

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

10TH MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT FOR THE DESIGNATED WORKS UNDER THE PROJECT – DECEMBER 2009 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
13 January 2010	TCS00409/08/600/R0668v2	Anh	TX Y

Nicola Hon Environmental Consultant Andrew Lau Environmental Team Leader

Version	Date	Remarks	
1	11 Jan 2010	First Submission	
2	13 Jan 2010	Amended against IEC's comments on 12 January 2010	

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ENVIRON

Ref.: DSDFANLGEM01_0_0580L.09

13 January 2010

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 December 2009 (Rev. 2)

With reference to the 10th Monthly EM&A Report (December 2009, Rev. 2) for the Designated Project Channels MUP03A&B, MUP04A&B, MUP05 and LMH01 provided by the Environmental Team by email on 13 January 2010.

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. Andrew Lau

Fax: 29596079

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EXECUTIVE SUMMARY

- ES.01 This is the **10th** monthly EM&A Report for Channels MUP03A&B, MUP04A&B, MUP05 and LMH01 covering a period from **26 November 2009 to 25 December 2009** (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 of air quality, construction noise, water quality and ecology was therefore performed at those channels only.
- ES.03 The monitored results of air quality and construction noise demonstrated were in full compliance with the environmental quality criteria. However, eight (8) exceedances of stream water quality (Limit Levels) were recorded, which included three (3) Limit Level exceedances in turbidity and five (5) Limit Level exceedances in suspended solids (SS). Based on the investigation reports, all exceedances were considered not related to the works of the Project. No associated corrective actions were therefore required.

Station	D	0	Turb	idity	pH V	alu e	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	2	0	0	0	3	0	5
MUP-W6 ^(b)	0	0	0	1	0	0	0	2	0	3
Exceedances	0	0	0	3	0	0	0	5	0	8
Pemarks: ^(a) impact station: ^(be) Temporary or mobile station										

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

- ES.04 **Five** ecological general audits were performed in this reporting month at the nominated construction channel (MUP05). It was noticed that sediment-loaded water was drained into the natural stream after passing through the sedimentation tank, and the contractor has been reminded to carry out routine inspection/maintenance to ensure the effectiveness of the facilities, and make sure the capacity of the sedimentation tank could meet the volume of the water extracted from the work site.
- ES.05 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.06 Due to 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. Mitigation measures for water quality and ecology should therefore be fully implemented.
- ES.07 As dry season has come, dust control measures to avoid dust emissions should be properly provided and maintained, as appropriate.
- ES.08 In addition, attention should also be paid to dust emission and 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 **10th** monthly report covering data from **26 November to 25 December 2009** 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//Issue2*]. 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 25th of each month is the cut-off day of each reporting month. Data collected after the 26th 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:

<u>Channel</u>	Construction Work Activities	
MUP03A&B, MUP04A&B and MUP05	 Construction of site access Site clearance Survey setting out Installation of site hoardings and boundary wall Construction of access ramp and gabion wall 	
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	21
Table	3-1

Environmental Mitigation Measures Undertake in the Reporting Month

	-	
Location	Construction Activities	Environmental Mitigation Measures to be deployed
MUP03A&B,	Construction of site access	• Excavated area and stockpile of soil material was
MUP04A&B and		dampened / covered before dispose off-site
MUP05	Site clearance	Water spraying was provided before and during
		handling of excavated material.
	Survey setting out	Tree will be properly protected before works
		commenced.
	Construction of Access Ramp	Excavated area and stockpile of soil material was
	and gabion wall	dampened / covered before dispose off-site
		Water spraying will be provided before and during
		handling of excavated material.
		Retained tree will be properly protected before works
		commenced
	Installation of Site Hoardings	Excavated area and stockpile of soil material was
	and boundary wall	dampened / covered before dispose off-site
	5	 Water spraying will be provided before and during
		handling of excavated material.
		Trees will be properly protected before works
		commenced.

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 • 5213-652-C3251-05 Valid date: 23 July 2008 Valid date: 15 August 2008			
4	Water Pollution Control (Discharge license) W5/1G34/1 W5/1G35/1 W5/1I324/1 W5/1I325/1 	Expiry date: 31 August 2013 Expiry date: 31 August 2013 Expiry date: 31 August 2013 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	Sum
	oun

Summary of Monitoring Parameters

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

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 4-2Monitoring 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 as MUP01/02-1)	MUP-A1 (same as MUP01/02-A1)	Village north of Loi Tung (same as Village house at 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 as MUP01/02-1)	MUP-N1 (same as MUP01/02-N1)	Village north of Loi Tung (same as Village house at Man Uk Pin)			
	MUP05	MUP05-4	MUP-N2	Village north of Loi Tung			
Noise		MUP05-6	MUP-N3	Village north of Loi Tung			
NUISC		LMH01-1		Villago of Lin Ma Hang(* <i>Domark</i> : Mobile station			
	LMH01	LMH01-2		Village of Lin Ma Hang(* <i>Remark: Mobile station</i> subject to the location of the construction works to be measured at Sensitive Receiver LMH01-1 or LMH01-2 or LMH01-3 or LMH01-4 or LMH01-5)			
		LMH01-3	LMH-N1*				
		LMH01-4					
		LMH01-5					
MUP04A		Control Station	MUP-W3	Upstream of MUP04A works			
	MUP05	Control Station	MUP-W1 (same as MUP01/02-W1)	Upstream of MUP01 works			
		Control Station	MUP-W2 (same as MUP01/02-W2)	Upstream of MUP02 works			
Water		Impact Station MUD		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			

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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	
	LMH01	Impact Station	LMH-W3	Downstream of all LMH01 works immediately at the discharge point to Shenzhen River	
Water		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	eam	Upstream and downstream of Construction site	
	and	General Site audit (with emphasis on		Along stream channel, within 100m upstream and	
Ecology	LMH01			downstream of construction site	
	LMH01			Along stream channel, within 100m upstream and downstream of construction site	

[#] 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.
Duration:	During the course of construction works

Construction Noise

Parameters:	Leq(30 min) in six consecutive Leq(5 min) measurements.
Frequency:	Once a week during 0700-1900 on normal weekdays:
Duration:	During the course of construction works

Water Quality

Parameters:	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.
Depths:	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
Duration:	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 equipments 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 2236		
Calibrator	B&K Type 4231		
Portable Wind Speed Indicator	Testo Anemometer		

4.4.3 Water Quality

Monitoring Equipments 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 equipments 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.

<u>Noise</u>

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//Issue2].

4.5 MONITORING PROCEDURE

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

4.5.1 Air Quality

18 <u>hour TSP</u>

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 90⁰ 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.

<u> 24 –hour TSP</u>

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^oC for ease of comparison of the data under the changing reality, the temperature readings of the DO Meter is recorded.

<u>рН</u>

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-litter 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	vel (μg /m³)	Limit Level (µg/m³)		
Monitoring Station	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP	
MUP-A1	>307	>194	> 500	> 260	
MUP-A2a	>300	>178	> 500	> 260	
MUP-A3	>299	>178	> 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

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.

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

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

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

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

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

Parameter	Action Level	Limit Level

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

		Summary of Fridar 131 Monitoring Results (µgm)										
	ML	MUP-A1 (MUP05)			MUP-A2a (MUP05)				MUP-A3 (MUP04A)			
Date	Start	Mea	asurem	ent	Start	Ме	asureme	ent	Start	Me	asurem	ent
	Time	1 st	2 nd	3 rd	Time	1 st	2 nd	3 rd	Time	1 st	2 nd	3 rd
1-Dec-09	13:37	149	170	162	13:21	141	158	143	13:30	136	150	146
7-Dec-09	09:10	58	67	64	09:30	50	59	58	09:20	62	69	69
12-Dec-09	09:15	89	97	89	09:00	85	94	90	13:00	92	100	90
18-Dec-09	13:00	78	87	75	13:45	75	79	73	13:15	78	84	75
24-Dec-09	13:17	118	121	116	13:52	121	124	118	14:10	98	104	95
Average	103			98			97					
(range)		(58 – 1	170)			(50 –	158)			(62 –	150)	

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

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

Date	MUP-A1 (MUP05)	MUP-A2a (MUP05)	MUP-A3 (MUP04A)
30-Nov-09	88	111	92
5-Dec-09	78	89	71
11-Dec-09	80	58	30
17-Dec-09	58	56	13
23-Dec-09	32	95	51
Average (range)	85 (32-88)	82 (56-111)	51 (13 – 92)

Power failure and no make up of lose samples.

As shown in **Tables 5-1** and **5-2**, the results of 1-hour and 24-hour TSP monitoring fluctuated well below the corresponding Action Levels. No exceedance of Action and Limit Levels was recorded during the period. No Notifications of Environmental Quality Limit Exceedances (NOE) or corrective actions were therefore required for these parameters.

5.2 CONSTRUCTION NOISE

According to the EM&A Manual, noise monitoring is only required 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 Resu

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

Date	Start Time	1 st Leq5	2 nd Leq5	3 rd Leq5	4 th Leq5	5 th Leq5	6 th Leq5	Leq30 dB(A)
1-Dec-09	13:40	56.5	57.6	57.4	56.5	56.2	57.1	56.9
7-Dec-09	09:10	53.4	55.9	56.0	54.3	52.1	52.9	54.3
12-Dec-09	10:55	62.5	63.9	64.3	63.8	65.9	67.2	64.9
18-Dec-09	13:05	64.1	65.8	64.9	63.8	64.5	65.2	64.8
24-Dec-09	13:44	59.4	58.0	59.2	59.3	59.4	58.9	59.1
Limit Level (Leq30)	75 dB(A)						

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Table 5-4	Results of Construction Noise Monitoring at Channels MUP-N2 (MUP05)							
Date	Start Time	1 st Leq5	2 nd Leq5	3 rd Leq5	4 th Leq5	5 th Leq5	6 th Leq5	Leq30 dB(A)
1-Dec-09	15:34	51.0	51.2	50.6	51.0	51.5	50.8	51.0
7-Dec-09	11:00	53.5	53.9	54.3	52.8	53.3	53.6	53.6
12-Dec-09	10:15	65.8	66.1	66.2	65.5	67.1	67.3	66.4
18-Dec-09	14:55	64.1	65.2	64.7	64.4	63.9	64.0	64.4
24-Dec-09	15:07	65.2	65.0	66.4	65.3	65.7	65.4	65.5
Limit Level (Leq30)	75 dB(A)						

Table 5-5

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

Date	Start Time	1 st Leq5	2 nd Leq5	3 rd Leq5	4 th Leq5	5 th Leq5	6 th Leq5	Leq30 dB(A)
1-Dec-09	14:18	51.8	52.2	52.1	51.5	51.3	51.6	51.8
7-Dec-09	09:40	60.3	61.2	59.6	58.9	60.3	59.8	60.1
12-Dec-09	13:00	63.2	63.1	65.7	64.3	66.2	63.4	64.5
18-Dec-09	14:20	70.9	70.5	70.4	69.4	69.5	70.2	70.2
24-Dec-09	14:21	70.2	70.3	70.5	69.9	70.1	70	70.2
Limit Level (Leq30)	75 dB(A)						

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

Date	Start Time	1 st Leq5	2 nd Leq5	3 rd Leq5	4 th Leq5	5 th Leq5	6 th Leq5	Leq30 dB(A)
1-Dec-09	14:56	51.3	50.8	47.4	48.5	48.2	49.2	49.5
7-Dec-09	10:20	56.4	57.3	56.7	58.2	57.9	58.5	57.6
12-Dec-09	11:30	66.1	65.4	65.9	66.2	67.3	66.1	66.2
18-Dec-09	15:31	67.1	65.4	66.2	67.2	67.7	66.8	66.8
24-Dec-09	15:40	61.4	62	61.9	61.4	62.1	61.8	61.8
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 12 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 were eight (8) exceedances of stream water quality (Limit Levels) were recorded, which included three (3) Limit Level exceedances in turbidity and five (5) Limit Level exceedances in suspended solids (SS). Based on the investigation reports, all exceedances were considered not related to the works of the Project. No associated corrective actions were therefore required. NOEs were issued and Investigations were conducted in accordance with EM&A Manual requirements. It was observed during site inspection that the increased water turbidity was probably due to algae growth in Channel MUP05; also turbid water was found being discharged from other construction sites at Channel MUP04 which significantly affected the water quality. Therefore, it was concluded that all exceedances of stream water quality were not related to the works of the Project. 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	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	2	0	0	0	3	0	5
MUP-W6 ^(b)	0	0	0	1	0	0	0	2	0	3
Exceedances	0	0	0	3	0	0	0	5	0	8

Remarks: ^(a) impact station; ^(b) Temporary or mobile station

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For pH measurements, the results shown that the range of pH unit were within 6.8 -8.1 and within the lower or upper bounds of Action Limit Level.

Since the exceedances were not related to the project, no corrective actions were therefore required for all parameters. However CHCT should be reminded to enhance their water quality mitigation measures in order to minimize any potential water quality impacts as a good practice.

5.4 ECOLOGY

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 November 2009, 03 December 2009, 10 December 2009, 18 December 2009 and 24 December 2009 by an ecological specialist. During the site audits on 26 Nov 2009 and 03 Dec 2009, it was noticed that sediment-loaded water was drained into the natural stream after passing through the sedimentation tank, and the contractor has been reminded to carry out routine inspection/maintenance to ensure the effectiveness of the facilities, and make sure the capacity of the sedimentation tank could meet the volume of the water extracted from the work site. The detailed findings are listed in the table below and the checklists are attached in *Appendix L*.

	Taken		
Date of Audit	Defects and Deficiencies Identified	Recommendation	Follow-up Actions and Remedies Taken
26 Nov 09	The temporary sedimentation tank was found loaded with sediment and sediment-loaded runoff was found in the outflow	To clean-up the sediment in the tank before further operation and carry out routine inspection/ maintenance of the temporary sedimentation tank as such to ensure its effectiveness	The operation of the tank was stopped immediately and maintenance to be carried out by the Contractor
03 Dec 09	The temporary sedimentation tank was found loaded with sediment and sediment-loaded runoff was found in the outflow	To clean-up the sediment in the tank before further operation and carry out routine inspection/ maintenance of the temporary sedimentation tank as such to ensure its effectiveness	The usage of the sedimentation tank was suspended until the sediment in the tank cleared and no run-off was found during the site audit
10 Dec 09	Although no run-off was observed during the site audit, the temporary sedimentation tank was found loaded with sediment	To carry out routine inspection/ maintenance of the temporary sedimentation tank as such to ensure its effectiveness	Clearance of the sediment in the sedimentation tank is still pending
18 Dec 09	Although no run-off was observed during the site audit, the temporary sedimentation tank was found loaded with sediment	To carry out routine inspection/ maintenance of the temporary sedimentation tank as such to ensure its effectiveness	Clearance of the sediment in the sedimentation tank is still pending
24 Dec 09	Nil	Nil	Nil

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

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 and construction noise monitoring in this reporting month. However, **8** Limit Level exceedances of stream water quality were recorded. Based on the subsequent investigations, all exceedances of stream water quality were considered as not related to the works of the Project.

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*.

Type of Waste	Quantity	Disposal Location
C&D Materials (Inert) (m ³)	-	Tuen Mun 38 Fill Bank
	8861	Reused in other Projects
C&D Materials (Non-Inert) (m ³)	0	NENT
Chemical Waste (Litres)	0	NA
General Refuse (m ³)	0	NA

Table 6-1 Summary of Quantities of Waste for Disposal

Table 6-2

Summary of Quantities of Waste for Reuse/Recycling

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

There was no known site effluent discharged but it was assumed that an estimated volume of 50m³ of waste water was discharged in this reporting month.

6.6.2 Site Inspection and Environmental Audit

A total of **four** weekly environmental site inspection and audit were conducted jointly by the ER, EO and ET during the Reporting Period on **1**, **8**, **15** and **22** December 2009 and there was also an IEC audit undertaken on **9** December 2009. No adverse environmental impacts were observed which indicated that the mitigation measures implemented were effective. Minor deficiencies found in the site inspections and audit were promptly rectified within the specified deadlines. Findings of the site inspection and environmental audit are summarized below.



Table 6-3	Summary of Findings of Site Inspection and Environmental Audi	t
Date	Findings / Deficiencies	Follow-Up Status
1 December 2009	• Chemical or Oil containers were found on site. The contractor is reminded to store all chemical materials in proper storage areas or provide impervious cover over any chemical containers and provide drip tray to prevent any leakage.	The deficiencies have been improved during site inspection on 8 December 2009.
8 December 2009	 C&D waste and Debris were observed, The Contractor is reminded to keep the site clean and tidy at all times. Runoff of muddy water was observed at MUP01/02. The Contractor is reminded to provide relative mitigation measures such as filter placement, to prevent any surface runoff Stagnant water should be removed or applied larvidical oil to prevent mosquitoes breeding 	The deficiencies have been improved during site inspection on 15 December 2009.
15 December 2009	 Debris was observed at MUP01/02. The Contractor is reminded to have a clear pathway and to keep the site clean and tidy. Chemical or Oil containers were found on site. The contractor is reminded to store all chemical materials in proper storage areas or provide impervious cover over any chemical containers and provide drip tray to prevent any leakage. 	The deficiencies have been improved during site inspection on 22 December 2009.
22 December 2009	 Remind water sprayed should be regular undertaken to prevent dust emission. Dead of stagnant water was observed during the site inspection. Larvidical oil or pumped out should be undertaken to prevent mosquitoes breeding 	Will be reported on next month

Performa of the weekly ET site inspection and audit activities are presented in Appendix K.

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) Tree transplant;
- (c) Construction of site access;
- (d) Site clearance;
- (e) Construction of access ramp and gabion wall; and
- (f) Installation of site hoardings and boundary wall.

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

As dry season is approaching, dust control measures to avoid dust emissions should be properly provided and maintained, as appropriate.

Although wet season has essentially gone, the water implemented mitigation measures such as sand bags downstream of the excavation site should be maintained and improved as necessary as preventative measures. Mitigation measures for air and water quality should therefore be properly maintained and improved as necessary. Temporary drainage plans should be implemented ahead.

Attention should also be paid to construction noise and other environmental issues identified in the EM&A Manual. Mitigation measures recommended in the ESR and summarized in Mitigation Measure Implementation Schedule should be fully implemented.

7 CONCLUSIONS AND RECOMMENDATIONS

This is the **10th** monthly EM&A Report for Channels MUP03A&B, MUP04A&B, MUP05 and LMH01 - Designated Project, covering a period from **26 November to 25 December 2009**.

The monitored results demonstrated no exceedance of Action and Limit Levels of air quality and construction noise; and also no non-conformance of ecology during the Reporting Period. Therefore, no corrective actions were necessary for these environmental issues.

However, eight (8) exceedances of stream water quality (Limit Levels) were recorded, which included three (3) Limit Level exceedances in turbidity and five (5) Limit Level exceedances in suspended solids (SS). Based on the investigation reports, all exceedances were considered not related to the works of the Project. 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 dry season has come, dust control measures to avoid dust emissions should be properly provided and maintained, as appropriate.

Attention should also be paid to construction noise and other environmental issues identified in the EM&A Manual. Other mitigation measures recommended in the ESR and summarized in Mitigation Measure Implementation Schedule should be fully implemented.

Although wet season has essentially gone, the water implemented mitigation measures such as sand bags downstream of the excavation site should be maintained and improved as necessary as preventative measures.

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

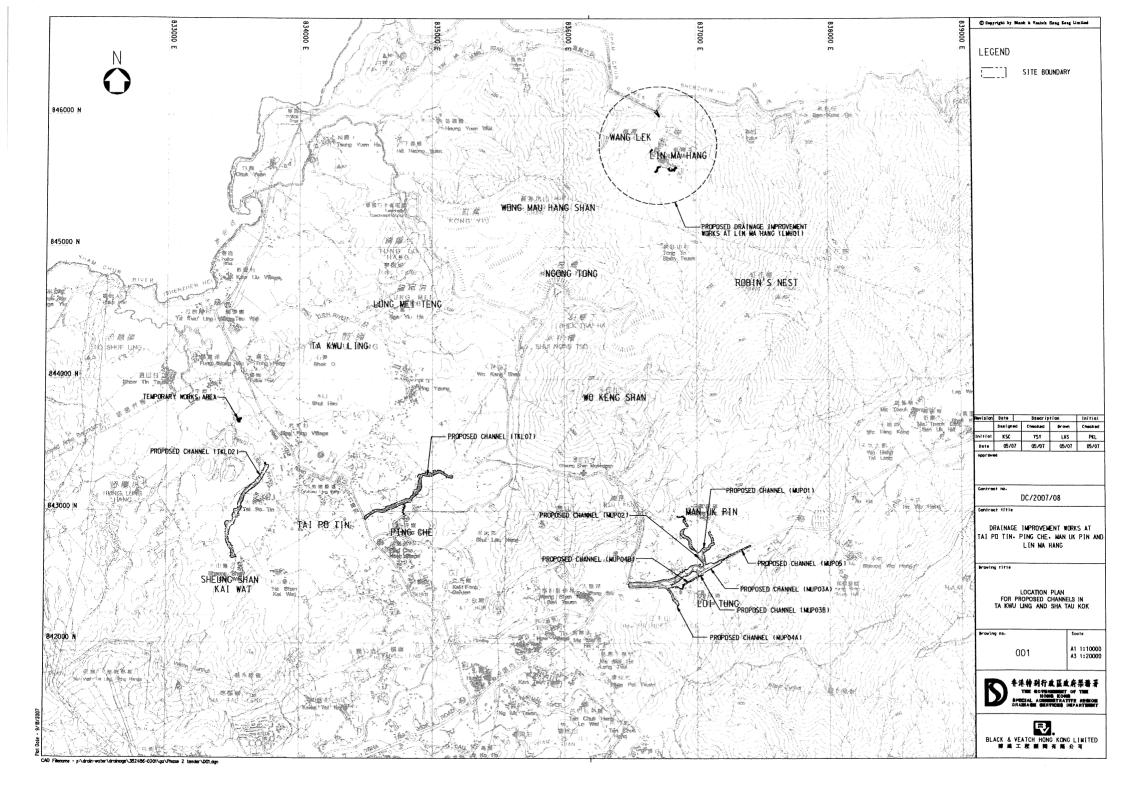
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Appendix A

Site Location Plan

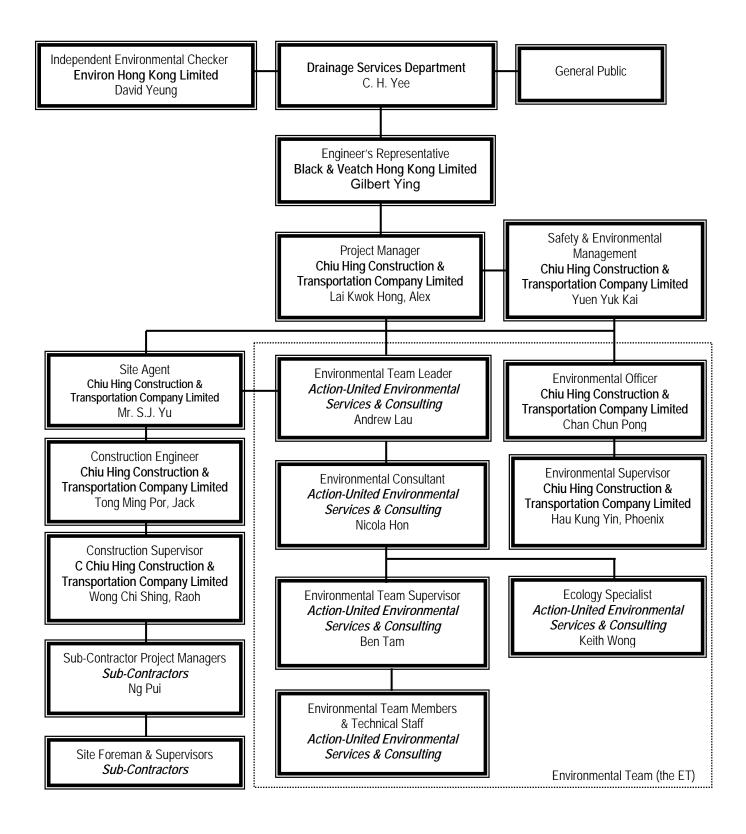
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Appendix B

Environmental Management Organization and Contacts of Key Personnel



Environmental Management Organization

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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
СНСТ	Project Manager	Mr. Lai Kwok Hong, Alex	2659-8221	2659-8232
СНСТ	Safety & Environmental Manager	Mr. Yuen Yuk Kai	2659-8221	2659-8232
СНСТ	Site Agent	Mr. S.J. Yu	2659-8221	2659-8232
СНСТ	Construction Engineer	Mr. Tong Ming Por, Jacky	2659-8221	2659-8232
СНСТ	Construction Supervisor	Mr. Roah Wong	2659-8221	2659-8232
СНСТ	Structural Engineer	Mr. Kwok Chin Ming	2659-8221	2659-8232
СНСТ	Site Forman	Mr. Chung Ping Kai	2659-8221	2659-8232
СНСТ	Environmental Officer	Mr. C. P. Chan	2659-8221	2659-8232
СНСТ	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. Andrew Lau	2959-6059	2959-6079
AUES	Environmental Consultant	Miss Nicola Hon	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 **Master Construction Program**

CHIU HING CONSTRUCTION & TRANSPORTATION Co., Ltd MASTER PROGRAMME 05 (Section 1 of works) CONTRACT: DC/2007/8. DRAINAGE IMPROVEMENT WORKS at TAI PO TIN, PING CHE, MAN UK PIN AND LIN MA HANG

ID	Task Name	Duration	Start	Finish	18 2009 2010 18. Half 1 2008, Half 2 2009, Half 1 2009, Half 2 2010, Half 1	2010, Half 2 2011, Half 1
						M A M J J A S O N D J F
1 2	CONTRACT: DC/2007/08 (The Woks)	1045 days	Wed 08-4-30	Thu 11-3-10		1
	Section 1 - Tai Po Tin (Portion B)	1045 days	Wed 08-4-30	Thu 11-3-10		
	Commencement Date	0 days	Wed 08-4-30	Wed 08-4-30		1
	Handover of Portion B	0 days	Wed 08-4-30	Wed 08-4-30		
	River TKL02 with section 5 of works	1045 days	Wed 08-4-30	Thu 11-3-10		1 I
6	Prelim Works	336 days	Wed 08-4-30	Tue 09-3-31		
7	Baseline Monitoring	180 days	Wed 08-4-30	Sun 08-10-26		1
3	Initial survery	60 days	Tue 08-12-2	Fri 09-1-30		
)	Mobilisation	10 days	Mon 09-2-2	Wed 09-2-11	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
0	Site clearance	18 days	Thu 09-2-12	Sun 09-3-1		
1	Tree survey + report	170 days	Wed 08-4-30	Thu 08-10-16		
2	Construct Access Road	20 days	Mon 09-3-2	Sat 09-3-21		
3	Remove and Transplant trees	60 days	Fri 08-10-17	Mon 08-12-15		
14	Implement Drainage Improvement measures	30 days	Mon 09-3-2	Tue 09-3-31		
15	Utility Survey/diversion	150 days	Mon 08-10-27	Wed 09-3-25		
16	Main River Constructioin	467 days	Sun 09-3-22	Thu 10-7-1		
7	Temporary Flow Diversion	50 days	Sun 09-3-22	Sun 09-5-10		
3	Open cut excavation	150 days	Mon 09-5-11	Wed 09-10-7		
9	Rock & ganular filling for the base of gabion	170 days	Sat 09-6-20	Sun 09-12-6		
0	Blinding layer for the gabion construction	170 days	Wed 09-7-22	Thu 10-1-7		
21	Backfilling and gabion constrution by layers	200 days	Sun 09-8-16	Wed 10-3-3		
22	Gabion block constuction in the middle of the river	170 days	Fri 09-9-25	Sat 10-3-13		
23	200 Rip Rap filling	90 days	Sun 10-1-3	Fri 10-4-2		
24	granular fill for the maintenance access	90 days	Sat 10-1-23	Thu 10-4-22		<u>2228</u>
25	Construction of maintenance access	100 days	Fri 10-2-12	Sat 10-5-22		
26	Rip Rap filling inside the maintenance access	90 days	Sun 10-3-14	Fri 10-6-11		
27	Grassed cellular concrete paving	90 days	Sat 10-1-23	Thu 10-4-22		
28	Construction of concrete transition channel	30 days	Wed 10-6-2	Thu 10-7-1		
29	River Associated Works	527 days	Wed 09-9-30	Thu 11-3-10		
30	Footbridge construction	160 days	Sun 10-3-14	Fri 10-8-20		
31	FBT02-3 at CH 406 approximate	40 days	Sun 10-3-14	Thu 10-4-22		
32	VBT02-1 at CH507 approximate	40 days	Fri 10-4-23	Tue 10-6-1		E Contra
33	FBTB2-2 at CH510 approximate	40 days	Wed 10-6-2	Sun 10-7-11		
34	FBT02-1 at CH662 approximate	40 days	Mon 10-7-12	Fri 10-8-20		
35	Ramp construction	370 days	Wed 09-9-30	Mon 10-10-4	37	
36	At CHO Approximate	62 days	Wed 09-9-30	Mon 09-11-30		
37	Granular filling with geotextile filter	20 days	Wed 09-9-30	Mon 09-10-19		
38	Concrete for the blinding layer	20 days	Mon 09-10-5	Sat 09-10-24		1 1
39	Base slab construction for the ramp	30 days	Sat 09-10-10	Sun 09-11-8		
40	Wall construction for the ramp	45 days	Sat 09-10-17	Mon 09-11-30		
41	At CH406 Approximate	60 days	Fri 10-4-23	Mon 10-6-21	· · · · · · · · · · · · · · · · · · ·	
41 42	Granular filling with geotextile filter	20 days	Fri 10-4-23	Wed 10-5-12		in the second se
42	Concrete for the blinding laver	20 days	Wed 10-4-28	Mon 10-5-17		ETT A
13	Base slab construction for the ramp	30 days	Mon 10-5-3	Tue 10-6-1		LAETETER
14	Wall construction for the ramp	45 days	Sat 10-5-8	Mon 10-6-21		
45 16	At CH501 Approximate	60 days	Wed 10-6-2	Sat 10-7-31		
17	Granular filling with geotextile filter	20 days	Wed 10-6-2	Mon 10-6-21		
	Concrete for the blinding layer	20 days 20 days	Mon 10-6-7	Sat 10-6-26		
48 49	Base slab construction for the ramp	30 days	Sat 10-6-12	Sun 10-7-11		
49 50	Wall construction for the ramp	45 days	Thu 10-6-17	Sat 10-7-31		
50	At CH662 Approximate	45 days	Sat 10-8-21	Mon 10-10-4		
51	At CH662 Approximate Granular filling with geotextile filter	20 days	Sat 10-8-21 Sat 10-8-21	Thu 10-9-9		
	Concrete for the blinding layer	20 days 20 days	Thu 10-8-26	Tue 10-9-14		
53 54	Base slab construction for the ramp	20 days 30 days	Tue 10-8-31	Wed 10-9-29		
54 55	Base slab construction for the ramp Wall construction for the ramp	30 days	Sun 10-9-5	Mon 10-10-4		
	1					
6	Verge/footpath construction	200 days	Mon 09-10-5 Mon 09-10-5	Thu 10-4-22 Fri 10-4-2	Contraction of the Contraction o	884 E
	Subase construction for the verges		Mon 09-10-5 Thu 09-10-15	Mon 10-4-12		
58	Gassed cellular concrete/concrete paving	180 days		Mon 10-4-12 Thu 10-4-22	teriteriteriteriteriteriteriteriteriteri	
59	Type 2 railing construction	180 days	Sun 09-10-25			2-2-2-2-
60	Retaining wall construction	80 days	Thu 09-10-15	Sat 10-1-2		
61	At CH0 Approximate	40 days	Thu 09-10-15	Mon 09-11-23		
62	Type D L-shaped RW construction	20 days	Thu 09-10-15	Tue 09-11-3		
63	Preforated pipe installation	10 days	Wed 09-11-4	Fri 09-11-13		
64	Backfilling the RW	10 days	Sat 09-11-14	Mon 09-11-23		1. 1
_	Master Programme (Rev 05) Task	ogress	Summ	ary 🖤	Rolled Up Critical Task Rolled Up Progress External Tasks Group B	/ Summary

CHIU HING CONSTRUCTION & TRANSPORTATION Co., Ltd MASTER PROGRAMME 05 (Section 2 of works) CONTRACT: DC/2007/8. DRAINAGE IMPROVEMENT WORKS at TAI PO TIN, PING CHE, MAN UK PIN AND LIN MA HANG

D Task Na	me	Duration	Start.	Finish	2008, Half I 2008, Half 2 2009, Half 1 2009, Half 2 2011, Half 1 2011, Half 1<
	TRACT: DC/2007/08 (The Woks)	1226 days	Fri 07-12-21	Fri 11-4-29	
	andover of Portion A	0 days	Fri 07-12-21	Fri 07-12-21	
3 Se	ection 2 & 5- Ping Che (Portion C & E)	1095 days	Wed 08-4-30	Fri 11-4-29	
	Commencement Date	0 days	Wed 08-4-30	Wed 08-4-30	
5	Hand over of Portion C & E	0 days	Wed 08-4-30	Wed 08-4-30	
6	River TKL07 (Portion C & E)	900 days	Wed 08-4-30	Sat 10-10-16	
7	Prelim Works	400 days	Wed 08-4-30	Wed 09-6-3	
8	Basline monitoring	210 days	Wed 08-4-30	Tue 08-11-25	
9	Initial Survery	80 days	Fri 08-5-2	Sun 08-7-20	
10	Mobilisation	10 days	Wed 08-11-26	Fri 08-12-5	
1	Site clearance	30 days	Sat 08-12-6	Sun 09-1-4	
2	Tree survey	10 days	Fri 08-8-1	Sun 08-8-10	
3	Construct Access Road	20 days	Sat 08-12-6	Thu 08-12-25	
4	Remove and Transplant the trees	90 days	Fri 08-12-26	Wed 09-3-25	
15	Utility Survey/diversion	180 days	Sat 08-12-6	Wed 09-6-3	
16	Design submissions to PS 1.68	180 days	Wed 08-9-17	Sun 09-3-15	
17	Implement Drainage Improvement Measures	50 days	Wed 08-12-24	Wed 09-2-11	
18	Main River Construction (CH0 to CH80)	96 days	Tue 10-7-13	Sat 10-10-16	
19	Temporary Flow Diversion	20 days	Tue 10-7-13	Sun 10-8-1	
20	Open cut excavation	20 days	Mon 10-8-2	Sat 10-8-21	
21	Rock & ganular filling for the base of gabion	40 days	Sun 10-7-18	Thu 10-8-26	
22	Blinding layer for the gabion construction	40 days	Fri 10-7-23	Tue 10-8-31	
23	Backfilling and gabion construction by layers	46 days	Wed 10-7-28	Sat 10-9-11	William I
24	Ganular Filling for the river	25 days	Tue 10-9-7	Fri 10-10-1	
25	Grassed cellular concrete paving	25 days	Wed 10-9-22	Sat 10-10-16	
26	Main River Construction (CH150 to CH270 approx	125 days	Fri 09-11-20	Wed 10-3-24	
27	Temporary flow diversion	20 days	Fri 09-11-20	Wed 09-12-9	
28	Open cut excavation	35 days	Thu 09-12-10	Wed 10-1-13	
29	Rock & ganular filling for the base of gabion	40 days	Thu 09-12-10	Mon 10-1-18	
30	Blinding layer for the gabion construction	30 days	Fri 09-12-25	Sat 10-1-23	
31		65 days	Wed 09-12-30	Thu 10-3-4	
32	Backfilling and gabion constrution by layers			Sun 10-3-14	
33	Ganular Filling for the river	35 days	Mon 10-2-8	Wed 10-3-24	
33	Grassed cellular concrete paving	30 days	Tue 10-2-23		
	River associated Works	224 days	Fri 10-3-5	Thu 10-10-14	
35	Box culvert construction at CH230 approximate	144 days	Fri 10-3-5	Mon 10-7-26	
36	Temporary flow diversion	14 days	Fri 10-3-5	Thu 10-3-18	
37	Open cut excavation	30 days	Fri 10-3-19	Sat 10-4-17	
38	Granular filling with geotextile filter	30 days	Mon 10-3-29	Tue 10-4-27	
39	Concrete for blindling layer	30 days	Thu 10-4-8	Fri 10-5-7	
40	Base slab construction	60 days	Sun 10-4-18	Wed 10-6-16	
41	Wall & Top Slab construction	60 days	Wed 10-4-28	Sat 10-6-26	
42	Backfilling	30 days	Sun 10-6-27	Mon 10-7-26	
43	Footbridge construction	196 days	Fri 10-3-19	Thu 10-9-30	
44	FBT07-1 at CH 35 approximate	60 days	Mon 10-8-2	Thu 10-9-30	
45	FBT07-2 at CH250 approximate	55 days	Fri 10-3-19	Wed 10-5-12	
46	Verge/footpath construction	60 days	Thu 10-5-13	Sun 10-7-11	
47	Subase construction for the verges	20 days	Thu 10-5-13	Tue 10-6-1	
48	Gassed cellular concrete/concrete paving	20 days	Wed 10-6-2	Mon 10-6-21	
49	Type 2 railing construction	20 days	Tue 10-6-22	Sun 10-7-11	
50	Retaining wall construction	50 days	Thu 10-5-13	Thu 10-7-1	
51	At CH230 Approximate	50 days	Thu 10-5-13	Thu 10-7-1	
52	Type D L-shaped RW construction	30 days	Thu 10-5-13	Fri 10-6-11	
53	Preforated pipe installation	10 days	Sat 10-6-12	Mon 10-6-21	
54	Backfilling the RW	10 days	Tue 10-6-22	Thu 10-7-1	
55	U Channel construction	105 days	Fri 10-7-2	Thu 10-10-14	
56	375 UC at CH230 Approximate	105 days	Fri 10-7-2	Thu 10-10-14	
57	Trench excavation	60 days	Fri 10-7-2	Mon 10-8-30	
58	Concrete for the U channel	45 days	Tue 10-8-31	Thu 10-10-14	
9	Inlet Pipes	25 days	Thu 10-3-25	Sun 10-4-18	
0	Inlet pipe at CH270 Approximate	25 days	Thu 10-3-25	Sun 10-4-18	
51	Main River Construction (CH80 to CH150 approximate	110 days	Thu 10-3-25	Mon 10-7-12	
62	Temporary Flow Diversion	15 days	Thu 10-3-25	Thu 10-4-8	
63	Open cut excavation	30 days	Fri 10-4-9	Sat 10-5-8	
64		30 days	Mon 10-4-19	Tue 10-5-18	
	Rock & ganular filling for the base of gabion	50 days	101011 10-4-19	Tue 10-3-18	
and the second	Task Proj	ress	Sur	mmary 🛡	Rolled Up Critical Tasks EEEE Rolled Up Progress External Tasks Group By Summary
ject: Master P e: 01/2009	rogramme (Rev.05)	estone			Rolled Up Millistone Still Project Summary Deadline
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CHIU HING CONSTRUCTION & TRANSPORTATION Co., Ltd MASTER PROGRAMME 05 (Section 2 of works)

D Task I	Name	Duration	Start	Finish	2008	2009	2010	2011
					2008, Half 1 2008, Half 2 N D J F M A M J J A S 0	2009, Half 1 2009, Half 2 0 N D J F M A M J J A	2010, Half 1 2010, H S O N D J F M A M J J	
5	Blinding layer for the gabion construction	20 days	Sun 10-5-9	Fri 10-5-28				······································
6	Backfilling and gabion construction by layers	45 days	Wed 10-5-19	Fri 10-7-2		19 1 18 1		1. 1.
7	Ganular Filling for the river	25 days	Sun 10-6-13	Wed 10-7-7		1		5
8	Grassed cellular concrete paving	25 days	Fri 10-6-18	Mon 10-7-12		in the second discovery the second		
)	Main River Construction (CH270 to CH670 approxima	195 days	Tue 09-5-19	Sun 09-11-29		13		
0	Temporary Flow Diversion	25 days	Tuc 09-5-19	Fri 09-6-12			1	B Z
1	Open cut excavation	60 days	Sat 09-6-13	Tue 09-8-11			1 1	1
2	Rock & ganular filling for the base of gabion	60 days	Tue 09-6-23	Fri 09-8-21				1 I
3	Blinding layer for the gabion construction	60 days	Fri 09-7-3	Mon 09-8-31				
4	Backfilling and gabion constrution by layers	75 days	Mon 09-7-13	Fri 09-9-25			Hilm I I I I I I I I I I I I I I I I I I I	
5	Gabion block constuction in the middle of the river	50 days	Mon 09-8-17	Mon 09-10-5	1 I. I.			
6	200 Rip Rap filling	40 days	Sun 09-9-6	Thu 09-10-15				
7	Granular fill for the Maintenance access	35 days	Tue 09-9-1	Mon 09-10-5				
8	Construction of Maintenance access	65 days	Fri 09-9-11	Sat 09-11-14		18	▶ <u>EEEEEEE</u>	5
9	Rip Rap filling inside the Maintenance access	45 days	Tue 09-10-6	Thu 09-11-19				
0	Grassed cellular concrete paving	45 days	Fri 09-10-16	Sun 09-11-29		ix i		
1	River Associated Works	838 days	Mon 09-1-12	Fri 11-4-29				1
2	Box culvert construction at (CH670 to CH838 appr-	127 days	Mon 09-1-12	Mon 09-5-18				1
3	Temporary flow diversion	20 days	Thu 09-3-26	Tue 09-4-14		18 18		1
4	Open cut excavation	30 days	Mon 09-1-12	Tue 09-2-10				
5	Granular filling with geotextile filter	30 days	Thu 09-1-22	Fri 09-2-20				1
6	Concrete for blindling layer	20 days	Sun 09-2-1	Fri 09-2-20				
7	Base slab construction	80 days	Wed 09-2-11	Fri 09-5-1				1.
8	Wall & Top Slab construction	80 days	Wed 09-2-18	Fri 09-5-8	<u> </u>			
9	Backfilling	20 days	Wed 09-4-29	Mon 09-5-18			1 I I	1
0	Footbridge construction	180 days	Fri 09-11-20	Tue 10-5-18		15 1		1
1	FBT07-3 at CH317 approximate	45 days	Fri 09-11-20	Sun 10-1-3		18	BEERSEEN.	
2	FBT07-4 at CH445 approximate	45 days	Mon 10-1-4	Wed 10-2-17				
3	FBT07-5 at CH600 approximate	45 days	Thu 10-2-18	Sat 10-4-3		12		
4	FBT07-6 at CH687 approximate	45 days	Sun 10-4-4	Tue 10-5-18		18 1		
5	Ramp construction	120 days	Sat 09-9-26	Sat 10-1-23		14 1		
6	At CH517 Approximate	60 days	Sat 09-9-26	Tue 09-11-24		18 1		
7	Granular filling with geotextile filter	20 days	Sat 09-9-26	Thu 09-10-15		1	rteb (
8	Concrete for the blinding layer	20 days	Thu 09-10-1	Tue 09-10-20		1 8 T		
9	Base slab construcion for the ramp	30 days	Tue 09-10-6	Wed 09-11-4		18		
00	Wall construction for the ramp	45 days	Sun 09-10-11	Tue 09-11-24		18 1		
01	At CH600 Approximate	60 days	Wed 09-11-25	Sat 10-1-23		14		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
02	Granular filling with geotextile filter	20 days	Wed 09-11-25	Mon 09-12-14		18		
03	Concrete for the blinding layer	20 days	Mon 09-11-30	Sat 09-12-19			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
04	Base slab construction for the ramp	30 days	Sat 09-12-5	Sun 10-1-3		······································		
05	Wall construction for the ramp	45 days	Thu 09-12-10	Sat 10-1-23		19		1
06	Verge/footpath construction	140 days	Fri 09-10-16	Thu 10-3-4		14 1		1
07	Subase construction for the verges	120 days	Fri 09-10-16	Fri 10-2-12				1
08	Gassed cellular concrete/concrete paving	120 days	Mon 09-10-26	Mon 10-2-22				
09	Type 2 railing construction	120 days	Thu 09-11-5	Thu 10-3-4		14		
10	Retaining wall construction	50 days	Fri 09-10-16	Fri 09-12-4		14		1
11	At CH687 Approximate	50 days	Fri 09-10-16	Fri 09-12-4		19 19		1
12	Type D L-shaped RW construction	30 days	Fri 09-10-16	Sat 09-11-14				
3	Preforated pipe installation	10 days	Sun 09-11-15	Tue 09-11-24		14	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
4	Backfilling the RW	10 days	Wed 09-11-25	Fri 09-12-4				
5	U Channel construction	120 days	Sat 09-12-5	Sat 10-4-3		1		T.
6	375&525 UC at CH352 Approximate	40 days	Sat 09-12-5	Wed 10-1-13		18		
17	Trench excavation	20 days	Sat 09-12-5	Thu 09-12-24		18 1		3
18	Concrete for the U channel	30 days	Tue 09-12-15	Wed 10-1-13		18 1	- Esser	1
9	525UC at CH552 Approximate	40 days	Thu 10-1-14	Mon 10-2-22		15		
20	Trench excavation	20 days	Thu 10-1-14	Tue 10-2-2			····	
1	Concrete for the U channel	30 days	Sun 10-1-24	Mon 10-2-22		18		1
2	525&600 UC at CH690 Approximate	40 days	Tue 10-2-23	Sat 10-4-3		18 1 18 1		1
23	Trench excavation	20 days	Tue 10-2-23	Sun 10-3-14				4
24	Concrete for the U channel	30 days	Fri 10-3-5	Sat 10-4-3				1
25	Inlet Pipes	581 days	Sat 09-9-26	Fri 11-4-29		12		
26	Inlet pipe at CH100 Approximate	25 days	Sat 09-9-26	Tue 09-10-20		16 1		1
27	Inlet pipe at CH400 Approximate	25 days	Wed 09-10-21	Sat 09-11-14		18 1		1
28	Inlet pipe at CH408 Approximate	25 days	Sun 09-11-15	Wed 09-12-9	1	18 1	Estable 4	1
					A REAL PROPERTY AND A DESCRIPTION OF THE	D-W-111-December 1	0.0.0	
ect: Master	r Programme (Rev.05) Task Prog			mmary		Rolled Up Progress External Tasks	Group By Summary	•
01/2009	Critical Task Mile	stone	Ro	lled Up Task	Rolled Up Milestone	Split Project Summary	v Deadline	

CHIU HING CONSTRUCTION & TRANSPORTATION Co., Ltd MASTER PROGRAMME 05 (Section 2 of works) TWORKS AT TALLOO TINL DING CHE MAN LIK PIN AND LIN MA HANG

1D	Task Name	Duration	Start	Finish	2008		2009		2010		2011
					2008, H	Half 1 2008, Half 2	2009, Half 1	2009, Half 2	2010, Half 1	2010, Half 2	2011, Half 1
	the second se				N D J	FMAMJJASON	D J F M A M	J J A S O N E	J F M A M J	I J A S O N	DJFMA
129	Inlet pipe at CH450 Approximate	25 days	Thu 09-12-10	Sun 10-1-3		1	15	E		1	1
30	Inlet pipe at CH570 Approximate	25 days	Mon 10-1-4	Thu 10-1-28	1	*	16	1			1
131	Inlet pipe at CH630 Approximate	25 days	Fri 10-1-29	Mon 10-2-22	A	- J. K	18			1	1
132	Inlet pipe at CH750 Approximate	25 days	Tue 10-2-23	Fri 10-3-19	location in the						
133							16		1	:	1
134	Section 5 of works for TKL07	195 days	Sun 10-10-17	Fri 11-4-29	1		18		- i -	E E E E E E E E E E E E E E E E E E E	

Ta	Task	Progress		Summary	Rolled Up Critical Task	Rolled Up Progress	External Tasks		Group By Summary	
iect: Master Programme (Rev.05) e: 01/2009 Cri	1 4.014		•		Rolled Up Milestone			W		-

CHIU HING CONSTRUCTION & TRANSPORTATION Co., Ltd MASTER PROGRAMME 05 (Section 3 of works)

me	Duration	Start	Finish Predecessors		2008	DODG Half D	2009 2009, Half 1	In	2000 Half 2	2010 11	alf 1	2010, Half 2	2011 2011, Half 1
				N D	J F M A M J	J A S O N E	2009, Han 1 J F M	AMJ	J A S O			J J A S O N	D J F M
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rogramme (Rev.05) Task Critical Task		+	Summary Rolled Up Task	-	Rolled Up Critic		d Up Progress		External Tasks Project Summary		Group By Summary Deadline		
	600mm dia. pipe construction 900mm dia. pipe construction B.C. at CH E+93 River MUP03B (Portion D) Temporary Flow Diversion Orgen cut excavation Rock. & gamular filling for the base of gabion Blinding layer for the gabion construction Backfilling and gabion construction Backfilling and gabion construction Backfilling and gabion construction Subuse construction Subuse construction Rock & gamular filling for the verges Gassed cellular concrete/concrete paving Type 2 railing construction Rock & gamular filling for the base of gabion Bising layer for the gabion construction Backfilling and gabion construction Subuse construction in the middle of the river 200 Rip Rap filling VBM04-2 vehicutar bridge at CHD11 Approximate Verge/footpath construction Subuse construction for the verges Gases delular concrete/concrete paving Type 2 raiting construction	900mm dia. pipe construction30 daysBC. at CH E+9330 daysRiver MUP0R1 (Portion D)152 daysConstruction30 daysRock. & ganular filling for the base 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CHIU HING CONSTRUCTION & TRANSPORTATION Co., Ltd MASTER PROGRAMME 05 (Section 3 of works)

ID Task	Name	Duration	Start	Finish Predecessors	
					2008, Half 1 2008, Half 2 2009, Half 1 2009, Half 2 2010, Half 2 2010, Half 2 2011, Half 1 N D J F M A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A
31	FBM05-1at CH C+139 approximate	30 days	Fri 10-3-19	Sat 10-4-17 130	
2	VBM05-2 at CH C+190 approximate	30 days	Sun 10-4-18	Mon 10-5-17 131	
3	VBM05-3 at CH C+264 approximate	30 days	Tue 10-5-18	Wed 10-6-16 132	
4	VBM05-4 at CH C+398 approximate	30 days	Thu 10-6-17	Fri 10-7-16 133	
15	FBM05-2 at CH C+561 approximate	30 days	Sat 10-7-17	Sun 10-8-15 134	
36	FBM05-3 at CH C+661 approximate	30 days	Mon 10-8-16	Tue 10-9-14 135	
37	FBM05-4 at CH C+894 approximate	30 days	Wed 10-9-15	Thu 10-10-14 136	
38	FBM05-5 at CH C+942 approximate	30 days	Fri 10-10-15	Sat 10-11-13 137	
19	Ramp construction	245 days	Wed 10-2-17	Tue 10-10-19	
0	At CH C+398 Approximate	75 days	Wed 10-2-17	Sun 10-5-2	
11	Granular filling with geotextile filter	20 days	Wed 10-2-17	Mon 10-3-8 117	
2	Concrete for the blinding layer	20 days	Sat 10-2-27	Thu 10-3-18 141FF+10 day	I S Contraction of the second s
3	Base slab construction for the ramp	30 days	Tue 10-3-9	Wed 10-4-7 142SS+10 day	
14	Wall construction for the ramp	45 days	Fri 10-3-19	Sun 10-5-2 143SS+10 day	
15	At CH C+500 Approximate	75 days	Mon 10-5-3	Fri 10-7-16	
16	Granular filling with geotextile filter	20 days	Mon 10-5-3	Sat 10-5-22 144	
17	Concrete for the blinding layer	20 days	Thu 10-5-13	Tue 10-6-1 146FF+10 day	
18	Base slab construction for the ramp	30 days	Sun 10-5-23	Mon 10-6-21 147SS+10 day	
19	Wall construction for the ramp	45 days	Wed 10-6-2	Fri 10-7-16 148SS+10 day	A)
50	At CH C + 561 Approximate	75 days	Tue 10-3-9	Sat 10-5-22	
51	Granular filling with geotextile filter	20 days	Tue 10-3-9	Sun 10-3-28 141	
52	Concrete for the blinding layer	20 days	Fri 10-3-19	Wed 10-4-7 151FF+10 day	
153	Base slab construction for the ramp	30 days	Mon 10-3-29	Tue 10-4-27 152SS+10 day	
154	Wall construction for the ramp	45 days	Thu 10-4-8	Sat 10-5-22 153SS+10 day	a)
155	At CH C + 894 Approximate	75 days	Sun 10-5-23	Thu 10-8-5	
156	Granular filling with geotextile filter	20 days	Sun 10-5-23	Fri 10-6-11 154	
57	Concrete for the blinding layer	20 days	Wed 10-6-2	Mon 10-6-21 156FF+10 day	
158	Base slab construcion for the ramp	30 days	Sat 10-6-12	Sun 10-7-11 157SS+10 day	
59	Wall construction for the ramp	45 days	Tue 10-6-22	Thu 10-8-5 158SS+10 day	
60	At CH C + 942 Approximate	75 days	Fri 10-8-6	Tue 10-10-19	
61	Granular filling with geotextile filter	20 days	Fri 10-8-6	Wed 10-8-25 159	
162	Concrete for the blinding layer	20 days	Mon 10-8-16	Sat 10-9-4 161FF+10 day	
163	Base slab construcion for the ramp	30 days	Thu 10-8-26	Fri 10-9-24 162SS+10 day	
164	Wall construction for the ramp	45 days	Sun 10-9-5	Tue 10-10-19 163SS+10 day	
165	Verge/footpath construction	222 days	Wed 10-2-17	Sun 10-9-26	
166	Subase construction for the verges	202 days	Wed 10-2-17	Mon 10-9-6 117	
167	Gassed cellular concrete/concrete paving	202 days	Sat 10-2-27	Thu 10-9-16 166FF+10 day	
168	Type 2 railing construction	202 days	Tue 10-3-9	Sun 10-9-26 167FF+10 day	
169	Retaining wall construction	120 days	Wed 10-2-17	Wed 10-6-16 117	
170	U Channel construction	120 days	Thu 10-6-17	Thu 10-10-14 169	
171	Inlet Pipes	120 days	Wed 10-2-17	Wed 10-6-16 117	
172	Handover of Portion E	0 days	Tue 08-6-17	Tue 08-6-17	
173	River MUP05 (Portion E)	803 days	Mon 09-2-16	Fri 11-4-29	
174	Temporary flow diversion	10 days	Mon 09-2-16	Wed 09-2-25	
175	Open cut excavation	66 days	Thu 09-2-26	Sat 09-5-2 174	
176	Retangular Channel	85 days	Sun 09-5-3	Sun 09-7-26	
177	Rock & ganular filling for the base of gabion	20 days	Sun 09-5-3	Fri 09-5-22 175 Mon 09-6-1 177FF+10 day	
178	Blinding layer for the gabion construction	20 days	Wed 09-5-13 Sat 09-5-23	Sun 09-6-21 17/FI-+10 day	
179	Base slab construction	30 days		Thu 09-7-16 179SS+10 day	
180	Wall construction	45 days	Tue 09-6-2		
181	Granular filling inside the channel	10 days	Fri 09-7-17	Sun 09-7-26 180FF+10 day Mon 09-10-19	
182	Gabion Construction	170 days	Sun 09-5-3		
183	Rock & ganular filling for the base of gabion	30 days	Sun 09-5-3	Mon 09-6-1 175 Thu 09-6-11 183FF+10 day	
184	Blinding layer for the gabion construction	30 days	Wed 09-5-13 Sat 09-5-23	Sat 09-9-19 184SS+10 day	
85	Backfilling and gabion construction by layers	120 days	Sat 09-5-23 Sat 09-8-1	Tue 09-9-29 18455+10 day	
186	Gabion block constuction in the middle of the river 200 Rip Rap filling	60 days 20 days	Sat 09-8-1 Wed 09-9-30	Mon 09-10-19 186	*** E2222225 T
187		557 days	Tue 09-10-20	Fri 11-4-29	
188	Verge/footpath construction		Tue 09-10-20 Tue 09-10-20	Thu 09-12-3 187	
189	Subase construction for the verges Gassed cellular concrete/concrete paving	45 days	Fri 09-10-20	Sun 09-12-13 189FF+10 day	
190		45 days		Wed 09-12-23 190FF+10 day	
191	Type 2 railing construction	45 days	Mon 09-11-9	wea 09-12-23 190rt+10 day	AM)
192 193	the Remaining section 5 of works of MUP	95 days	Tue 11-1-25	Fri 11-4-29 92	
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oject: Maste	r Programme (Rev.05) Task	Progress		Summary Rolled Up Task	Rolled Up Critical Task EEEEEEEEEE Rolled Up Progress External Tasks Group By Summary
	Critical Task	Milestone			sk 📰 Rolled Up Milestone 🛇 Split, Project Summary Deadline 🕗

CHIU HING CONSTRUCTION & TRANSPORTATION Co., Ltd MASTER PROGRAMME 05 (Section 4 of works) CONTRACT: DC/2007/8. DRAINAGE IMPROVEMENT WORKS at TAI PO TIN, PING CHE, MAN UK PIN AND LIN MA HANG

ID	Task Name	Duration	Start	2008		2009		2010		20
				2008, Half 1	2008, Half 2	2009, Half 1	2009, Half 2	2010. Half 1	2010, Half 2	20
1	CONTRACT: DC/2007/08 (The Woks)	1095 days	Fri 07-12-21	N D J F M	A M J J A S	ONDJFMA	M J J A S O	N D J F M A	M J J A S C) N D
2	Handover of Portion A	0 days	Fri 07-12-21	12-21	i	18			1	
3	Section 4 & 5 of works - Lin Man Hang (Portion F)	1095 days	Fri 07-12-21							
4	Commencement Date	0 days	Fri 07-12-21	12-21	1	1.9	1		r F	•
5	Handover of Portion F	0 days	Fri 07-12-21	♦ 12-21		······································				
6	Prelim Works	345 days	Wed 08-4-30		Contraction of the local division of the loc	and the second se	1		1	1
7	Baseline Monitoring	130 days	Wed 08-4-30	T I		18	1	1	1	1
8	Mobilisation	10 days	Mon 09-2-9	1	1	11 EL			1	1
9	Site clearance	14 days	Thu 09-2-19			11				1
10	Initial site survey	14 days	Thu 09-3-5		1		1			
11	Tree survey	20 days	Thu 09-2-19				L L		t.	2
12	Construct Access Road	20 days	Thu 09-3-5		1			1	1 1	
13	Remove and Transplant the trees	30 days	Wed 09-3-11							
14	Underground Utility Survey	30 days	Thu 09-3-5		1	1 EEEE	L.	1	1	
15	River LMH01	625 days	Sat 09-4-4	1						
16	Temporary flow diversion	26 days	Sat 09-4-4							
17	Open excavation and construction for CH P+0 to CH P+35.	110 days	Thu 09-4-30		1	1 8			i.	
18	Open excavation and construction for CH 0+0 to CH 0+35.	110 days	Thu 09-4-30			1.8		1	i.	1
19	Open excavation and construction for CH R+0 to CH R+35	110 days	Thu 09-4-30	1	1	1.8	E121212121212121212121212121	1	1	
20	Open excavation and construction for CH T+0 to CH T+35	110 days	Thu 09-4-30							
21	Rock & ganular filling for the base of gabion	110 days	Thu 09-4-30	1		13				
22	Blinding layer for the gabion construction	110 days	Thu 09-5-7		i.		-{ <u>111111111111111111111111111111111111</u>			
23	Backfilling and gabion constrution by layers	150 days	Thu 09-5-14			1.5		1		3
24	Ganular Filling for the river	100 days	Sun 09-10-11			*				
25	Rip Rap lining to stabilise the river	80 days	Sun 09-10-11		1. 1	18	E		1	1
26	Verge/footpath construction	355 days	Wed 09-12-30		1	18	1	4		
27	Subase construction for the verges	150 days	Wed 09-12-30			1.		<u> </u>		1
28	Gassed cellular concrete/concrete paving	150 days	Mon 10-1-4							
29	Type 2 railing	150 days	Sat 10-1-9		6	19				1
30						1.8		1		1
31	Section 5 of works for Lin Ma Hang	195 days	Tue 10-6-8	1	1	13	0	1		<u></u>

Project: Master Programme (Rev.05) Date: 01/2009	Task Critical Task	Progress Milestone	+	Summary Rolled Up Task		Rolled Up Critical Task	Rolled Up Progress Split							
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CHIU HING CONSTRUCTION & TRANSPORTATION Co., Ltd MASTER PROGRAMME 05 (Section 3 of works)

ID Task N	lame	Duration	Start	Finish Predecessors	
					V V
1 CONT	RACT: DC/2007/08 (The Woks)	1226 days	Fri 07-12-21	Fri 11-4-29	
	andover of Portion A	0 days	Fri 07-12-21	Fri 07-12-21	◆ 12-21
	ection 3 - Man Uk Ping (Portion D & E)	1095 days	Wed 08-4-30	Fri 11-4-29	
4	Commencement Date	0 days	Wed 08-4-30	Wed 08-4-30 5	→ 4 -30
5	Handover of Portion D	0 days	Wed 08-4-30	Wed 08-4-30	1-30
6	Prelim Works	398 days	Wed 08-4-30	Mon 09-6-1	
7	Baseline Monitoring	130 days	Wed 08-4-30	Sat 08-9-6 5	
8	Mobilisation	10 days	Mon 09-2-2	Wed 09-2-11	
9	Site clearance	30 days	Thu 09-2-12	Fri 09-3-13 8	
10	Initial site survey	50 days	Mon 08-12-1	Mon 09-1-19	
11	Application of XP	1 day	Sun 08-8-17	Sun 08-8-17	
12	Tree survey	20 days	Fri 08-5-30	Wed 08-6-18 5SS+30 days	
13	Construct Access Road	20 days	Sat 09-3-14	Thu 09-4-2 9	
14	Removal and Transplanting of trees	60 days	Fri 09-4-3	Mon 09-6-1 13	
15	Underground Utility Survey	30 days	Sat 09-3-14	Sun 09-4-12 9	
16	River MUP01 (Portion D)	429 days	Mon 09-2-2	Tue 10-4-6	
17	Temporary Flow Diversion	20 days	Mon 09-2-2	Sat 09-2-21	
18	Open cut excavation	95 days	Sun 09-2-22	Wed 09-5-27 17	
19	Rock & ganular filling for the base of gabion	100 days	Fri 09-2-27	Sat 09-6-6 18FF+10 days	
20	Blinding layer for the gabion construction	100 days	Mon 09-3-9	Tue 09-6-16 19FF+10 days	
21	Backfilling and gabion constrution by layers	180 days	Thu 09-3-19	Mon 09-9-14 20SS+10 days	
22	Verge/footpath construction	204 days	Tue 09-9-15	Tue 10-4-6	
23	Subase construction for the verges	68 days	Tue 09-9-15	Sat 09-11-21 21	
24	Gassed cellular concrete/concrete paving	68 days	Sun 09-11-22	Thu 10-1-28 23	
25	Type 2 railing construction	68 days	Fri 10-1-29	Tue 10-4-6 24	
26	300UC construction	60 days	Tue 09-9-15	Fri 09-11-13 21	
27	River MUP02 (Portion D)	294 days	Mon 09-4-13	Sun 10-1-31	
28	Stabilise existing river bank	225 days	Mon 09-4-13	Mon 09-11-23	
29	Temporary flow diversion	10 days	Mon 09-4-13	Wed 09-4-22 15	
30	Sheet pile installation	20 days	Thu 09-4-23	Tue 09-5-12 29	
31	Excavate & erect shoring support	30 days	Wed 09-5-13	Thu 09-6-11 30	
32	Rock & ganular filling for the base of gabion	30 days	Fri 09-6-12	Sat 09-7-11 31	
33	Blinding layer for the gabion construction	30 days	Sun 09-7-12	Mon 09-8-10 32	
34	Backfilling and gabion constrution by layers	95 days	Tue 09-8-11	Fri 09-11-13 33	
35	Removal of the sheet piles	10 days	Sat 09-11-14	Mon 09-11-23 34	
36	MUP02 Bypass	175 days	Mon 09-4-13	Sun 09-10-4	
37	Temporary Flow Diversion	10 days	Mon 09-4-13	Wed 09-4-22 15	, la
38	Open cut excavation	20 days	Thu 09-4-23	Tue 09-5-12 37	
39	Rock & ganular filling for the base of gabion	20 days	Wed 09-5-13	Mon 09-6-1 38	
40	Blinding layer for the gabion construction	20 days	Tue 09-6-2	Sun 09-6-21 39	
41	Backfilling and gabion constrution by layers	30 days	Mon 09-6-22	Tue 09-7-21 40	
42	Filling of Rip Rap	15 days	Wed 09-7-22	Wed 09-8-5 41	
43	Verge/footpath construction	60 days	Thu 09-8-6	Sun 09-10-4	
44	Subase construction for the verges	20 days	Thu 09-8-6	Tue 09-8-25 42	
45	Gassed cellular concrete/concrete paving	20 days	Wed 09-8-26	Mon 09-9-14 44	
46	Type 2 railing construction	20 days	Tue 09-9-15	Sun 09-10-4 45	
47	Main River of MUP02	294 days	Mon 09-4-13	Sun 10-1-31	
48	Temporary Flow Diversion	14 days	Mon 09-4-13	Sun 09-4-26 37SS	
49	Open cut excavation	60 days	Mon 09-4-27	Thu 09-6-25 48	
50	Rock & ganular filling for the base of gabion	60 days	Thu 09-5-7	Sun 09-7-5 49FF+10 days	
51	Blinding layer for the gabion construction	60 days	Sun 09-5-17	Wed 09-7-15 50FF+10 days	
52	Backfilling and gabion constrution by layers	90 days	Wed 09-5-27	Mon 09-8-24 51SS+10 days	
53	Gabion block constuction in the middle of the river	90 days	Sat 09-6-6	Thu 09-9-3 52SS+10 days	49/5
54	200 Rip Rap filling	30 days	Fri 09-9-4	Sat 09-10-3 53	
55	FBM02-1 footbridge at CH 8+455 Approximate	45 days	Sun 09-10-4	Tue 09-11-17 54	
56	FBM02-2 footbridge at CH 8+260 Approximate	45 days	Wed 09-11-18	Fri 10-1-1 55	
57	RW type D at CH8+525 Approximate	30 days	Sat 10-1-2	Sun 10-1-31 56	
58	Verge/footpath construction	90 days	Tuc 09-8-25	Sun 09-11-22	
59	Subase construction for the verges	70 days	Tue 09-8-25	Mon 09-11-2 52	12 <u>22222223</u>
60	Gassed cellular concrete/concrete paving	70 days	Fri 09-9-4	Thu 09-11-12 59SS+10 days	
61	Type 2 railing construction	70 days	Mon 09-9-14	Sun 09-11-22 60SS+10 days	4/5
62	300 &375 UC at CH8+400 Approximate	30 days	Mon 09-11-23	Tue 09-12-22 61	
63	River MUP03A (Portion D)	502 days	Mon 09-3-2	Fri 10-7-16	
64	600UC construction	80 days	Wed 10-2-17	Fri 10-5-7 117	
65	Manholes construction	10 days	Sat 10-5-8	Mon 10-5-17 64	
roject: Master I	Programme (Rev.05) Task	Progress		Summary	Rolled Up Critical Task 2022222222 Rolled Up Progress External Tasks Group By Summary
(2. () () () () () () () () () (Critical Task	Milestone	•	Rolled Up Task	sk 🔢 🔢 Rolled Up Milestone 🔷 Split Project Summary 🖤 Deadline 🕘
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Future Construction Program

ID	Task Name			Duration	Start	Finish	January 2010	February 2		March 2010	[
1		1.00)		074.1	E-: 01/10/07		7 Dec 3 Jan 10 Jan 1	7 Jan 24 Jan 31 Jan 7 Fe	b 14 Feb 21 Feb	28 Feb 7 Mar 14 Mar	21 Mar28 M
2	A: Seection 1-Tai Po Tin (TK	L02)		974 days	Fri 21/12/07	Fri 20/8/10	<u></u>				<u></u>
3	Open cut excavation			107 days	Tue 23/6/09	Wed 7/10/09	8-1 8-1 8-1				
4	Left Bank of G.W. Found	ation CH710 to CH787		90 days	Tue 23/6/09	Sun 20/9/09	# 1 # 1 # 1				
5	Left Bank of G.W. Found			90 days	Tue 23/6/09	Sun 20/9/09	16 1 16 1 16 1				
6	Right Bank of G.W. Found			90 days	Fri 10/7/09	Wed 7/10/09	9 1 8 1 8 1				
7					Sun 2/8/09	Mon 18/1/10	*) 	1			
8	Rock & ganular filling for the			170 days	Thu 3/9/09	Fri 19/2/10	<u>.</u>				
	Blinding layer for the gabion c			170 days?							
9	Backfilling and gabion constru	and a state of the second		200 days?	Mon 28/9/09	Thu 15/4/10	*				
10	Gabion block constuction in th			150 days	Tue 17/11/09	Thu 15/4/10					
11	VBT02-1at CH507 & FBT0			120 days	Thu 10/12/09	Thu 8/4/10	5. ; 5. ;	1			
12	VBT02-1 & FBT02-1 at	CH507 approximate		10 days	Thu 10/12/09	Sat 19/12/09	8 1 A 1 				
13	Excavation			20 days	Sun 20/12/09	Fri 8/1/10	<u> </u>				
14	Rock & granular filling fo			20 days	Sat 9/1/10	Thu 28/1/10					
15	Blinding layer for the FB			20 days	Fri 29/1/10	Wed 17/2/10	2 : 4 : 5 :				
16	Formwork & concreting f			50 days	Thu 18/2/10	Thu 8/4/10	s : s :				
17	Diversion for CLP Conflicted	Reserves a planate presentation and a second of the second statement of the Reserves of the Reserves of the Res		101 days?	Mon 21/9/09	Wed 30/12/09	2.1				
18		ed electricity poles liaise with CLP		31 days?	Mon 21/9/09	Wed 21/10/09	8 1 5 1 3 1				
19	Waiting for CLP's Divers	e - seven férin des services en anno esta en anna de la companya de la companya de la companya de la companya d		40 days?	Thu 22/10/09	Mon 30/11/09	8.1 8.1				
20	Diversion of cnflicted electron	tricity poles by CLP		30 days	Tue 1/12/09	Wed 30/12/09			-		
21	Ramp Construction at CH638	to 683 APProximate		90 days	Thu 12/11/09	Tue 9/2/10					
22	Granular filling with geot	extile filter		15 days	Thu 12/11/09	Thu 26/11/09	RU RU RU				
23	Concrete for the blinding	ayer		15 days	Tue 17/11/09	Tue 1/12/09	R I R I R I				
24	Base slab construction for	the ramp		30 days	Sun 22/11/09	Mon 21/12/09				1	
25	Wall Construction for the	ramp		60 days	Sat 12/12/09	Tue 9/2/10					
26	Ramp Construction at CH23	o 55 APProximate		90 days	Thu 3/12/09	Tue 2/3/10	8.1				
27	Granular filling with geot	extile filter		15 days	Thu 3/12/09	Thu 17/12/09	# 1 # 1			1	
28	Concrete for the blinding	layer		15 days	Tue 8/12/09	Tue 22/12/09	# 1 # 1 # 3				
29	Base slab construction for	the ramp		30 days	Sun 13/12/09	Mon 11/1/10				1 1	
30	Wall Construction for the	ramp		60 days	Sat 2/1/10	Tue 2/3/10					
31	Retaining wall construction			243 days	Fri 18/12/09	Tue 17/8/10					
32	At CH808 to 700 Approx	imate		80 days	Fri 18/12/09	Sun 7/3/10					
33	Type D L-shaped RV	V construction		60 days	Fri 18/12/09	Mon 15/2/10					
34	Preforated pipe insta	lation		10 days	Tue 16/2/10	Thu 25/2/10	5 (5)	0 0			
35	Backfilling the RW			10 days	Fri 26/2/10	Sun 7/3/10	9 1 8 1 8 1	-			
		Task	Progress		Summary		External Tasks		Deadline	Ţ.	
	Project 10-R (No.24) nu 31/12/09	Split	Milestone	•	Project Summary	Warner and the second	External Mileston	e 🔶			
hree N	Ionth 01,02,03/2010 Rolling Pr	ogramme (No. 24)			Page 1						

ID	Task Name		Duration	Start	Finish	January 2010	February 2010	March 2010	
26			40.1	Trace 16/0/10		7 Dec 3 Jan 10 Jan 17 J	an 24 Jan 31 Jan 7 Feb 14 Fe	b 21 Feb 28 Feb 7 Mar 14 Mar2	21 Mar28 M
36	At CH501 Approximate	•	40 days	Tue 16/2/10	Sat 27/3/10	8 1 8 1 8 1	1.000		
37	Type D L-shaped R		20 days	Tue 16/2/10	Sun 7/3/10	8 i 8 i 9 i			
38	Preforated pipe insta	llation	10 days	Mon 8/3/10	Wed 17/3/10	* : * :			
39	Backfilling the RW		10 days	Thu 18/3/10	Sat 27/3/10	4 i 2 i			
40	At CH800 Approximate		40 days	Mon 8/3/10	Fri 16/4/10	8 1 5 1 8 1			
41	Type D L-shaped RV		20 days	Mon 8/3/10	Sat 27/3/10	8 : 2 : 2 :			
42	Preforated pipe insta	llation	10 days	Sun 28/3/10	Tue 6/4/10	8 1 2 1 3 1			
43	Backfilling the RW		10 days	Wed 7/4/10	Fri 16/4/10	8 1 R 1 8 1			
44	U Channel construction		163 days	Mon 8/3/10	Tue 17/8/10	8 i 8 i 8 i			
45	600 UC at CH0 Ap		66 days	Mon 8/3/10	Wed 12/5/10				
46	Trench excavati		40 days	Mon 8/3/10	Fri 16/4/10	8 i 9 i		r <u>eessa</u>	
47	Concrete for the		50 days	Wed 24/3/10	Wed 12/5/10	8 : 5 : 8 :			→
48	450 UC at CH501 A		66 days	Mon 8/3/10	Wed 12/5/10	8 : 2 : 2 :			
49	Trench excavati		40 days	Mon 8/3/10	Fri 16/4/10	5 i 8 i 7 i			
50	Concrete for the	e U channel	50 days	Wed 24/3/10	Wed 12/5/10	5 (5 (5 (•
51	300 UC at CH800 A	Approximate	123 days	Sat 17/4/10	Tue 17/8/10	8 i 8 i 8 i			
52	Trench excavati	on	80 days	Sat 17/4/10	Mon 5/7/10				
53	Concrete for the	e U channel	107 days	Mon 3/5/10	Tue 17/8/10	2 2 2			
54						27 1 5 1 5 1			
55	B: Section 2 & 5 - Ping Che	(TKL07)	947 days?	Fri 21/12/07	Sat 24/7/10	,			
56						9 i 2 i 4 i			
57	Main River Construction (CH	10 to CH80)	96 days	Fri 20/11/09	Tue 23/2/10				
58	Temporary Flow Diversion	n	20 days	Fri 20/11/09	Wed 9/12/09	8 I			
59	Open cut excavation		20 days	Thu 10/12/09	Tue 29/12/09				
50	Rock & ganular filling fo	r the base of gabion	40 days	Wed 25/11/09	Sun 3/1/10				
51	Blinding layer for the gab	vion construction	40 days	Mon 30/11/09	Fri 8/1/10				
52	Backfilling and gabion co	onstrution by layers	46 days	Sat 5/12/09	Tue 19/1/10				
53	Ganular Filling for the riv	/er	25 days	Fri 15/1/10	Mon 8/2/10				
54	Grassed cellular concrete	paving	25 days	Sat 30/1/10	Tue 23/2/10	81 81	•		
55	Diversion for CLP poles at C	hannel TKL07(around CH220)	243 days?	Tue 26/5/09	Sat 23/1/10				
66		ed Electrical poles, liaise with CLP Diversion	7 days?	Tue 26/5/09	Mon 1/6/09	8 1 8 1			
57	Waiting for CLP's Divers		182 days?	Tue 2/6/09	Mon 30/11/09	8 1 8 1 8 1			
68	Diversion of Conflicted E		54 days?	Tue 1/12/09	Sat 23/1/10	*			
69	Main River Construction (CH		188 days	Fri 20/11/09	Wed 26/5/10				
70	Temporary flow diversion		188 days	Fri 20/11/09	Wed 26/5/10				
						<u>1-1-(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>			
	Project 10-R (No.24)	Task Progress		Summary	Annual Contraction	External Tasks	Deadl	ine 🖓	
ite: Th	nu 31/12/09	Split Milestone	•	Project Summary		External Milestone	•		
	Month 01,02,03/2010 Rolling P			Page 2					

Chiu Hing Construction & Transportation Co. Ltd. Contract No. DC/2007/08

Contract Name : Drainage Improvement Works at Tai Po Tin, Pin Che, Man Uk Pin and Lin Ma Hang

ID	Task Name		Duration	Start	Finish	January 2010	February 2010	March 2010	
			0.5.1	The 10/12/00	27 Wed 13/1/10	Dec 3 Jan 10 Jan 17 Jan	24 Jan 31 Jan 7 Feb 14 Feb 2	21 Feb 28 Feb 7 Mar 14 Ma	r21 Mar28 M
71	Open cut excavation		35 days	Thu 10/12/09	· · ·				
72	Rock & ganular filling fo	or the base of gabion	40 days	Thu 10/12/09	Mon 18/1/10				
73	Blinding layer for the gat	bion construction	30 days	Fri 25/12/09	Sat 23/1/10				
74	Backfilling and gabion co	onstrution by layers	65 days	Wed 30/12/09	Thu 4/3/10	(,,			8
75	Ganular Filling for the riv	ver	35 days	Mon 8/2/10	Sun 14/3/10	8 1 8 1 9 1			वयवन
76	Grassed cellular concrete	paving	30 days	Tue 23/2/10	Wed 24/3/10				
77	Main River Construction(CH	1270 to CH670)	235 days	Tue 19/5/09	Fri 8/1/10	**		n. N	
78	Temporary Flow Diversion	on	25 days	Tue 19/5/09	Fri 12/6/09	8) 8)			
79	Open cut excavation		120 days	Mon 1/6/09	Mon 28/9/09				
30	Left Bank of G.W. I	Foundation CH125 to CH228	120 days	Mon 1/6/09	Mon 28/9/09	# 1 # 1			
81	Left Bank of G.W. I	Foundation CH552 to CH687	120 days	Mon 1/6/09	Mon 28/9/09	8 1 9 1 9 1			
2	Rock & ganular filling fo	or the base of gabion	60 days	Tue 23/6/09	Fri 21/8/09	8 1 8 1 8 1			
33	Blinding layer for the gal	bion construction	60 days	Fri 3/7/09	Mon 31/8/09	8 i 8 i			
34	Backfilling and gabion co	onstrution by layers	180 days	Mon 13/7/09	Fri 8/1/10				
35	Gabion block constuction	n in the middle of the river	80 days	Wed 21/10/09	Fri 8/1/10	t i i i i i i i i i i i i i i i i i i i			
36	River associated Works		451 days?	Thu 30/4/09	Sat 24/7/10				
37	Box culvert construction	n at CH230 approximate	170 days	Thu 30/4/09	Fri 16/10/09	8 8 8			
38	Temporary flow div	version	20 days	Thu 30/4/09	Tue 19/5/09	8 1 8 1 8 1			
39	Open cut excavatior	n	30 days	Wed 20/5/09	Thu 18/6/09	8.1 8.1 8.1			
90	Granular filling with	h geotextile filter	30 days	Fri 19/6/09	Sat 18/7/09	8 - 8 - 8 -			
91	Concrete for blindli	ng layer	20 days	Mon 29/6/09	Sat 18/7/09	8) 8) 8)			
92	Base slab constructi	ion	70 days	Thu 9/7/09	Wed 16/9/09	5 8			
93	Wall & Top Slab co	onstruction	70 days	Sun 19/7/09	Sat 26/9/09	A.1. 8.1.			
94	Backfilling		20 days	Sun 27/9/09	Fri 16/10/09	8.1			
95	FBT07-1 at CH 35 appr	roximate	110 days	Wed 16/12/09	Sun 4/4/10	5.1			
96	Excavation		20 days	Wed 16/12/09	Mon 4/1/10				
97	Rock & granular fil	ling for the base of the FB	20 days	Tue 5/1/10	Sun 24/1/10				
98	Blinding layer for th		20 days	Mon 25/1/10	Sat 13/2/10				
99	Formwork & concre		50 days	Sun 14/2/10	Sun 4/4/10	KC KC			
00	FBT07-2 at CH250 app		105 days	Mon 1/6/09	Sun 13/9/09				
01	Excavation		15 days	Mon 1/6/09	Mon 15/6/09	8 D			
02		lling for the base of the FB	15 days	Tue 16/6/09	Tue 30/6/09	8 T			
102	Blinding layer for th		15 days	Wed 1/7/09	Wed 15/7/09				
103	Formwork & concre		30 days	Thu 16/7/09	Fri 14/8/09	*			
105		bion Transition (CH228, CH250)	30 days	Sat 15/8/09	Sun 13/9/09	8 . 8 .			
		(**************************************				External Taska	Deadlir	ne 🖓	
oject:	Project 10-R(No.24) hu 31/12/09	Task Progre	•	Summary Project Summary		External Tasks External Milestone ◀		ic 🗸	
u.c. 1		Split Milest	one 🗸	Floject Summary	• •	External winestone	-		

ID	Task Name	Duration	Start	Finish	January 2010	February 2010	March 2010	
106	Box culvert & FBT07-6 construction at (CH670 to CH838 approximate)	270 days?	Mon 11/5/09	27 Thu 4/2/10	/ Dec 3 Jan 10 Jan 17 Jan	24 Jan 31 Jan 7 Feb 14 Feb	21 Feb[28 Feb]7 Mar 14 Ma	r21 Mar28 M
107	Box culvert (CH688 to CH762) & FBT07-6 completed & handed over	1 day?	Mon 11/5/09	Mon 11/5/09	8 (8 (
108		20 days	Thu 30/7/09	Tue 18/8/09	8 8			
109	Open cut excavation (CH762 to CH838)	30 days	Wed 19/8/09	Thu 17/9/09				
110	Granular filling with geotextile filter	30 days	Fri 18/9/09	Sat 17/10/09				
111	Concrete for blindling layer	20 days	Sun 18/10/09	Fri 6/11/09	5 8			
112	Base slab construction	70 days	Wed 28/10/09	Tue 5/1/10		E E		
113	Wall & Top Slab construction	70 days	Sat 7/11/09	Fri 15/1/10				
114	Backfilling	20 days	Sat 16/1/10	Thu 4/2/10				
115	FBT07-3 at CH317 approximate	75 days	Thu 18/6/09	Mon 31/8/09	() [100000000 () ()	(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(
16	Excavation	15 days	Thu 18/6/09	Thu 2/7/09	5 8 5			
117	Rock & granular filling for the base of the FB	15 days	Fri 3/7/09	Fri 17/7/09	6 1 6 1 6 1			
118	Blinding layer for the FB	15 days	Sat 18/7/09	Sat 1/8/09	8 : 8 : 8 :			
119	Formwork & concreting	30 days	Sun 2/8/09	Mon 31/8/09	8 . 8 .			
120	FBT07-4 at CH445 approximate	110 days	Thu 3/9/09	Mon 21/12/09				
121	Excavation	20 days	Thu 3/9/09	Tue 22/9/09				
122	Rock & granular filling for the base of the FB	20 days	Wed 23/9/09	Mon 12/10/09	9 1 9 1 9 1			
23	Blinding layer for the FB	20 days	Tue 13/10/09	Sun 1/11/09	# 1 # 1 # 1			
124	Formwork & concreting	50 days	Mon 2/11/09	Mon 21/12/09	2 2 8			
125	FBT07-5 at CH600 approximate	110 days	Mon 20/7/09	Fri 6/11/09	8 i 8 i			
126	Excavation	20 days	Mon 20/7/09	Sat 8/8/09	8 . 9 . 8 .			
127	Rock & granular filling for the base of the FB	20 days	Sun 9/8/09	Fri 28/8/09	8. 8.			
128	Blinding layer for the FB	20 days	Sat 29/8/09	Thu 17/9/09	5 5			
129	Formwork & concreting	50 days	Fri 18/9/09	Fri 6/11/09	9 i 9 i 9 i			
130	Ramp construction	67 days	Mon 12/4/10	Thu 17/6/10				
131	At CH517 Approximate	55 days	Mon 12/4/10	Sat 5/6/10				
132	Granular filling with geotextile filter	20 days	Mon 12/4/10	Sat 1/5/10				
33	Concrete for the blinding layer	20 days	Sat 17/4/10	Thu 6/5/10				
134	Base slab construcion for the ramp	30 days	Thu 22/4/10	Fri 21/5/10	н н н			
35	Wall construction for the ramp	40 days	Tue 27/4/10	Sat 5/6/10				
36	At CH600 Approximate	45 days	Mon 12/4/10	Wed 26/5/10	8			
137	Granular filling with geotextile filter	20 days	Mon 12/4/10	Sat 1/5/10	* *			
138	Concrete for the blinding layer	20 days	Sat 17/4/10	Thu 6/5/10				
139	Base slab construcion for the ramp	30 days	Thu 22/4/10	Fri 21/5/10	8 8 8			
140	Wall construction for the ramp	30 days	Tue 27/4/10	Wed 26/5/10				
	(T++++++++++++++++++++++++++++++++++++				Altowardshi		Level .	
	Project 10-R (No.24) Task Progress		Summary		External Tasks	Deadlin	e 🖓	
ate: Th	u 31/12/09 Split Mileston	ne 🔶	Project Summary	Contraction of the second seco	External Milestone 🚸			
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ID [Fask Name		Duration	Start	Finish	January 2010	February 2010	March 2010	1
141	Verge/footpath constru	ction	67 days	Mon 12/4/10	27 Thu 17/6/10	/ Dec 3 Jan 10 Jan 17 Jar	1 24 Jan 31 Jan 7 Feb 14 Feb 2	1 Feb[28 Feb]7 Mar 14 Mar21	Mar28 M
142	Subase constructio		40 days	Mon 12/4/10	Fri 21/5/10				
143		hor the verges	40 days	Thu 22/4/10	Mon 31/5/10	8 3			
143	Type 2 railing con		40 days	Sun 2/5/10	Thu 10/6/10	8			
145	Retaining wall con		40 days 47 days	Sun 2/5/10	Thu 10/0/10 Thu 17/6/10	8 - 8 -			
145	At CH687 Approximat		47 days	Sun 2/5/10	Thu 17/6/10	8 1 8 1 8 1			
147	Type D L-shaped I		20 days	Sun 2/5/10	Fri 21/5/10	9 . 9			
147	Preforated pipe ins		10 days	Sat 22/5/10	Mon 31/5/10				
140	Backfilling the RW		10 days	Tue 1/6/10	Thu 17/6/10				
150	Retaining wall construction		80 days	Fri 18/12/09	Sun 7/3/10				
150	At CH35 to 104 Appro		80 days 80 days	Fri 18/12/09	Sun 7/3/10				
152	en este en		60 days	Fri 18/12/09	Mon 15/2/10	· ·			
152	Type D L-shaped I				Thu 25/2/10			1777)	
155	Preforated pipe ins		10 days	Tue 16/2/10		8 8 8			
154	Backfilling the RW		10 days	Fri 26/2/10 Sun 2/5/10	Sun 7/3/10 Thu 10/6/10				
155	U Channel construction		40 days	Sun 2/5/10 Sun 2/5/10	Thu 10/6/10 Thu 10/6/10				
150	375&525 UC at CH352		40 days			*			
	Trench excavation	1	20 days	Sun 2/5/10	Fri 21/5/10	8 1 8 1 8 1			
158	Concrete for the U		30 days	Wed 12/5/10	Thu 10/6/10	# 1 # 1 # 1			
159	525UC at CH552 App	oximate	30 days	Sun 2/5/10	Mon 31/5/10	8 1 8 1 8 1			
160	Trench excavation	1	20 days	Sun 2/5/10	Fri 21/5/10	8 L 8 L 9 L			
161	Concrete for the U		20 days	Wed 12/5/10	Mon 31/5/10	* · • ·			
162	525&600 UC at CH69) Approximate	40 days	Sun 2/5/10	Thu 10/6/10	¥) \$)			
163	Trench excavation		20 days	Sun 2/5/10	Fri 21/5/10	8 8 8			
164	Concrete for the U	channel	30 days	Wed 12/5/10	Thu 10/6/10				
165	Inlet Pipes		149 days	Fri 20/11/09	Sat 17/4/10				
166	Inlet pipe at CH100 Ap		25 days	Fri 8/1/10	Mon 1/2/10				
167	Inlet pipe at CH400 Ap		25 days	Tue 2/2/10	Fri 26/2/10	9 C 8 C			
168	Inlet pipe at CH408 Ap		25 days	Sat 27/2/10	Tue 23/3/10	8 1 9 1 9 1			
169	Inlet pipe at CH450 Ap		25 days	Wed 24/3/10	Sat 17/4/10		1		
170	Inlet pipe at CH570 Ap		25 days	Fri 8/1/10	Mon 1/2/10				
171	Inlet pipe at CH630 Ap		50 days	Fri 20/11/09	Fri 8/1/10	(+	
172	Inlet pipe at CH750 Ap	proximate	25 days	Sat 27/2/10	Tue 23/3/10	* 1 * 1 * 1			
173						* : * : * :			1
174	Section 5 of works for TKL		123 days	Wed 24/3/10	Sat 24/7/10	8 i 8 i 8 1			
175	Completion of Section 2	5 of works for TKL07	123 days	Wed 24/3/10	Sat 24/7/10	R . K .			
	roject 10-R (No.24)	Task Progress		Summary		External Tasks	Deadline	. J	
ate: Thu	31/12/09	Split Milestone	•	Project Summary	Water Street Str	External Milestone 🔌	•		
	onth 01,02,03/2010 Rolling Prog by S. J. Yu Thu 31/12/09	ramme (No. 24)		Page 5					

ID Task Name		Duration	Start	Finish	January 2010	February 2010	March 2010	
					27 Dec 3 Jan 10 Jan 17 Jan 24	Jan 31 Jan 7 Feb 14 Feb 2	1 Feb 28 Feb 7 Mar 14 Mar21	Mar28 N
76					8 8 8			
77 C: Section 3 - Man U	<u>k Ping (Portion D & E)</u>	1126 days?	Fri 21/12/07	Wed 19/1/11				
78					8 1 8 1 8 1			
79 Diversion for CLP Co	onflicted poles at Channel TKL02	121 days?	Mon 21/9/09	Tue 19/1/10				
80 Indentification of	conflicted electricity poles liaise with CLP	31 days?	Mon 21/9/09	Wed 21/10/09	8 I 8 I			
81 Waiting for CLP	s Diversion Preparation	60 days	Thu 22/10/09	Sun 20/12/09	8 i			
32 Diversion of cnfl	cted electricity poles by CLP	30 days	Mon 21/12/09	Tue 19/1/10				
3 1. River MUP01 (Por	tion D)	429 days?	Mon 2/2/09	Tue 6/4/10				
34 Open cut excavation o	f Left Bank of G.W. Foundation CH0 to CH93	30 days	Mon 29/6/09	Tue 28/7/09	8.1 8.1 9.1			
85 Rock & ganular filling	for the base of gabion	100 days	Thu 9/7/09	Fri 16/10/09	04 1. 04 1. 04 1.			
86 Blinding layer for the	gabion construction	100 days	Sun 19/7/09	Mon 26/10/09	A LL A LL A LL		3	
87 Backfilling and gabior	constrution by layers	180 days	Wed 29/7/09	Sun 24/1/10				
88					9 T			
89 2. River MUP02 (Por	tion D)	294 days	Mon 13/4/09	Sun 31/1/10				
90 Stabilise existing riv		225 days	Mon 13/4/09	Mon 23/11/09	8 1 8 1			
91 Excavate & erect shor	ing support	30 days	Thu 16/7/09	Fri 14/8/09	ar n X n X n			
92 Rock & ganular filling	for the base of gabion	30 days	Sat 15/8/09	Sun 13/9/09	8 D 8 D 8 D			
93 Blinding layer for the		30 days	Mon 14/9/09	Tue 13/10/09	81 81			
94 Backfilling and gabior		95 days	Wed 14/10/09	Sat 16/1/10				
95					81 10			
96 3. Main River of MU	P03	294 days?	Mon 13/4/09	Sun 31/1/10				
	uction approximate CHB575 to CHC653 & CHC304 to CHC 360	100 days	Tue 21/7/09	Wed 28/10/09	21 21			
02 Excavation		20 days	Tue 21/7/09	Sun 9/8/09				
	filling for the base of the FB	20 days	Mon 10/8/09	Sat 29/8/09	RCT RCT RCT			
04 Blinding layer fo		20 days	Sun 30/8/09	Fri 18/9/09	K1 K3			
05 Formwork & con		40 days	Sat 19/9/09	Wed 28/10/09	81 63			
206 Open cut excavation	erenny	60 days	Thu 29/10/09	Sun 27/12/09				
	g for the base of gabion	60 days	Sun 8/11/09	Wed 6/1/10				
Blinding layer for the		60 days	Wed 18/11/09	Sat 16/1/10				
	n construction by layers	90 days	Thu 29/10/09	Tue 26/1/10	*****			
	tion in the middle of the river	90 days	Sun 8/11/09	Fri 5/2/10				
211		90 augo	our or 1505		10000000000000000000000000000000000000	<u></u>		
4. River MUP05 (Po	rtion D)	610 days?	Sat 14/3/09	Sat 13/11/10				
	tion (CH C 0+00 to 0+974)	340 days?	Sat 14/3/09	Tue 16/2/10			<u>1919-99-99-99-99-99-99-99-99-99-99-99-99</u>	<u></u>
	1011 (CH C 0+00 10 0+974)	190 days	Wed 23/9/09	Wed 31/3/10				
Open cut excavation		170 uays				1		
oject: Project 10-R (No.24)	Task Progress		Summary		External Tasks	Deadline	· · ·	
ate: Thu 31/12/09	Split Milestone	•	Project Summary		External Milestone 🔶			
	Rolling Programme (No. 24)		Page 6					

ID	Task Name		Duration	Start	Finish	January 2010	February 2010	March 2010	M-2021
1.5	Left Deals of CW F	lation CH650 to CH760	150 days	Wed 23/9/09	2′ Fri 19/2/10	7 Dec 3 Jan 10 Jan 17 Jan 2	24 Jan 31 Jan 7 Feb 14 Feb 2	1 Feb 28 Feb 7 Mar 14 Mar21	mar28 M
15	Left Bank of G.W. Found		150 days	Mon 2/11/09	Wed 31/3/10				
16	Left Bank of G.W. Found		120 days	Sat 12/12/09	Sat 10/4/10				<u></u>
217	Rock & ganular filling for the		The second se	Sun 11/4/10	Sun 8/8/10	**************************************			
218	Blinding layer for the gabion of		120 days	Wed 21/4/10	Sat 6/11/10	9 1 9 1 9 1			
219	Backfilling and gabion constru	ition by layers	200 days 85 days	Mon 2/11/09	Mon 25/1/10				
220	Retaining Wall construction			Mon 2/11/09	Mon 25/1/10				
221	At CH C+398 to CH500		85 days	Mon 2/11/09 Mon 2/11/09	Sat 21/11/09	2	•		
222	Granular filling with		20 days	Sun 22/11/09	Fri 11/12/09	4 1			
223	Concrete for the blir		20 days		A Sector of the				
24	Base slab construcio	on for the Wall	30 days	Wed 2/12/09	Thu 31/12/09		3		
25	Wall construction		45 days	Sat 12/12/09	Mon 25/1/10				
26	At CH + 894 to CH + 94		85 days	Mon 2/11/09	Mon 25/1/10	8 I 8 I			
27	Granular filling with		20 days	Mon 2/11/09	Sat 21/11/09	5 1. 5 1. 7 1.			
28	Concrete for the blir		20 days	Sun 22/11/09	Fri 11/12/09	4 1			
229	Base slab construcio	on for the Wall	30 days	Wed 2/12/09	Thu 31/12/09		3		
230	Wall construction		45 days	Sat 12/12/09	Mon 25/1/10		<u>.</u>		
231	5. River MUP05 (Portion E)		803 days?	Mon 16/2/09	Fri 29/4/11				
.32	Rectangular Channel		85 days	Wed 30/12/09	Wed 24/3/10	Second Se			•
233	Rock & ganular filling fo		20 days	Wed 30/12/09	Mon 18/1/10				
234	Blinding layer for the gal	bion construction	20 days	Sat 9/1/10	Thu 28/1/10				
235	Base slab construction		30 days	Tue 19/1/10	Wed 17/2/10				
236	Wall construction		45 days	Fri 29/1/10	Sun 14/3/10				-
237	Granular filling inside the	e channel	10 days	Mon 15/3/10	Wed 24/3/10	 			
238	Gabion Construction		170 days	Thu 25/3/10	Fri 10/9/10	8 : 8 : 8 :			-
239	Rock & ganular filling for	or the base of gabion	30 days	Thu 25/3/10	Fri 23/4/10	8 8			
240	Blinding layer for the gal	bion construction	30 days	Thu 25/3/10	Fri 23/4/10	8 1. 8 1. 8 1.			-
241	Backfilling and gabion co		120 days	Thu 25/3/10	Thu 22/7/10	8 1 8 1			•
242	Gabion block constuction	n in the middle of the river	120 days	Thu 25/3/10	Thu 22/7/10				
243	200 Rip Rap filling		50 days	Fri 23/7/10	Fri 10/9/10	8.1 8.1			
244									
245	Wo Keng Shan Garden		1 day?	Mon 25/5/09	Mon 25/5/09	8.1 8.1 8.1			
246	Tree Transplanted & Ha	nded Over for One year maintenance	1 day?	Mon 25/5/09	Mon 25/5/09	8.1 8.1 8.1			
247						8 1 8 1 8 1			
248	D. Section 4 & 5 of Works	- LMH (Portion F)	1095 days?	Fri 21/12/07	Sun 19/12/10	ļ.			
240 247 248		- LMH (Portion F)							
Project	Project 10-R (No.24)	Task Progr	•	Summary		External Tasks	Deadlin	e 🖓	
Jate: T	nu 31/12/09	Split Miles	stone 🔷	Project Summary	V	External Milestone 🚸			

Environmental Mitigation Implementation Schedule

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APPENDIX A IMPLEMENTATION SCHEDULE OF THE PROPOSED MITIGATION MEASURES

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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
			Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Legislation & Guidelines
Air Q	uality - Co	nstruction Phase				<u> </u>		L	<u> </u>
		Construction Dust					T		I
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 prevent dust nuisance on ASRs during construction	All works site / during construction	Construction Contractor		4		Air Pollution Control Ordinanc Air Pollution
		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							Control (Construction Dust) Regulation
1	l.	they should be incorporated in the Contract Specification and implemented to minimize dust nuisance to within acceptable levels arising from the				i			
		works. The followings are examples of the dust suppression measures.							
		 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.							

EIA	EM&A	Dee	ommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Implementation Stages*			Relevant
Ref	Ref	Ket		Measures and Main Concerns to addressed	Timing	Agent	D	Ĉ	0	Legislation & Guidelines
		delive simila create	ive water sprays shall be used during the ry and handling of aggregate, and other r materials, when dust is likely to be d and to dampen all stored materials g dry and windy weather.							
		condu	ing of exposed surfaces shall be incred at least 2 times per day especially g dry and windy weather.							
		mover as oft	within the site where there is a regular ment of vehicles must be regularly watered en as necessary for effective suppression st or as often as directed by the Engineer.							
		vehicl transf with a provid this e	e dusty material are being discharged to le from a conveying system at a fixed er point, a three-sided roofed enclosure a flexible curtain across the entry shall be ded. Exhaust fans shall be provided for enclosure and vented to a suitable fabric system.							
		vehic public hour	Contractor shall restrict all motorised les within the site, excluding those on c roads, to a maximum speed of 15 km per and confine haulage and delivery vehicles signated roadways inside the site.							
ĩ		used mud,	el washing facilities shall be installed and by all vehicles leaving the site. No earth, debris, dust and the like shall be deposited ublic roads. Water in the wheel cleaning							

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	.C	0	- Legislation & 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 Ordinanc Environmental
		 Place odorous excavated material as far away (say, at least 20m) from air sensitive receivers as possible. 							Impact Assessmen Ordinance
		(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							

EIA	EM&A	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Imj	plementa Stages*		Relevant Legislation &
Ref	Ref	Accommences (Anglesse (Account)	Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Guidelines
		avoid any odour nuisance arising.							
Air Qı	uality - Ope	erational Phase					······································	T	F
		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	plementa Stages*		Relevant
			Measures and Main Concerns to addressed	Timing	Agent	gent D		0	Legislation & Guidelines
Noise - (Constructio	on Phase							
		Level 1 Mitigation – Use of Quiet Plant							
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	To protect NSRs from noise during construction	All works site / during construction	Construction Contractor			:	Environmental Impact Assessmen Ordinance
		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							ETWB TCW No. 19/2005
		Contractor can propose other suitable alternative equipment with similar or lower sound power level.							
		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 EM8	A Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Im	plementa Stages*		Relevant
Ref Ref	8	Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Legislation & Guidelines
	Level 2 Mitigation - Use of Temporary Noise Barriers							
4.6.7 – 4.6.8	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/m ² . 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	noise during construction	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	Location /	Implementation	Im	plement Stages ³		Relevant
			Measures and Main Concerns to addressed	Timing	Agent	D	С	0	Legislation & Guidelines
		barrier to ensure its effectiveness.						1	
		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							
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	·	V		Environmental Impact Assessmer Ordinance
		(a) Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction period.		· ,· ·	, .		•	:	
		(b) Construction plant should be sited away from NSRs.							

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ELA	EM&A		Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Im	plementa Stages*		Relevant
Ref	Ref		Recommended winigation measures	Measures and Main Concerns to addressed	Timing	Agent	D	Ĉ	0	Legislation & Guidelines
ì		(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*	tion .	Relevant
			Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Legislation & Guidelines
		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		Environmental Impact Assessmer Ordinance
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		1		Environmental Impact Assessmer Ordinance
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		1		Environmental Impact Assessmen Ordinance

EIA	EM&A	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Imj	plementa Stages*		Relevant
Ref	Ref		Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Legislation & Guidelines
4.6.20	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 days.	To further mitigate construction noise at NSRs for LMH01	Construction works at LMH01 / during construction	Construction Contractor		~		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		4		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.	To protect NSRs from noise during construction and to ensure the Contractor will properly implement the mitigation measures	All works site / during construction	Construction Contractor		1		Environmental Impact Assessment Ordinance

EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Imj	plementa Stages*	tion	Relevant
		Concerns to addressed	Timing	Agent	D	C	0	Legislation & Guidelines
T								
1	N/A							
	Ref erational I	Ref erational Phase N/A	Ref Recommended Measures and Main Concerns to addressed	Ref Recommended Location / rational Phase Recommended Location /	Ref Location / Measures and Main Concerns to addressed Location / Timing Implementation Agent erational Phase N/A N/A Implementation Agent Implementation Agent	Ref Location / Measures Implementation / Measures and Main Concerns to addressed Implementation / Agent erational Phase N/A N/A Implementation / Concerns to addressed Implementation / D	Ref Indext and Main Concerns to addressed Location / Timing Implementation Agent Stages* erational Phase N/A N/A Implementation Agent Implementation Agent	Ref Implementation Stages* Measures and Main Concerns to addressed Timing Agent D C O

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Table A3 Implementation Schedule of Water Quality Mitigation Measures

EIA	EM&A		Objectives of the Recommended	Location /	Implementation	-	lementa Stages*	tion	Relevant Legislation &
Ref	Ref	Recommended Mitigation Measures	Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Guidelines
Water	Quality - (Construction Phase		-					
		General	- -						,
5.6.2	4.9.2	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.	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		~		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.		All works site / during construction	Construction Contractor		1		ProPECC PN 1/94 ETWB TCW No. 19/2005

EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Im	plement: Stages*		Relevant
		Concerns to addressed	Timing	Agent	D	C	0	Legislation & Guidelines
	·				•			
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		V		ProPECC PN 1/9
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		4		ProPECC PN 1/94
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
	4.9.4	 Site Surface Runoff 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. 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. 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 	 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. 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. 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 	Measures and Main Concerns to addressed Timing 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 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 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 All works site / during	Measures and Main Concerns to addressed Timing Agent 4.9.4 Site Surface Runoff To minimize adverse 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 4.9.5 Turbid water from construction sites 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 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 stornwater to such sit 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 works area). Catchpits To minimize adverse water quality impact during construction All works site / during construction Construction Contractor	Measures and Main Concerns to addressed Timing Agent D 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 19.5 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 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 stornwater 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 To minimize adverse water quality impact All works site / during construction Construction Contractor	Measures and Main Concerns to addressed Timing Agent D C 4.9.4 Site Surface Runoff 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 V 19.5 Turbid water from construction sites must be freated 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 V 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 would be constructed in All works site / during construction Construction Contractor I	Measures and Main Concerns to addressed Timing Agent D C O 4.9.4 Site Surface Runoff 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 Image: Construction 19.5 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 Image: Construction 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 to intercept storm run-off from custide 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 All works site / during construction Construction Image: Construction

EIA	EM&A		Objectives of the Recommended	Location /	Implementation	Imj	plementa Stages*		Relevant
Ref	Ref	Recommended Mitigation Measures	Measures and Main Concerns to addressed	Timing	Agent	D	Ċ	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				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
i		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		~		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	C	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 1 st October to 31 st 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 1 st November to 31 st 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		1		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		7		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.	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
5.6.16	4.9.16	Regular monitoring of suspended solids and turbidity should be conducted during excavation works. Any exceedance of water quality in the	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	Imj	olements Stages*		Relevant
		N	Measures and Main Concerns to addressed	Timing	Agent	D	C	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		·					
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		4		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		1		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 Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main	Location / Timing	Implementation Agent	Imj D	olementa Stages* C	Relevant Legislation & Guidelines
ï		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.	Concerns to addressed 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.		All works site / during construction	Construction Contractor			Water Pollution Control Ordinance

ELA Ref	EM&A	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Implementation Stages*			Relevant Legislation &
Kei	Ref		Measures and Main Concerns to addressed	Timing	Agent	D	C	0	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 î	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 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 / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation &
			Concerns to addressed	Timing	Agent	D	C	0	Guidelines
Waste	- Construc	tion Phase					J	I	
		General					<u> </u>		l
6.5.2 - 5.5.3	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	Waste reduction, reuse, recycling and proper disposal of waste	All works site / during construction	Construction Contractor		4		Waste Disposal Ordinance ETWB TCW No 19/2005
		Contract.							

EIA	EM&A	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Im	olementa Stages*	tion	Relevant Legislation &
Ref	Ref		Measures and Main Concerns to addressed	Timing	Agent	Ø	C	0	Guidelines
	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		V		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		~		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		4		Waste Disposal Ordinance

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
									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		V		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 should be provided for inert and non-inert wastes.	Waste reduction, reuse, recycling and proper	· All work sites / during construction	Construction Contractor	• .	1	. Arenner	Waste Disposal Ordinance
		should be provided for men and non-ment wastes.	disposal of waste	construction					ETWB TCW No. 19/2005
6.5.10	5.1.10	Sorting is important to recover materials for reuse	117						
	5.1.10	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		. √		Waste Disposal Ordinance
		temporary storage area for those sorted materials	disposal of waste	construction					ETWB TCW No. 19/2005, 31/2004

EIA	EM&A	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Imp	olementa Stages*	tion	Relevant
Ref	Ref	Accommended mangaton measures	Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Legislation & Guidelines
Ĩ		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		1		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		1		Waste Disposal

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Im	plementa Stages*		Relevant
Kei	Kei		Measures and Main Concerns to addressed	Timing	Agent	D .	C	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	Recommended Mitigation Measures	Objectives of the Recommended	Location /	Implementation	Im	olementa Stages*	tion	Relevant
Ref	Ref	Accommented Mittgation measures	Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Legislation & Guidelines
		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		V		Waste Disposal Ordinance
		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	disposal of waste	construction					ETWB TCW No 19/2005, 31/2004
		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 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	Location /	Implementation	Imj	plementa Stages*		Relevant
			Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Legislation & 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		4		Waste Disposal Ordinance ETWB TCW No 19/2005
5.5.18	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: surface of stockpiled soil should be regularly wetted with water especially during dry season; 	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
		 disturbance of stockpiled soil should be minimized; stockpiled soil should be properly covered with tarpaulin especially when heavy rain storms are predicted; stockpiling areas should be enclosed where space is available; stockpiling location should be away from the water bodies; and an independent surface water drainage system 							

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	C	0	Guidelines
ĩ		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		1		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.	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 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		All work sites / during	Construction Contractor		1		Waste Disposal Ordinance

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EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main	Location /	Implementation	In	plement Stages		Relevant
		these materials for use		1 Timing	Agent	D	C	0	Legislation &
		these materials for use at other construction projects is subject to the approval of the EPD Engineer and/or relevant authorities, such a 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	n disposal of waste , s i t	construction					Guidelines ETWB TCW No. 19/2005, 31/2004
		contractor shall refer and strictly follow the trip- ticket system for the disposal of C&D material as stipulated in the ETWB TCW No. 31/2004.							
5.22		Where the construction processes produce chemical waste, the contractor must register with EPD as a chemical waste producer. Wastes classified as chemical waste 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 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.	recycling and proper disposal of chemical	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
.23	5.1.23	Storage, handling, transport and disposal of chemical waste should be arranged in accordance with the		All work sites / during	Construction Contractor		1		Waste Disposal (Chemical Waste)

			Objectives of the Recommended	Location /	Implementation	Imp	olementat Stages*	ion	Relevant
EIA Ref	EM&A Ref	Recommended Mitigation Measures	Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Legislation & Guidelines
<u></u>		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		1		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		4		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 / Timing	Implementation		plement: Stages*		Relevant
		should be of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste, whichever is largest.		g	Agent	D	C	0	Legislation & Guidelines
		Waste collected from any grease traps should be collected and disposed of by a licensed contractor.							
6.5.26	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.	Waste reduction, reuse, recycling and proper disposal of chemical waste	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
5.27	1	be collected by licensed collectors. The licensed collector should regularly take chemical waste to a licensed chemical waste treatment facility (such as the Chemical Waste Treatment Centre in Tsing Yi). A trip ticket system operates to control the novement of chemical wastes.	recycling and proper	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 } s	No lubricants, oils, solvents or paint products V hould be allowed to discharge into water courses, re		All work sites / Juring	Construction Contractor		1		Waste Disposal

			Objectives of the Recommended	Location /	Implementation	Im	olementa Stages*	tion	Relevant Legislation &
EIA Ref	EM&A Ref	Recommended Mitigation Measures	Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Guidelines
ï		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		V		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	disposal of waste		Construction Contractor		4		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	plement. Stages*	ation	Relevant
		timber used on construction sites. Metallic alternatives to timber are readily available and	Concerns to addressed	l x ming	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.							
5.32	5.1.32	Only waste material need be taken to a landfill. It	Waste reduction, reuse,	All work sites /					
		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.	recycling and proper disposal of waste	during construction	Construction Contractor		V		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
		Municipal Waste							
.33		from other construction and chemical wastes and disposed of at designated landfill A temporary	recycling and proper	All work sites / during construction	Construction Contractor		~		Waste Disposal Ordinance
		contractor to facilitate the collection of refuse by icensed contractors. The removal of wasta from the	- ·	• • •					ETWB TCW No. 19/2005
	p p	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 pests, vermin and other scavengers and prevent nsightly accumulation of waste.							· . 1

Table A5 Implementation Schedule of Ecological Impact Measures

			Objectives of the	Location /	Implementation	Imp	olementa Stages*	tion	Relevant Legislation &
EĮA Ref	EM&A Ref	Recommended Mitigation Measures	Recommended Measures and Main Concerns to addressed	Timing	Agent	D	C	0	Guidelines
Ecology	- Construct	ion Phase	• · · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·			1	r	l
7.9.3	6.5.2	<i>LMH01</i> Given 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 st November -31^{st} 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		~		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 o access to the site and storage of materials, and treatment of construction site waste to preven	construction at LMH01 t f f	All works sites at LMH01 / during construction	Construction Contractor		1		Environmental Impact Assessment Ordinance

ELA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main	Location / Timing	Implementation	In	nplement Stages	tation *	Relevant
		pollution of the stream. These site management measures are listed in the subsequent section.			Agent	D	C	0	Legislation & Guidelines
7.9.9 i		MUP05 (natural stream section) <u>Streambed</u> 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 inal stage, when the newly formed widened tream bed is joined to the existing stream.	Minimize ecological impacts during construction at MUP05	All works sites at MUP05 / during construction	Construction Contractor		1		Environmental Impact Assessmer Ordinance
2.10	fi p st	nes of varying sizes) to approximate as closely as	mpacts during	All works sites at MUP05 / during construction	Construction Contractor		√		Environmental Impact Assessment Ordinance

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			Objectives of the Recommended	Location /	Implementation	Imj	lementa Stages*		Relevant Legislation &
EIA Ref	EM&A Ref	Recommended Mitigation Measures	Measures and Main Concerns to addressed	Timing	Agent	D	С	0	Guidelines
		deposited naturally.							
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 1 st October and 31 st 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.	Minimize ecological impacts during construction at MUP05	All works sites at MUP05 / during construction	Construction Contractor		1		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 at MUP04A should be restricted to 100m to cater for potential cumulative impact on MUP05.	construction at MUP05	All works sites at MUP05 / during construction	Construction Contractor		N .		Environmental Impact Assessmen Ordinance
1		Appropriate site management procedures during	Minimize ecological	All works sites at			1		Environmental Impact Assessme
7.9.13	6.5.12	the construction phase should be adopted, as		MUP05 / during	Contractor	1			Impacticocounter

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EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main	Location / Timing	Implementation	In	nplemen Stages	tation *	Relevant
	1	recommended in ETWB TCW No. 5/2005, to	Concerns to addressed	Thung	Agent	D	C	0	 Legislation & Guidelines
}		minimise potential disturbance impacts and 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 measures are listed in the subsequent section.	construction at MUP05	construction					Ordinance
7.9.20, Fable 7.29		transplanting existing trees to suitable locations	Mitigate the loss of bankside trees and associated riparian habitats at MUP05	MUP05 / during construction	Construction Contractor				Environmental Impact Assessmen Ordinance
	-	Ficus hispida Ficus microcarpa				2			

1.2V

			Objectives of the	Location /	Implementation		lementat Stages*	ion	Relevant Legislation &
EIA Ref	EM&A Ref	Recommended Mitigation Measures	Recommended 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 $1,100 \text{ m}^2$) 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		1		Environmental Impact Assessmen Ordinance
7.9.22	6.5.21	The Landscape Plan to be submitted prior to	To ensure the	All works site / during detailed	DSD (or its appointed	1	1		Environmental Impact Assessme
fable	Table 6.6	commencement of planting or landscaping works	recommended plant species are taken into	design and	Detailed Design			1	Ordinance
7.29	(7.5.11)	should take into account the recommended plant species.	account in the Landscape Plan	construction	Engineer)	1			
(8.11.27		Sporton .	Landscape Flan						
)					Construction Contractor to implement the approved planting plan				
7.9.23	6.5.22	The recommended site management measures are generally good site practices and proper wate quality control / waste management measures to be implemented by the contractor for all work near stream courses. These measures include:	to minimize ecological	All works sites at LMH01 and MUP05 / during construction	Construction Contractor		4		Environmental Impact Assessme Ordinance
		 Construction activities should be restricted t works area that should be clearly demarcated 	>						

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EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main	Location / Timing	Implementation		plement Stages	Relevant
- H - H - H - H - H - H - H - H	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. 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. 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 ncluding sediment and oil/grease traps hould be provided to prevent contaminated ite run-off entering the water bodies.	Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	D		Relevant Legislation & Guidelines

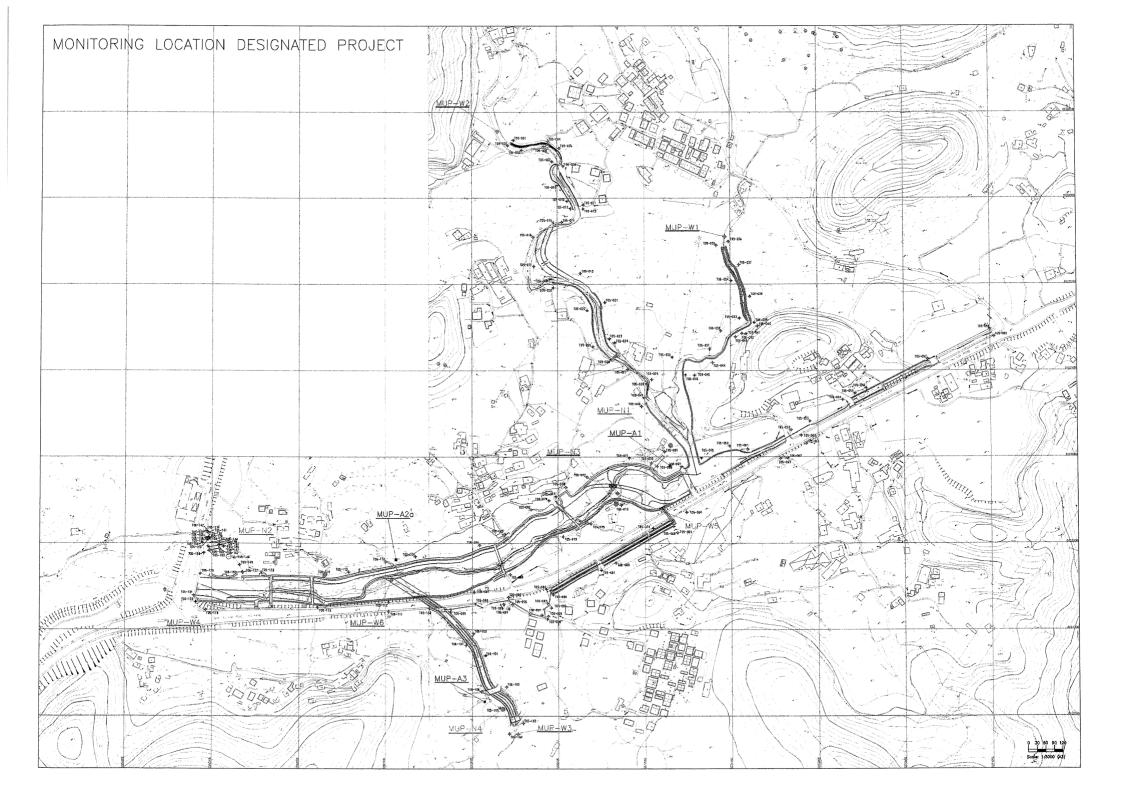
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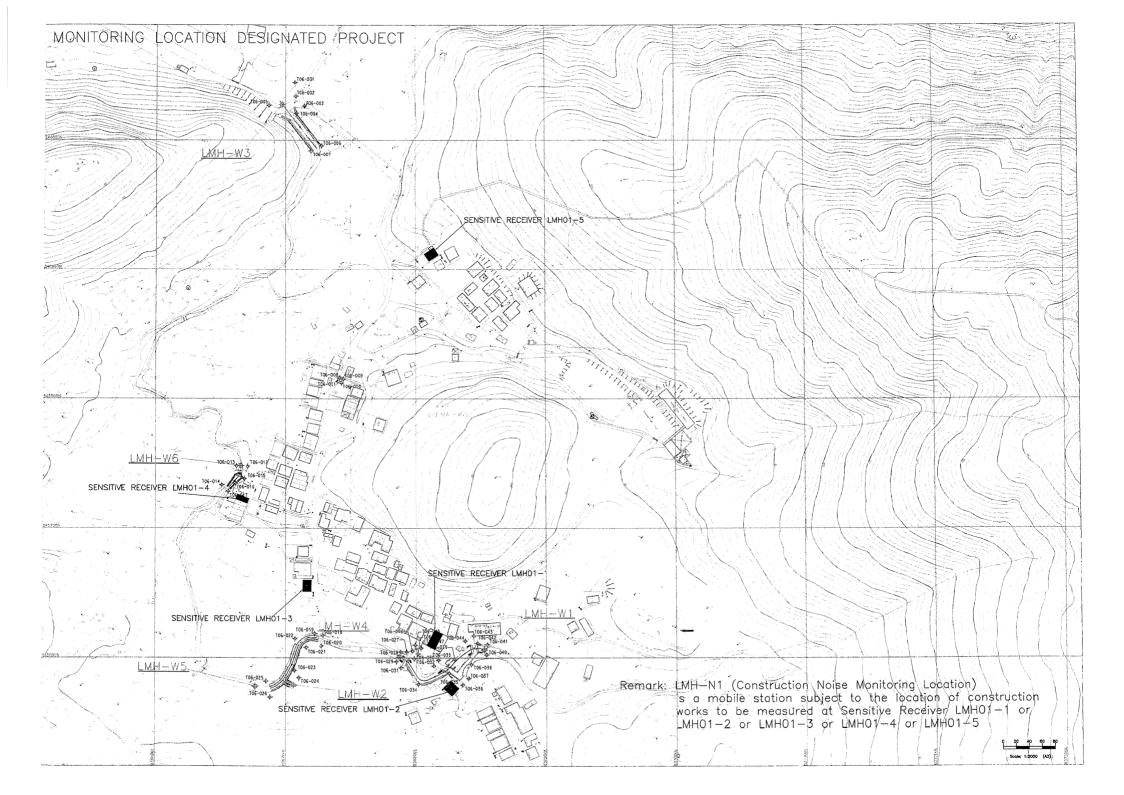
			Objectives of the Recommended Measures and Main Concerns to addressed	Location /	Implementation Agent	Implementation Stages*		ion	Relevant Legislation &
EIA EM&A Ref Ref	EM&A Ref			Timing		D	C	0	Guidelines
		the water bodies during rain storms.							
		 Construction effluent, site run-off and sewage should be properly collected, treated and disposed. 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. 							
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		7		Environmental Impact Assessmen Ordinance
						<u> t </u>			
Ecology	- Operatio	n Phase		1		1			
7.9.6	6.5.5	<i>LMH01</i> 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)				Environmental Impact Assessme Ordinance



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	10 Sep 09 10 Dec 09	10 Dec 09 10 Mar 10
2*		TSP Sampler Calibration Spreadsheet for MUP-A2	10 Sep 09 10 Dec 09	10 Dec 09 10 Mar 10
3*	Air TSP Sampler Calibration Spreadsheet for MUP-A3		10 Sep 09 10 Dec 09	10 Dec 09 10 Mar 10
4		TSI DustTrak Model 8520 (Serial No. 21060)	18 Jun 09	18 Jun 10
5		TSI DustTrak Model 8520 (Serial No. 23080)	18 Jun 09	18 Jun 10
6		TSI DustTrak Model 8520 (Serial No. 23079)	18 Jun 09	18 Jun 10
7		Bruel & Kjaer Integrating Sound Level Meter (Serial No. 2285762)	30 Apr 09	30 Apr 10
8	Noise	Bruel & Kjaer Integrating Sound Level Meter (Serial No. 2285690)	30 Apr 09	30 Apr 10
9		Bruel & Kjaer Acoustical Calibrator (Serial No. 2292168)	28 Apr 09	28 Apr 10
10		Bruel & Kjaer Acoustical Calibrator (Serial No. 2326408)	28 Apr 09	28 Apr 10
11		YSI 550A (Serial No. 05F2063AZ)	17 Oct 09	17 Jan 10
12	Water	Hanna HI98107 (Serial No. S411364)	21 Oct 09	21 Jan 10
13		Turbidimeter HACH 2100p (Serial No. 08070C031408)	27 Oct 09	27 Jan 10

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

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Location IE):	Man Uk F MUP-A1	Pin Near D	D46 Lot 82	-	Next Calibr	Calibration: 10-Dec-09 ation Date: 10-Mar-10 Fechnician: Mr. Ben Tam	
					CONDIT	IONS		
		Sea Level Tem	Pressure perature		1014.8 20.3		Corrected Pressure (mm Hg Temperature (K)) 761.1 293
				C	ALIBRATIO	N ORIFICE		
							2.01546 -0.02851	
					CALIBR	ATION		
Plate	H20 (L)	H2O (R)	H20	Qstd	Ι	IC	LINEAR	
No.	(in)	(in)	(in)	(m3/min)	(chart)	corrected	REGRESSION	
18 13	5.2 4.1	5.2 4.1	10.4 8.2	1.628 1.447	48 41	48.80 41.69	Slope = 33.29 Intercept = -5.59	
10	2.6	2.6	5.2 5.2	1.155	33	33.55	Corr. coeff. = 0.99	
7	1.6	1.6	3.2	0.909	25	25.42	0.00	
5	0.8	0.8	1.6	0.647	15	15.25		
Pstd = actu <i>For subse</i> 1/m((I)[So	n[Sqrt(H2C (Pa/Pstd)) (ndard flow cted chart chart respondent tor Qstd st tor Qstd ir I temperational pressu paguent ca (298/Ta	Tstd/Ta)] (rate respones onse slope ntercept ture during re during (culation of	g calibratio calibratior of sample	on(deg K) n(mm Hg)	60.00 50.00 40.00 90.05 90.00 90.00 90.00 10.00		FLOW RATE CHART	
m = sample b = sample		ot						
I = chart re	sponse				0.00	.000	0.500 1.000 1.500	2.000
Tav = daily	, average		re			.000	Standard Flow Rate (m3/min)	2.000
Pav = daily	v average	pressure					. ,	

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Location ID	Location : Loi Tung Near DD46 Lot 230 Location ID : MUP-A3					Next Calibra	Calibration: 10-Dec-09 ation Date: 10-Mar-10 ⁻ echnician: Mr. Ben Tam	
					CONDIT	IONS		
		Sea Level Tem	Pressure perature	· ·	1014.8 20.3		Corrected Pressure (mm Hg) Temperature (K)	761.1 293
				C	ALIBRATIO	N ORIFICE		
				Make-> Model->			Qstd Slope -> Qstd Intercept ->	2.01546 -0.02851
					CALIBR	ATION		
Plate	H20 (L)	H2O (R)	H20	Qstd	I	IC	LINEAR	
No. 18	(in) 5.3	(in) 5.3	(in)	(m3/min)	(chart)	corrected 52.87	REGRESSION Slope = 34.973	7
13	5.3 4.0	5.3 4.0	10.6 8.0	1.644 1.430	52 43	52.67 43.72	Slope = 34.973 Intercept = -5.886	
10	2.8	2.8	5.6	1.199	34	34.57	Corr. coeff. = 0.996	
7	1.8	1.8	3.6	0.964	27	27.45		-
5	0.7	0.7	1.4	0.606	16	16.27		
Pstd = actu <i>For subse</i> 1/m((I)[Sc	[Sqrt(H2C Pa/Pstd)(ndard flow ted chart hart respo tor Qstd s or Qstd ir l temperat ial pressu quent ca rt(298/Ta	Tstd/Ta)] rate respones onse slope stercept sure during re during o	g calibratio calibratior of sample	on(deg K) h(mm Hg)	60.00 50.00 40.00 30.00 90.00 90.00 10.00		FLOW RATE CHART	
m = sample b = sample		ot			_			
I = chart response					0.00)).000	0.500 1.000 1.500	2.000
Tav = daily Pav = daily	average		re				Standard Flow Rate (m3/min)	2.000

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Location ID) :	Man Uk F MUP-A2	Pin Near D	D46 Lot 676	3	Next Calibr	Calibration: 10-Dec-09 oration Date: 10-Mar-10 Technician: Mr. Ben Tam	
					CONDIT	IONS		
		Sea Level Tem	Pressure perature		1014.8 20.3		Corrected Pressure (mm Hg) 7 Temperature (K)	61.1 293
				C	ALIBRATIO	N ORIFICE	E	
				Make-> Model->			Qstd Slope -> 2.01546 Qstd Intercept -> -0.02857	
					CALIBR	ATION		
Plate		H2O (R)	H20	Qstd	 (ab art)	IC	LINEAR	
No. 18	(in) 4.8	(in) 4.8	(in) 9.6	(m3/min) 1.565	(chart) 52	corrected 52.87	REGRESSION Slope = 42.9078	
13	4	4	8.0	1.430	44	44.74	Intercept = -15.8465	
10	3.1	3.1	6.2	1.260	37	37.62	Corr. coeff. = 0.9960	
7	2.2	2.2	4.4	1.064	28	28.47		
5	1	1	2.0	0.722	16	16.27		
Calculation Qstd = 1/m IC = I[Sqrt([Sqrt(H20	• • •	(Tstd/Ta))	-b]	60.00		FLOW RATE CHART	
Qstd = star IC = correc I = actual c	ted chart	respones			50.00 2		y = 42.908x - 15.847 ◆	
m = calibra b = calibra Ta = actua	tor Qstd s or Qstd in I temperat	slope htercept ture during		on(deg K)	40.00 Actual chart response (IC) 00.02 00.02			
Pstd = actual pressure during calibration (mm Hg) <i>For subsequent calculation of sampler flow:</i> 1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)					20.00 Act rag V 10.00		▲	
	m = sampler slope							
b = sample		ot			0.00			
I = chart re Tav = daily Pav = daily	average		re		C	.000	0.500 1.000 1.500 2.00 Standard Flow Rate (m3/min)	00
. a daily	g0							_



Appendix F

Details of the Event Action Plan

Event/Action Plan for Air Quality

	ACTION								
EVENT	ET Leader	IEC	ER	Contractor					
ACTION LEVEL									
Exceedance for one sample	 Identify source Inform IEC, ER and Contractor Repeat measurement to confirm findings Increase monitoring frequency to daily 	 Check monitoring data submitted by ET Leader Check Contractor's working method 	1. Notify Contractor	 Rectify any unacceptable practice Amend working methods if appropriate 					
Exceedance for two or more consecutive samples	 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 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 	 Confirm receipt of notification of failure in writing Notify Contractor Ensure remedial measure properly implemented 	 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	 Notify IEC, ER, Contractor and EPD Identify source Repeat measurement to confirm findings Increase monitoring frequency to daily Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented Arrange meeting with IEC, Contractor and ER to discuss the remedial actions to be taken Access effectiveness of Contractor's remedial actions and kept IEC, EPD and ER informed of results If exceedance stops, cease additional monitoring 	 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	 Repeat in-situ measurement to confirm findings Identify source(s) of impact Inform IEC and Contractor Check monitoring data, all plant, equipment and Contractor's working methods Discuss mitigation measures with IEC and Contractor Repeat measurement on next day of exceedance 	 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 	 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 Implement the agreed mitigation measures
Action Level being exceeded by more than one consecutive sampling day	 Repeat in-situ measurement to confirm findings Identify source(s) of impact Inform IEC and Contractor Check monitoring data, all plant, equipment and Contractor's working methods Discuss mitigation measures with IEC and Contractor Ensure mitigation measures are implemented Prepare to increase the monitoring frequency to daily Repeat measurement on next day of exceedance 	 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 	 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	 Repeat in-situ measurement to confirm findings Identify source(s) of impact Inform IEC, Contractor and EPD Check monitoring data, all plant, equipment and Contractor's working methods Discuss mitigation measures with IEC, ER and Contractor Ensure mitigation measures are implemented Increase the monitoring frequency to daily until no exceedance of Limit Level 	 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 Request Contractor to critically review the working methods 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 more than one consecutive sampling day	 Repeat in-situ measurement to confirm findings Identify source(s) of impact Inform IEC, Contractor and EPD Check monitoring data, all plant, equipment and Contractor's working methods Discuss mitigation measures with IEC, ER and Contractor Ensure mitigation measures are implemented Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days 	 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 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 	 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 As directed by the ER, to slow down or to stop all or part of the work or construction activities

Event/Action Plan for Ecology

EVENT		ACTION			
	ET Leader	IEC	ER	Contractor	
Non-conformity on one occasion	 Identify source Inform the IEC and ER Discuss remedial actions with IEC, the ER and the Contractor Monitor remedial actions until rectification has been completed 	 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 	 Take immediate action to avoid further problem Amend working methods if needed Submit proposals for remedial actions to ET, ER and IEC Rectify damage and implement the agreed remedial actions 	
Repeated Non-confirmity	 Identify source Inform the IEC, ER, EPD and AFCD Increase monitoring 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 	 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 	 Take immediate action to avoid further problem Amend working methods if needed Submit proposals for remedial actions to ET, ER and IEC Rectify damage and implement the agreed remedial actions 	

Event/Action Plan for Landscape and Visual Impact

EVENT		ACTION			
EVENI	ET Leader	IEC	ER	Contractor	
Non-conformity on one occasion	 Identify source Inform the IEC and the ER Discuss remedial actions with IEC, the ER and the Contractor Monitor remedial actions until rectification has been completed 	 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
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	Action									
EVENT Action Level	ET Leader 1. Notify IEC, Contractor and ER 2. Carry out investigation and identify source 3. Report the results of investigation to IEC, Contractor and ER 4. Discuss with the Contractor and formulate remedial measures 5. Increase monitoring frequency 6. Check compliance to Action/limit Levels after application of mitigation measures	IEC IEC 1. Review the analysed results submitted by the ET Leader 2. Review the proposed remedial measures by the Contractor and advise the ER & ER accordingly 3. Review the implementation of remedial measures	ER 1. Confirm receipt of notification of complaint in writing 2. Notify Contractor 3. Check monitoring data submitted by the ET 4. Require Contractor to propose remedial measures for the analysed noise problem 5. Ensure remedial measures are properly implemented	Contractor1.Submit noise mitigation proposals to ER and IEC within three working days2.Liaise with the ER to ensure the effectiveness of the agreed mitigation3.Amend proposal if required4.Implement noise mitigation proposals						
Limit Level	 Notify IEC, Contractor and ER Identify source Repeat measurement to confirm findings Increase monitoring frequency Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented Inform IEC, ER and EPD the causes & actions taken form the exceedances Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results If exceedance stops, cease additional monitoring 	 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 	 Confirm receipt of notification of exceedance Notify Contractor Check monitoring data submitted by the ET Require Contractor to propose remedial measures for the analysed noise problem Discuss with ET, IEC and Contractor on proposed remedial actions to be implemented Ensure remedial measures are properly implemented Assess the effectiveness of the remedial actions and keep the Contractor informed 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 	 Take immediate action to avoid further exceedance Submit proposals for remedial actions to ER within three working days of notification Liaise with the ER to ensure the effectiveness of the agreed mitigation Amend proposal if required Implement the agreed proposals Resubmit proposals if problem still not under control Stop the relevant portion of works as determined by the ER until the exceedance is abated 						



Appendix G

Monitoring Schedule

Z:\Jobs\2008\TCS00409 (DC-2007-08)\600\Impact\DP\Monthly Report\10th Monthly- December 2009\R0668v2.doc Action-United Environmental Services and Consulting

Monitoring Schedule for Channels MUP in this Reporting Month

	Date	Air Q	Quality	Noise Leq	Water	Ecology	
		1-hour TSP	24-hour TSP	30min	Quality	Water Quality	Ecological Survey
Thu	26-Nov-09						
Fri	27-Nov-09						
Sat	28-Nov-09						
Sun	29-Nov-09						
Mon	30-Nov-09						
Tue	1-Dec-09						
Wed	2-Dec-09						
Thu	3-Dec-09						
Fri	4-Dec-09						
Sat	5-Dec-09						
Sun	6-Dec-09						
Mon	7-Dec-09						
Tue	8-Dec-09						
Wed	9-Dec-09						
Thu	10-Dec-09						
Fri	11-Dec-09						
Sat	12-Dec-09						
Sun	13-Dec-09						
Mon	14-Dec-09						
Tue	15-Dec-09						
Wed	16-Dec-09						
Thu	17-Dec-09						
Fri	18-Dec-09						
Sat	19-Dec-09						
Sun	20-Dec-09						
Mon	21-Dec-09						
Tue	22-Dec-09						
Wed	23-Dec-09						
Thu	24-Dec-09						
Fri	25-Dec-09						

Monitoring Day Sunday or Public Holiday

Parameters:

Air Noise Water Location ID

MUP-A1 (Same as MUP01/02-A1), MUP-A2a, MUP-A3, MUP05-N1 (Same as MUP01/02-N1), MUP-N2, MUP-N3, MUP-N4, MUP-W1 (Same as MUP01/02-W1), MUP-W2 (Same as MUP01/02-W2), MUP-W3, MUP-W4, MUP-W5, MUP-W6 As location in MUP05

Ecology Survey



Monitoring Schedule for Channels MUP in coming month

	Date	Air (Quality	Noise Leq	Water	Ecology				
		1-hour TSP	24-hour TSP	30min	Quality	Water Quality	Ecological Survey			
Sat	26-Dec-09									
Sun	27-Dec-09									
Mon	28-Dec-09									
Tue	29-Dec-09									
Wed	30-Dec-09									
Thu	31-Dec-09									
Fri	1-Jan-10									
Sat	2-Jan-10									
Sun	3-Jan-10									
Mon	4-Jan-10									
Tue	5-Jan-10									
Wed	6-Jan-10									
Thu	7-Jan-10									
Fri	8-Jan-10									
Sat	9-Jan-10									
Sun	10-Jan-10									
Mon	11-Jan-10									
Tue	12-Jan-10									
Wed	13-Jan-10									
Thu	14-Jan-10									
Fri	15-Jan-10									
Sat	16-Jan-10									
Sun	17-Jan-10									
Mon	18-Jan-10									
Tue	19-Jan-10									
Wed	20-Jan-10									
Thu	21-Jan-10									
Fri	22-Jan-10									
Sat	23-Jan-10									
Sun	24-Jan-10									
Mon	25-Jan-10									

Monitoring Day
Sunday or Public Holiday

Parameters:

Air Noise Water

Ecology Survey

Location ID

MUP-A1 (Same as MUP01/02-A1), MUP-A2a, MUP-A3, MUP05-N1 (Same as MUP01/02-N1), MUP-N2, MUP-N3, MUP-N4, MUP-W1 (Same as MUP01/02-W1), MUP-W2 (Same as MUP01/02-W2), MUP-W3, MUP-W4, MUP-W5, MUP-W6 As location in MUP05



Appendix H

Detailed Impact Monitoring Data of Air Quality and Water Quality

AUES

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	21-[Dec-09												
Location	Time	Depth (m)	Tem	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		рН		S
MUP-W1 (Control)	10:00	0.15	18.0	18.0	3.21	3.2	52.10	52.4	4.36	4.4	7.60	7.6	8.00	8.0
(MUP01/02-W1)	10.00	0.15	18.0	18.0	3.24	3.2	52.70	JZ.4	4.37	4.4	7.60	7.0	8.00	0.0
MUP-W2 (Control)	11:25	0.2	18.2	18.2	5.26	5.3	62.10	62.2	2.36	2.4	7.80	7.9	3.00	3.0
(MUP01/02-W2)	11.25	0.2	18.2	10.2	5.29	5.5	62.30	02.2	2.40	2.4	7.90	7.9	3.00	3.0
MUP-W3 (Control)	10:55	0.1	17.9	17.9	3.08	3.1	51.10	50.9	3.94	3.9	7.10	7.2	9.00	9.0
	10:55	0.1	17.9	17.9	3.09	3.1	50.60	50.9	3.91	3.9	7.20	1.2	9.00	9.0
MUP-W4 (Impact)	11:10	0.35	17.8	9.8	5.41	5.4	61.10	61.1	2.14	2.2	7.40	7.5	<2	2.0
wor-w4 (mpact)	11.10	0.35	1.8	9.0	5.39	5.4	61.00	01.1	2.16	2.2	7.50	7.5	<2	2.0
MUP-W5 (mobile)	10:28	0.3	17.9	17.9	4.66	4.6	62.10	62.0	2.96	3.0	7.50	7.5	<2	2.0
MOP-W5 (Hobile)	10.20	0.5	17.9	17.9	4.63	4.0	61.80	02.0	2.99	3.0	7.50	7.5	<2	2.0
MUR W6 (mobile)	10.42	0.3	17.6	17.6	4.88	10	62.10	62.0	3.01	3.0	7.60	77	<2	2.0
	10.45	0.5	17.6	17.0	4.86	4.7	61.80	02.0	2.98	3.0	7.70	1.1	<2	2.0
MUP-W6 (mobile)	10:43	0.3	17.6	17.6	4.88	4.9	62.10	62.0	3.01	3.0	7.60	7.7	<2	

Date	23-0	Dec-09												
Location	Time	Depth (m)	Temp	o(oC)	D0 (n	ng/L)	DOS	6(%)	Turbidity(NTU)		рН		S	S
MUP-W1 (Control)	09:40	0.15	17.3	17.3	3.78	3.8	54.10	54.2	3.68	3.7	7.20	7.2	<2	2.0
(MUP01/02-W1)	07.40	0.15	17.3	17.5	3.77	5.0	54.20	J4.2	3.67	3.7	7.20	1.2	<2	2.0
MUP-W2 (Control)	11:05	0.25	17.4	17.4	5.18	5.2	60.10	60.1	2.96	3.0	7.30	7.4	<2	2.0
(MUP01/02-W2)	11.05	0.25	17.4	17.4	5.17	5.2	60.10	00.1	2.94	3.0	7.40	7.4	<2	2.0
MUP-W3 (Control)	10:12	0.1	17.2	17.2	3.47	3.5	52.30	52.6	3.27	3.3	7.80	7.8	<2	2.0
	10.12	0.1	17.2	17.2	3.51	3.0	52.90	52.0	3.28	5.5	7.80	7.0	<2	2.0
MUP-W4 (Impact)	10:50	0.4	17.4	17.4	5.36	5.4	59.60	59.7	3.11	3.1	7.60	7.6	<2	2.0
WOP-W4 (Impact)	10.50	0.4	17.4	17.4	5.39	5.4	59.80	59.7	3.12	3.1	7.60	7.0	<2	2.0
MUP-W5 (mobile)	10:25	0.35	17.3	17.3	4.62	4.6	59.30	59.3	3.17	3.2	7.40	7.5	<2	2.0
MOP-W5 (Hobile)	10.25	0.35	17.3	17.5	4.61	4.0	59.30	39.5	3.16	3.2	7.50	7.5	<2	2.0
MUP-W6 (mobile)	10:35	0.3	17.2	17.2	4.68	4.7	58.80	59.0	3.04	3.1	7.50	7.5	<2	2.0
MOP-W6 (mobile)	10.55	0.3	17.2	17.2	4.69	4.7	59.10	39.0	3.06	3.1	7.50	7.5	<2	2.0

AUES

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		Nov-09											-			
Location	Time	Depth (m)	Tem	o(oC)	D0 (r	ng/L)	DOS	\$(%)	Turbidi	ty(NTU)	р	H	S	S		
MUP-W1 (Control) (MUP01/02-W1)	03:15	0.1	26.5 26.5	26.5	3.39 3.33	3.4	54.10 53.60	53.9	8.62 8.63	8.6	7.40 7.50	7.5	6.00	6.0		
MUP-W2 (Control)	00.05		20.5	04.5	5.52		55.10	54.0	1.89	1.0	7.30		2.00			
(MUP01/02-W2)	02:05	0.3	24.5	24.5	5.51	5.5	54.70	54.9	1.90	1.9	7.60	7.7	2.00	2.0		
MUP-W3 (Control)	02:45	0.2	26.5 26.5	26.5	3.23	3.2	49.40 49.80	49.6	2.13	2.1	7.20 7.30	7.3	2.00	2.0		
MUP-W4 (Impact)	02:25	0.5	24.5	24.5	5.43	5.4	59.80	59.8	7.85	7.9	7.70	7.7	2.00	2.0		
	02.25	0.5	24.5	24.5	5.46	5.4	59.80	37.0	7.88	1.7	7.70	7.7	2.00	2.0		
MUP-W5 (mobile)	02:55	0.4	26.0 26.0	26.0	4.53 4.51	4.5	52.60 52.50	52.6	2.81 2.84	2.8	7.40 7.40	7.4	4.00	4.0		
MUP-W6 (mobile)	02:35	0.3	25.5 25.5	25.5	4.96 4.99	5.0	60.30 60.60	60.5	11.60 11.50	11.6	7.60 7.50	7.6	6.00 6.00	6.0		
Date		Nov-09	-	(0)	50 (-	(1) (1)	1					
Location	Time	Depth (m)	Temp	o(oC)	DO (r	ng/L)		5(%)		ty(NTU)		н	S COO	5		
MUP-W1 (Control) (MUP01/02-W1)	03:00	0.1	24.9 24.9	24.9	3.48 3.51	3.5	50.30 50.90	50.6	5.97 5.96	6.0	8.00 8.00	8.0	5.00 5.00	5.0		
MUP-W2 (Control)	01:55	0.2	24.9	24.9	5.17	5.2	61.10	61.0	2.28	2.3	8.00	8.0	<2	2.0		
(MUP01/02-W2)			24.9 25.1		5.13 3.03		60.80 52.10		2.27 3.64		8.00 7.80		<2 <2			
MUP-W3 (Control)	03:15	0.1	25.1	25.1	3.08	3.1	52.40	52.3	3.66	3.7	7.70	7.8	<2	2.0		
MUP-W4 (Impact)	02:15	0.5	25.1	25.1	5.30	5.3	63.30	63.2	3.41	3.4	8.10	8.1	<2	2.0		
			25.1 25.2	-	5.28 4.61		63.10 54.60		3.42 4.41		8.10 7.40	-	<2 <2	-		
MUP-W5 (mobile)	02:36	0.45	25.2	25.2	4.64	4.6	55.00	54.8	4.37	4.4	7.40	7.4	<2	2.0		
MUP-W6 (mobile)	02:25	0.3	25.2 25.2	25.2	4.73	4.7	58.40 58.90	58.7	4.33 4.36	4.3	7.60	7.7	<2	2.0		
			23.2		4.70		30.70		4.30		7.70		< <u>2</u>			
Date	2-D	ec-09	-										1			
Location	Time	Depth (m)	Tem	o(oC)	DO (r	ng/L)	DOS	6(%)	Turbidi	ty(NTU)	р	рН		S		
MUP-W1 (Control) (MUP01/02-W1)	03:45	0.1	27.0	27.0	3.84	3.9	50.30	50.6	2.83	2.8	8.20	8.1	3.00	3.0		
MUP-W2 (Control) (MUP01/02-W2)	02:52	0.3	27.0 25.8	25.8	3.86 5.21	5.2	50.80 58.60	58.7	2.80 3.19	3.2	8.00 7.60	7.6	3.00	2.0		
. ,	03:22	0.2	25.8 26.8	26.8	5.24 3.67	3.7	58.70 51.10	51.2	3.16 2.73	2.7	7.60 7.60	7.6	2.00	2.0		
MUP-W3 (Control)	03:22	0.2	26.8	20.8	3.69	3.7	51.30	91.Z	2.74	2.7	7.50	7.6	2.00	2.0		
MUP-W4 (Impact)	03:07	0.5	26.3 26.3	26.3	5.31 5.33	5.3	56.60 56.30	56.5	4.77 4.78	4.8	7.70 7.80	7.8	<2 <2	2.0		
MUP-W5 (mobile)	03:30	0.5	27.0 27.0	27.0	4.53 4.56	4.5	53.70	53.8	4.66	4.7	7.90 7.90	7.9	3.00	3.0		
			27.0		4.56	4.0	53.90 54.40	54.2	4.68	4.5	7.90		<2	2.0		
	02.15	0.5				4.8		54.3	4.51	4.5	7.70	7.7	<2	2.0		
MUP-W6 (mobile)	03:15	0.5	26.5	26.5	4.76	26.5 4.76 54.10 4.51 7.70 <										
				26.5			54.10									
Date	4-D	Dec-09	26.5		4.76	mg/L)		(%)	Turbidi	ty/NTU)	n	н	s	\$		
Date Location	4-D Time	Dec-09 Depth (m)	26.5	o(oC)				5(%)	Turbidi 3.01	ty(NTU)	p 7.80	H	<2 S			
Date Location MUP-W1 (Control) (MUP01/02-W1)	4-D	Dec-09	26.5 Tem 20.6 20.6		4.76 DO (r 3.51 3.48	ng/L) 3.5	DOS 52.40 51.80	5(%) 52.1	3.01 3.04	ty(NTU) 3.0	7.80 7.70	Н 7.8	<2 <2	s 2.0		
Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control)	4-D Time	Dec-09 Depth (m)	26.5 Temp 20.6 20.6 19.7	o(oC)	4.76 DO (r 3.51 3.48 5.29		DOS 52.40 51.80 59.70	[3.01 3.04 2.48		7.80 7.70 7.30		<2 <2 <2			
Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2)	4-D Time 11:05 09:50	Dec-09 Depth (m) 0.1 0.2	26.5 Temp 20.6 20.6 19.7 19.7 20.6	o(oC) 20.6 19.7	4.76 DO (r 3.51 3.48 5.29 5.24 3.40	3.5 5.3	DOS 52.40 51.80 59.70 59.10 50.60	52.1 59.4	3.01 3.04 2.48 2.51 2.42	3.0 2.5	7.80 7.70 7.30 7.30 7.90	7.8 7.3	<2 <2 <2 <2 <2 <2 <2	2.0 2.0		
Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2)	4-D Time 11:05	Dec-09 Depth (m) 0.1	26.5 Temj 20.6 20.6 19.7 19.7 20.6 20.6	o (oC) 20.6	4.76 DO (r 3.51 3.48 5.29 5.24 3.40 3.37	3.5	DOS 52.40 51.80 59.70 59.10 50.60 50.20	52.1	3.01 3.04 2.48 2.51 2.42 2.45	3.0	7.80 7.70 7.30 7.30 7.90 7.90	7.8	<2 <2 <2 <2 <2 <2 <2 <2 <2	2.0		
Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control)	4-D Time 11:05 09:50	Dec-09 Depth (m) 0.1 0.2	26.5 Temp 20.6 20.6 19.7 19.7 20.6	o(oC) 20.6 19.7	4.76 DO (r 3.51 3.48 5.29 5.24 3.40	3.5 5.3	DOS 52.40 51.80 59.70 59.10 50.60	52.1 59.4	3.01 3.04 2.48 2.51 2.42	3.0 2.5	7.80 7.70 7.30 7.30 7.90	7.8 7.3	<2 <2 <2 <2 <2 <2 <2	2.0 2.0		
Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control)	4-D Time 11:05 09:50 11:20	Dec-09 Depth (m) 0.1 0.2 0.1	26.5 Temp 20.6 20.6 19.7 19.7 20.6 20.6 19.4 19.4 20.1	20.6 20.6 19.7 20.6	4.76 DO (r 3.51 3.48 5.29 5.24 3.40 3.37 5.39 5.44 4.67	3.5 5.3 3.4	DOS 52.40 51.80 59.70 59.10 50.60 50.20 58.80 58.90 57.10	52.1 59.4 50.4	3.01 3.04 2.48 2.51 2.42 2.45 2.64 2.66 2.98	3.0 2.5 2.4	7.80 7.70 7.30 7.30 7.90 7.90 7.60 7.70 7.30	7.8 7.3 7.9	<2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2	2.0 2.0 2.0		
Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W4 (Impact)	4-D Time 11:05 09:50 11:20 10:11	Dec-09 Depth (m) 0.1 0.2 0.1 0.4	26.5 Temp 20.6 20.6 19.7 19.7 20.6 20.6 19.4 19.4 20.1 20.1 20.1 19.7	20.6 19.7 20.6 19.4	4.76 DO (r 3.51 3.48 5.29 5.24 3.40 3.37 5.39 5.44 4.67 4.63 4.88	3.5 5.3 3.4 5.4	DOS 52.40 51.80 59.70 59.10 50.60 50.20 58.80 58.90 57.10 57.20 56.70	52.1 59.4 50.4 58.9	3.01 3.04 2.48 2.51 2.42 2.45 2.64 2.66 2.98 2.94 2.71	3.0 2.5 2.4 2.7	7.80 7.70 7.30 7.30 7.90 7.90 7.90 7.60 7.70 7.30 7.30 7.80	7.8 7.3 7.9 7.7	<2	2.0 2.0 2.0 2.0		
Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W3 (Control) MUP-W4 (Impact) MUP-W5 (mobile)	4-D Time 11:05 09:50 11:20 10:11 10:35	Dec-09 Depth (m) 0.1 0.2 0.1 0.4 0.5	26.5 Temp 20.6 20.6 19.7 19.7 20.6 20.6 19.4 19.4 20.1 20.1	b(oC) 20.6 19.7 20.6 19.4 20.1	4.76 DO (r 3.51 3.48 5.29 5.24 3.40 3.37 5.39 5.44 4.67 4.63	3.5 5.3 3.4 5.4 4.7	DOS 52.40 51.80 59.70 59.10 50.60 50.20 58.80 58.90 57.10 57.20	52.1 59.4 50.4 58.9 57.2	3.01 3.04 2.48 2.51 2.42 2.45 2.64 2.66 2.98 2.94	3.0 2.5 2.4 2.7 3.0	7.80 7.70 7.30 7.30 7.90 7.90 7.90 7.60 7.70 7.30 7.30	7.8 7.3 7.9 7.7 7.3	<2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2	2.0 2.0 2.0 2.0 2.0		
Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W3 (Control) MUP-W4 (Impact) MUP-W5 (mobile)	4-D Time 11:05 09:50 11:20 10:11 10:35 10:22	Dec-09 Depth (m) 0.1 0.2 0.1 0.4 0.5	26.5 Temp 20.6 20.6 19.7 19.7 20.6 20.6 19.4 19.4 20.1 20.1 20.1 19.7	b(oC) 20.6 19.7 20.6 19.4 20.1	4.76 DO (r 3.51 3.48 5.29 5.24 3.40 3.37 5.39 5.44 4.67 4.63 4.88	3.5 5.3 3.4 5.4 4.7	DOS 52.40 51.80 59.70 59.10 50.60 50.20 58.80 58.90 57.10 57.20 56.70	52.1 59.4 50.4 58.9 57.2	3.01 3.04 2.48 2.51 2.42 2.45 2.64 2.66 2.98 2.94 2.71	3.0 2.5 2.4 2.7 3.0	7.80 7.70 7.30 7.30 7.90 7.90 7.90 7.60 7.70 7.30 7.30 7.80	7.8 7.3 7.9 7.7 7.3	<2	2.0 2.0 2.0 2.0 2.0		
Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W4 (Impact) MUP-W5 (mobile) MUP-W6 (mobile)	4-D Time 11:05 09:50 11:20 10:11 10:35 10:22	Dec-09 Depth (m) 0.1 0.2 0.1 0.4 0.5 0.4	26.5 Temp 20.6 20.6 19.7 19.7 20.6 20.6 19.4 19.4 20.1 20.1 20.1 19.7	b(oC) 20.6 19.7 20.6 19.4 20.1 19.7	4.76 DO (r 3.51 3.48 5.29 5.24 3.40 3.37 5.39 5.44 4.67 4.63 4.88	3.5 5.3 3.4 5.4 4.7 4.9	DOS 52.40 51.80 59.70 59.10 50.60 50.20 58.80 57.10 57.20 56.70 56.30	52.1 59.4 50.4 58.9 57.2	3.01 3.04 2.48 2.51 2.42 2.45 2.64 2.66 2.98 2.94 2.71 2.70	3.0 2.5 2.4 2.7 3.0	7.80 7.70 7.30 7.30 7.90 7.90 7.90 7.60 7.70 7.30 7.30 7.30 7.30 7.80	7.8 7.3 7.9 7.7 7.3	<2	2.0 2.0 2.0 2.0 2.0 2.0		
Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP-W3 (Control) MUP-W3 (Control) MUP-W4 (Impact) MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control)	4-D Time 11:05 09:50 11:20 10:11 10:35 10:22 7-D	Dec-09 Depth (m) 0.1 0.2 0.1 0.4 0.5 0.4 Dec-09	26.5 Temj 20.6 20.6 19.7 19.7 20.6 20.6 19.4 19.4 20.1 20.1 19.7 19.7 19.7 19.7 19.7	b(oC) 20.6 19.7 20.6 19.4 20.1 19.7	4.76 DO (r 3.51 3.48 5.29 5.24 3.40 3.37 5.39 5.44 4.67 4.63 4.88 4.86 DO (r 3.17	3.5 5.3 3.4 5.4 4.7 4.9	DOS 52.40 51.80 59.70 59.10 50.60 50.20 58.80 57.10 57.20 56.70 56.30 DOS 51.10	52.1 59.4 50.4 58.9 57.2 56.5	3.01 3.04 2.48 2.51 2.42 2.45 2.64 2.66 2.98 2.94 2.71 2.70 Turbidi 79.90	3.0 2.5 2.4 2.7 3.0 2.7	7.80 7.70 7.30 7.30 7.90 7.60 7.70 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.40	7.8 7.3 7.9 7.7 7.3 7.8	<2	2.0 2.0 2.0 2.0 2.0 2.0		
Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W3 (Control) MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1)	4-D Time 11:05 09:50 11:20 10:11 10:35 10:22 7-D Time 03:30	Dec-09 Depth (m) 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.4 0.5 0.4 0.5 0.4 Depth (m) 0.1	26.5 Temj 20.6 20.6 19.7 19.7 20.6 20.6 20.6 19.4 19.4 20.1 20.1 20.1 19.7 19.7	b (oC) 20.6 19.7 20.6 19.4 20.1 19.7 b (oC) 21.4	4.76 DO (r 3.51 3.48 5.29 5.24 3.40 3.37 5.39 5.44 4.67 4.63 4.88 4.86 DO (r	3.5 5.3 3.4 5.4 4.7 4.9 mg/L) 3.2	DOS 52.40 51.80 59.70 59.10 50.60 50.20 58.80 58.90 57.10 57.20 56.30 DOS	52.1 59.4 50.4 58.9 57.2 56.5 5(%) 51.0	3.01 3.04 2.48 2.51 2.42 2.45 2.64 2.66 2.98 2.94 2.71 2.70 Turbidi	3.0 2.5 2.4 2.7 3.0 2.7 ty(NTU) 80.1	7.80 7.70 7.30 7.30 7.90 7.90 7.90 7.60 7.70 7.30 7.30 7.30 7.30 7.30 7.70	 7.8 7.3 7.9 7.7 7.3 7.8 H 7.4 	<2	2.0 2.0 2.0 2.0 2.0 2.0 55.0		
Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W3 (Control) MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control)	4-D Time 11:05 09:50 11:20 10:11 10:35 10:22 Time	Dec-09 Depth (m) 0.1 0.2 0.1 0.4 0.5 0.4 0.5 0.4 Depth (m)	26.5 Temp 20.6 20.6 19.7 19.7 20.6 20.6 19.4 19.4 20.1 20.1 19.7 19.7 19.7 19.7 19.7 19.7 19.7 19.7 19.4 20.1 20.1 19.7 19.7 20.4 20.4 20.4 20.4 20.5 20.6 19.4 19.4 20.1 20.1 20.1 20.4 20.5 20.6 20.6 20.6 19.7 19.7 20.6 20.6 19.7 19.7 20.6 20.6 19.4 19.7 19.7 20.1 20.1 20.1 20.1 20.7 19.7 19.7 20.4 20.1 20.1 20.1 20.7 19.7 20.5 20.1 20.1 20.1 20.1 20.4 20.1 20.1 20.4 20.1 20.4 20.1 20.1 20.4 20.1 20.1 20.4 20.1 20.1 20.4 20.1 20.1 20.4 20.1 20.1 20.4 20.1 20.1 20.1 20.1 20.2 20.4 20.1 20.1 20.1 20.2 20.4 20.1 20.1 20.1 20.2 20.4 20.4 20.1 20.1 20.2 20.4	b(oC) 20.6 19.7 20.6 19.4 20.1 19.7	4.76 DO (r 3.51 3.48 5.29 5.24 3.40 3.37 5.39 5.44 4.67 4.63 4.88 4.86 DO (r 3.17 3.18 5.63 5.60	3.5 5.3 3.4 5.4 4.7 4.9	DOS 52.40 51.80 59.70 59.10 50.60 50.20 58.80 57.10 57.20 56.70 56.30 51.10 50.90 58.70 58.70 58.70 58.20	52.1 59.4 50.4 58.9 57.2 56.5	3.01 3.04 2.48 2.51 2.42 2.45 2.64 2.98 2.94 2.71 2.70 Turbidi 79.90 80.30 15.30 15.90	3.0 2.5 2.4 2.7 3.0 2.7 ty(NTU)	7.80 7.70 7.30 7.30 7.90 7.90 7.60 7.70 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.80 7.70 7.40 7.40 7.80	7.8 7.3 7.9 7.7 7.7 7.3 7.8	<2	2.0 2.0 2.0 2.0 2.0 2.0		
Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W3 (Control) MUP-W4 (Impact) MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2)	4-D Time 11:05 09:50 11:20 10:11 10:35 10:22 7-D Time 03:30	Dec-09 Depth (m) 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.4 0.5 0.4 0.5 0.4 Depth (m) 0.1	26.5 Temp 20.6 20.6 19.7 19.7 20.6 20.6 19.4 19.4 20.1 20.1 19.7 19.7 19.7 19.7 19.7 19.7 19.7 20.4 20.1 20.1 19.7 19.7 20.4 20.4 20.4 20.4 20.4 20.4 20.4 20.4 20.5 20.6 20.7	b (oC) 20.6 19.7 20.6 19.4 20.1 19.7 b (oC) 21.4	4.76 DO (r 3.51 3.48 5.29 5.24 3.40 3.37 5.39 5.44 4.67 4.63 4.88 4.86 DO (r 3.17 3.18 5.63 5.60 3.36	3.5 5.3 3.4 5.4 4.7 4.9 mg/L) 3.2	DOS 52.40 51.80 59.70 59.10 50.60 50.20 58.80 57.10 57.20 56.70 56.30 51.10 50.90 58.70 58.70 58.20 50.80	52.1 59.4 50.4 58.9 57.2 56.5 5(%) 51.0	3.01 3.04 2.48 2.51 2.42 2.45 2.64 2.98 2.94 2.71 2.70 Turbidi 79.90 80.30 15.30 15.90 35.30	3.0 2.5 2.4 2.7 3.0 2.7 ty(NTU) 80.1	7.80 7.70 7.30 7.30 7.30 7.90 7.60 7.70 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.40 7.40 7.80 6.70	 7.8 7.3 7.9 7.7 7.3 7.8 H 7.4 	<2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2<	2.0 2.0 2.0 2.0 2.0 2.0 55.0		
Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W4 (Impact) MUP-W4 (Impact) MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control)	4-D Time 11:05 09:50 11:20 10:11 10:35 10:22 7-D Time 03:30 02:35 03:07	Dec-09 Depth (m) 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.4 0.5 0.4 Dec-09 Depth (m) 0.1 0.3 0.1	26.5 Temp 20.6 20.6 19.7 19.7 20.6 20.6 19.4 19.4 20.1 20.1 19.7 19.7 19.7 19.7 19.7 19.7 21.4 21.4 22.8 22.8 22.0 21.5 21.5	b (oC) 20.6 19.7 20.6 19.4 20.1 19.7 20.1 19.7 21.4 22.8 21.4 22.8 21.8	4.76 DO (r 3.51 3.48 5.29 5.24 3.40 3.37 5.39 5.44 4.67 4.63 4.88 4.86 DO (r 3.17 3.18 5.63 5.60 3.36 3.39 5.34	3.5 5.3 3.4 5.4 4.7 4.9 ng/L) 3.2 5.6 3.4	DOS 52.40 51.80 59.70 59.10 50.60 50.20 58.80 58.90 57.10 57.20 56.70 56.30 51.10 50.90 58.70 58.70 58.20 50.80 50.90 56.30	52.1 59.4 50.4 58.9 57.2 56.5 56.5 50.9	3.01 3.04 2.48 2.51 2.42 2.45 2.64 2.98 2.94 2.71 2.70 Turbidi 79.90 80.30 15.30 15.90 35.30 36.00 7.81	3.0 2.5 2.4 2.7 3.0 2.7 ty(NTU) 80.1 15.6 35.7	7.80 7.70 7.30 7.30 7.90 7.60 7.70 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.40 7.40 7.70 7.80 6.70 6.80 7.20	7.8 7.3 7.9 7.7 7.3 7.8 H 7.8 6.8	<2	2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 55.0 2.0 8.0		
Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W3 (Control) MUP-W4 (Impact) MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2)	4-D Time 11:05 09:50 11:20 10:11 10:35 10:22 7-D Time 03:30 02:35	Dec-09 Depth (m) 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.4 0.5 0.4 Depth (m) 0.1 0.3	26.5 Temp 20.6 20.6 19.7 19.7 20.6 20.6 19.4 19.4 20.1 20.1 19.7 19.7 19.7 19.7 19.7 21.4 21.4 22.8 22.8 22.0 21.5 21.5 21.5	b (oC) 20.6 19.7 20.6 19.4 20.1 19.7 19.7 21.4 22.8	4.76 DO (r 3.51 3.48 5.29 5.24 3.40 3.37 5.39 5.44 4.67 4.63 4.88 4.86 DO (r 3.17 3.18 5.63 5.60 3.36 3.39 5.34 5.38	3.5 5.3 3.4 5.4 4.7 4.9 ng/L) 3.2 5.6	DOS 52.40 51.80 59.70 59.10 50.60 50.20 58.80 58.90 57.10 57.20 56.70 56.30 51.10 50.90 58.70 58.20 50.80 50.90 56.30	52.1 59.4 50.4 58.9 57.2 56.5 51.0 58.5	3.01 3.04 2.48 2.51 2.42 2.45 2.64 2.98 2.94 2.71 2.70 Turbidi 79.90 80.30 15.30 15.90 35.30 36.00 7.81 7.86	3.0 2.5 2.4 2.7 3.0 2.7 ty(NTU) 80.1 15.6	7.80 7.70 7.30 7.30 7.90 7.60 7.70 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.80 7.70 7.40 7.40 7.40 7.80 6.70 6.80 7.20	 7.8 7.3 7.9 7.7 7.3 7.8 H 7.4 7.8 	<2	2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0		
Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W4 (Impact) MUP-W4 (Impact) MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control)	4-D Time 11:05 09:50 11:20 10:11 10:35 10:22 7-D Time 03:30 02:35 03:07	Dec-09 Depth (m) 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.4 0.5 0.4 Dec-09 Depth (m) 0.1 0.3 0.1	26.5 Temp 20.6 20.6 19.7 19.7 20.6 20.6 19.4 19.4 20.1 20.1 19.7 19.7 19.7 19.7 19.7 19.7 21.4 21.4 22.8 22.8 22.0 21.5 21.5	b (oC) 20.6 19.7 20.6 19.4 20.1 19.7 20.1 19.7 21.4 22.8 21.4 22.8 21.8	4.76 DO (r 3.51 3.48 5.29 5.24 3.40 3.37 5.39 5.44 4.67 4.63 4.88 4.86 DO (r 3.17 3.18 5.63 5.60 3.36 3.39 5.34	3.5 5.3 3.4 5.4 4.7 4.9 ng/L) 3.2 5.6 3.4	DOS 52.40 51.80 59.70 59.10 50.60 50.20 58.80 58.90 57.10 57.20 56.70 56.30 51.10 50.90 58.70 58.70 58.20 50.80 50.90 56.30	52.1 59.4 50.4 58.9 57.2 56.5 56.5 50.9	3.01 3.04 2.48 2.51 2.42 2.45 2.64 2.98 2.94 2.71 2.70 Turbidi 79.90 80.30 15.30 15.90 35.30 36.00 7.81	3.0 2.5 2.4 2.7 3.0 2.7 ty(NTU) 80.1 15.6 35.7	7.80 7.70 7.30 7.30 7.90 7.60 7.70 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.40 7.40 7.70 7.80 6.70 6.80 7.20	7.8 7.3 7.9 7.7 7.3 7.8 H 7.8 6.8	<2	2.0 2.0 2.0 2.0 2.0 2.0 2.0 55.0 55.0		
Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W4 (Impact) MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W3 (Control)	4-D Time 11:05 09:50 11:20 10:11 10:35 10:22 7-D Time 03:30 02:35 03:07 02:52	Depth (m) 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.4 0.5 0.4 Depth (m) 0.1 0.3 0.1 0.7	26.5 Temp 20.6 20.6 19.7 19.7 20.6 20.6 19.4 19.4 20.1 20.1 19.7 19.7 19.7 19.7 19.7 21.4 21.4 22.8 22.8 22.0 21.5 21.5 21.5 21.8	b(oC) 20.6 19.7 20.6 19.4 20.1 19.7 20.1 19.7 coc)	4.76 DO (r 3.51 3.48 5.29 5.24 3.40 3.37 5.39 5.44 4.67 4.63 4.88 4.86 DO (r 3.17 3.18 5.63 5.60 3.36 3.39 5.34 5.38 4.62	3.5 5.3 3.4 5.4 4.7 4.9 3.2 5.6 3.4 5.4	DOS 52.40 51.80 59.70 59.10 50.60 50.20 58.80 58.90 57.10 57.20 56.70 56.30 51.10 50.90 58.70 58.20 50.80 50.90 56.30 50.80 50.90 56.30 56.30 56.70 58.20	52.1 59.4 50.4 58.9 57.2 56.5 51.0 58.5 50.9 56.5	3.01 3.04 2.48 2.51 2.42 2.45 2.64 2.98 2.94 2.71 2.70 Turbidi 79.90 80.30 15.90 35.30 36.00 7.81 7.86 19.60	3.0 2.5 2.4 2.7 3.0 2.7 ty(NTU) 80.1 15.6 35.7 7.8	7.80 7.70 7.30 7.30 7.30 7.90 7.60 7.70 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.80 7.40 7.40 7.40 7.80 6.70 6.80 7.20 7.10	 7.8 7.3 7.9 7.7 7.3 7.8 H 7.4 7.8 6.8 7.2 	<2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2<	2.0 2.0 2.0 2.0 2.0 2.0 55.0 8.0 8.0		

AUES

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

9-Dec-09

Location	Time	Dopth (m)	Tem) () ()	DO (mg/L) DOS(%)		Turbidi		pH		SS			
Location	Time	Depth (m)		5(00)		lig/L)		(%)		(NTO)		п		3
MUP-W1 (Control) (MUP01/02-W1)	03:00	0.1	20.1 20.1	20.1	3.14 3.17	3.2	51.30 50.90	51.1	8.67 8.68	8.7	7.60 7.70	7.7	40.00 40.00	40.0
				-	1				2.39	-	7.70			-
MUP-W2 (Control) (MUP01/02-W2)	01:55	0.25	20.1	20.1	5.39	5.4	60.80	61.0		2.4		7.6	<2	2.0
(100001702-002)			20.1		5.34		61.10		2.42		7.60		<2	
MUP-W3 (Control)	03:15	0.1	19.8	19.8	3.26	3.3	51.20	51.3	3.54	3.5	7.70	7.8	<2	2.0
			19.8		3.29		51.40		3.51		7.80		<2	
MUP-W4 (Impact)	02:25	0.46	19.4	19.4	5.34	5.4	62.40	62.4	3.44	3.5	7.70	7.7	<2	2.0
			19.4		5.37		62.30		3.46		7.70		<2	
MUP-W5 (mobile)	02:36	0.4	20.3	20.3	4.63	4.6	56.40	56.2	4.10	4.1	7.40	7.5	<2	2.0
wor-ws (mobile)	02.30	0.4	20.3	20.3	4.66	4.0	55.90	30.Z	4.09	4.1	7.50	7.5	<2	2.0
	00.45		19.7	40.7	4.76		58.80	50.7	3.49	0.5	7.50	7 /	<2	
MUP-W6 (mobile)	02:15	0.3	19.7	19.7	4.75	4.8	58.60	58.7	3.46	3.5	7.60	7.6	<2	2.0
Date	11-1	Dec-09												
Location	Time	Depth (m)	Tem	o(oC)	DO (n	na/L)	DOS	6(%)	Turbidi	tv(NTU)	p	н	S	S
MUP-W1 (Control)			28.5		3.51		52.30		2.57		7.20		<2	
(MUP01/02-W1)	02:45	0.1	28.5	28.5	3.49	3.5	51.80	52.1	2.63	2.6	7.20	7.2	<2	2.0
			28.3		5.41		56.40		7.29		7.00		2.00	
MUP-W2 (Control) (MUP01/02-W2)	01:45	0.3		28.3	5.44	5.4	56.90	56.7	7.33	7.3	7.10	7.1	2.00	2.0
			28.3		1								2.00	
MUP-W3 (Control)	02:22	0.2	28.3	28.3	3.84	3.9	50.40	50.6	4.13	4.2	6.80	6.9		2.0
			28.3		3.86		50.70		4.17		6.90		2.00	
MUP-W4 (Impact)	02:05	0.7	27.5	27.5	5.39	5.4	58.80	58.7	7.41	7.4	7.40	7.4	3.00	3.0
		· ·	27.5		5.36		58.60		7.46		7.40		3.00	
MUP-W5 (mobile)	02:30	0.6	28.0	28.0	4.48	4.5	57.10	57.2	9.34	9.3	7.20	7.2	7.00	7.0
	52.50	0.0	28.0	20.0	4.46	4.0	57.20	51.2	9.31	,	7.20	1.2	7.00	
MUP-W6 (mobile)	02:15	0.4	27.7	27.7	4.61	4.6	60.30	60.3	5.66	5.7	7.10	7.2	3.00	3.0
MOP-W6 (mobile)	02:15	0.4	27.7	21.1	4.58	4.0	60.20	00.3	5.64	5.7	7.20	1.2	3.00	3.0
Date	14-1	Dec-09												
Location	Time	Depth (m)	Tem	o(oC)	D0 (n	ng/L)	DOS	6(%)	Turbidi	ty(NTU)	р	н	S	S
MUP-W1 (Control)	14.05	0.10	22.9	00.0	3.41		53.10	50.0	21.80	01.7	7.60	7 /	99.00	00.0
(MUP01/02-W1)	11:35	0.18	22.9	22.9	3.39	3.4	52.40	52.8	21.60	21.7	7.60	7.6	99.00	99.0
MUP-W2 (Control)			22.7		5.19		58.60		3.03		7.30		<2	
(MUP01/02-W2)	10:23	0.13	22.7	22.7	5.17	5.2	58.10	58.4	3.01	3.0	7.30	7.3	<2	2.0
, , , ,			23.1		3.26		52.60		4.63		7.90		7.00	
MUP-W3 (Control)	11:50	0.17	23.1	23.1	3.28	3.3	53.10	52.9	4.68	4.7	7.90	7.9	7.00	7.0
			23.1		3.20		55.10		4.00		7.90		7.00	
			22.0		E 22		EE 10		4.00		7 50		.2	
MUP-W4 (Impact)	10:43	0.4	22.9	22.9	5.33	5.3	55.10	55.3	4.00	4.0	7.50	7.5	<2	2.0
MUP-W4 (Impact)	10:43	0.4	22.9	22.9	5.35	5.3	55.40	55.3	3.98	4.0	7.50	7.5	<2	2.0
MUP-W4 (Impact) MUP-W5 (mobile)	10:43 11:05	0.4	22.9 23.0	22.9 23.0	5.35 4.68	5.3 4.7	55.40 58.60	55.3 58.8	3.98 3.83	4.0 3.8	7.50 7.10	7.5 7.1	<2 <2	2.0
			22.9 23.0 23.0		5.35 4.68 4.71		55.40 58.60 58.90		3.98 3.83 3.86		7.50 7.10 7.10		<2 <2 <2	
			22.9 23.0 23.0 23.0		5.35 4.68 4.71 4.98		55.40 58.60 58.90 57.10		3.98 3.83 3.86 3.94		7.50 7.10 7.10 7.00		<2 <2 <2 <2 <2	
MUP-W5 (mobile)	11:05	0.4	22.9 23.0 23.0	23.0	5.35 4.68 4.71	4.7	55.40 58.60 58.90	58.8	3.98 3.83 3.86	3.8	7.50 7.10 7.10	7.1	<2 <2 <2	2.0
MUP-W5 (mobile) MUP-W6 (mobile)	11:05 10:53	0.4	22.9 23.0 23.0 23.0	23.0	5.35 4.68 4.71 4.98	4.7	55.40 58.60 58.90 57.10	58.8	3.98 3.83 3.86 3.94	3.8	7.50 7.10 7.10 7.00	7.1	<2 <2 <2 <2 <2	2.0
	11:05 10:53 16-I	0.4 0.3 Dec-09	22.9 23.0 23.0 23.0 23.0	23.0 23.0	5.35 4.68 4.71 4.98 4.96	4.7 5.0	55.40 58.60 58.90 57.10 56.80	58.8 57.0	3.98 3.83 3.86 3.94 3.91	3.8 3.9	7.50 7.10 7.10 7.00 7.10	7.1 7.1	<2 <2 <2 <2 <2 <2 <2	2.0 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location	11:05 10:53	0.4	22.9 23.0 23.0 23.0 23.0 23.0	23.0 23.0	5.35 4.68 4.71 4.98 4.96 DO (r	4.7 5.0	55.40 58.60 58.90 57.10 56.80	58.8	3.98 3.83 3.86 3.94 3.91 Turbidi	3.8	7.50 7.10 7.10 7.00 7.10 P	7.1	<2 <2 <2 <2 <2	2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control)	11:05 10:53 16-I Time	0.4 0.3 Dec-09 Depth (m)	22.9 23.0 23.0 23.0 23.0	23.0 23.0	5.35 4.68 4.71 4.98 4.96 DO (r 3.41	4.7 5.0 ng/L)	55.40 58.60 58.90 57.10 56.80 DOS 52.10	58.8 57.0	3.98 3.83 3.86 3.94 3.91 Turbidi 5.79	3.8 3.9 ty(NTU)	7.50 7.10 7.10 7.00 7.10 7.10 p 7.60	7.1 7.1 H	<2 <2 <2 <2 <2 <2 <2	2.0 2.0 S
MUP-W5 (mobile) MUP-W6 (mobile) Date Location	11:05 10:53 16-I	0.4 0.3 Dec-09	22.9 23.0 23.0 23.0 23.0 23.0	23.0 23.0	5.35 4.68 4.71 4.98 4.96 DO (r	4.7 5.0	55.40 58.60 58.90 57.10 56.80	58.8 57.0	3.98 3.83 3.86 3.94 3.91 Turbidi	3.8 3.9	7.50 7.10 7.10 7.00 7.10 P	7.1 7.1	<2 <2 <2 <2 <2 <2 <2 <2 <2 <2	2.0 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control)	11:05 10:53 16-I Time 11:25	0.4 0.3 Dec-09 Depth (m) 0.2	22.9 23.0 23.0 23.0 23.0 23.0 Temp 18.3	23.0 23.0 (oC) 18.3	5.35 4.68 4.71 4.98 4.96 DO (r 3.41	4.7 5.0 ng/L) 3.4	55.40 58.60 57.10 56.80 DOS 52.10 52.00 62.30	58.8 57.0 (%) 52.1	3.98 3.83 3.86 3.94 3.91 Turbidi 5.79	3.8 3.9 ty(NTU) 5.8	7.50 7.10 7.10 7.00 7.10 7.10 p 7.60	7.1 7.1 H 7.6	<2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2	2.0 2.0 S 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1)	11:05 10:53 16-I Time	0.4 0.3 Dec-09 Depth (m)	22.9 23.0 23.0 23.0 23.0 Temp 18.3 18.3	23.0 23.0	5.35 4.68 4.71 4.98 4.96 DO (r 3.41 3.38	4.7 5.0 ng/L)	55.40 58.60 57.10 56.80 DOS 52.10 52.00	58.8 57.0	3.98 3.83 3.86 3.94 3.91 Turbidi 5.79 5.81	3.8 3.9 ty(NTU)	7.50 7.10 7.10 7.00 7.10 7.10 P 7.60 7.60	7.1 7.1 H	<2 <2 <2 <2 <2 <2 <2 <2 <2 <2	2.0 2.0 S
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) (MUP-W2 (Control) (MUP01/02-W2)	11:05 10:53 16-I Time 11:25 10:13	0.4 0.3 Dec-09 Depth (m) 0.2 0.14	22.9 23.0 23.0 23.0 23.0 Temp 18.3 18.3 18.3 18.9	23.0 23.0 D(OC) 18.3 18.9	5.35 4.68 4.71 4.98 4.96 DO (n 3.41 3.38 5.21	4.7 5.0 mg/L) 3.4 5.2	55.40 58.60 57.10 56.80 DOS 52.10 52.00 62.30	58.8 57.0 52.1 62.4	3.98 3.83 3.86 3.94 3.91 Turbidi 5.79 5.81 2.53	3.8 3.9 ty(NTU) 5.8 2.5	7.50 7.10 7.10 7.00 7.10 7.10 7.60 7.60 7.30	7.1 7.1 H 7.6 7.3	<2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2	2.0 2.0 S 2.0 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2)	11:05 10:53 16-I Time 11:25	0.4 0.3 Dec-09 Depth (m) 0.2	22.9 23.0 23.0 23.0 23.0 18.3 18.3 18.3 18.9 18.9	23.0 23.0 (oC) 18.3	5.35 4.68 4.71 4.98 4.96 DO (n 3.41 3.38 5.21 5.23	4.7 5.0 ng/L) 3.4	55.40 58.60 58.90 57.10 56.80 DOS 52.10 52.00 62.30 62.40	58.8 57.0 (%) 52.1	3.98 3.83 3.86 3.94 3.91 Turbidi 5.79 5.81 2.53 2.49	3.8 3.9 ty(NTU) 5.8	7.50 7.10 7.10 7.00 7.10 7.10 7.60 7.60 7.60 7.30 7.30	7.1 7.1 H 7.6	<2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2	2.0 2.0 S 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control)	11:05 10:53 16-I Time 11:25 10:13 11:40	0.4 0.3 Dec-09 Depth (m) 0.2 0.14 0.2	22.9 23.0 23.0 23.0 23.0 18.3 18.3 18.3 18.9 18.9 18.9 18.5	23.0 23.0 0(0C) 18.3 18.9 18.5	5.35 4.68 4.71 4.98 4.96 DO (n 3.41 3.38 5.21 5.23 3.36	4.7 5.0 9.4 5.2 3.4 5.2 3.4	55.40 58.60 58.90 57.10 56.80 DOS 52.10 52.00 62.30 62.40 48.80	58.8 57.0 52.1 62.4 48.6	3.98 3.83 3.86 3.94 3.91 Turbidi 5.79 5.81 2.53 2.49 5.44	3.8 3.9 ty(NTU) 5.8 2.5 5.5	7.50 7.10 7.10 7.00 7.10 7.10 7.10 7.60 7.60 7.60 7.30 7.30 7.80	7.1 7.1 H 7.6 7.3 7.8	<2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2	2.0 2.0 5 2.0 2.0 2.0 4.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control)	11:05 10:53 16-I Time 11:25 10:13	0.4 0.3 Dec-09 Depth (m) 0.2 0.14	22.9 23.0 23.0 23.0 23.0 18.3 18.3 18.3 18.9 18.9 18.9 18.5 18.5	23.0 23.0 D(OC) 18.3 18.9	5.35 4.68 4.71 4.98 4.96 DO (n 3.41 3.38 5.21 5.23 3.36 3.34	4.7 5.0 mg/L) 3.4 5.2	55.40 58.60 58.90 57.10 56.80 DOS 52.10 52.00 62.30 62.40 48.80 48.30	58.8 57.0 52.1 62.4	3.98 3.83 3.86 3.94 3.91 Turbidi 5.79 5.81 2.53 2.49 5.44 5.46	3.8 3.9 ty(NTU) 5.8 2.5	7.50 7.10 7.10 7.00 7.10 7.10 7.60 7.60 7.60 7.30 7.30 7.80 7.80	7.1 7.1 H 7.6 7.3	<2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2<	2.0 2.0 5 2.0 2.0 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W4 (Impact)	11:05 10:53 16-I Time 11:25 10:13 11:40 10:33	0.4 0.3 Dec-09 Depth (m) 0.2 0.14 0.2 0.4	22.9 23.0 23.0 23.0 23.0 Temp 18.3 18.3 18.3 18.9 18.9 18.5 18.5 18.5 18.5 18.7 18.7	23.0 23.0 0(0C) 18.3 18.9 18.5 18.7	5.35 4.68 4.71 4.98 4.96 DO (n 3.41 3.38 5.21 5.23 3.36 3.34 5.44 5.48	4.7 5.0 ng/L) 3.4 5.2 3.4 5.5	55.40 58.60 58.90 57.10 56.80 52.10 52.00 62.30 62.40 48.80 48.30 61.10 61.30	58.8 57.0 52.1 62.4 48.6 61.2	3.98 3.83 3.86 3.94 3.91 Turbidi 5.79 5.81 2.53 2.49 5.44 5.46 3.31 3.28	3.8 3.9 ty(NTU) 5.8 2.5 5.5 3.3	7.50 7.10 7.10 7.00 7.10 7.10 7.60 7.60 7.60 7.30 7.30 7.80 7.80 7.50 7.60	7.1 7.1 H 7.6 7.3 7.8 7.6 7.6	<2	2.0 2.0 5 2.0 2.0 2.0 4.0 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control)	11:05 10:53 16-I Time 11:25 10:13 11:40	0.4 0.3 Dec-09 Depth (m) 0.2 0.14 0.2	22.9 23.0 23.0 23.0 23.0 18.3 18.3 18.3 18.3 18.9 18.9 18.9 18.5 18.5 18.5 18.5 18.7 18.7 18.7	23.0 23.0 0(0C) 18.3 18.9 18.5	5.35 4.68 4.71 4.98 4.96 DO (r 3.41 3.38 5.21 5.23 3.36 3.34 5.44 5.48 4.62	4.7 5.0 9.4 5.2 3.4 5.2 3.4	55.40 58.60 58.90 57.10 56.80 52.10 52.00 62.30 62.40 48.80 48.30 61.10 61.30 56.80	58.8 57.0 52.1 62.4 48.6	3.98 3.83 3.86 3.94 3.91 5.79 5.81 2.53 2.49 5.44 5.46 3.31 3.28 2.88	3.8 3.9 ty(NTU) 5.8 2.5 5.5	7.50 7.10 7.10 7.00 7.10 7.60 7.60 7.60 7.30 7.80 7.80 7.80 7.80 7.50 7.60 7.10	7.1 7.1 H 7.6 7.3 7.8	<2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 4.00 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2	2.0 2.0 5 2.0 2.0 2.0 4.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W3 (Control) MUP-W4 (Impact) MUP-W5 (mobile)	11:05 10:53 16-1 Time 11:25 10:13 11:40 10:33 10:56	0.4 0.3 Dec-09 Depth (m) 0.2 0.14 0.2 0.4 0.4	22.9 23.0 23.0 23.0 23.0 18.3 18.3 18.3 18.9 18.9 18.5 18.5 18.5 18.5 18.5 18.7 18.7 18.7 18.4 18.4	23.0 23.0 50(OC) 18.3 18.9 18.5 18.7 18.4	5.35 4.68 4.71 4.98 4.96 DO (r 3.41 3.38 5.21 5.23 3.36 3.34 5.44 5.48 4.62 4.63	4.7 5.0 3.4 5.2 3.4 5.5 4.6	55.40 58.60 58.90 57.10 56.80 52.10 52.00 62.30 62.40 48.80 48.30 61.10 61.30 56.80 57.00	58.8 57.0 52.1 62.4 48.6 61.2 56.9	3.98 3.83 3.86 3.94 3.91 5.79 5.81 2.53 2.49 5.44 5.46 3.31 3.28 2.88 2.86	3.8 3.9 Ey(NTU) 5.8 2.5 5.5 3.3 2.9	7.50 7.10 7.10 7.00 7.10 7.10 7.60 7.60 7.60 7.30 7.80 7.80 7.80 7.50 7.60 7.10 7.20	7.1 7.1 7.6 7.3 7.8 7.6 7.2	<2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 4.00 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2	2.0 2.0 5 2.0 2.0 4.0 2.0 2.0 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W3 (Control)	11:05 10:53 16-I Time 11:25 10:13 11:40 10:33	0.4 0.3 Dec-09 Depth (m) 0.2 0.14 0.2 0.4	22.9 23.0 23.0 23.0 23.0 18.3 18.3 18.3 18.9 18.5 18.5 18.5 18.5 18.5 18.5 18.7 18.7 18.7 18.4 18.4 18.4	23.0 23.0 0(0C) 18.3 18.9 18.5 18.7	5.35 4.68 4.71 4.98 4.96 DO (n 3.41 3.38 5.21 5.23 3.36 3.34 5.44 5.48 4.62 4.63 4.94	4.7 5.0 ng/L) 3.4 5.2 3.4 5.5	55.40 58.60 58.90 57.10 56.80 52.10 52.00 62.30 62.40 48.80 48.80 61.10 61.30 56.80 57.00 58.80	58.8 57.0 52.1 62.4 48.6 61.2	3.98 3.83 3.86 3.94 3.91 5.79 5.81 2.53 2.49 5.44 5.46 3.31 3.28 2.88 2.86 2.93	3.8 3.9 ty(NTU) 5.8 2.5 5.5 3.3	7.50 7.10 7.10 7.00 7.10 7.60 7.60 7.60 7.30 7.80 7.80 7.80 7.80 7.50 7.60 7.10 7.10	7.1 7.1 H 7.6 7.3 7.8 7.6 7.6	<2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <t< th=""><th>2.0 2.0 5 2.0 2.0 2.0 4.0 2.0</th></t<>	2.0 2.0 5 2.0 2.0 2.0 4.0 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W3 (Control) MUP-W4 (Impact) MUP-W5 (mobile)	11:05 10:53 16-1 Time 11:25 10:13 11:40 10:33 10:56	0.4 0.3 Dec-09 Depth (m) 0.2 0.14 0.2 0.4 0.4	22.9 23.0 23.0 23.0 23.0 18.3 18.3 18.3 18.9 18.9 18.5 18.5 18.5 18.5 18.5 18.7 18.7 18.7 18.4 18.4	23.0 23.0 50(OC) 18.3 18.9 18.5 18.7 18.4	5.35 4.68 4.71 4.98 4.96 DO (r 3.41 3.38 5.21 5.23 3.36 3.34 5.44 5.48 4.62 4.63	4.7 5.0 3.4 5.2 3.4 5.5 4.6	55.40 58.60 58.90 57.10 56.80 52.10 52.00 62.30 62.40 48.80 48.30 61.10 61.30 56.80 57.00	58.8 57.0 52.1 62.4 48.6 61.2 56.9	3.98 3.83 3.86 3.94 3.91 5.79 5.81 2.53 2.49 5.44 5.46 3.31 3.28 2.88 2.86	3.8 3.9 Ey(NTU) 5.8 2.5 5.5 3.3 2.9	7.50 7.10 7.10 7.00 7.10 7.10 7.60 7.60 7.60 7.30 7.80 7.80 7.80 7.50 7.60 7.10 7.20	7.1 7.1 7.6 7.3 7.8 7.6 7.2	<2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 4.00 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2	2.0 2.0 5 2.0 2.0 4.0 2.0 2.0 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W3 (Control) MUP-W4 (Impact) MUP-W5 (mobile) MUP-W6 (mobile)	11:05 10:53 16-I Time 11:25 10:13 11:40 10:33 10:56 10:43	0.4 0.3 Dec-09 Depth (m) 0.2 0.14 0.2 0.4 0.45 0.3	22.9 23.0 23.0 23.0 23.0 18.3 18.3 18.3 18.9 18.5 18.5 18.5 18.5 18.5 18.5 18.7 18.7 18.7 18.4 18.4 18.4	23.0 23.0 50(OC) 18.3 18.9 18.5 18.7 18.4	5.35 4.68 4.71 4.98 4.96 DO (n 3.41 3.38 5.21 5.23 3.36 3.34 5.44 5.48 4.62 4.63 4.94	4.7 5.0 3.4 5.2 3.4 5.5 4.6	55.40 58.60 58.90 57.10 56.80 52.10 52.00 62.30 62.40 48.80 48.80 61.10 61.30 56.80 57.00 58.80	58.8 57.0 52.1 62.4 48.6 61.2 56.9	3.98 3.83 3.86 3.94 3.91 5.79 5.81 2.53 2.49 5.44 5.46 3.31 3.28 2.88 2.86 2.93	3.8 3.9 Ey(NTU) 5.8 2.5 5.5 3.3 2.9	7.50 7.10 7.10 7.00 7.10 7.60 7.60 7.60 7.30 7.80 7.80 7.80 7.80 7.50 7.60 7.10 7.10	7.1 7.1 7.6 7.3 7.8 7.6 7.2	<2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <t< th=""><th>2.0 2.0 5 2.0 2.0 4.0 2.0 2.0 2.0</th></t<>	2.0 2.0 5 2.0 2.0 4.0 2.0 2.0 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W3 (Control) MUP-W4 (Impact) MUP-W5 (mobile) MUP-W6 (mobile)	11:05 10:53 16-I Time 11:25 10:13 11:40 10:33 10:56 10:43 18-I	0.4 0.3 Dec-09 Depth (m) 0.2 0.14 0.2 0.4 0.45 0.3 Dec-09	22.9 23.0 23.0 23.0 23.0 18.3 18.3 18.3 18.9 18.9 18.5 18.5 18.5 18.5 18.5 18.7 18.7 18.7 18.7 18.7 18.4 18.4 18.7 18.7	23.0 23.0 (oC) 18.3 18.9 18.5 18.7 18.4 18.7	5.35 4.68 4.71 4.98 4.96 DO (n 3.41 3.38 5.21 5.23 3.36 3.34 5.48 4.62 4.63 4.94 4.91	4.7 5.0 mg/L) 3.4 5.2 3.4 5.5 4.6 4.9	55.40 58.60 58.90 57.10 56.80 52.10 52.00 62.30 62.40 48.80 48.30 61.10 61.30 56.80 57.00 58.80 58.20	58.8 57.0 52.1 62.4 48.6 61.2 56.9 58.5	3.98 3.83 3.86 3.94 3.91 5.79 5.81 2.53 2.49 5.44 5.46 3.31 3.28 2.88 2.88 2.88 2.93 2.92	3.8 3.9 ty(NTU) 5.8 2.5 5.5 3.3 2.9 2.9	7.50 7.10 7.10 7.00 7.10 7.10 7.60 7.60 7.30 7.80 7.80 7.80 7.80 7.50 7.60 7.10 7.10 7.10	7.1 7.1 7.6 7.3 7.8 7.6 7.2 7.1	<2	2.0 2.0 5 2.0 2.0 4.0 2.0 2.0 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W3 (Control) MUP-W4 (Impact) MUP-W5 (mobile) MUP-W6 (mobile) Date Location	11:05 10:53 16-I Time 11:25 10:13 11:40 10:33 10:56 10:43	0.4 0.3 Dec-09 Depth (m) 0.2 0.14 0.2 0.4 0.45 0.3	22.9 23.0 23.0 23.0 23.0 18.3 18.3 18.3 18.9 18.9 18.5 18.5 18.5 18.5 18.5 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7	23.0 23.0 (oC) 18.3 18.9 18.5 18.7 18.4 18.7	5.35 4.68 4.71 4.98 4.96 DO (n 3.41 3.38 5.21 5.23 3.36 3.34 5.44 5.48 4.62 4.63 4.94 4.91 DO (n	4.7 5.0 mg/L) 3.4 5.2 3.4 5.5 4.6 4.9	55.40 58.60 58.90 57.10 56.80 52.10 52.00 62.30 62.30 62.40 48.80 48.30 61.10 61.30 55.80 57.00 58.80 58.20	58.8 57.0 52.1 62.4 48.6 61.2 56.9 58.5	3.98 3.83 3.86 3.94 3.91 5.79 5.81 2.53 2.49 5.44 5.46 3.31 3.28 2.88 2.88 2.88 2.93 2.92	3.8 3.9 Ey(NTU) 5.8 2.5 5.5 3.3 2.9	7.50 7.10 7.10 7.00 7.10 7.10 7.60 7.60 7.30 7.80 7.80 7.80 7.80 7.80 7.60 7.10 7.10 7.10 7.10 7.10	7.1 7.1 7.6 7.3 7.8 7.6 7.2	<2	2.0 2.0 5 2.0 2.0 4.0 2.0 2.0 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W3 (Control) MUP-W4 (Impact) MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control)	11:05 10:53 16-I Time 11:25 10:13 11:40 10:33 10:56 10:43 18-I	0.4 0.3 Dec-09 Depth (m) 0.2 0.14 0.2 0.4 0.45 0.3 Dec-09	22.9 23.0 23.0 23.0 23.0 18.3 18.3 18.3 18.9 18.9 18.5 18.5 18.5 18.5 18.5 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7	23.0 23.0 (oC) 18.3 18.9 18.5 18.7 18.4 18.7	5.35 4.68 4.71 4.98 4.96 DO (n 3.41 3.38 5.21 5.23 3.36 3.34 5.44 5.48 4.62 4.63 4.94 4.91 DO (n 3.17	4.7 5.0 mg/L) 3.4 5.2 3.4 5.5 4.6 4.9	55.40 58.60 58.90 57.10 56.80 52.10 52.00 62.30 62.40 48.80 48.30 61.10 61.30 56.80 57.00 58.80 58.20 DOS 50.10	58.8 57.0 52.1 62.4 48.6 61.2 56.9 58.5	3.98 3.83 3.86 3.94 3.91 5.79 5.81 2.53 2.49 5.44 5.46 3.31 3.28 2.88 2.88 2.86 2.93 2.92 Turbidi 5.00	3.8 3.9 ty(NTU) 5.8 2.5 5.5 3.3 2.9 2.9	7.50 7.10 7.10 7.00 7.10 7.10 7.60 7.60 7.60 7.30 7.80 7.80 7.80 7.80 7.80 7.80 7.60 7.10 7.10 7.10 7.10 7.10	7.1 7.1 7.6 7.3 7.8 7.6 7.2 7.1	<2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2	2.0 2.0 5 2.0 2.0 4.0 2.0 2.0 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W3 (Control) MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1)	11:05 10:53 16-I Time 11:25 10:13 11:40 10:33 10:56 10:43 18-I Time	0.4 0.3 Depth (m) 0.2 0.14 0.2 0.4 0.4 0.45 0.3 Depth (m)	22.9 23.0 23.0 23.0 18.3 18.3 18.3 18.9 18.9 18.9 18.5 18.5 18.5 18.5 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7	23.0 23.0 (oC) 18.3 18.9 18.5 18.7 18.4 18.7 18.4 18.7	5.35 4.68 4.71 4.98 4.96 DO (r 3.41 3.38 5.21 5.23 3.36 3.34 5.44 5.48 4.62 4.63 4.94 4.91 DO (r 3.17 3.19	4.7 5.0 3.4 5.2 3.4 5.5 4.6 4.9	55.40 58.60 58.90 57.10 56.80 DOS 52.10 52.00 62.30 62.40 48.80 48.30 61.10 61.30 56.80 57.00 58.80 58.20 DOS 50.10 50.50	58.8 57.0 52.1 62.4 48.6 61.2 56.9 58.5	3.98 3.83 3.86 3.94 3.91 5.79 5.81 2.53 2.49 5.44 5.46 3.31 3.28 2.88 2.88 2.88 2.93 2.92 Turbidi 5.00 5.08	3.8 3.9 ty(NTU) 5.8 2.5 5.5 3.3 2.9 2.9 2.9 ty(NTU)	7.50 7.10 7.10 7.00 7.10 7.60 7.60 7.60 7.30 7.80 7.80 7.80 7.80 7.50 7.10 7.10 7.10 7.10 7.10 7.10	7.1 7.1 7.6 7.3 7.8 7.6 7.2 7.1 H	<2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2<	2.0 2.0 5 2.0 2.0 4.0 2.0 2.0 2.0 2.0 5
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W4 (Impact) MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control)	11:05 10:53 16-I Time 11:25 10:13 11:40 10:33 10:56 10:43 18-I Time	0.4 0.3 Depth (m) 0.2 0.14 0.2 0.4 0.4 0.45 0.3 Depth (m)	22.9 23.0 23.0 23.0 18.3 18.3 18.3 18.9 18.9 18.9 18.5 18.5 18.5 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7	23.0 23.0 (oC) 18.3 18.9 18.5 18.7 18.4 18.7 18.4 18.7	5.35 4.68 4.71 4.98 4.96 DO (r 3.41 3.38 5.21 5.23 3.36 3.34 5.44 5.48 4.62 4.63 4.94 4.91 DO (r 3.17 3.19 5.43	4.7 5.0 3.4 5.2 3.4 5.5 4.6 4.9	55.40 58.60 58.90 57.10 56.80 52.10 52.00 62.30 62.40 48.80 48.30 61.10 61.30 55.80 57.00 58.80 58.20 DOS 58.20	58.8 57.0 52.1 62.4 48.6 61.2 56.9 58.5	3.98 3.83 3.86 3.94 3.91 5.79 5.81 2.53 2.49 5.44 5.46 3.31 3.28 2.86 2.86 2.86 2.93 2.92 Turbidi 5.00 5.08 3.03	3.8 3.9 ty(NTU) 5.8 2.5 5.5 3.3 2.9 2.9 2.9 ty(NTU)	7.50 7.10 7.10 7.00 7.10 7.60 7.60 7.60 7.30 7.80 7.80 7.80 7.80 7.80 7.50 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.1	7.1 7.1 7.6 7.3 7.8 7.6 7.2 7.1 H	<2	2.0 2.0 5 2.0 2.0 4.0 2.0 2.0 2.0 2.0 5
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W4 (Impact) MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1)	11:05 10:53 16-I Time 11:25 10:13 11:40 10:33 10:56 10:43 18-I Time 03:50	0.4 0.3 Depth (m) 0.2 0.14 0.2 0.4 0.4 0.45 0.3 Depth (m) 0.1	22.9 23.0 23.0 23.0 18.3 18.3 18.3 18.9 18.9 18.9 18.5 18.5 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7	23.0 23.0 18.3 18.9 18.5 18.7 18.4 18.7 18.4 18.7 18.4 18.7	5.35 4.68 4.71 4.98 4.96 DO (r 3.41 3.38 5.21 5.23 3.36 3.34 5.44 5.48 4.62 4.63 4.94 4.91 DO (r 3.17 3.19 5.43 5.48	4.7 5.0 3.4 5.2 3.4 5.5 4.6 4.9 mg/L) 3.2	55.40 58.60 58.90 57.10 56.80 DOS 52.10 52.00 62.30 62.40 48.80 48.30 61.10 61.30 55.80 58.20 DOS 58.20 DOS 50.10 50.50 60.10 61.10	58.8 57.0 52.1 62.4 48.6 61.2 56.9 58.5 58.5	3.98 3.83 3.86 3.94 3.91 5.79 5.81 2.53 2.49 5.44 5.46 3.31 3.28 2.88 2.88 2.88 2.93 2.92 Turbidi 5.00 5.08 3.03 3.08	3.8 3.9 ty(NTU) 5.8 2.5 5.5 3.3 2.9 2.9 2.9 2.9 ty(NTU) 5.0	7.50 7.10 7.10 7.00 7.10 7.60 7.60 7.60 7.60 7.30 7.80 7.80 7.80 7.50 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.1	7.1 7.1 7.1 7.6 7.3 7.8 7.6 7.2 7.1 H H 7.5	<2	2.0 2.0 3 2.0 2.0 4.0 2.0 2.0 2.0 3 3 2.0
MUP-W5 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP-W3 (Control) MUP-W3 (Control) MUP-W4 (Impact) MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2)	11:05 10:53 16-I Time 11:25 10:13 11:40 10:33 10:56 10:43 18-I Time 03:50 02:55	0.4 0.3 Depth (m) 0.2 0.14 0.2 0.4 0.4 0.45 0.3 Depth (m) 0.1 0.1 0.3	22.9 23.0 23.0 23.0 23.0 18.3 18.3 18.3 18.3 18.9 18.5 18.5 18.5 18.5 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7	23.0 23.0 (oC) 18.3 18.9 18.5 18.7 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7	5.35 4.68 4.71 4.98 4.96 DO (r 3.41 3.38 5.21 5.23 3.36 3.34 5.44 5.48 4.62 4.63 4.94 4.91 DO (r 3.17 3.19 5.43 5.48 3.08	4.7 5.0 3.4 5.2 3.4 5.5 4.6 4.9 mg/L) 3.2 5.5	55.40 58.60 58.90 57.10 56.80 52.10 52.00 62.30 62.40 48.80 48.30 61.10 61.30 56.80 57.00 58.80 58.20 DOS 58.20 DOS 50.10 50.50 60.10 61.10 49.60	58.8 57.0 52.1 62.4 48.6 61.2 56.9 58.5 58.5 50.3 60.6	3.98 3.83 3.86 3.94 3.91 5.79 5.81 2.53 2.49 5.44 5.46 3.31 3.28 2.88 2.93 2.92 Turbidi 5.00 5.08 3.03 3.08 7.16	3.8 3.9 ty(NTU) 5.8 2.5 5.5 3.3 2.9 2.9 2.9 2.9 5.0 3.1	7.50 7.10 7.10 7.00 7.10 7.10 7.60 7.60 7.60 7.30 7.80 7.80 7.80 7.80 7.80 7.50 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.1	7.1 7.1 7.1 H 7.6 7.3 7.8 7.6 7.2 7.1 H T.5 7.9	<2	2.0 2.0 3 2.0 2.0 4.0 2.0 2.0 2.0 5 2.0 2.0 2.0
MUP-W5 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP-W3 (Control) MUP-W3 (Control) MUP-W3 (Control) MUP-W4 (Impact) MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2)	11:05 10:53 16-I Time 11:25 10:13 11:40 10:33 10:56 10:43 18-I Time 03:50	0.4 0.3 Depth (m) 0.2 0.14 0.2 0.4 0.4 0.45 0.3 Depth (m) 0.1	22.9 23.0 23.0 23.0 18.3 18.3 18.3 18.9 18.9 18.9 18.5 18.5 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7	23.0 23.0 18.3 18.9 18.5 18.7 18.4 18.7 18.4 18.7 18.4 18.7	5.35 4.68 4.71 4.98 4.96 DO (r 3.41 3.38 5.21 5.23 3.36 3.34 5.44 5.48 4.62 4.63 4.94 4.91 DO (r 3.17 3.19 5.43 5.48	4.7 5.0 3.4 5.2 3.4 5.5 4.6 4.9 mg/L) 3.2	55.40 58.60 58.90 57.10 56.80 DOS 52.10 52.00 62.30 62.40 48.80 48.30 61.10 61.30 55.80 58.20 DOS 58.20 DOS 50.10 50.50 60.10 61.10	58.8 57.0 52.1 62.4 48.6 61.2 56.9 58.5 58.5	3.98 3.83 3.86 3.94 3.91 5.79 5.81 2.53 2.49 5.44 5.46 3.31 3.28 2.88 2.88 2.88 2.93 2.92 Turbidi 5.00 5.08 3.03 3.08	3.8 3.9 ty(NTU) 5.8 2.5 5.5 3.3 2.9 2.9 2.9 2.9 ty(NTU) 5.0	7.50 7.10 7.10 7.00 7.10 7.60 7.60 7.60 7.60 7.30 7.80 7.80 7.80 7.50 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.1	7.1 7.1 7.1 7.6 7.3 7.8 7.6 7.2 7.1 H H 7.5	<2	2.0 2.0 5 2.0 2.0 4.0 2.0 2.0 2.0 5 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control)	11:05 10:53 16-I Time 11:25 10:13 11:40 10:33 10:56 10:43 18-I Time 03:50 02:55 03:27	0.4 0.3 Dept-09 Depth (m) 0.2 0.14 0.2 0.4 0.4 0.45 0.3 0.3 Dec-09 Depth (m) 0.1 0.1 0.3 0.1	22.9 23.0 23.0 23.0 23.0 18.3 18.3 18.3 18.3 18.9 18.5 18.5 18.5 18.5 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7	23.0 23.0 18.3 18.9 18.5 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7	5.35 4.68 4.71 4.98 4.96 DO (r 3.41 3.38 5.21 5.23 3.36 3.34 5.44 5.48 4.62 4.63 4.94 4.91 DO (r 3.17 3.19 5.43 5.48 3.08	4.7 5.0 3.4 5.2 3.4 5.5 4.6 4.9 mg/L) 3.2 5.5 3.1	55.40 58.60 58.90 57.10 56.80 52.10 52.00 62.30 62.40 48.80 48.30 61.10 61.30 56.80 57.00 58.80 58.20 DOS 58.20 DOS 50.10 50.50 60.10 61.10 49.60	58.8 57.0 52.1 62.4 48.6 61.2 56.9 58.5 (%) 50.3 60.6 49.5	3.98 3.83 3.86 3.94 3.91 5.79 5.81 2.53 2.49 5.44 5.46 3.31 3.28 2.88 2.93 2.92 Turbidi 5.00 5.08 3.03 3.08 7.16	3.8 3.9 ty(NTU) 5.8 2.5 5.5 3.3 2.9 2.9 2.9 2.9 5.0 3.1 7.2	7.50 7.10 7.10 7.00 7.10 7.10 7.60 7.60 7.60 7.30 7.80 7.80 7.80 7.80 7.80 7.50 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.1	7.1 7.1 7.1 7.6 7.3 7.8 7.6 7.2 7.1 H 7.5 7.9 7.1	<2	2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control)	11:05 10:53 16-I Time 11:25 10:13 11:40 10:33 10:56 10:43 18-I Time 03:50 02:55	0.4 0.3 Depth (m) 0.2 0.14 0.2 0.4 0.4 0.45 0.3 Depth (m) 0.1 0.1 0.3	22.9 23.0 23.0 23.0 23.0 Temp 18.3 18.3 18.3 18.3 18.9 18.5 18.5 18.7 13.8 15.0 14.7 14.7 14.7	23.0 23.0 (oC) 18.3 18.9 18.5 18.7 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7	5.35 4.68 4.71 4.98 4.96 DO (n 3.41 3.38 5.21 5.23 3.36 3.34 5.24 5.23 3.36 3.34 5.44 5.48 4.62 4.63 4.94 4.91 DO (n 3.17 3.19 5.43 5.48 3.08 3.11	4.7 5.0 3.4 5.2 3.4 5.5 4.6 4.9 mg/L) 3.2 5.5	55.40 58.60 58.90 57.10 56.80 52.10 52.00 62.30 62.40 48.80 48.30 61.10 61.30 56.80 57.00 58.80 58.20 58.20 58.20 58.20 58.20 50.10 50.50 60.10 61.10 49.60 49.30	58.8 57.0 52.1 62.4 48.6 61.2 56.9 58.5 58.5 50.3 60.6	3.98 3.83 3.86 3.94 3.91 5.79 5.81 5.79 5.81 2.49 5.44 5.46 3.31 3.28 2.88 2.86 2.93 2.92 Turbidi 5.00 5.08 3.03 3.08 7.16 7.21	3.8 3.9 ty(NTU) 5.8 2.5 5.5 3.3 2.9 2.9 2.9 2.9 5.0 3.1	7.50 7.10 7.10 7.00 7.10 7.10 7.60 7.60 7.60 7.30 7.80 7.80 7.80 7.80 7.80 7.50 7.60 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.1	7.1 7.1 7.1 H 7.6 7.3 7.8 7.6 7.2 7.1 H T.5 7.9	<2	2.0 2.0 3 2.0 2.0 4.0 2.0 2.0 2.0 5 2.0 2.0 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W4 (Impact) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) (MUP01/02-W2) MUP-W3 (Control)	11:05 10:53 16-I Time 11:25 10:13 11:40 10:33 10:56 10:43 10:56 10:43 10:56 00:55 03:27 03:12	0.4 0.3 Depth (m) 0.2 0.14 0.2 0.14 0.2 0.4 0.4 0.4 0.45 0.3 0.3 Depth (m) 0.1 0.1 0.3 0.1 0.3 0.1 0.6	22.9 23.0 23.0 23.0 23.0 Temp 18.3 18.3 18.3 18.3 18.5 18.5 18.5 18.5 18.7 13.8 13.8 15.0 15.0 14.7 15.1	23.0 23.0 30(OC) 18.3 18.9 18.5 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.5 18.5 18.7 18.5 18.5 18.5 18.5 18.5 18.5 18.5 18.5	5.35 4.68 4.71 4.98 4.96 DO (r 3.41 3.38 5.21 5.23 3.36 3.34 5.44 5.48 4.62 4.63 4.94 4.91 DO (r 3.17 3.17 3.19 5.43 5.48 3.08 3.11 5.49	4.7 5.0 3.4 5.2 3.4 5.5 4.6 4.9 mg/L) 3.2 5.5 3.1 5.5	55.40 58.60 58.90 57.10 56.80 DOS 52.10 52.00 62.30 62.40 48.80 48.30 61.10 61.30 56.80 57.00 58.80 57.00 58.80 57.00 58.20 DOS 50.10 50.50 60.10 61.10 49.60 49.30 59.80	58.8 57.0 52.1 62.4 48.6 61.2 56.9 58.5 50.3 60.6 49.5 59.6	3.98 3.83 3.86 3.94 3.91 5.79 5.81 2.53 2.49 5.44 5.46 3.31 3.28 2.88 2.86 2.93 2.92 Turbidi 5.00 5.00 5.08 3.03 3.08 7.16 7.21 6.54	3.8 3.9 Ey(NTU) 5.8 2.5 5.5 3.3 2.9 2.9 2.9 2.9 5.0 3.1 7.2 6.6	7.50 7.10 7.10 7.00 7.10 7.00 7.10 7.60 7.60 7.60 7.30 7.80 7.80 7.80 7.80 7.50 7.60 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.1	7.1 7.1 7.1 7.6 7.3 7.8 7.6 7.2 7.1 7.1 7.5 7.9 7.1 7.4	<2	2.0 2.0 2.0 2.0 4.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W4 (Impact) MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control)	11:05 10:53 16-I Time 11:25 10:13 11:40 10:33 10:56 10:43 18-I Time 03:50 02:55 03:27	0.4 0.3 Dept-09 Depth (m) 0.2 0.14 0.2 0.4 0.4 0.45 0.3 0.3 Dec-09 Depth (m) 0.1 0.1 0.3 0.1	22.9 23.0 23.0 23.0 23.0 Temp 18.3 18.3 18.3 18.9 18.5 18.5 18.5 18.7 15.0 15.0 15.0 15.1 15.1	23.0 23.0 18.3 18.9 18.5 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7	5.35 4.68 4.71 4.98 4.96 DO (r 3.41 3.38 5.21 5.23 3.36 3.34 5.44 5.48 4.62 4.63 4.94 4.91 DO (r 3.17 3.17 3.17 3.19 5.43 5.48 3.08 3.11 5.49 5.46	4.7 5.0 3.4 5.2 3.4 5.5 4.6 4.9 mg/L) 3.2 5.5 3.1	55.40 58.60 58.90 57.10 56.80 DOS 52.10 52.00 62.30 62.30 62.40 48.80 48.30 61.10 61.30 56.80 57.00 58.80 57.00 58.80 57.00 58.80 57.00 58.20 DOS 50.10 50.50 60.10 61.10 49.60 49.30 59.80 59.40	58.8 57.0 52.1 62.4 48.6 61.2 56.9 58.5 (%) 50.3 60.6 49.5	3.98 3.83 3.86 3.94 3.91 5.79 5.81 2.53 2.49 5.44 5.46 3.31 3.28 2.88 2.88 2.88 2.93 2.92 Turbidi 5.00 5.08 3.03 3.08 7.16 7.21 6.54 6.58	3.8 3.9 ty(NTU) 5.8 2.5 5.5 3.3 2.9 2.9 2.9 2.9 5.0 3.1 7.2	7.50 7.10 7.10 7.00 7.10 7.00 7.10 7.60 7.60 7.60 7.80 7.80 7.80 7.80 7.80 7.50 7.60 7.10 7.10 7.10 7.10 7.10 7.10 7.10 7.1	7.1 7.1 7.1 7.6 7.3 7.8 7.6 7.2 7.1 H 7.5 7.9 7.1	<2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2<	2.0 2.0 3 2.0 2.0 4.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W4 (Impact) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) (MUP0-W3 (Control) MUP-W3 (Control) MUP-W4 (Impact) MUP-W5 (mobile)	11:05 10:53 16-1 Time 11:25 10:13 11:40 10:33 10:56 10:43 10:56 10:43 10:56 10:43 10:56 10:56 10:56 10:56 10:56 10:55 03:50 03:27 03:12 03:35	0.4 0.3 Depth (m) 0.2 0.14 0.2 0.4 0.4 0.45 0.3 0.4 0.45 0.3 0.1 0.1 0.1 0.1 0.3 0.1 0.1 0.3 0.1 0.5	22.9 23.0 23.0 23.0 23.0 18.3 18.3 18.3 18.9 18.5 18.7 18.5 18.7 15.0 14.7 14.7 15.1 14.5	23.0 23.0 30(OC) 18.3 18.9 18.5 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.5 18.5 18.7 18.5 18.7 18.5 18.5 18.5 18.7 18.5 18.5 18.7 18.5 18.5 18.5 18.5 18.5 18.5 18.5 18.5	5.35 4.68 4.71 4.98 4.96 DO (r 3.41 3.38 5.21 5.23 3.36 3.34 5.44 5.48 4.62 4.63 4.94 4.91 DO (r 3.17 3.19 5.43 5.48 3.08 3.11 5.49 5.46 4.68 4.66	4.7 5.0 3.4 5.2 3.4 5.5 4.6 4.9 mg/L) 3.2 5.5 3.1 5.5 3.1 5.5 4.7	55.40 58.60 58.90 57.10 56.80 DOS 52.10 52.00 62.30 62.40 48.80 61.10 61.30 56.80 57.00 58.80 57.00 58.80 58.20 DOS 50.10 50.50 60.10 61.10 49.60 49.30 59.40 59.40 59.40 59.10	58.8 57.0 52.1 62.4 48.6 61.2 56.9 58.5 58.5 50.3 60.6 49.5 59.6 59.3	3.98 3.83 3.86 3.94 3.91 5.79 5.81 2.53 2.49 5.44 5.46 3.31 3.28 2.88 2.86 2.93 2.92 Turbidi 5.00 5.08 3.03 3.08 7.16 7.21 6.54 6.58 6.33 6.36	3.8 3.9 Ey(NTU) 5.8 2.5 5.5 3.3 2.9 2.9 2.9 2.9 5.0 3.1 7.2 6.6 6.3	7.50 7.10 7.10 7.00 7.10 7.00 7.10 7.60 7.60 7.30 7.30 7.80 7.80 7.80 7.50 7.60 7.10 7.10 7.10 7.10 7.10 7.50 7.50 7.50 7.50 7.50 7.50 7.50 7.5	7.1 7.1 7.1 7.6 7.3 7.8 7.6 7.2 7.1 7.1 7.5 7.9 7.1 7.4 7.4	<2	2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0
MUP-W5 (mobile) MUP-W6 (mobile) Date Location MUP-W1 (Control) (MUP01/02-W1) MUP-W2 (Control) (MUP01/02-W2) MUP-W3 (Control) MUP-W4 (Impact) MUP-W6 (mobile) MUP-W6 (mobile) MUP-W6 (mobile) MUP-W6 (mobile) MUP-W6 (mobile) MUP-W2 (Control) (MUP01/02-W1) MUP-W1 (Control) (MUP01/02-W2) MUP-W3 (Control) (MUP-W3 (Control)	11:05 10:53 16-I Time 11:25 10:13 11:40 10:33 10:56 10:43 10:56 10:43 10:56 00:55 03:27 03:12	0.4 0.3 Depth (m) 0.2 0.14 0.2 0.14 0.2 0.4 0.4 0.4 0.45 0.3 0.3 Depth (m) 0.1 0.1 0.3 0.1 0.3 0.1 0.6	22.9 23.0 23.0 23.0 23.0 18.3 18.3 18.9 18.5 18.7 18.5 18.7 13.8 13.8 15.0 14.7 14.7 15.1 14.5 14.5 14.5 14.5 14.7 15.1 14.5	23.0 23.0 30(OC) 18.3 18.9 18.5 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.4 18.7 18.5 18.5 18.7 18.5 18.5 18.5 18.5 18.5 18.5 18.5 18.5	5.35 4.68 4.71 4.98 4.96 DO (r 3.41 3.38 5.21 5.23 3.36 3.34 5.44 5.48 4.62 4.63 4.94 4.62 4.63 4.94 4.91 DO (r 3.17 3.19 5.43 5.43 5.43 5.48 3.08 3.11 5.49 5.46	4.7 5.0 3.4 5.2 3.4 5.5 4.6 4.9 mg/L) 3.2 5.5 3.1 5.5	55.40 58.60 58.90 57.10 56.80 52.10 52.00 62.30 62.30 62.40 48.80 48.30 61.10 61.30 56.80 57.00 58.80 57.00 58.80 58.20 DOS 50.10 50.50 60.10 61.10 49.60 49.30 59.80 59.40 59.40	58.8 57.0 52.1 62.4 48.6 61.2 56.9 58.5 50.3 60.6 49.5 59.6	3.98 3.83 3.86 3.94 3.91 5.79 5.81 2.53 2.49 5.44 5.46 3.31 3.28 2.88 2.88 2.88 2.93 2.92 Turbidi 5.00 5.08 3.03 3.08 7.16 7.21 6.54 6.58 6.33	3.8 3.9 Ey(NTU) 5.8 2.5 5.5 3.3 2.9 2.9 2.9 2.9 5.0 3.1 7.2 6.6	7.50 7.10 7.10 7.00 7.10 7.00 7.10 7.60 7.60 7.30 7.80 7.80 7.80 7.80 7.80 7.50 7.60 7.10 7.10 7.10 7.10 7.10 7.50 7.50 7.50 7.50 7.50 7.50 7.50 7.5	7.1 7.1 7.1 7.6 7.3 7.8 7.6 7.2 7.1 7.1 7.5 7.9 7.1 7.4	<2	2.0 2.0 2.0 2.0 4.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0

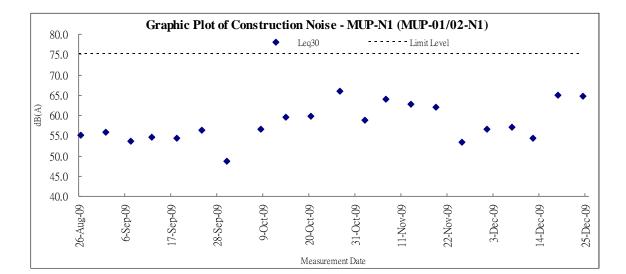
DSD CONTRACT NO. DC/2007/08 Drainage Improvements Works in Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang 24- hour TSP Monitoring Data

										STANDARD		BLANK	BLANK	BLANK	BLANK	INITIAL	FINAL	WEIGHT			
DATE	SAMPLE	ELAPSED	ELAPSED	ELAPSED	MIN	MAX	AVG	AVG	AVG	FLOW	AIR	SAMPLE	INTIAL	FINAL	DIFF	FILTER	FILTER	DUST	Dust 24-hr		
	NUMBER	TIME	TIME	TIME	CHART	CHART	CHART	TEMP	PRESS	RATE	VOLUME	NUMBER	WEIGHT	WEIGHT	WEIGHT	WEIGHT	WEIGHT	COLLECTED	TSP in Air		
	-	INITIAL	FINAL	(min)	READING	READING	READING	(oC)	(hPa)	(m3/min)	(std m3)		(q)	(q)	(g)	(q)	(q)	(q)	(ug/m3)	Action Level	Limit Level
24-hour TSP	Monitoring D	ata for MUP-A	A1 (same as M	/UP01/02-A1)								10.	.0.	.0.	.0.	-0.	-0.	(g)		
30-Nov-09	21026	1413.87	1437.25	1402.80	37	39	38	18.1	1021.4	1.3785	1933.78	NA	2.8809	2.8805	0.001	2.8653	3.0373	0.1720	88	194	260
5-Dec-09	21120	1437.25	1460.94	1421.40	36	38	37	17.3	1019.7	1.3478	1915.79	NA	2.8803	2.8803	0.001	2.872	3.0225	0.1505	78	194	260
11-Dec-09	21177	1460.94	1484.43	1409.40	36	38	37	21	1016.6	1.2887	1816.28	NA	2.8791	2.879	0.001	2.8532	2.9992	0.1460	80	194	260
17-Dec-09	21219	1484.43	1507.95	1411.20	36	38	37	12.9	1023.4	1.3082	1846.20	NA	2.879	2.8781	0.001	2.9133	3.0211	0.1078	58	194	260
23-Dec-09	21207	1507.95	1531.56	1416.60	36	38	37	18	1019.1	1.2958	1835.68	NA	2.8781	2.8784	0.001	2.9448	3.0054	0.0606	32	194	260
24-hour TSP	Monitoring D	ata for MUP-A	N2a																		
30-Nov-09	21023	1281.18	1304.83	1419.00	57	62	59.5	18.1	1021.4	1.8102	2568.74	NA	2.8809	2.8805	0.001	2.8825	3.1691	0.2866	111	178	260
5-Dec-09	21113	1304.83	1329.04	1452.60	49	51	50	17.3	1019.7	1.5828	2299.12	NA	2.8803	2.8803	0.001	2.8476	3.0542	0.2066	89	178	260
11-Dec-09	21178	1329.04	1352.01	1378.20	36	38	37	21	1016.6	1.2389	1707.42	NA	2.8791	2.879	0.001	2.8668	2.9671	0.1003	58	178	260
17-Dec-09	21218	1352.01	1375.01	1380.00	36	38	37	12.9	1023.4	1.2541	1730.59	NA	2.879	2.8781	0.001	2.8962	2.9936	0.0974	56	178	260
23-Dec-09	21208	1375.01	1398.62	1416.60	36	38	37	18	1019.1	1.2444	1762.84	NA	2.8781	2.8784	0.001	2.9314	3.1	0.1686	95	178	260
24-hour TSP	Monitoring D	ata for MUP-A	13																		
30-Nov-09	21022	1390.71	1413.91	1392.00	32	34	33	18.1	1021.4	1.1193	1558.09	NA	2.8809	2.8805	0.001	2.8776	3.0227	0.1451	92	178	260
5-Dec-09	21119	1413.91	1437.64	1423.80	32	34	33	17.3	1019.7	1.1198	1594.43	NA	2.8803	2.8803	0.001	2.8862	2.9997	0.1135	71	178	260
11-Dec-09	21176	1437.64	1460.84	1392.00	36	38	37	21	1016.6	1.2351	1719.30	NA	2.8803	2.8803	0.001	2.86	2.9126	0.0526	30	178	260
17-Dec-09	21220	1460.84	1484.01	1390.20	36	38	37	12.9	1023.4	1.2538	1742.96	NA	2.879	2.8781	0.001	2.9011	2.9249	0.0238	13	178	260
23-Dec-09	21209	1484.01	1507.22	1392.60	36	38	37	18	1019.1	1.2419	1729.52	NA	2.8781	2.8784	0.001	2.9085	2.9974	0.0889	51	178	260

Appendix I

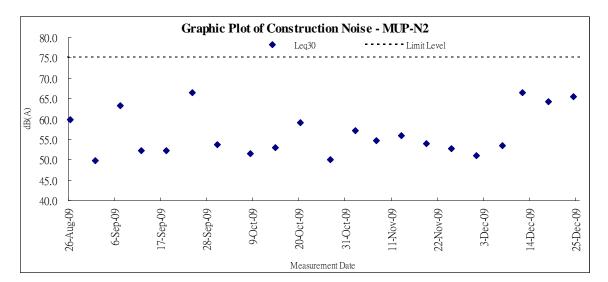
Graphic Plot of Monitoring

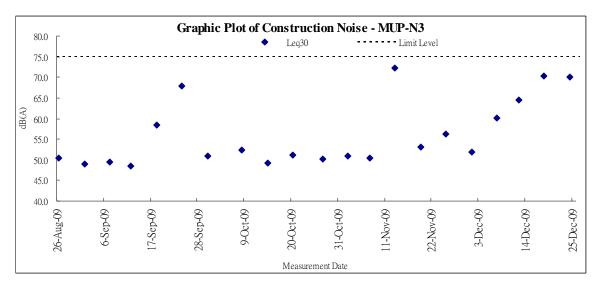
- 1. Construction Noise
- 2. Air Quality
- 3. Water Quality



Graphic Plot of Monitoring - Construction Noise

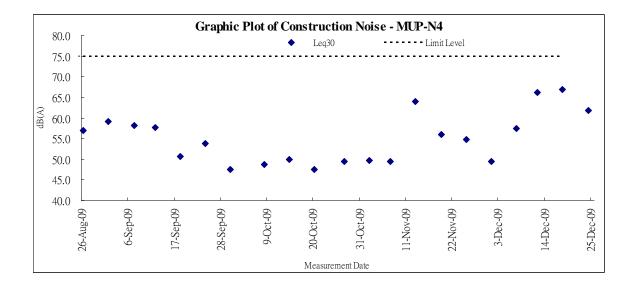
AUES





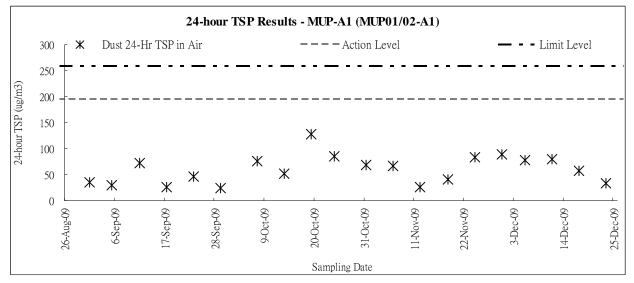
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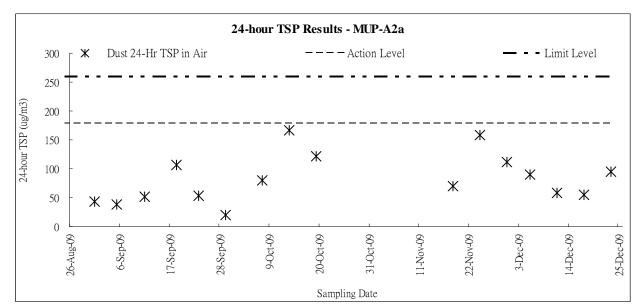


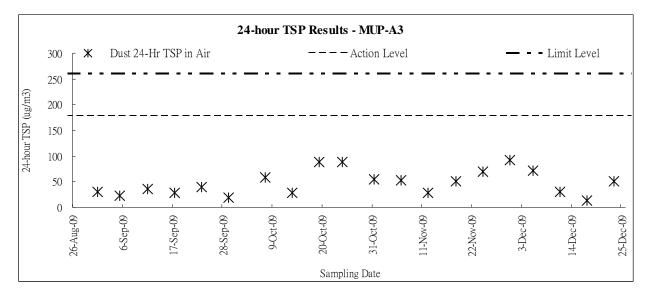




Graphic Plot of Monitoring - Air Quality GRAPHIC PLOT – 24-hour TSP



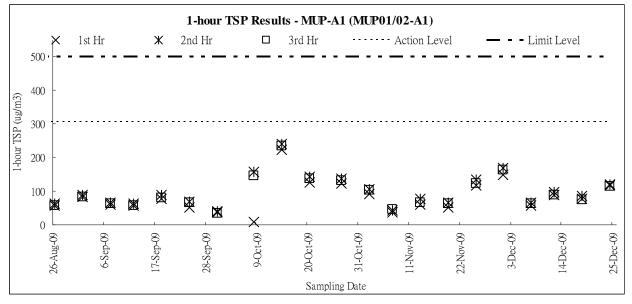


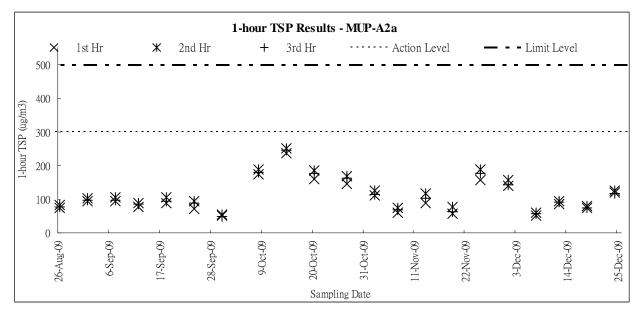


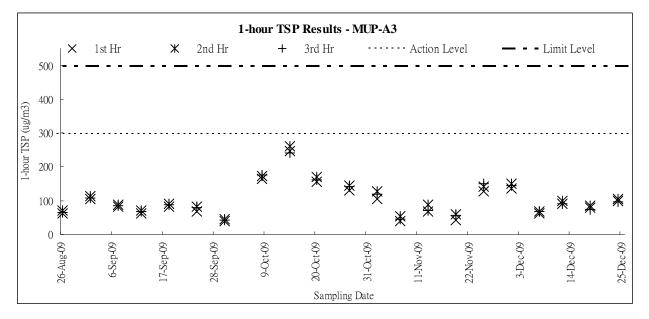
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GRAPHIC PLOT – 1-hour TSP



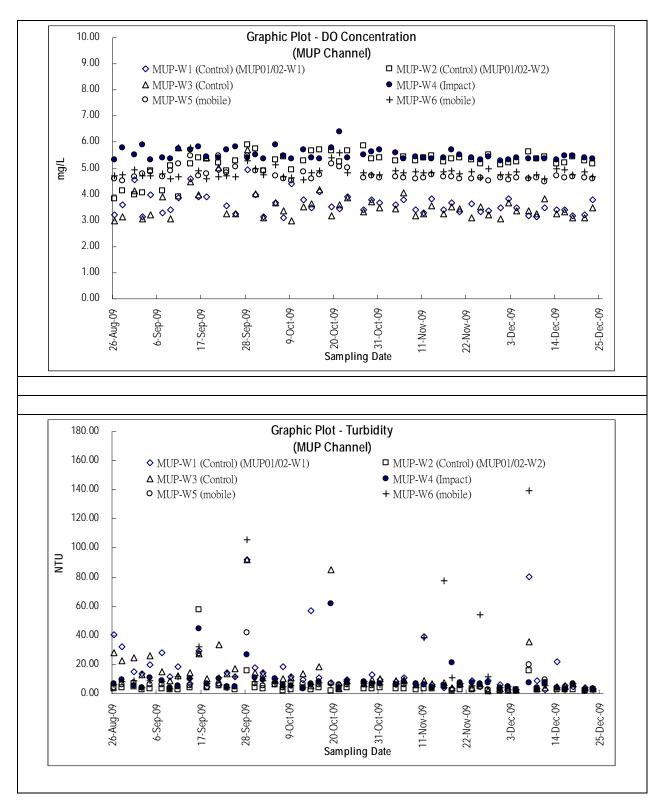


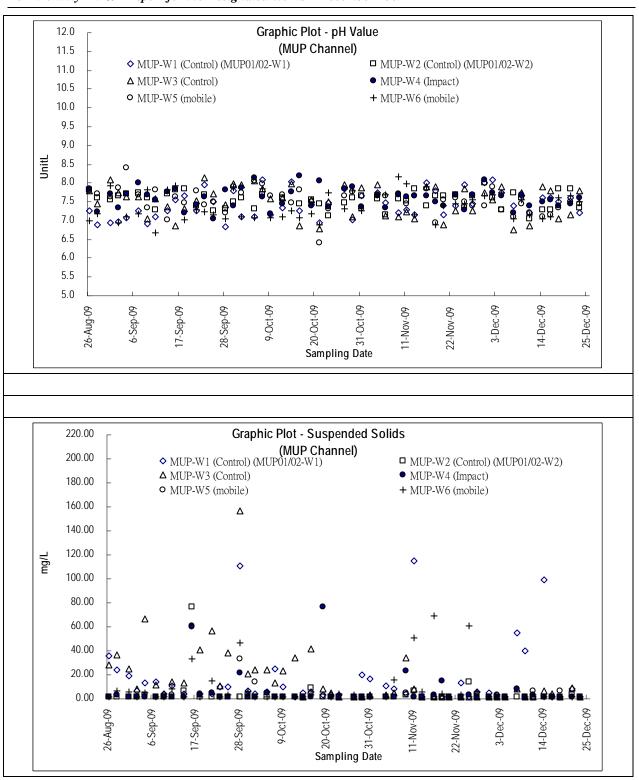


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Graphic Plot of Monitoring - Water Quality





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Appendix J

Meteorological Records

Meteorological Data in this Reporting Month

				Ta Kwu ling			
	Date	Weather	Total Rainfall (mm)	Mean Air Temp. (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
Thu	26-Nov-09	Sunny periods. Moderate east to northeasterly winds.	0.0	20.9	7.5	82	90
Fri	27-Nov-09	Sunny periods in the afternoon. Mainly cloudy overnight. Moderate east to northeasterly winds.	0.0	21.7	4.9	79	110
Sat	28-Nov-09	Mainly fine and dry. Fresh easterly winds, occasionally strong over offshore waters and on high ground	0.0	21.2	10.0	72	120
Sun	29-Nov-09	Fine but hazy. Dry during the day. Moderate northeasterly winds	0.0	19.8	6.1	73	360
Mon	30-Nov-09	Fine but hazy. Moderate north to northeasterly winds.	0.0	17.5	4.2	73	320
Tue	1-Dec-09	Mainly fine but hazy. Moderate northeasterly winds, becoming fresh northerlies tonight.	0.0	16	4.0	78	100
Wed	2-Dec-09	Fine and dry. Moderate to fresh north to northeasterly winds.	0.0	18.1	4.7#	72	360#
Thu	3-Dec-09	Fine and dry. Cool in the morning. Moderate to fresh north to northeasterly winds.	0.0	15.6	10.8	59	10
Fri	4-Dec-09	Fine and dry apart from some haze. Cool overnight.Moderate east to northeasterly winds, fresh at times.	0.0	14.2	3.1	79	140
Sat	5-Dec-09	Very dry in the afternoon. Moderate northerly winds, becoming fresh easterlies later.	0.0	14.3	5.1	66	90
Sun	6-Dec-09	Cloudy. Fresh easterly winds, occasionally strong over offshore waters.	5.5	16.5	7.0	74	90
Mon	7-Dec-09	Mainly cloudy with a few rain patches. Moderate northeasterly winds.	4.0	17.1	4.9	88	100
Tue	8-Dec-09	Mainly cloudy with a few rain patches. Moderate north to northeasterly winds.	0.5	17.4	3.8	94	360
Wed	9-Dec-09	Mainly fine apart from relatively low visibility at first. Light to moderate north to northeasterly winds	0.0	17.8	2.7	94	330
Thu	10-Dec-09	Mainly fine apart from some haze	0.0	19.1	4.3	87	340
Fri	11-Dec-09	Sunny periods. Visibility relatively low at first. Light winds, becoming moderate easterlies tonight.	0.0	19.7	5.9	86	90
Sat	12-Dec-09	Sunny periods. Moderate to fresh easterly winds.	0.0	20.4	8.3	82	110
Sun	13-Dec-09	Cloudy with a few rain patches. Moderate easterly winds, becoming fresh northerlies later in the afternoon.	0.0	20.5	5.6	82	110
Mon	14-Dec-09	Mainly cloudy. Visibility rather low. Moderate to fresh easterly winds.	8.5	19.4	8.4	84	110
Tue	15-Dec-09	Moderate northerly winds, occasionally fresh over offshore waters.	1.0	18.5	10.2	84	110
Wed	16-Dec-09	Cloudy with a few rain patches at first. It will be cold. Fresh northerly winds.	0.0	11.7	13.3	72	360
Thu	17-Dec-09	Sunny intervals and dry tomorrow with a maximum temperature of around 15 degrees.	0.0	10.5	13.4	69	360
Fri	18-Dec-09	Mainly cloudy and cold. Dry during the day.	0.0	10.2	9.5	71	360
Sat	19-Dec-09	Cold and dry. Cloudy at first. Sunny periods during the day	0.0	11.6	6.5	63	360
Sun	20-Dec-09	Mainly cloudy. Very dry with sunny periods in the afternoon.	0.0	11.8	5.8	55	360
Mon	21-Dec-09	Cloudy and dry. Sunny periods during the day.	0.0	13.7	5.3	49	10
Tue	22-Dec-09	Sunny periods. Moderate easterly winds.	0.0	15.5	7.0	68	100
Wed	23-Dec-09	Cloudy. Sunny periods tomorrow. Moderate easterly winds.	0.0	17.7	7.3	75	100
Thu	24-Dec-09	Mainly fine. Moderate easterly winds.	0.0	19.3	5.0	83	100
Fri	25-Dec-09	Holiday	0.0	18.1	4.5	80	10

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

missing (less than 24 hourly observations a day)

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Appendix K

Proforma of the Weekly ET Site Inspection Checklist

Project:	DSD Contract No. DC/2007/08 Drainage Improvement Works at Tai Po Tin, Ping Che,	Inspected by IEC/IEC's Representative:					DC200708-011209
	Man Uk Pin and Lin Ma Hang	S	RE/ SRE's R	epresentat	ive: Willi	am Tang	
Inspecti	on	E	TL/ ET's Rep	oresentativ	e: Billy	Ng	
Date:	1 December 2009		O/ EO's Rep	resentative	e: <u>C.P</u>	Chan	
Time:	10:00	-	ontractor's epresentativ	e:	<u> </u>	. Yu	
PART	A: GENERAL INFORMATION				Env	ironmenta	I Permit No.
Weathe	er: Sunny 🖌 Fine Cloudy 🗍	Rainy		Calm	EP-2	77/2007/A	
Temper	ature: 21 °C						
Humidi	ty: High Moderate 🗸 Low				N/A		
Wind:	Strong Breeze 🗸 Light 🗌 🤇	Calm					
Chan	nel	Area In	spected				
	TKL02 TKL07 MUP01/02 MUP05						
PART B	SITE AUDIT						
	lot Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; follow Up: Observations requiring follow-Up actions N/A: Not Applicable	No Obs	Yoe	No	Follow Up	N/A	Photo/ Remarks
Section	1: Water Quality						
1.01 ls	s an effluent discharge license obtained for the Project?	\checkmark	Í				
1.02 ls	s the effluent discharged in accordance with the discharge licence?	\checkmark	Í				
1.03 ls	s the discharge of turbid water avoided?						
	re there proper desilting facilities in the drainage systems to						

 \checkmark

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1.04	reduce SS levels in effluent?	0	
1.05	Are there channels, sandbags or bunds to direct sedimentation tanks?	surfa	ce run-off to

1.06	Are there any perimeter channels provided at site boundaries to
1.06	intercept storm runoff from crossing the site?

1.07	Is drainag	e system w	ell maintained?

- As excavation proceeds, are temporary access roads protected by 1.08 crushed stone or gravel?
- 1.09 Are temporary exposed slopes properly covered?
- Are earthworks final surfaces well compacted or protected? 1.10
- Are manholes adequately covered or temporarily sealed? 1.12 Are there any procedures and equipment for rainstorm protection?
- 1.13 Are wheel washing facilities well maintained?
- 1.14 Is runoff from wheel washing facilities avoided?
- Are there toilets provided on site? 1.15
- Are toilets properly maintained? 1.16

1.11

- Are the vehicle and plant servicing areas paved and located within 1.17 roofed areas?
- 1.18 Is the oil leakage or spillage avoided?
- Are there any measures to prevent leaked oil from entering the 1.19 drainage system?
- Are there any measures to collect spilt cement and concrete 1.20 washings during concreting works?

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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				
Sectio	n 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?		\checkmark				
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				
Sectio	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?		\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					
Sectio	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 wastes stored in proper storage areas?				\checkmark		Photo A & B
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 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
Sectio	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				
Sectio	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 7: Others							
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?		\checkmark				

Remarks :



Remarks

Follow-Up of Last Site Inspection (24th November 2009):



Photo 1 Water Spraying for site haul road has been practiced.



Photo 2 Preserved trees are properly fenced.



Photo 3 Stagnant water was eliminated.



Photo 4 larvicide was applied.



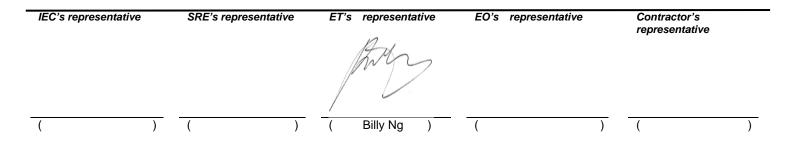
Findings of Site Inspection on 1st December 2009:



Photo A

Photo B

Chemical or Oil containers were found on site. The contractor is reminded to store all chemical materials in proper storage areas or provide impervious cover over any chemical containers and provide drip tray to prevent any leakage.



Projec	_	DSD Contract No Drainage Improver Man Uk Pin and Li	ment Works at Ta	i Po Tin, Ping Che,	IEC/I	ected by EC's Repro		:	Checklist No. <u>DC200708-081209</u> - William Tang		
Inspe	ction				ETL/	ET's Repr	esentative	: Billy	Ng		
Date:	_	8 December 2009				EO's Repre	esentative	C.P.	Chan		
Time:		10:00				ractor's esentative	:	<u>S. J.</u>	Yu		
PAR	RT A:		GENE	RAL INFORMATION				Envi	ironmenta	I Permit No.	
Wea	ther:	Sunny	✓ Fine	Cloudy	Rainy	c	alm	EP-27	7/2007/A		
Temp	perature:	20	₀C				[
Hum	nidity:	High	Moderate	✓ Low			[N/A			
Wind	d:	Strong	Breeze	✓ Light	Calm						
Ch	annel				Area Insp	ected					
	TK MUF	(L02 (L07 201/02 JP05									
PART	В:			SITE AUDIT							
Note:		 s.: Not Observed; Yes: Up: Observations requ 		n-Compliance; s N/A : Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks	
Sectio	on 1: Wa	ater Quality									
1.01	ls an e	ffluent discharge lice	ense obtained for t	he Project?	\checkmark						
1.02	Is the e	effluent discharged in	n accordance with	the discharge licence?	\checkmark						
1.03	Is the c	discharge of turbid w	vater avoided?			\checkmark					
1.04		ere proper desilting SS levels in effluen		drainage systems to		\checkmark					
1.05		ere channels, sandb entation tanks?	ags or bunds to d	irect surface run-off to		\checkmark					
1.06		ere anv perimeter o	channels provided	at site boundaries to				\checkmark		Photo E	
	Interce	pt storm runoff from									
1.07			crossing the site?			$\overline{\checkmark}$					
1.07 1.08	Is drair As exc	pt storm runoff from hage system well ma	crossing the site? aintained?	ess roads protected by		 ✓ 					

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1.09 Are temporary exposed slopes properly covered?

Are earthworks final surfaces well compacted or protected? 1.10

1.11	Are manholes adequately covered or temporarily sealed?	\checkmark
1.12	Are there any procedures and equipment for rainstorm protection?	

1.13 Are wheel washing facilities well maintained?

1.14 Is runoff from wheel washing facilities avoided?

Are there toilets provided on site? 1.15

1.16 Are toilets properly maintained?

- Are the vehicle and plant servicing areas paved and located within 1.17 roofed areas?
- 1.18 Is the oil leakage or spillage avoided?
- Are there any measures to prevent leaked oil from entering the 1.19 drainage system?
- Are there any measures to collect spilt cement and concrete 1.20 washings during concreting works?

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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				
Sectio	n 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?		\checkmark				
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				
Sectio	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?		\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					
Sectio	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		Photo C & D
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 wastes stored in proper storage areas?				\checkmark		Photo B
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		Photo A
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 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
Sectio	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				
Sectio	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 7: Others							
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?		\checkmark				

Remarks :

Stagnant pond water was observed, contractor is reminded to clear or apply larvicide regularly for mosquito control. Photo F



Remarks

Follow-Up of Last Site Inspection (1st December 2009):



Photo 1

Chemical or Oil containers were removed.

Photo 2

Findings of Site Inspection on 8th December 2009:



Photo A

Chemical or Oil containers were found on site. The contractor is reminded to store all chemical materials in proper storage areas or provide impervious cover over any chemical containers and provide drip tray to prevent any leakage.



C&D waste and Debris were observed, The Contractor is reminded to keep the site clean and tidy at all times.

Photo C

Photo D



Runoff of muddy water was observed at MUP01/02. The Contractor is reminded to provide relative mitigation measures such as filter placement, to prevent any surface runoff



Photo F

Stagnant water should be removed or applied larvidical oil to prevent mosquitoes breeding

IEC's representative	SRE's representative	ET's representative	EO's representative	Contractor's representative
		Ant		
()	()	(Billy Ng)	()	()

Projec	:t:	DSD Contract No. DC/2007/08			In	spected by	,	Ch	Checklist No. <u>DC200708-151209</u>		
			Drainage Improvement Works at Tai Po Tin, Ping Che,			C/IEC's Re	presentativ	/e: <u>-</u>			
Man Uk Pin and Lin Ma Hang						RE/ SRE's I	Representa	tive: Wil	liam Tang		
Inspection					E	TL/ ET's Re	presentativ	/e: Bill	y Ng		
Date:		15 December 2009				O/ EO's Rej ontractor's	presentativ	e: <u>C.</u>	P. Chan		
Time:		10:00			-	epresentati		<u>S.</u>	J. Yu		
PAR	TA:		GENE	RAL INFORMATION				En	vironmenta	al Permit No.	
Weat	her:	Sunny	Fine	✓ Cloudy	Rainy		Calm	EP-2	277/2007/A		
Temp	erature	20	_ ⁰C								
Humi	dity:	High	Moderate	✓ Low				N/A			
Wind	:	Strong	Breeze	✓ Light	Calm						
Cha	annel				Area In	spected					
	۲ ML	"KL02 "KL07 JP01/02 JUP05									
PART	B:			SITE AUDIT							
Note:		bs. : Not Observed; Yes : v Up : Observations requi			Not Obs	Y DC	No	Follow Up	N/A	Photo/ Remarks	
Sectio	n 1: V	Vater Quality									
1.01	ls an	effluent discharge lice	ense obtained for th	ne Project?	\checkmark	Í					
1.02	Is the	effluent discharged ir	accordance with t	he discharge licence?	\sim	Í					
1.03	Is the	discharge of turbid w	ater avoided?			\checkmark					
1.04		here proper desilting e SS levels in effluent		drainage systems to) []	\checkmark					
1.05		nere channels, sandbanentation tanks?	ags or bunds to di	rect surface run-off to		\checkmark					
1.06		here any perimeter c) []						

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1.06	intercept storm runoff from crossing the site?
1.07	Is drainage system well maintained?

1.08	As excavation proceeds, are temporary access roads pro	tected by
1.08	crushed stone or gravel?	

1.09 Are temporary exposed slopes properly covered?

1.10 A	Are earthworks	final	surfaces	well	compacted	or	protected?
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1.11	Are manholes adequately covered or temporarily sealed?
1.12	Are there any procedures and equipment for rainstorm protection?

1.14 Is runoff from wheel washing facilities avoided?

1.15	Are there toilets provided on site?
1.15	Ale there tollets provided on site?

1.16 Are toilets properly maintained?

- Are the vehicle and plant servicing areas paved and located within 1.17 roofed areas?
- 1.18 Is the oil leakage or spillage avoided?
- Are there any measures to prevent leaked oil from entering the 1.19 drainage system?
- Are there any measures to collect spilt cement and concrete 1.20 washings during concreting works?

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Photo A

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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				
Sectio	n 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?		\checkmark				
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				
Sectio	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?		\checkmark				Kenlarka
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					
Sectio	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		Photo C
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 wastes stored in proper storage areas?				\checkmark		Photo D
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 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
Sectio	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				
Sectio	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 7: Others							
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?		\checkmark				

Remarks :

Stagnant pond water was observed, contractor is reminded to clear or apply larvicide regularly for mosquito control. Photo B







Findings of Site Inspection on 15th December 2009:

Photo A	Photo B
Surface runoff was observed, Contractor should applied road	Stagnant water should be pumped out or applied larvidical oil
surfacing and shaping to minimize potential erosion.	to prevent mosquitoes breeding
Photo C C&D wasta and Debris ware observed. Housekeeping should be	Photo D Chemical or Oil containers were found on site. The contractor is
C&D waste and Debris were observed, Housekeeping should be improved; the contractor was reminded to clean the waste to	Chemical or Oil containers were found on site. The contractor is reminded to store all chemical materials in proper storage areas or
maintain the site tidy	provide impervious cover over any chemical containers and provide
	drip tray to prevent any leakage.
IEC's representative SRE's representative ET's repre	esentative EO's representative Contractor's representative
- And	

Project:	DSD Contract No Drainage Improven Man Uk Pin and Lin 22 December 2009	nent Works at Tai	Po Tin, Ping (Che,	IEC/I SRE/ ETL/ EO/ I	ected by EC's Repre ' SRE's Rep ET's Repre EO's Repre ractor's	oresentativ esentative:	re: <u>Willia</u> T.W.	cklist No. am Tang . Tam Chan	DC200708-221209
Time:	10:00				Repr	esentative:		<u>S. J.</u>	Yu	
PART A:		GENE	RAL INFORMA	TION				Envi	ironmental	Permit No.
Weather:	Sunny	Fine	✓ Cloudy	R	Rainy	Ca	alm	EP-27	7/2007/A	
Temperature	20	⁰ C								
Humidity:	High	Moderate	✓ Low					N/A		
Wind:	Strong	Breeze	✓ Light		Calm					
Channel				A	Area Insp	ected				
TKL02 TKL07 MUP01/02 MUP05										
PART B:			SITE AUDIT							
	bs. : Not Observed; Yes : v Up : Observations requi			cable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
Section 1: W	/ater Quality									
1.01 Is an	effluent discharge lice	ense obtained for th	ne Project?		\checkmark					
	<i>.</i>			•						

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Is the effluent discharged in accordance with the discharge licence?	\checkmark					
Is the discharge of turbid water avoided?		\checkmark				
Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?		\checkmark				Photo C
Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?		\checkmark				
Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?		\checkmark				
Is drainage system well maintained?		\checkmark				
As excavation proceeds, are temporary access roads protected by crushed stone or gravel?		\checkmark				
Are temporary exposed slopes properly covered?		\checkmark				
Are earthworks final surfaces well compacted or protected?		\checkmark				
Are manholes adequately covered or temporarily sealed?	\checkmark					
Are there any procedures and equipment for rainstorm protection?		\checkmark				
Are wheel washing facilities well maintained?		\checkmark				
Is runoff from wheel washing facilities avoided?		\checkmark				
Are there toilets provided on site?		\checkmark				
Are toilets properly maintained?		\checkmark				
Are the vehicle and plant servicing areas paved and located within roofed areas?		\checkmark				
Is the oil leakage or spillage avoided?		\checkmark				
Are there any measures to prevent leaked oil from entering the drainage system?		\checkmark				
Are there any measures to collect spilt cement and concrete washings during concreting works?	\checkmark					
	Is the discharge of turbid water avoided? Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent? Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks? Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site? Is drainage system well maintained? As excavation proceeds, are temporary access roads protected by crushed stone or gravel? Are temporary exposed slopes properly covered? Are temporary exposed slopes properly covered? Are manholes adequately covered or temporarily sealed? Are there any procedures and equipment for rainstorm protection? Are wheel washing facilities well maintained? Is runoff from wheel washing facilities avoided? Are there toilets provided on site? Are toilets properly maintained? Is the oil leakage or spillage avoided? Are there any measures to prevent leaked oil from entering the drainage system? Are there any measures to collect spilt cement and concrete	Is the discharge of turbid water avoided? Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent? Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks? Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site? Is drainage system well maintained? As excavation proceeds, are temporary access roads protected by crushed stone or gravel? Are temporary exposed slopes properly covered? Are temporary exposed slopes properly covered? Are there any procedures and equipment for rainstorm protection? Are there any procedures and equipment for rainstorm protection? Are there toilets provided on site? Are toilets properly maintained? Are toilets properly maintained? Are there only plant servicing areas paved and located within roofed areas? Is the oil leakage or spillage avoided? Are there any measures to collect spilt cement and concrete	Is the discharge of turbid water avoided? Image: system of turbid water avoided? Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent? Image: system system of the drainage systems to reduce SS levels in effluent? Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks? Image: system of the drainage system of the drainage system well maintained? Image: system of the drainage system well maintained? Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site? Image: system of the drainage system of the drainage system of the drainage system well maintained? Image: system of the drainage system?	Is the discharge of turbid water avoided? Image: state of turbid water avoided? Image: state of turbid water avoided? Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent? Image: state of turbid water avoided? Image: state of turbid water avoided? Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks? Image: state of turbid water avoided at site boundaries to intercept storm runoff from crossing the site? Image: state of turbid water avoided at site boundaries to intercept storm runoff from crossing the site? Is drainage system well maintained? Image: state of turbid water avoided at site boundaries to intercept storm runoff from crossing the site? Image: state of turbid water avoided at site boundaries to intercept storm runoff from crossing the site? Is drainage system well maintained? Image: state of turbid water avoided at site boundaries to intercept storm runoff from crossing the site? Image: state of turbid water avoided at site boundaries to intercept storm runoff from crossing the site? Are there any proceeds, are temporary access roads protected by crushed stone or gravel? Image: state of turbid water avoided or protected? Image: state of turbid water avoided or protected? Image: state of turbid water avoided? Image: sturbid water avoided? Image: stat	Is the discharge of turbid water avoided?	Is the discharge of turbid water avoided? Image: system store of the system system system store of the system syst



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				
Sectio	n 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?		\checkmark				
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				Photo A
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				
Sectio	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?		\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					
Sectio	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 wastes 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				Photo B
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 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
Sectio	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				
Sectio	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					
Sectio	on 7: Others						
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?		\checkmark				

Remar	ks
Follow	-Up of Last Site Inspection (15 th December 2009):
1 & 2.	Temporary drainage systems are constructed to collect the surface runoff observation during last week inspection. Also, stagnant water was removed to minimize potential erosion.
3	The construction waste with debris were removed and disposed.
4	Chemical or oil containers found on 15 Dec 2009 site inspection were removed to the properly storage area

Findings of Site Inspection on 22nd December 2009:



 Photo A
 Photo B

 Remind water sprayed should be regular undertaken to prevent dust emission.
 The C&D waste and debris were observed TKL-02, Housekeeping should be improved; the contractor was reminded to clean the waste to maintain the site tidy



Findings of Site Inspection on 22nd December 2009:

	Photo C								
Dead of stagnant wa	ater was o	bserved dui	ring the site						
inspection. Larvidi	cal oil or p	umped out	should be						
undertaken to preve									
·									
							 		
IEC's representative	SRE's re	presentative	ET's repre	esentative	EO's re	epresentative		Contractor's	—
				. Tam				representative	<u> </u>
)	(1.00	. iaiii)					1

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 Representative: SRE/ SRE's Representative:			Checklist No. DC200708-291209 - William Tang		
Inspection	1	E	TL/ ET's Repr	esentativ	e: <u>T.W</u>	/. Tam		
Date:	29 December 2009		O/ EO's Repre	esentative	e: <u>C.P</u>	. Chan		
Time:	10:00	-	ontractor's epresentative	:	<u> </u>	. Yu		
PART A: Weather: Temperatu Humidity Wind: Channe TKL02 TKL07 MUP01/ MUP05	Sunny Fine ✓ Cloudy ✓ Fine ure: 18.8 °C High Moderate ✓ Low Strong Breeze ✓ Light 0 el ✓ ✓ ✓	Rainy Calm Area I I	C c	E	invironmer	ntal Permit	t No. EP-277/2007/A	
PART B:	SITE AUDIT							
	t Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Iow Up: Observations requiring follow-Up actions N/A: Not Applicable	No Ob:	VAC	No	Follow Up	N/A	Photo/ Remarks	
Section 1	Water Quality							
1.01 ls a	an effluent discharge license obtained for the Project?	\checkmark	1					
1.02 Is t	he effluent discharged in accordance with the discharge licence?	\checkmark	1					
1.03 Is t	he discharge of turbid water avoided?							

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1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	
	Are there any perimeter channels provided at site boundaries to	

1.06	Are there any perimeter channels provided at site boundaries	ιU
1.00	intercept storm runoff from crossing the site?	

1.07	Is drainage system well maintained?

- As excavation proceeds, are temporary access roads protected by 1.08 crushed stone or gravel?
- 1.09 Are temporary exposed slopes properly covered?
- 1.10 Are earthworks final surfaces well compacted or protected?

1.11	Are manholes adequately covered or temporarily sealed?
1.12	Are there any procedures and equipment for rainstorm protection?

1.13 Are wheel washing facilities well maintained?
--

1.14 Is runoff from wheel washing facilities avoided?

1.15	Are there	toilets	nrovided	on site?
1.15	ALC UICLE	loneis	provided	UIT SILE :

1.16 Are toilets properly maintained?

- Are the vehicle and plant servicing areas paved and located within 1.17 roofed areas?
- 1.18 Is the oil leakage or spillage avoided?
- Are there any measures to prevent leaked oil from entering the 1.19 drainage system?
- Are there any measures to collect spilt cement and concrete 1.20 washings during concreting works?

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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				
Sectio	n 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?		\checkmark				
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				
Sectio	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?		\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					
Sectio	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 wastes 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 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
Sectio	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				
Sectio	Section 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 7: Others							
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?		\checkmark				

Remar	ks
Follow	r-Up of Last Site Inspection (22 nd December 2009):
1	Due to rain fall was come form mid-night before the inspection day on 29 Dec 2009, so dust emission is not big environmental issue at the day. However, the contractor was reminded to be water sprayed regular undertaken to prevent dust emission during fine day of sunny day accordingly.
2	The C&D waste and debris observed during prior inspection on 22 Dec 09 was removed and disposed in accordance with Waste Management Plan.
3	Larvidical oil was provided to prevent mosquitoes breeding
	·

Findings of Site Inspection on 29th December 2009:

No environmental issue was observed. However, the contractor is reminded to maintain the temporary drainage system, such as rock filling should be provided at the bottom of temporary drainage channel to prevent the fine material is flowed to the down-gradient (see the Photos A and B). Also, the Contract is reminded to ensure the wheel water facilities at the site exit are functional.



Photo A

Photo B

The water quality is likely look is accepted. However silt and clay fine material are settled at the bottom. Therefore, rock filling are recommended to prevent the fine particle directly flow to the down gradient.

IEC's representative	SRE's representative	ET's representative	EO's representative	Contractor's representativ	
		A			
()	()	(T.W. Tam)	() ()



Appendix L

Proforma of Ecology Inspection Checklist

Z:\Jobs\2008\TCS00409 (DC-2007-08)\600\Impact\DP\Monthly Report\10th Monthly- December 2009\R0668v2.doc Action-United Environmental Services and Consulting

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 Representati RE/RE's Representativ ETL/ ET's Representati	ve:	list No. () ((()) () () () () () () (
Date:	26/((19]	EO/EO's Representativ	e: <u>Cp</u>	Clar
Time:	[[]	Contractor's Represen	tative:	
PART A:	GENERAL INFORMATION		Environmen	tal Permit No.
Weather:	Sunny 🗹 Fine 🗌 Cloudy 🗌 Rainy	Calm	EP-277/200	7
Temperature	ν <u>γ</u> οc]	
Humidity:	High Moderate 🖌 Low			
Wind:	Strong Breeze Light Calm		_	
Channel	Area Ir	nspected		
MUP05	MURDINE M	<i>ر</i>		
PART B:	SITE AUDIT			
Note: EM&	Eollow Up: ()been/atione requiring follow Up actions N/A: Not		low N/A p	Photo/ Remarks
Section 6: E	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			

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MUP 31

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Stream bed

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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
1.02	6.5.10	Any essential works outside the dry season have been temporarily isolated from the stream
1.03	6.5.11	Excavation works have been restricted to 300m

length at any one time 6.5.13 native riparian trees which would be impacted 1.04 during construction works have been transplanted to

Excavation works have been restricted to 300m

suitable sites within the project area where possible 1.05 6.5.22 Construction activities have been restricted to works

area that should be clearly demarcated

- 1.06 6.5.22 Temporary diversions have been provided to ensure continuous water flow to the downstream section.
- 6.5.22 1.07 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
- 1.09 6.5.22 Temporary access track on streambed have been kept to the minimum width and length
- 6.5.22 1.09 Temporary stream crossings are supported on stilts above the stream bed.
- 6.5.22 1.10 Adequate temporary drainage measures including sediment and oil/arease traps have been provided to prevent contaminated site run-off entering the water bodies
- 1.11 6.5.22 Stockpiling of construction materials, spoils and waste have been properly covered and located away from water bodies

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		ď		. 🗆		- ·
1.13	6.5.22	workers have bee regularly briefed to avoid disturbing the flora and fauna near the works area				□		
1.14	6.5.22	Construction effluent, site run-off and sewage have been properly collected, treated and disposed				e		See hold.
1.15	6.5.22	details of the mitigation measures to be implemented during construction stage have been submitted to the Engineer for approval		ď				

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Remarks

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Mueoz - Lionke for	in progress	and	stream	diversion	dready
Mupos - Work to C fank	in progress, iamy out to prevent hotival so	the con regular sedime.	maintenace nt - loac (ed	of the water	

IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's representative
()	()	(Ken Wag).	(c.p. Chen) 26/11/2009.	()

Humi Wind Cha	T A: tion T A: ther: erature: idity: annel	°C High Moderate Low Strong Breeze Light 0	Calm Area Ins	RE/RE's ETL/ ET's EO/EO's Contract	Repres Repres Repres Repre Repres	sentative: entative: presentative: Env	w C f	ental Permit No.
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.	Ye s	No	Follow Up	N/A	Photo/ Remarks
Sectio	on 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		₿ ∕				
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	ø			D		no work on Stream bottom
1. 02	6.5.10	Any essential works outside the dry season have been temporarily isolated from the stream					ซ	
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				ъ		ou-going
1.05	6.5.22	Construction activities have been restricted to works area that should be clearly demarcated						
1.06	6.5.22	Temporary diversions have been provided to ensure continuous water flow to the downstream section.		ď				for MJPOl
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		¢			D	
1.09	6.5.22	Temporary access track on streambed have been kept to the minimum width and length					ď	ho work an <u>Streambed</u> . For MURDS
1.09	6.5.22	Temporary stream crossings are supported on stilts above the stream bed.		₽∕				For MUPOS
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						
1.11	6.5.22	Stockpiling of construction materials, spoils and waste have been properly covered and located away from water bodies		₫				

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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		9				
1.13	6.5.22	workers have bee regularly briefed to avoid disturbing the flora and fauna near the works area		9/	Ó			
1.14	6.5.22	Construction effluent, site run-off and sewage have been properly collected, treated and disposed			Δ.	J		
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

Aluls: - An motigation measure, that been implemented	<i>c</i>
it progress and stream division property of	ome I
to assure Continuors were from	
illent - the contractor has been reminded to con	γ
at replan hain thank of	
tout to ensure str efficiency es sedi	ment -
Coaded nur off nos observed.	
	-

IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's representative
()	()	Cen Way.	(C.P.Chan.)	()

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Environn	nental Team – Ecolo	gical Site Inspecti	ion and Au	dit Checkli	ist	AUES
Project:	DSD Contract No. DC/2 Drainage Improvement Wo Tai Po Tin, Ping Che, Man	orks at			y epresentative: presentative:	
Inspection				ETL/ ET's R	epresentative	e: YW Wong
Date:	(D/12/2)			EO/EO's Re	presentative:	CP (lan
Time:	(30)			Contractor's	s Representat	tive:
PART A:		GENERAL INFORMA	TION			Environmental Permit No.
PART A: Weather:	Sunny	GENERAL INFORMA	TION	Cal	im 🗌	Environmental P ermit No. EP-277/2007
				Cal	Im	
Weather:	: <u></u> °C			Cal		
Weather: Temperature	: <u>~(</u> ℃	Fine Cloudy		Cal		EP-277/2007
Weather: Temperature Humidity:	: <u>~(</u> ℃	Fine Cloudy Moderate Low	Rainy			EP-277/2007

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
Sectio	on 6: Eco	ology					,	
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		ď				
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	V					no work on stream buttom
1.02	6.5.10	Any essential works outside the dry season have been temporarily isolated from the stream						
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		٥		ø⁄		on-goiry
1.05	6.5.22	Construction activities have been restricted to works area that should be clearly demarcated						
1.06	6.5.22	Temporary diversions have been provided to ensure continuous water flow to the downstream section.		Ł				for MUPOI
1.07	6.5.22	The proposed works site inside or in the proximity of natural streams have been temporarily isolated		Ь				
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					ø	no work on
1.09	6.5.22	Temporary stream crossings are supported on stilts above the stream bed.		Ø				no work on streambert Fri MoRos
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						
1.11 ^M	6.5.22	Stockpiling of construction materials, spoils and waste have been properly covered and located away from water bodies						

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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
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1.13	6.5.22	workers have bee regularly briefed to avoid disturbing the flora and fauna near the works area		ď		D		
1.14	6.5. 22	Construction effluent, site run-off and sewage have been properly collected, treated and disposed		ø				
1.15	6.5.22	details of the mitigation measures to be implemented during construction stage have been submitted to the Engineer for approval	D	ď				

Remarks

All Chand. All of the highgation hearres were found implementaci properly: however, the Contractor has been Philaded to carry out regular maintenance of the sedimentation tank to ensure its efficiency and promptly fenced up any stackpling area (neupol) that was closed to the natural stream.

IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's repr esentative
· · · · · · · · · · · · · · · · · · ·	()	(Keith Way)	10/12/09)	()

Environn	nental Team –	Ecological S	ite Inspect	ion and Au	dit Checklist		AULS	
Project:	DSD Contract No Drainage Improver Tai Po Tin, Ping Ch	nent Works at	nd Lin Ma Hang		Inspected by IEC/IEC's Repres		Checklist No. 2 2 3	
Inspection Date: Time:	10(121)	P			RE/RE's Representative: ETL/ ET's Representative: EO/EO's Representative: Contractor's Representative:		YW Wong	
PART A:		GENE					vironmental Permit No.	
Weather:	Sunny	Fine	Cloudy	Rainy	Calm	EF	P-277/2007	
Temperature	4	_] ⁰C						
Humidity:	🔲 High	Moderate	Low			N/A		
Wind:	Strong	Breeze	Light	Calm				
Channel				Area Ins	spected			
MUP05	Muporro	2		A	V			

PART	В:	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
Sectio	on 6: Eco							
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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				ď		hork in progress
1.02	6.5 .10	Any essential works outside the dry season have been temporarily isolated from the stream					₽∕	<u> </u>
1.0 3	6. 5 .11	Excavation works have been restricted to 300m length at any one time		U⁄				
1.04	6.5.1 3	native riparian trees which would be impacted during construction works have been transplanted to suitable sites within the project area where possible				₽⁄		ou - goirg
1.05	6.5.22	Construction activities have been restricted to works area that should be clearly demarcated						
1.06	6.5.22	Temporary diversions have been provided to ensure continuous water flow to the downstream section.						Mulor 102
1.07	6.5.22	The proposed works site inside or in the proximity of natural streams have been temporarily isolated		₽∕				······································
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1.09	6.5.22	Temporary access track on streambed have been kept to the minimum width and length	Ø					no north an
1.09	6.5.22	Temporary stream crossings are supported on stilts above the stream bed.		D⁄				MUP 04
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			> □ 3			<u>. </u>
1.11	6.5.22	Stockpiling of construction materials, spoils and waste have been properly covered and located away from water bodies		5	میں اسمینیز ج			

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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						
1.13	6.5.22	workers have bee regularly briefed to avoid disturbing the flora and fauna near the works area					-	
1.14	6.5.22	Construction effluent, site run-off and sewage have been properly collected, treated and disposed		ษ			-	
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

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Remarks
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found poperty implemented, and although milley
found property my and
Water Was found in MUROS. Et was noted that
Use and dowing the dealer a
ent repulor
Moreover. It is reminded to carry out cyclor Moreover. It is reminded to carry out cyclor
Alle Continuentation tank to
Moreover, it is function tank to
lusure its efficiency,
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IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's representative
()	()	(Keck Way.)	(crp. Chem.)	()

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 Represe RE/RE's Represe		Checklist No.				
Inspection	061 - 0				ETL/ ET's Representative: YW Wong					
Date:	24/12/09			EO/EO's Represe	ntative:	CP (l'én				
Time:	(120				Contractor's Rep	resentativ	e:			
PART A:		GENE	RAL INFORMA	TION		I	Environmental Permit No.			
Weather:	📈 Sunny	Fine	Cloudy	Rainy	Calm	\Box .	EP-277/2007			
Temperature	23	⊃° C	/							
Humidity:	High	Moderate	Low			<u> </u>	/A			
Wind:	Strong	Breeze	Light	Calm						
Channel				Area Ins	pected					
MUP05	(MUPDICO	2		A	<u>,</u>					

AUES

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
Sectio	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		₹				
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						prograss for Hules
1.0 2	6.5.10	Any essential works outside the dry season have been temporarily isolated from the stream					Ŀ	<u> </u>
1.03	6.5.1 1	Excavation works have been restricted to 300m length at any one time		\checkmark				
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				ď		On-going
1.05	6.5.22	Construction activities have been restricted to works area that should be clearly demarcated		Ø				
1. 06	6.5.22	Temporary diversions have been provided to ensure continuous water flow to the downstream section.		ď		۵		for Millor or
1.07	6.5.22	The proposed works site inside or in the proximity of natural streams have been temporarily isolated		Ľ		۵		
1.08	6.5.2 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		Ø				
1.09	6.5.22	Temporary access track on streambed have been kept to the minimum width and length	₽⁄					
1.09	6.5.22	Temporary stream crossings are supported on stilts above the stream bed.		⊡⁄				Mulos
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		đ				
1.1 1	6.5.22	Stockpiling of construction materials, spoils and waste have been properly covered and located away from water bodies						

AUES

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		Ъ	۵			
1.13	6.5.22	workers have bee regularly briefed to avoid disturbing the flora and fauna near the works area		ď				
1.14	6.5.22	Construction effluent, site run-off and sewage have been properly collected, treated and disposed		Ľ				
1.15	6.5.22	details of the mitigation measures to be implemented during construction stage have been submitted to the Engineer for approval		۲				

Remarks

Au	Chand Au of the hitzertions property within the project site,	are implemented but tree
	obstructing the work in Mulon and be brauplanted.	yet to

IEC's representative	RE's representative	ET's representative	EO's r e presentative	Contractor's representative
()	()	(at Word !)	(c-P. Chan)	()

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Appendix M

Monthly Summary Waste Flow Table

Monthly Summary Waste Flow Table for 2009 (26 November to 25 December)

	Actual Quantities of Inert C&D Wastes Generated Monthly						Actual Quantities of C&D Wastes Generated 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 ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m3)
Jan	3.41	0	0	3.02	0	0.39	0	0	0	0	0.006
Feb	2.236	0	0	2.046	0	0.19	0.2	0	0	0	0.005
Mar	0.95	0.3	0.3	0	0	0.65	0.5	0	0	0	0
Apr	1.215	0	0	0	0	1.215	0.5	0	0	0	0.005
May	5.081	0	0	3.735	0	1.346	0.1	0	0	0	0.005
Jun	6.339	0	0	3.08	0	3.259	0.1	0	0	0	0
Sub-total	19.231	0.3	0.3	11.881	0	7.05	1.4	0	0	0	0.021
Jul	6.635	0	0	4.571	0	2.064	1	0.04	0	0	0.005
Aug	4.752	0	0	3.179	0	1.573	0.1	0	0	0	0.016
Sep	9.019	0	0	7.211	0	1.808	0	0	0	0	0.018
Oct	12.051	0	0	9.537	0	2.514	0	0	0	0	0
Nov	14.905	0	0	11.209	0	3.696	0.1	0	0	0	0.011
Dec	9.153	0	0	8.861	0	0.292	0	0	0	0	0
Total	75.746	0.3	0.3	56.449	0	18.997	2.6	0.04	0	0	0.071

	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 ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000m ³)
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

Z:\Jobs\2008\TCS00409 (DC-2007-08)\600\Impact\DP\Monthly Report\10th Monthly- December 2009\R0668v2.doc Action-United Environmental Services and Consulting



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)

ltem	Section / Paragraph	Comment	Response		
1	Table 3-2	Please note EP No.: EP-277/2007 was amended on 1-Dec-2009. EP No.: EP-277/2007/A, granted to the DSD, was issued on 1-Dec-2009. Please update the monthly EM&A report.	Amended.		
2	Table 5-8 -	Please record the findings/ defects during the ecology monitoring was carried out on 24 Dec 2009.	There were no findings/ defects during the ecology monitoring on 24 December 2009		