/grease traps maintained properly?	$\checkmark$					
1.23	Is used bentonite recycled where appropriate?	$\checkmark$					
1.24	Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m3 capacities for sedimentation.		$\checkmark$				
1.25	No excavation is undertaken in the settlement area.		$\checkmark$				
1.26	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	$\checkmark$					
1.27	Mobile toilets should provide on site and located away the stream course.		$\checkmark$				
1.25	License collector should be employed for handling the sewage of mobile toilet.		$\checkmark$				
Section	on 2: Air Quality						
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?		$\checkmark$				
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?		$\checkmark$				
2.03	Are the excavated materials sprayed with water during handling?		$\checkmark$				
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?						
2.05	Is the exposed earth properly treated within six months after the last construction activities?		$\checkmark$				
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?				$\checkmark$		Remark 1
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?		$\checkmark$				
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?		$\checkmark$				
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?		$\checkmark$				
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?		$\checkmark$				
2.11	Is dark smoke emission from plant/equipment avoided?		$\checkmark$				
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	$\checkmark$					
2.13	Are site vehicles travelling within the speed limit not more than 15km/hour?		$\checkmark$				
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	$\checkmark$					
2.15	Is open burning avoided?		$\checkmark$				
2.16	Excavated materials from the stream must remove form site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.		$\checkmark$				
Section	on 3: Noise						
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?		$\checkmark$				
3.02	Is silenced equipment adopted?		$\checkmark$				
3.03	Is idle equipment turned off or throttled down?		$\checkmark$				
3.04	Are all plant and equipment well maintained and in good condition?		$\checkmark$				
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	$\checkmark$					
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	$\checkmark$					
3.07	Are air compressors fitted with valid noise emission labels during operation?	$\checkmark$					



Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
3.08	Are flaps and panels of mechanical equipment closed during operation?		$\checkmark$				
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	$\checkmark$					
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?		$\checkmark$				
3.11	Are valid Construction Noise Permit(s) posted at site entrances?		$\checkmark$				
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	$\checkmark$					
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	$\checkmark$					
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	$\checkmark$					
Section	on 4: Waste/Chemical Management						
4.01	Waste Management Plan had been submit to Engineer for approval.		$\checkmark$				
4.02	Are receptacles available for general refuse collection?		$\checkmark$				
4.03	Is general refuse sorting or recycling implemented?		$\checkmark$				
4.04	Is general refuse disposed of properly and regularly?		$\checkmark$				
4.05	Is the Contractor registered as a chemical waste producer?	$\checkmark$					
4.06	Are the chemical waste containers properly labelled?	$\checkmark$					
4.07	Are the chemical containers stored in proper storage areas?		$\checkmark$				
4.08	Is the chemical waste storage area properly labelled?		$\checkmark$				
4.09	Is the chemical waste storage area used for storage of chemical waste only?		$\checkmark$				
4.10	Are incompatible chemical wastes stored in different areas?	$\checkmark$					
4.11	Are the chemical wastes disposed of by licensed collectors?	$\checkmark$					
4.12	Are trip tickets for chemical wastes disposal available for inspection?	$\checkmark$					
4.13	Are chemical/fuel storage areas bunded?		$\checkmark$				
4.14	Are designated areas identified for storage and sorting of construction wastes?		$\checkmark$				
4.15	Are construction wastes sorted (inert and non-inert) on site?		$\checkmark$				
4.16	Are construction wastes reused?		$\checkmark$				
4.17	Are construction wastes disposed of properly?				$\checkmark$		Remark 3
4.18	Are site hoardings and signboards made of durable materials instead of timber?		$\checkmark$				
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?		$\checkmark$				
4.20	Are appropriate procedures followed if contaminated material exists?		$\checkmark$				
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?		$\checkmark$				
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.		$\checkmark$				
4.23	Contaminated sediments will be managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.		$\checkmark$				



Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
Section	on 5: Landscape & Visual						
5.01	Are retained and transplanted trees in health condition?		$\checkmark$				
5.02	Are retained and transplanted trees properly protected?				$\checkmark$		Remark 2
5.03	Are surgery works carried out for the damaged trees?					$\checkmark$	
5.04	Is damage to trees outside site boundary due to construction activities avoided?		$\checkmark$				
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?		$\checkmark$				
Section	on 6: Ecology						
6.01	Gabion banks and base had been provide for channel linings and banks for typical sections?	$\checkmark$					
6.02	Prevent site effluent/runoff discharge to the seasonal wetlands?	$\checkmark$					
6.03	Stockpiling or disposal of materials, and any dredging or construction activities at the seasonal wetlands are prohibited?	$\checkmark$					
Section	on 7: Others						
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?		$\checkmark$				

#### Remarks

#### Follow-Up of Last Site Inspection:



Photo 1: A ponding of muddy water was eliminated. By water diversion using pipeline.



Photo 2: C&D waste was removed from water channel.



#### Findings of Site Inspection on 1 June 2011:



Photo 1: Fugitive dust emission was observed. The Contractor was reminded to practice water spraying



Photo 2: Tree preservation requires further improvement. The Contractor is reminded to proper fence the preserved



Photo 3: C&D wastes near the channel are needed to be cleared.

IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's representative
		A		
( )	( William Tang)	( Dennis Ho )	( CP Chan )	( Y. M. Mo )



Projec	t: DSD Contract No. DC/2007/08	Inspe	ected by		Chec	klist No.	DC200708-090611
	Drainage Improvement Works at Tai Po Tin, Ping Che,					<b>-</b>	
Inspec	Man Uk Pin and Lin Ma Hang	•	ET's Repre			am Tang nis Ho	
Date:	9 June 2011		EO's Repre				
Time:	10:00am	Cont	ractor's esentative:		Y. M	. Mo	
PAR <sup>*</sup>	T A: GENERAL INFORMATION			En	vironment	al Permit	No. EP-277/2007/A
Weat	her: Sunny Fine Cloudy F	Rainy	C	alm			
Temp	erature: 27.9 °C						
Humi					N/A		
Wind		Calm					
		Area Insp	ectea				
TKL TKL MUI MUI	07 P01/02						
PART	B: SITE AUDIT						
Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance;	Not	Yes	No	Follow	N/A	Photo/
	Follow Up: Observations requiring follow-Up actions N/A: Not Applicable on 1: Water Quality	Obs.			Up		Remarks
1.01	Is an effluent discharge license obtained for the Project?	$\checkmark$					
1.02	Is the effluent discharged in accordance with the discharge licence?	$\checkmark$					
1.03	Is the discharge of turbid water avoided?				$\checkmark$		Remark 2
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?		$\checkmark$				
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?		$\overline{\checkmark}$				
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?		$\checkmark$				
1.07	Is drainage system well maintained?		$\checkmark$				
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?		$\checkmark$				
1.09	Are temporary exposed slopes properly covered?		$\checkmark$				
1.10	Are earthworks final surfaces well compacted or protected?		$\checkmark$				
1.11	Are manholes adequately covered or temporarily sealed?	$\checkmark$					
1.12	Are there any procedures and equipment for rainstorm protection?		$\checkmark$				
1.13	Are wheel washing facilities well maintained?		$\checkmark$				
1.14	Is runoff from wheel washing facilities avoided?		$\checkmark$				
1.15	Are there toilets provided on site?		$\checkmark$				
1.16	Are toilets properly maintained?		$\checkmark$				
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?		$\checkmark$				
1.18	Is the oil leakage or spillage avoided?		$\checkmark$				
1.19	Are there any measures to prevent leaked oil from entering the drainage system?		$\checkmark$				
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	$\overline{\checkmark}$					



Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	<b>V</b>					
1.22	Are the oil interceptors/grease traps maintained properly?	$\checkmark$					
1.23	Is used bentonite recycled where appropriate?	$\checkmark$					
1.24	Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m3 capacities for sedimentation.		$\checkmark$				
1.25	No excavation is undertaken in the settlement area.		$\checkmark$				
1.26	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	$\checkmark$					
1.27	Mobile toilets should provide on site and located away the stream course.		$\checkmark$				
1.25	License collector should be employed for handling the sewage of mobile toilet.		$\checkmark$				
Section	on 2: Air Quality						
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?		$\checkmark$				
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?		$\checkmark$				
2.03	Are the excavated materials sprayed with water during handling?		$\checkmark$				
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?						
2.05	Is the exposed earth properly treated within six months after the last construction activities?		$\checkmark$				
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?				$\checkmark$		Remark 1
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?		$\checkmark$				
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?		$\checkmark$				
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?		$\checkmark$				
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?		$\checkmark$				
2.11	Is dark smoke emission from plant/equipment avoided?		$\checkmark$				
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	$\checkmark$					
2.13	Are site vehicles travelling within the speed limit not more than 15km/hour?		$\checkmark$				
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	$\checkmark$					
2.15	Is open burning avoided?		$\checkmark$				
2.16	Excavated materials from the stream must remove form site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.		$\checkmark$				
Section	on 3: Noise						
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?		$\checkmark$				
3.02	Is silenced equipment adopted?		$\checkmark$				
3.03	Is idle equipment turned off or throttled down?		$\checkmark$				
3.04	Are all plant and equipment well maintained and in good condition?		$\checkmark$				
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	$\checkmark$					
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	$\checkmark$					
3.07	Are air compressors fitted with valid noise emission labels during operation?	$\checkmark$					



Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
3.08	Are flaps and panels of mechanical equipment closed during operation?		$\checkmark$				
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	$\checkmark$					
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?		$\checkmark$				
3.11	Are valid Construction Noise Permit(s) posted at site entrances?		$\checkmark$				
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	$\checkmark$					
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	$\checkmark$					
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	$\checkmark$					
Section	n 4: Waste/Chemical Management						
4.01	Waste Management Plan had been submit to Engineer for approval.		$\checkmark$				
4.02	Are receptacles available for general refuse collection?		$\checkmark$				
4.03	Is general refuse sorting or recycling implemented?		$\checkmark$				
4.04	Is general refuse disposed of properly and regularly?		$\checkmark$				
4.05	Is the Contractor registered as a chemical waste producer?	$\checkmark$					
4.06	Are the chemical waste containers properly labelled?	$\checkmark$					
4.07	Are the chemical containers stored in proper storage areas?		$\checkmark$				
4.08	Is the chemical waste storage area properly labelled?		$\checkmark$				
4.09	Is the chemical waste storage area used for storage of chemical waste only?		$\checkmark$				
4.10	Are incompatible chemical wastes stored in different areas?	$\checkmark$					
4.11	Are the chemical wastes disposed of by licensed collectors?	$\checkmark$					
4.12	Are trip tickets for chemical wastes disposal available for inspection?	$\checkmark$					
4.13	Are chemical/fuel storage areas bunded?		$\checkmark$				
4.14	Are designated areas identified for storage and sorting of construction wastes?		$\checkmark$				
4.15	Are construction wastes sorted (inert and non-inert) on site?		$\checkmark$				
4.16	Are construction wastes reused?		$\checkmark$				
4.17	Are construction wastes disposed of properly?		$\checkmark$				
4.18	Are site hoardings and signboards made of durable materials instead of timber?		$\checkmark$				
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?		$\checkmark$				
4.20	Are appropriate procedures followed if contaminated material exists?		$\checkmark$				
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?		$\checkmark$				
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.		$\checkmark$				
4.23	Contaminated sediments will be managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.		$\checkmark$				



Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
Section	n 5: Landscape & Visual						
5.01	Are retained and transplanted trees in health condition?		$\checkmark$				
5.02	Are retained and transplanted trees properly protected?		$\checkmark$				
5.03	Are surgery works carried out for the damaged trees?					$\checkmark$	
5.04	Is damage to trees outside site boundary due to construction activities avoided?		$\checkmark$				
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?		$\checkmark$				
Section	n 6: Ecology						
6.01	Gabion banks and base had been provide for channel linings and banks for typical sections?	$\checkmark$					
6.02	Prevent site effluent/runoff discharge to the seasonal wetlands?	$\checkmark$					
6.03	Stockpiling or disposal of materials, and any dredging or construction activities at the seasonal wetlands are prohibited?	$\checkmark$					
Section	n 7: Others						
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?		$\checkmark$				

# Remarks Follow-Up of Last Site Inspection: Tree protection has been carried out The C&D wastes were removed. Water spraying was applied on the access road.



#### Findings of Site Inspection on 9 June 2011:



Photo 1: Dry haul road was observed. The Contractor was reminded to practice water spraying regularly.



Photo 2: Turbid water was observed. The Contractor is reminded to provide proper water mitigation measure to improve the water quality.

IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's representative
		A		
( )	( William Tang)	( Dennis Ho )	( CP Chan )	( Y. M. Mo )



Projec	t: DSD Contract No. DC/2007/08	ected by		Chec	cklist No.	DC200708-160611			
-	Drainage Improvement Works at Tai Po Tin, Ping Che,	IEC/I	EC's Repre	esentative	: Edm	und Cheur	ng		
	Man Uk Pin and Lin Ma Hang	RE/F	RE's Repre	sentative:	T. K.	T. K. Mar			
Inspec	etion	ETL/	ET's Repr	esentative	: Denr	nis Ho			
Date:	16 June 2011		EO/ EO's Representative: Contractor's			Chan			
Time:	_10:00am		esentative		<u>Y. M</u>	. Mo			
PAR	T A: GENERAL INFORMATION			Er	nvironment	al Permit	No. EP-277/2007/A		
Weat		Rainy	C	alm					
Temp	erature: 27.9 °C			[					
Humi					N/A				
Wind		Calm							
		Area Insp	ectea						
TKL TKL MUF	07 P01/02								
PART	B: SITE AUDIT								
Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks		
Sectio	n 1: Water Quality			_					
1.01	Is an effluent discharge license obtained for the Project?	<b>✓</b>							
1.02	Is the effluent discharged in accordance with the discharge licence?	$\checkmark$							
1.03	Is the discharge of turbid water avoided?		$\checkmark$						
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?				$\checkmark$		Remark 1		
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?		$\checkmark$						
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?		$\checkmark$						
1.07	Is drainage system well maintained?		$\overline{\checkmark}$						
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?		$\checkmark$						
1.09	Are temporary exposed slopes properly covered?		$\checkmark$						
1.10	Are earthworks final surfaces well compacted or protected?		$\checkmark$						
1.11	Are manholes adequately covered or temporarily sealed?	$\checkmark$							
1.12	Are there any procedures and equipment for rainstorm protection?		$\checkmark$						
1.13	Are wheel washing facilities well maintained?				$\checkmark$		Remark 2		
1.14	Is runoff from wheel washing facilities avoided?		$\checkmark$						
1.15	Are there toilets provided on site?		$\checkmark$						
1.16	Are toilets properly maintained?		$\checkmark$						
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?		$\checkmark$						
1.18	Is the oil leakage or spillage avoided?		$\checkmark$						
1.19	Are there any measures to prevent leaked oil from entering the drainage system?		$\checkmark$						
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	$\checkmark$							



Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	<b>V</b>					-
1.22	Are the oil interceptors/grease traps maintained properly?	$\checkmark$					
1.23	Is used bentonite recycled where appropriate?	$\checkmark$					
1.24	Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m3 capacities for sedimentation.		$\checkmark$				
1.25	No excavation is undertaken in the settlement area.		$\checkmark$				
1.26	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	$\checkmark$					
1.27	Mobile toilets should provide on site and located away the stream course.		$\checkmark$				
1.25	License collector should be employed for handling the sewage of mobile toilet.		$\checkmark$				
Section	on 2: Air Quality						
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?		$\checkmark$				
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?		$\checkmark$				
2.03	Are the excavated materials sprayed with water during handling?		$\checkmark$				
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?						
2.05	Is the exposed earth properly treated within six months after the last construction activities?		$\checkmark$				
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?		$\checkmark$				
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?		$\checkmark$				
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?		$\checkmark$				
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?		$\checkmark$				
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?		$\checkmark$				
2.11	Is dark smoke emission from plant/equipment avoided?		$\checkmark$				
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	$\checkmark$					
2.13	Are site vehicles travelling within the speed limit not more than 15km/hour?		$\checkmark$				
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	$\checkmark$					
2.15	Is open burning avoided?		$\checkmark$				
2.16	Excavated materials from the stream must remove form site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.		$\checkmark$				
Section	on 3: Noise						
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?		$\checkmark$				
3.02	Is silenced equipment adopted?		$\checkmark$				
3.03	Is idle equipment turned off or throttled down?		$\checkmark$				
3.04	Are all plant and equipment well maintained and in good condition?		$\checkmark$				
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	$\checkmark$					
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	$\checkmark$					
3.07	Are air compressors fitted with valid noise emission labels during operation?	$\checkmark$					



Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
3.08	Are flaps and panels of mechanical equipment closed during operation?		$\checkmark$				
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	$\checkmark$					
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?		$\checkmark$				
3.11	Are valid Construction Noise Permit(s) posted at site entrances?		$\checkmark$				
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	$\checkmark$					
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	$\checkmark$					
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	$\checkmark$					
Section	n 4: Waste/Chemical Management						
4.01	Waste Management Plan had been submit to Engineer for approval.		$\checkmark$				
4.02	Are receptacles available for general refuse collection?		$\checkmark$				
4.03	Is general refuse sorting or recycling implemented?		$\checkmark$				
4.04	Is general refuse disposed of properly and regularly?		$\checkmark$				
4.05	Is the Contractor registered as a chemical waste producer?	$\checkmark$					
4.06	Are the chemical waste containers properly labelled?	$\checkmark$					
4.07	Are the chemical containers stored in proper storage areas?		$\checkmark$				
4.08	Is the chemical waste storage area properly labelled?		$\checkmark$				
4.09	Is the chemical waste storage area used for storage of chemical waste only?		$\checkmark$				
4.10	Are incompatible chemical wastes stored in different areas?	$\checkmark$					
4.11	Are the chemical wastes disposed of by licensed collectors?	$\checkmark$					
4.12	Are trip tickets for chemical wastes disposal available for inspection?	$\checkmark$					
4.13	Are chemical/fuel storage areas bunded?		$\checkmark$				
4.14	Are designated areas identified for storage and sorting of construction wastes?		$\checkmark$				
4.15	Are construction wastes sorted (inert and non-inert) on site?		$\checkmark$				
4.16	Are construction wastes reused?		$\checkmark$				
4.17	Are construction wastes disposed of properly?		$\checkmark$				
4.18	Are site hoardings and signboards made of durable materials instead of timber?		$\checkmark$				
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?		$\checkmark$				
4.20	Are appropriate procedures followed if contaminated material exists?		$\checkmark$				
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?		$\checkmark$				
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.		$\checkmark$				
4.23	Contaminated sediments will be managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.		$\checkmark$				



Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
Section	on 5: Landscape & Visual						
5.01	Are retained and transplanted trees in health condition?		$\checkmark$				
5.02	Are retained and transplanted trees properly protected?		$\checkmark$				
5.03	Are surgery works carried out for the damaged trees?					$\checkmark$	
5.04	Is damage to trees outside site boundary due to construction activities avoided?		$\checkmark$				
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?		$\checkmark$				
Section	on 6: Ecology						
6.01	Gabion banks and base had been provide for channel linings and banks for typical sections?	$\checkmark$					
6.02	Prevent site effluent/runoff discharge to the seasonal wetlands?	$\checkmark$					
6.03	Stockpiling or disposal of materials, and any dredging or construction activities at the seasonal wetlands are prohibited?	$\checkmark$					
Section	on 7: Others						
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?		$\checkmark$				

Remarks Follow-Up of Last Site Inspection:	
Water spraying was applied on haul road.	The water quality was improved.



#### Findings of Site Inspection on 16 June 2011:



Photo 1: Turbid water was observed. The Contractor is reminded to provide water mitigation measures to reduce SS level of the water quality.



Photo 2: Runoff of turbid water from wheel-washing facility was observed. The Contractor was reminded to replace the fresh water and maintain proper capacity of the facility.

IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's representative	
		A			
( )	( T. K. Mar )	( Dennis Ho )	( CP Chan )	( Y. M. Mo )	



Projec	et: DSD Contract No. DC/2007/08		ected by			cklist No.	DC200708-230611			
	Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang		EC's Repre RE's Repre		-	T. K. Mar				
Inspec		_	ET's Repre			nis Ho				
Date:	_ 23 June 2011		EO's Repre			CP Chan				
Time:	10:00am	Contractor's Representative:								
PAR	T A: GENERAL INFORMATION			En	vironmen	tal Permit	No. EP-277/2007/A			
Weat		Rainy	c	alm						
•	perature: 28.0 °C				<u> </u>					
Hum		Colm			N/A					
Wind <b>Ch</b> :	d:	Calm  Area Inspe	ected							
TKL TKL MUI MUI	.07 P01/02									
PART	B: SITE AUDIT									
Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks			
Section	on 1: Water Quality									
1.01	Is an effluent discharge license obtained for the Project?									
1.02	Is the effluent discharged in accordance with the discharge licence?	<b>✓</b>								
1.03	Is the discharge of turbid water avoided?		$\overline{\mathbf{V}}$							
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?		$\overline{\checkmark}$							
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?		$\checkmark$							
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?		$\checkmark$							
1.07	Is drainage system well maintained?		$\checkmark$							
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?		$\checkmark$							
1.09	Are temporary exposed slopes properly covered?		$\checkmark$							
1.10	Are earthworks final surfaces well compacted or protected?		$\checkmark$							
1.11	Are manholes adequately covered or temporarily sealed?	$\checkmark$								
1.12	Are there any procedures and equipment for rainstorm protection?		$\checkmark$							
1.13	Are wheel washing facilities well maintained?		$\checkmark$							
1.14	Is runoff from wheel washing facilities avoided?		$\checkmark$							
1.15	Are there toilets provided on site?		$\checkmark$							
1.16	Are toilets properly maintained?		$\checkmark$							
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?		$\checkmark$							
1.18	Is the oil leakage or spillage avoided?		$\checkmark$							
1.19	Are there any measures to prevent leaked oil from entering the drainage system?		$\checkmark$							
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	$\checkmark$								



Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	<b>V</b>					-
1.22	Are the oil interceptors/grease traps maintained properly?	$\checkmark$					
1.23	Is used bentonite recycled where appropriate?	$\checkmark$					
1.24	Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m3 capacities for sedimentation.		$\checkmark$				
1.25	No excavation is undertaken in the settlement area.		$\checkmark$				
1.26	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	$\checkmark$					
1.27	Mobile toilets should provide on site and located away the stream course.		$\checkmark$				
1.25	License collector should be employed for handling the sewage of mobile toilet.		$\checkmark$				
Section	on 2: Air Quality						
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?		$\checkmark$				
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?		$\checkmark$				
2.03	Are the excavated materials sprayed with water during handling?		$\checkmark$				
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?						
2.05	Is the exposed earth properly treated within six months after the last construction activities?		$\checkmark$				
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?		$\checkmark$				
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?		$\checkmark$				
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?		$\checkmark$				
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?		$\checkmark$				
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?		$\checkmark$				
2.11	Is dark smoke emission from plant/equipment avoided?		$\checkmark$				
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	$\checkmark$					
2.13	Are site vehicles travelling within the speed limit not more than 15km/hour?		$\checkmark$				
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	$\checkmark$					
2.15	Is open burning avoided?		$\checkmark$				
2.16	Excavated materials from the stream must remove form site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.		$\checkmark$				
Section	on 3: Noise						
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?		$\checkmark$				
3.02	Is silenced equipment adopted?		$\checkmark$				
3.03	Is idle equipment turned off or throttled down?		$\checkmark$				
3.04	Are all plant and equipment well maintained and in good condition?		$\checkmark$				
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	$\checkmark$					
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	$\checkmark$					
3.07	Are air compressors fitted with valid noise emission labels during operation?	$\checkmark$					



Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
3.08	Are flaps and panels of mechanical equipment closed during operation?		$\checkmark$				
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	$\checkmark$					
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?		$\checkmark$				
3.11	Are valid Construction Noise Permit(s) posted at site entrances?		$\checkmark$				
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	$\checkmark$					
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	$\checkmark$					
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	$\checkmark$					
Section	n 4: Waste/Chemical Management						
4.01	Waste Management Plan had been submit to Engineer for approval.		$\checkmark$				
4.02	Are receptacles available for general refuse collection?		$\checkmark$				
4.03	Is general refuse sorting or recycling implemented?		$\checkmark$				
4.04	Is general refuse disposed of properly and regularly?		$\checkmark$				
4.05	Is the Contractor registered as a chemical waste producer?	$\checkmark$					
4.06	Are the chemical waste containers properly labelled?	$\checkmark$					
4.07	Are the chemical containers stored in proper storage areas?		$\checkmark$				
4.08	Is the chemical waste storage area properly labelled?		$\checkmark$				
4.09	Is the chemical waste storage area used for storage of chemical waste only?		$\checkmark$				
4.10	Are incompatible chemical wastes stored in different areas?	$\checkmark$					
4.11	Are the chemical wastes disposed of by licensed collectors?	$\checkmark$					
4.12	Are trip tickets for chemical wastes disposal available for inspection?	$\checkmark$					
4.13	Are chemical/fuel storage areas bunded?		$\checkmark$				
4.14	Are designated areas identified for storage and sorting of construction wastes?		$\checkmark$				
4.15	Are construction wastes sorted (inert and non-inert) on site?		$\checkmark$				
4.16	Are construction wastes reused?		$\checkmark$				
4.17	Are construction wastes disposed of properly?				$\checkmark$		Remark 1&2
4.18	Are site hoardings and signboards made of durable materials instead of timber?		$\checkmark$				
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?		$\checkmark$				
4.20	Are appropriate procedures followed if contaminated material exists?		$\checkmark$				
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?		$\checkmark$				
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.		$\checkmark$				
4.23	Contaminated sediments will be managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.		$\checkmark$				



Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
Section	on 5: Landscape & Visual						
5.01	Are retained and transplanted trees in health condition?		$\checkmark$				
5.02	Are retained and transplanted trees properly protected?		$\checkmark$				
5.03	Are surgery works carried out for the damaged trees?					$\checkmark$	
5.04	Is damage to trees outside site boundary due to construction activities avoided?		$\checkmark$				
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?		$\checkmark$				
Section	nn 6: Ecology						
6.01	Gabion banks and base had been provide for channel linings and banks for typical sections?	$\checkmark$					
6.02	Prevent site effluent/runoff discharge to the seasonal wetlands?	$\checkmark$					
6.03	Stockpiling or disposal of materials, and any dredging or construction activities at the seasonal wetlands are prohibited?	$\checkmark$					
Section	on 7: Others						
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?		$\checkmark$				

## Remarks Follow-Up of Last Site Inspection: Water quality was improved. The runoff of wheeling washing facility was rectified.



#### Findings of Site Inspection on 23 June 2011:



Photo 1: Tree branches and debris was accumulated on the site. The Contractor should maintain the site clearance.



Photo 2: C&D materials were observed on the gabion wall. The Contractor was reminded to remove the material to avoid any dropping to the water stream.

IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's representative
		A		
( )	( T. K. Mar )	( Dennis Ho )	( C P Chan )	( Y. M. Mo )



#### **Appendix** L

**Proforma of Ecology Inspection Checklist** 

Environmental Team – Ecological Site Inspection and Audit Checklist

**AUES** 

Project		DSD Contract No. DC/2007/08 Drainage Improvement Works at	_	Inspected		ontativo	Check	klist No. 105-4	
Inspec Date:	_	Tainage improvement works at Fair Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang		RE/RE'S R ETL/ ET'S EO/EO'S F	Represe Repres	entative: sentative:	YW Wong		
Time:		(1.30)		Contracto	1 S Kep		7.7.5	20.000.00	
Humi Wind Cha	her: erature: dity:	High   Moderate   Low     Strong   Breeze   Light   C	ainy alm rea Ins		Calm	200	vironme 2-277/20	ntal Permit No. 07A	
PART	B:	SITE AUDIT							
Note:	EM&A REF:	Not Obs Not Observed, Yes. Compliance; No. Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks	
Section	n 6: Ec								
1.01	6.5.8	earthworks to widen the stream have been undertaken from the landward side and existing stream untouched except during the final stage							
1.04	6.5.9	widened stream bottom floored with natural materials to approximate as closely as possible to the rocky components of a natural stream bottom	П		П	0/		MUTTIN	
1.02	6.5.10	Any essential works outside the dry season have been temporarily isolated from the stream		a		П			
1.03	6.5.11	Excavation works have been restricted to 300m length at any one time			□				
1.04	6.5.13	native riparian trees which would be impacted during construction works have been transplanted to suitable sites within the project area where possible		П	П	0/		M-gary	
1.05	6,5,22	2 Construction activities have been restricted to works area that should be clearly demarcated		N					
1,06	6.5.22	2 Temporary diversions have been provided to ensure continuous water flow to the downstream section.		D					
1.07	6.5.2	2 The proposed works site inside or in the proximity of natural streams have been temporarily isolated		4			П		
1.08	6.5.2	no disturbance to the stream bed and bank have been found from construction works, equipment or workers for the stream section where the existing natural stream bed and bank will be left untouched		0	ū				
1.09	6.5.2	2 Temporary access track on streambed have been kept to the minimum width and length	П	0	0		П		
1.09	6.5.2	2 Temporary stream crossings are supported on stilts above the stream bed.		9/		П			
1.10	6.5.2	Adequate temporary drainage measures including sediment and oil/grease traps have been provided to prevent contaminated site run-off entering the water bodies		9	п	Д	ū		
1,11	6.5.2	22 Stockpilling of construction materials, spoils and waste have been properly covered and located away from water bodies	D	4				See seek	



Note:	EM&A REF:	Not Obs. Not Observed Yes Compliance No. Non-Compliance Follow Up: Observations requiring follow-Up actions N/A Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
1.12	6.5.22	Supervisory staff of the contractor have been assigned to station on site to closely supervise and monitor the construction works		P				
1.13	6.5.22	workers have bee regularly briefed to avoid disturbing the flora and fauna near the works area		d	П			
14	6.5.22	Construction effluent, site run-off and sewage have been properly collected, treated and disposed		9				
15	6,5,22	details of the mitigation measures to be implemented during construction stage have been submitted to the Engineer for approval						

Remarks

MUPOS - Stockpoley of executed in the contractor

hear 42 stream course and the contractor

has been reminded to object the 65 22 of

the ZM & A Planni (note: Horle in project)

IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's representative	
)	( )	1 / Way 1	(e-Pichan)	(	7

Environmental Team - Ecological Site Inspection and Audit Checklist

AUES

	Project: DSD Contract No. DC/2007/08  Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang		u Auc	Inspected	l by Repres		Chec	klist No. /   0 6 - /		
Inspect	tion	2/6/2011		ETL/ ET's	Repres	sentative:	YW V	Vong (ALTON)		
Time:				Environmental Permit No.						
PAR	TA:	GENERAL INFORMATION			20	W	2-277/20			
Weat	her		Rainy		Calm	× E	-2/1/20	07A		
Temp	erature:	30 ℃								
Humi		High Moderate Low				N/A				
Wind			Calm Area Ins	anatad.						
	JP05	NIPOLISH	An							
PART	B:	SITE AUDIT					_			
Note:	EM&A REF:	Not Obs.: Not Observed; Yes: Compliance; No. Non-Compliance: Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks		
	on 6: Ec									
1.01	6.5.8	earthworks to widen the stream have been undertaken from the landward side and existing stream untouched except during the final stage	П		П					
1.04	6.5.9	widened stream bottom floored with natural materials to approximate as closely as possible to the rocky components of a natural stream bottom	П		Д		П	Mary L		
1.02	6.5,10	Any essential works outside the dry season have been temporarily isolated from the stream		6			П			
1.03	6.5.11	Excavation works have been restricted to 300m length at any one time		B	П		П			
1.04	6.5.13	native riparian trees which would be impacted during construction works have been transplanted to suitable sites within the project area where possible		П	П	o/		5H-95L4		
1.05	6.5.22	Construction activities have been restricted to works area that should be clearly demarcated		0/	П					
1,06	6.5.22	Temporary diversions have been provided to ensure continuous water flow to the downstream section.		D/	П					
1.07	6.5.22	The proposed works site inside or in the proximity of natural streams have been temporarily isolated		0			П			
1.08	6.5.22	no disturbance to the stream bed and bank have been found from construction works, equipment or workers for the stream section where the existing natural stream bed and bank will be left untouched		ď						
1.09	6.5.22	Temporary access track on streambed have been kept to the minimum width and length	П	9						
1.09	6.5.22	? Temporary stream crossings are supported on stilts above the stream bed.								
1.10	6.5.2	Adequate temporary drainage measures including sediment and oil/grease traps have been provided to prevent contaminated site run-off entering the water bodies		d		Д				
1.11	6.5.2	Stockpiling of construction materials, spoils and waste have been properly covered and located away from water bodies		8				Se cole		



Note:	EM&A REF:	Not Obs., Not Observed, Yes: Compliance, No: Non-Compliance, Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
1.12	6.5.22	Supervisory staff of the contractor have been assigned to station on site to closely supervise and monitor the construction works		0		П		
1.13	6.5.22	workers have bee regularly briefed to avoid disturbing the flora and fauna near the works area		ď		П		
.14	6.5,22	Construction etfluent, site run-off and sewage have been properly collected, treated and disposed	П	0		П		
1.15	6.5.22	details of the mitigation measures to be implemented during construction stage have been submitted to the Engineer for approval						

#### Remarks

MU/11/22 - 016-

MoDOS- Stockpiling of excasted earth has not one near the mater-course and the continued to observe the regiment of 0522 of the Em 1A mand (not hort in progress)

IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's representative
( )	( )	(K Wing)	( Epilian)	<del>(</del> )

Environmental Team – Ecological Site Inspection and Audit Checklist

AUES

Project:	DSD Contract No. DC/2007/08  Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang			Inspected by IEC/IEC's Repres RE/RE's Represe		Checklist No.	
Inspection Date: Time:	10/6/	20//			ETL/ ET's Repres EO/EO's Represo Contractor's Rep	entative:	YW Wong
PART A: Weather Temperature Humidity: Wind: Channel	High Strong	Fine  C Moderate  Breeze	Cloudy  Low Light	Rainy	Calm		vironmental Permit No. P-277/2007A

PART	B:	SITE AUDIT						
Note:	EM&A REF:	Not Obs. Not Observed, Yes Compliance, No Non-Compliance, Follow Up. Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
Section	n 6: Eco							
1.01	6.5.8	earthworks to widen the stream have been undertaken from the landward side and existing stream untouched except during the final stage		Q/	п			
04	6,5.9	widened stream bottom floored with natural materials to approximate as closely as possible to the rocky components of a natural stream bottom			П	d	ū	MUPAL
.02	6.5.10	Any essential works outside the dry season have been temporarily isolated from the stream		o/	Д	Ğ	П	
1.03	6.5.11	Excavation works have been restricted to 300m length at any one time		d	Ü			
1.04	6.5.13	native riparian trees which would be impacted during construction works have been transplanted to suitable sites within the project area where possible		П	П	d	П	QH-QU(14
1.05	6.5.22	Construction activities have been restricted to works area that should be clearly demarcated		- W	П	ь		
1.06	6.5.22	Temporary diversions have been provided to ensure continuous water flow to the downstream section.	П	0/	П			
1.07	6.5.22	The proposed works site inside or in the proximity of natural streams have been temporarily isolated	П		П		П	
1.08	6.5.22	no disturbance to the stream bed and bank have been found from construction works, equipment or workers for the stream section where the existing natural stream bed and bank will be left untouched		Ø/		Ц		
1.09	6.5.22	Temporary access track on streambed have been kept to the minimum width and length	D	B	Ē	П		
1.09	6.5.22	Temporary stream crossings are supported on stilts above the stream bed.		0				
1.10	6.5.22	Adequate temporary drainage measures including sediment and oil/grease traps have been provided to prevent contaminated site run-off entering the water bodies	D	Ø	П	П	П	
1.11	6.5.22	Stockpiling of construction materials, spoils and waste have been properly covered and located away from water bodies		Ц				fa hol

Note:	EM&A REF:	Not Obs., Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
1,12	6.5.22	Supervisory staff of the contractor have been assigned to station on site to closely supervise and monitor the construction works		B	П			
1.13	6.5.22	workers have bee regularly briefed to avoid disturbing the flora and fauna near the works area		d	п		D	
1.14	6.5.22	Construction effluent, site run-off and sewage have been properly collected, treated and disposed	П	0		П		
1.15	6.5.22	details of the mitigation measures to be implemented during construction stage have been submitted to the Engineer for approval	П	d				

Remarks

MUPEL/=1 - OK.

Accepting of exercited her hotel was had made

the stream course and the contractor the best termed of 65'LL

Termedial to observe the regularists of 65'LL

of the 7m & A manual ( note 4 = 7m from)

IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's representative
	( )	(K. Way)	( Felicial	( )

AUES

Inspector Date:	Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang spection Ite:			RE/RE's ETL/ ET's EO/EO's	Repres Repres Repres Repres	sentative: entative: sentative: entative: presentative:	YW Wong		
PAR	TA:	GENERAL INFORMATION				En	vironm	ental Permit No.	
Weat	ther:	Sunny Fine Cloudy F	Rainy		Calm	E	P-277/2	007A	
Temp	erature	3.1 °C							
Humi		High Moderate Low				N/A			
Wind	annel		Calm Area Ins	aceted.					
MU	JP05 /	MUPOI FOR		V					
AKI	ь:					- 000000			
Note:	EM&A REF:	Not Obs.; Not Observed, Yes. Compliance, No. Non-Compliance; Follow Up. Observations requiring follow-Up actions. N/A: Not Applicable	Not Obs.	Yes	No	Follow	N/A	Photo/ Remarks	
ectio	n 6: Ecc								
,01	6,5,8	earthworks to widen the stream have been undertaken from the landward side and existing stream untouched except during the final stage	D	6/					
04	6.5.9	widened stream bottom floored with natural materials to approximate as closely as possible to the rocky components of a natural stream bottom				0		profes L	
02	6.5.10	Any essential works outside the dry season have been temporarily isolated from the stream		9				70,7	
03	6.5.11	Excavation works have been restricted to 300m length at any one time	П	d					
04	6.5.13	native riparian trees which would be impacted during construction works have been transplanted to sultable sites within the project area where possible	П	П				011-954	
.05	6.5.22	Construction activities have been restricted to works area that should be clearly demarcated		П		₫/		ile mohi	
.06	6.5.22	Temporary diversions have been provided to ensure continuous water flow to the downstream section.		Ø					
.07	6.5.22	The proposed works site inside or in the proximity of natural streams have been temporarily isolated		П		9/		sa mota	
08	6.5.22	no disturbance to the stream bed and bank have been found from construction works, equipment or workers for the stream section where the existing natural stream bed and bank will be left untouched		d	П				
09	6.5.22	Temporary access track on streambed have been kept to the minimum width and length	П	0/					
09	6.5.22	Temporary stream crossings are supported on stilfs above the stream bed.	П	12/	D	П			
.10	6.5.22	Adequate temporary drainage measures including sediment and oil/grease traps have been provided to prevent contaminated site run-off entering the water bodies		0	П	П			
.11	6.5.22	Stockpiling of construction materials, spoils and waste have been properly covered and located away from water bodies		0	П		П	Light in province	



Note:	EM&A REF:	Not Obs.; Not Observed; Yes. Compliance, No. Non-Compliance; Follow Up. Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
1.12	6.5.22	Supervisory staff of the contractor have been assigned to station on site to closely supervise and monitor the construction works		D/		О		
1.13	6.5.22	workers have bee regularly briefed to avoid disturbing the flora and fauna near the works area	П					
1.14	6.5.22	Construction effluent, site run-off and sewage have been properly collected, treated and disposed	П	1			0	
1.15	6.5.22	details of the mitigation measures to be implemented during construction stage have been submitted to the Engineer for approval		4				

#### Remarks

MUPOS - Stockpiley of decarated soil her noted new the water course and the contractor has been remarked to observe 65 22 0) the EM 4 A manual.

IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's representative
( )	( )	(K Way)	(c.p. Charl)	( )

#### Environmental Team - Ecological Site Inspection and Audit Checklist

AUES

Inspection Date: Time: PART A: Weather: Temperature		DSD Contract No. DC/2007/08  Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang  GENERAL INFORMATION  Sunny  C  C  C  C  C  C  C  C  C  C  C  C  C	RE/RE's ETL/ ET's EO/EO's	Repres Repres Repres Repres	_/	YW Wong  C P CM DA  vironmental Permit No. P-277/2007A		
Hum Wind Ch	idity:	High Moderate Low Strong Breeze Light	Calm Area Ins	pected		N/A		
PART	B:	SITE AUDIT						
Note:	EM&A	Not Obs. Not Observed, Yes. Compliance, No. Non-Compliance, Follow Up. Observations requiring follow-Up actions. N/A. Not Applicable.	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
	on 6: Ec	cology						
1.01	6.5.8	earthworks to widen the stream have been undertaken from the landward side and existing stream untouched except during the final stage	П	V				
1,04	6.5.9	widened stream bottom floored with natural materials to approximate as closely as possible to the rocky components of a natural stream bottom	Đ			ď		on-5-4 for
1.02	6.5.10	Any essential works outside the dry season have been temporarily isolated from the stream		D				
1.03	6.5.11	Excavation works have been restricted to 300m length at any one time		d				
1.04	6.5.13	native riparian trees which would be impacted during construction works have been transplanted to suitable sites within the project area where possible				0		allgoing
1.05	6,5.22	Construction activities have been restricted to works area that should be clearly demarcated						see Lohe
1.06	6.5.22	Temporary diversions have been provided to ensure continuous water flow to the downstream section,		<b>P</b> /			D	
1.07	6.5.22	The proposed works site inside or in the proximity of natural streams have been temporarily isolated						
1.08	6.5.22	no disturbance to the stream bed and bank have been found from construction works, equipment or workers for the stream section where the existing natural stream bed and bank will be left untouched	П					
1.09	6.5.22	Temporary access track on streambed have been kept to the minimum width and length		d				
1.09	6.5.22	Temporary stream crossings are supported on stilts above the stream bed.		9				
1.10	6.5.22	Adequate temporary drainage measures including sediment and oil/grease traps have been provided to prevent contaminated site run-off entering the water bodies		D/	ū	П		
1 11	6.5.22	Stockpiling of construction materials, spoils and waste have been properly covered and located away from water bodles	П			Д		Lutuk on progress



lote:	EM&A REF:	Not Obs. Not Observed; Yes: Compliance; No. Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow	N/A	Photo/ Remarks
.12	6.5.22	Supervisory staff of the contractor have been assigned to station on site to closely supervise and monitor the construction works		0/				
13	6.5.22	workers have bee regularly briefed to avoid disturbing the flora and fauna near the works area		B			П	
14	6.5.22	Construction effluent, site run-off and sewage have been properly collected, treated and disposed			П	Ô		
.15	6.5.22	details of the mifigation measures to be implemented during construction stage have been submitted to the Engineer for approval		1	П			

Remarks	An mitigation implemented
MUP = 2/-	the contractor has been reminded to clearly demacrate the work area -f
M1405 -	Stockpiling not met to stream and contractor for her reminded to opsure 65 Wat Ms EM 1 A married

IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's representative
( )	<u> </u>	(Kerth Way)	( E. Pihan)	( )



#### **Appendix M**

**Monthly Summary Waste Flow Table** 

Name of Department: DSD Contract No.: DC/2007/08 Date: 5-Jul-11

#### Monthly Summary Waste Flow Table for 2011 (26 May to 25 June )

		Actual Quant	tities of Inert C&I	O Wastes Generate	ed Monthly		А	actual Quantities of	of C&D Wastes G	enerated Monthly	,
Month	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m3)
Jan	3.124	0	1.21	0.33	0	1.584	0.3	0	0	0	0
Feb	1.832	0	1.04	0	0	0.792	0.2	0	0	0	0
Mar	3.383	0	1.12	0	0	2.263	0.1	0	0	0	0
Apr	2.699	0	0.95	0	0	1.749	0	0	0	0	0.006
May	3.02	0	0.78	0	0	2.24	0	0	0	0	0
Jun	0.941	0	0.27	0	0	0.671	0	0	0	0	0
Sub-total	14.999	0	5.37	0.33	0	9.299	0.6	0	0	0	0.006
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	14.999	0	5.37	0.33	0	9.299	0.6	0	0	0	0.006

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

Contract No.	:	DC/2007/08		Date:	:	05 July 2011
					•	
Contract Title:		DRAINAGE IMPROVEMENT V	WORKS AT TAI PO TIN, PING CHE, MAN UK PIN & LIN M	<u>IA HAN</u>	<u>G</u>	

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 <sup>3</sup> )	Actual Quantities used (m³)	Remarks
1.	Construction of catchpit at channel TKL02	Wall formwork	0.3	0.2	
2.	Construction of U-channel at channel TKL07	Falsework	0.1	0.1	
3	Construction of access ramp at MUP05	Wall formwork of ramp of FBM05-6	2.85	3.0	
		Total Estimated Quantity of Timber Used	3.25		

Notes:

- 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.
- 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 25.01E(5).

APP25.5-1 DC/2007/08

	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	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000m <sup>3</sup> )
283.5	35.1	47.5	107	32	24	60	1	1	1	10

Notes:

- (1) The performance targets are given in PS Clause 25.01F(14).
- (2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
- \* (4) The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000 m3. (PS Clause 25.01E(4)(b) refers). [Delete Note (4) and the table above on the forecast, where inapplicable].



#### Appendix N

**Response to Comments** 



### DSD Contract DC/2007/08 – Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk and Lin Ma Hang

1st Response to IEC Comments – EM&A Report (Designated Project)

Item	Section / Paragraph	Comment	Response
1	Section 6.6.2	Please update the whole section as it is not presenting the information in this reporting period.	Updated
2	Appendix K	The weekly inspection checklists should be provided in the appendix.	Updated

2nd Response to IEC Comments – EM&A Report (Designated Project)

Item	Section / Paragraph	Comment	Response