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

12TH MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT FOR THE NON-DESIGNATED WORKS UNDER THE PROJECT – NOVEMBER 2009

CHANNELS TKL02, TKL07, MUP01 AND MUP02

PREPARED FOR

CHIU HING CONSTRUCTION & TRANSPORTATION COMPANY LIMITED

Quality Index

Date	Reference No.	Prepared By	Certified by
10 December 2009	TCS00409/08/600/R0638v2		
		Billy Ng Assistant Consultant	Andrew Lau Environmental Team Leader

Version	Date	Prepared By	Certified By	Remarks
1	9 Dec2009	Billy Ng	Andrew Lau	First Submission
2	10 Dec 2009	Billy Ng	Andrew Lau	Amended against IEC's comments on 10 Dec 09

ENVIRON

Ref.: DSDFANLGEM01_0_0546L.09

11 December 2009

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. Terry Siu

Dear Mr. Siu,

Re: Contract No. DC/2007/08
Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk and Lin Ma Hang
Monthly EM&A Report for Channels TKL02, TKL07, MUP01 and MUP02 for November 2009 (Rev. 3)

With reference to the 12th Monthly EM&A Report (November 2009, Rev. 3) for the Non-Designated Project Channels TKL02, TKL07, MUP01 and MUP02 forwarded by the Environmental Team through email on 11 December 2009.

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

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

www.environcorp.com ENVIRON Hong Kong Ltd. 英環香港有限公司
Room 2310, China Resources Building, 26 Harbour Road, Wan Chai, Hong Kong T: 852.3743 0788 F: 852.3548 6988

EXECUTIVE SUMMARY

ES.01 This is the **12th** monthly EM&A Report for Channels TKL02, TKL07, MUP01 and MUP02 covering a period from **26 October to 25 November 2009** (the Reporting Period). These works are not classified as Designated Projects under the Environmental Impact Assessment Ordinance (Cap. 499) and therefore do not require an Environmental Permit for construction.

ES.02 For air quality, no exceedance of 1-hour and 24-hour TSP monitoring was found in the reporting period except one 24-hour TSP at TKL07-A2a was recorded exceedance action level on 6 November 2009. The NOE was issued to notify ER, IEC and the Contractor. Cause of exceedances is under investigation till present.

ES.03 For construction noise, monitoring results demonstrated no exceedance of the relevant Action and Limit Levels. No NOE or corrective action was required.

ES.04 For water quality monitoring, only one (1) DO Action Level exceedance of environmental quality criteria was found in TKL07 on 25 November 2009 during the Reporting Period. Based on the investigation to report that the polluted water was observed at channel TKL07 since 23 November 2009 and the dissolved oxygen (DO) level at the upstream (W1) was even lower than the downstream (W2). We would conclude that the exceedance was not works related under the project. No associated corrective actions were therefore required.

Station	DO		Turbidity		pH Value		SS		Total	
	Action	Limit	Action	Limit	Action	Limit	Action	Limit	Action	Limit
TKL07 (W2) [(b)]	1	0	0	0	0	0	0	0	1	0
Number of Exceedances	1	0	0	0	0	0	0	0	1	0

Remarks: [(a)] *impact station;* [(b)] *Temporary or mobile station*

ES.05 No written or verbal complaint, notification of summons or successful prosecution was registered during the Reporting Period.

ES.06 No adverse environmental impacts were observed during the site inspection. Nevertheless, the Contractor was reminded to fully implement all environmental mitigation measures stipulated in the EM&A Manual during works inside the channels. General refuse and fugitive dust were observed in some cases during weekly site inspection. The contractor had committed to maintain good house keeping practice as follow-up actions. Minor deficiencies identified during the site inspection and audit were generally rectified within the specified deadlines.

ES.07 Overall, the environmental performance of the Project was considered satisfactory.

ES.08 As dry season is approaching, special attention should be paid to provide air quality mitigation measures including wheel wash facilities, watering of haul roads and covering of dusty materials with tarpaulin sheet, etc.

ES.09 In addition, attention should also be paid to construction noise and other environmental issues identified in the EM&A Manual. Mitigation measures recommended in the Environmental Study Report (ES) and summarized in the Mitigation Measure Implementation Schedule should be fully implemented.

TABLE OF CONTENTS ***PAGE***

APPENDICES

TABLES

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***.

This report covers the Non-DP works for Channels TKL02, TKL07, MUP01 and MUP02 only. A set of location plans showing all Non-DP works coverd in this report are illustrated in ***Appendix A*****.**

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	Man Uk Pin	Non-Designated
MUP02		Non-Designated
MUP03A and MUP03B		Designated (EP277/2007)
MUP04A and MUP04B		Designated (EP277/2007)
MUP05		Designated (EP277/2007)
LMH01	Lin Ma Hang	Designated (EP277/2007)

It has been agreed among the Engineer's Representative (ER), the Independent Envionmental 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 Period. Data collected after the 26th of every month will be reported in the next issue.

This is the **12th** monthly EM&A report covering a period from **26 October to 25 November 2009** (the Reporting Period). This Report presents the monitoring results of air quality, construction noise, water quality and ecology for the Non-DP works at Channels TKL02, TKL07, MUP01 and MUP02 under the Environmental Monitoring & Audit Manual [*382486/83//Issue1*].

1.1 REPORT STRUCTURE

This Report has been written in accordance with the requirements set out in the *Environmental Monitoring and Audit Manual – Non-designated* (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, Complaint, Notification of Summons 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***. The environmental mitigation measures implemented are also included in ***Appendix C*.**

2.3 WORKS UNDERTAKEN DURING THE REPORTING PERIOD

Works undertaken during the Reporting Period are summarized in Table 2-1.

Table 2-1 Construction Activities Undertaken in the Reporting Month – November 2009

Location	Construction Activities
Channel TKL07	● Construction of site access
	● Construction of footbridge and gabion wall
	● Survey setting out
	● Site clearance
Channel TKL02	● Construction of site access
	● Site clearance
	● Survey setting out
	● Construction of gabion wall
Channels MUP01 / MUP02	● Construction of Access Ramp and Gabion Wall
	● Construction of site access
	● Site clearance
	● Installation of the site hoardings and boundary wall
	● Survey setting out

3. ENVIRONMENTAL STATUS

3.1 WORK UNDERTAKEN DURING THE MONTH WITH ILLUSTRATIONS OF ENVIRONMENTAL MITIGATION MEASURE

During the Reporting Period, construction works were undertaken at Channels TKL07, TKL02, MUP01 and MUP02. The environmental mitigation measures to be implemented are summarized in ***Table 3-1***.

Table 3-1 Environmental Mitigation Measures Undertaken during the Month

Location	Construction Activities	Environmental Mitigation Measures to be deployed
Tai Po Tin, TKL02	Survey setting out	♦ Trees will be properly protected before works commenced.
	Site clearance	♦ Water spraying will be provided before and during handling of excavated material.
	Construction of site access	♦ Excavated area and stockpile of soil material will be dampened/covered before dispose off-site
	Construction of gabion wall	♦ Excavated area and stockpile of soil material will be 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
Ping Che, TKL07	Survey setting out	♦ Trees will be properly protected before works commenced
	Construction of site access	♦ Excavated area and stockpile of soil material will be dampened/covered before dispose off-site
	Site Clearance	♦ Water spraying will be provided before and during handling of excavated material.
	Construction of footbridge and gabion wall	♦ Excavated area and stockpile of soil material will be dampened/covered before dispose off-site ♦ Concrete lorry mixers will be thoroughly cleansed before leaving the site ♦ Wash water, waste concrete and concrete slurry generated will be collected by sump pit and diverted to sedimentation tank before discharge ♦ Barriers will be erected to alleviate noise impact for works proximity to the Noise Sensitive Receiver (NSR) on need basis
Man Uk Pin	Survey setting out	♦ Trees will be properly protected before works commenced.
	Construction of site access	♦ Excavated area and stockpile of soil material will be dampened/covered before dispose off-site
	Site clearance	♦ Water spraying will be provided before and during handling of excavated material.
	Construction of Access Ramp and gabion wall	♦ Excavated area and stockpile of soil material will be 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 and boundary wall	♦ Excavated area and stockpile of soil material will be dampened/covered before dispose off-site ♦ Water spraying will be provided before and during handling of excavated material. ♦ Trees will be properly protected before works commenced.
	Survey setting out	♦ 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 are shown in ***Appendix C***.

A summary of the environmental protection status for permits, licenses, and/or notifications during the Reporting Period are presented in ***Table 3-2***.

Table 3-2 Status of Environmental Licenses and Permits

Item	Item Description	Permit Status
1	Air Pollution Control (Construction Dust)	Notification to EPD on 27 December 2007
2	Chemical Waste Producer Registration • 5213-652-C3251-04 • 5213-652-C3251-05	 Valid date: 23 July 2008 Valid date: 15 August 2008
3	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
4	Account for Disposal of Construction Waste No. 7006522	Valid date: 9 January 2008
5	Environmental Permit or Construction Noise Permit	Nil

4. SUMMARY OF IMPACT MONITORING REQUIREMENTS

Environmental monitoring and audit for air quality, noise, water quality and ecology have been stipulated in the EM&A Manual. The key requirements are summarized below.

4.1 MONITORING PARAMETERS

The monitoring parameters are presented in ***Table 4-1***.

Table 4-1 Summary of Monitoring Parameters

Environmental Aspect	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 Measurement	Temperature, Dissolved Oxygen (DO), Dissolved Oxygen Saturation (DOS), pH value, Water Depth, Temperature & Turbidity
	• Laboratory Analysis	Suspended Solids (SS)
Ecology	MUP01&02	• 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 4-2 Monitoring Locations Proposed in the EM&A Manuals

Issue	Channel	Sensitive Receiver	Monitoring Location ID	Detailed Address
Air	TKL02	TKL02-1	TKL02-A1	Village house at Tai Po Tin
		TKL02-5	TKL02-A2a*	Village house at Sheung Shan Kai Wat
	TKL07	TKL07-1	TKL07-A1	Village house at Ping Che / Ta Kwu Ling
		TKL07-4	TKL07-A2a**	Village house at Ping Che / Ta Kwu Ling
	MUP01&02	MUP01/02-1	MUP01/02-A1 (same as MUP-A1)	Village house at Man Uk Pin (same as Village north of Loi Tung)
		MUP01/02-3	MUP01/02-A2	Village house at No.26C Man Uk Pin
Noise	TKL02	TKL02-1	TKL02-N1	Village house at Tai Po Tin
		TKL02-5	TKL02-N2	Village house at Sheung Shan Kai Wat
	TKL07	TKL07-1	TKL07-N1	Village house at Ping Che / Ta Kwu Ling
		TKL07-4	TKL07-N2	Village house at Ping Che / Ta Kwu Ling
	MUP01& 02	MUP01/02-1	MUP01/02-N1 (same as MUP-N1)	Village house at Ping Che / Ta Kwu Ling
		MUP01/02-3	MUP01/02-N2	Village house at No.26C Man Uk Pin
Water	TKL02	Control Station	TKL02-W1	Upstream of TKL02 works
		Impact Station	TKL02-W2	Downstream of TKL02 works
	TKL07	Control Station	TKL07-W1	Upstream of TKL07 works
		Impact Station	TKL07-W2	Downstream of TKL07 works
	MUP01& 02	Control Station	MUP01/02-W1 (same as MUP-W1)	Upstream of MUP01 works
		Control Station	MUP01/02-W2 (same as MUP-W2)	Upstream of MUP02 works
		Impact Station	MUP01/02-W3	Downstream of the discharge point of MUP01/02
		Temporary and mobile Station	MUP01/02-W4	Within MUP01 or MUP02 works
Ecology	MUP01& 02	Water quality of stream		Upstream and downstream of Construction site

Issue	Channel	Sensitive Receiver	Monitoring Location ID	Detailed Address
		General site audit (with emphasis on ecological mitigation measures)		Along stream channel, within 100m upstream and downstream of construction site

Notes **TKL02 A2a is the replacement of TKL02A2, the access of which has been denied by the owner.*
***TKL07 A2a is the replacement of TKL07A2, which has been abandoned and no longer a sensitive receiver.*

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 comply 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 & 3 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 relevant phenomena observed on site

Depths: All measurements will be carried out at three water depths, namely, 1m below water surface, mid-water depth, and 1m above river bed. If the water depth is less than 6m, the mid-depth measurement will be omitted. If the depth is less than 3m, 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 [*382486/83//Issue1*], ecology monitoring is only performed at the Channels MUP01&02 during the construction phase, the monitoring requirements are listed as following:

Parameters:

(i) General site audit with emphasis on ecology mitigation measure;

(ii) Water quality of stream (DO, pH, turbidity and SS); and

Frequency:

(i) Once a week for general site audit throughout the construction period; and

(ii) Three times per week for stream monitoring;

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 (HVS)	Grasby Anderson GMWS 2310 HVS
Calibration Kit	TISCH Model TE-5028A
1-hour TSP	
Portable Dust Meter	TSI DustTrak Model 8520 / Sibata LD-3 Laser Dust Meter

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
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 calibration certificates of all monitoring equipments used during the impact monitoring program are attached in ***Appendix E*** and the calibration requirements are described below:

Air Quality

The calibration of the HVS is performed quarterly in accordance with the manufacturer's instruction manual using the NIST-certified standard calibrator (Tisch Calibration Kit Model No. TE-5028A). 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 annually in accordance with the in-house method. Zero response of the equipment is checked before and after each monitoring event.

Noise

The sound level meters are calibrated using an acoustic calibrator prior to and after 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 quarterly.

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

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

No cultural heritage monitoring is required for Channels TKL02, TKL07 and MUP01&02 in accordance with the EM&A Manual [*382486/73//Issue1*].

4.5 MONITORING PROCEDURE

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

4.5.1 Air Quality

1-hour TSP

Operation of the 1-hour TSP meter follows manufacturer's instruction manual. The 1-hour TSP monitor, a TSI Dust Track Aerosol Monitor Model 8520, or a Sibata LD-3 Laser Dust Meter, is a portable, battery-operated laser photometer. It provides a real time 1-hour TSP measurement based on 90^0 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 to be used should be within the valid period, calibrated by the manufacturer prior to purchasing. Zero response of the instrument will be checked before and after each monitoring event.

24-hour TSP

The equipment used for 24-hour TSP measurement is the high volume air sampling system (HSV) brand named Thermo Andersen, Model GS2310, which complies 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 to monitoring, 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 will be performed by the ET's competent technicians, whereas laboratory analyses will be conducted in a local HOKLAS accredited laboratory, ALS Technichem (HK) Pty Ltd (ALS). The analyzed 24-hour TSP filters are 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 include wind direction, wind speed, humidity, rainfall, air pressure and temperature, etc., that in general are 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, and are recommended in Technical Memorandum (TM) 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). The Leq(30min) measurements are used as the monitoring parameter throughout the construction phase.

The sound level meter is set higher than 1.2m above the local 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 if 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) since water columns at all sampling locations are usually less than 3.0 meters during monitoring in a river channel.

Water Depth

Water depths are determined prior to measurement and sampling. A steel ruler with a suitable weight is 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 20^0C, for ease of comparison of the data under the changing reality, the temperature readings of the DO Meter are recorded.

pH

A portable Extech Instrument, ExStik TM Models pH110 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 or pH 7 and pH 4 are used for calibration of the instrument before and after measurement, depending on the pH range of the water body to be monitored.

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 named as ALS Method EA-025. The limit of reporting of the parameter is 2 mg/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. A 1,000mL water sample is collected from mid-depth for laboratory analyses.

Sample Container

Water samples are contained in screw-cap PE (Poly-Ethylene) bottles 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 4^0C as possible without being frozen. Samples are delivered to the laboratory by the end of the sampling day or the following day in compliance with the maximum storage time requirement.

Chemical Analysis
ALS Technichem (HK) Pty Ltd (HOKLAS No. 66) is appointed by the ET to provide analytical services for the Project. The analysis of suspended solids is carried out following the APHA Standard Methods for the Examination of Water and Wastewater 19ed 2540D. The QA/QC for sample preparation and analysis are performed by the laboratory following HOKLAS requirements.

4.5.4 Ecology

Weekly site audit covering the whole assessment area is conducted during the construction work at Channels MUP01 and MUP02 with a focus on the status/condition of the study area and its immediate vicinity, especially those sensitive habitats that have been identified in the ES report and/or habitats of conservation importance as stated in the EIAO TM.

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

Ecological monitoring of water quality at the stream is undertaken upstream and downstream of Channels MUP01/02. The location of monitoring stations and requirements are identical to those for the Water Quality Monitoring of Channels MUP01/02. The procedure of water monitoring for ecological monitoring purpose follows the previously stated methods.

4.6 ENVIRONMENTAL QUALITY PERFORMANCE LIMITS

The baseline monitoring was carried out from 17 September to 13 October 2008, including ecological baseline monitoring for the habitat updating 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 Level (μg /m^3)		Limit Level (μg/m^3)	
	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP
TKL02-A1	323	171	500	260
TKL02-A2a	346	160	500	260
TKL07-A1	325	166	500	260
TKL07-A2a	302	155	500	260
MUP01/02-A1 (same as MUP-A1)	307	158	500	260
MUP01/02-A2	306	154	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
TKL02-W1	Control	NA	NA	NA	NA	NA	NA	NA	NA
TKL02-W2	Impact	3.08	3.06	45.74	54.19	6.5 – 8.5	6.0 - 9.0	39.05	43.01
TKL07-W1	Control	NA	NA	NA	NA	NA	NA	NA	NA
TKL07-W2	Impact	3.18	3.01	42.58	49.80	6.5 – 8.5	6.0 - 9.0	37.90	38.78
MUP01/02-W1	Control	NA	NA	NA	NA	NA	NA	NA	NA
MUP01/02-W2	Control	NA	NA	NA	NA	NA	NA	NA	NA
MUP01/02-W3	Impact	3.92	3.91	8.62	9.32	6.5 – 8.5	6.0 - 9.0	4.00	4.00
MUP01/02-W4	Temp./ mobile	5.12	5.11	8.34	8.47	6.5 – 8.5	6.0 - 9.0	77.25	123.45

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 exceeds the range of limits.

Table 4-9 Action and Limit Levels for Ecology in Construction Phase at Channels MUP01/02

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 re-establishment 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
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

The Event Action Plans for air quality, construction noise and water quality are presented in ***Appendix F***.

4.8 ENVIRONMENTAL MITIGATION MEASURES

The ES 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 are handled by the ET's systematic data recording and management system, which complies with 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 require laboratory analysis, the ET requires that ALS follows the QA/QC requirements as set out under the HOKLAS scheme for all laboratory testing

5. IMPACT MONITORING RESULTS

The environmental monitoring results will be compared against the Action and Limit Levels established based on the baseline monitoring results and statutory criteria. In case the measured data exceed the environmental quality criteria, remedial actions will be triggered according to the Event and Action Plan enclosed in ***Appendix F***. The impact monitoring schedule at all channel are presented in ***Appendix G*** and the monitoring results are detailed in the following sub-sections.

5.1 AIR QUALITY

Results of 24-hour and 1-hour TSP are summarized in ***Tables 5-1*** to ***5-6***. Causes of exceedances are under investigation till present. Detailed 24-hour TSP data are tabulated in ***Appendix H***, while graphical plots are shown in ***Appendix I***. Meteorological data during the Reporting Period are summarized in ***Appendix J***.

Table 5-1 Summary of Air Quality Monitoring Results – Channel TKL07-A1

Date	24-hour TSP (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st Measurement	2nd Measurement	3rd Measurement
31-Oct-09	154	27-Oct-09	08:34	155	172	167
6-Nov-09	161	2-Nov-09	08:25	107	133	118
12-Nov-09	52	7-Nov-09	08:30	66	84	81
18-Nov-09	28	13-Nov-09	08:37	51	68	62
24-Nov-09	149	19-Nov-09	08:27	74	96	67
		25-Nov-09	08:38	151	178	164
Average (Range)	**110 (32 – 149)**	Average (Range)		**162 (47 – 265)**		

Table 5-2 Summary of Air Quality Monitoring Results – Channel TKL07-A2a

Date	24-hour TSP (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st Measurement	2nd Measurement	3rd Measurement
31-Oct-09	61	27-Oct-09	08:42	170	192	184
6-Nov-09	***213***	2-Nov-09	08:32	112	134	121
12-Nov-09	41	7-Nov-09	08:37	71	85	90
18-Nov-09	64	13-Nov-09	08:48	70	93	87
24-Nov-09	134	19-Nov-09	08:38	89	117	101
		25-Nov-09	08:49	138	161	155
Average (Range)	**135 (13 – 294)**	Average (Range)		**96 (68 – 139)**		

Table 5-3 Summary of Air Quality Monitoring Results – Channels MUP01/02-A1 / MUP-A1 (MUP 05)

Date	24-hour TSP (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st Measurement	2nd Measurement	3rd Measurement
31-Oct-09	69	27-Oct-09	13:27	123	137	133
6-Nov-09	66	2-Nov-09	13:29	92	107	104
12-Nov-09	27	7-Nov-09	13:31	36	44	47
18-Nov-09	40	13-Nov-09	13:32	61	77	65
24-Nov-09	83	19-Nov-09	13:35	51	66	63
		25-Nov-09	13:32	118	134	122
Average (Range)	**72 (24 – 127)**	Average (Range)		**139 (35 – 240)**		

Table 5-4 Summary of Air Quality Monitoring Results – Channels MUP01/02-A2

Date	24-hour TSP (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st Measurement	2nd Measurement	3rd Measurement
31-Oct-09	38	27-Oct-09	13:27	123	137	133
6-Nov-09	17	2-Nov-09	13:29	92	107	104

Date	24-hour TSP (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st Measurement	2nd Measurement	3rd Measurement
12-Nov-09	no power	7-Nov-09	13:31	36	44	47
18-Nov-09	no power	13-Nov-09	13:32	61	77	65
24-Nov-09	no power	19-Nov-09	13:35	51	66	63
		25-Nov-09	13:32	118	134	122
Average (Range)	**50 (15 – 71)**	Average (Range)		**133 (32– 228)**		

Table 5-5 Summary of Air Quality Monitoring Results – Channels TKL02- A1

Date	24-hour TSP (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st Measurement	2nd Measurement	3rd Measurement
31-Oct-09	68	27-Oct-09	08:55	135	151	156
6-Nov-09	90	2-Nov-09	08:48	95	115	129
12-Nov-09	49	7-Nov-09	08:51	60	76	84
18-Nov-09	46	13-Nov-09	08:58	65	86	82
24-Nov-09	83	19-Nov-09	08:53	52	75	68
		25-Nov-09	08:57	126	152	137
Average (Range)	**82 (44 – 114)**	Average (Range)		**151 (39 – 240)**		

Table 5-6 Summary of Air Quality Monitoring Results – Channels TKL02- A2

Date	24-hour TSP (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st Measurement	2nd Measurement	3rd Measurement
31-Oct-09	62	27-Oct-09	09:06	116	129	114
6-Nov-09	59	2-Nov-09	08:59	82	103	87
12-Nov-09	31	7-Nov-09	09:03	43	53	47
18-Nov-09	63	13-Nov-09	09:07	47	59	42
24-Nov-09	108	19-Nov-09	09:04	57	80	73
		25-Nov-09	09:09	105	121	116
Average (Range)	**62 (22 – 101)**	Average (Range)		**129 (33 – 211)**		

As shown in Tables 5-1 to 5-6, 1-hour and 24-hour TSP results fluctuated well below the corresponding Action Levels. There was one (1) Action Level exceedance of 24-hr TSP recorded during the period.

5.2 CONSTRUCTION NOISE

Noise monitoring data are summarized in ***Tables 5-7*** to ***5-12***, and plotted in ***Appendix I***.

Table 5-7 Summary of Construction Noise Monitoring Results – Channels TKL07-N1

Date	Start Time	1st Leq 5min	2nd Leq 5min	3rd Leq 5min	4th Leq 5min	5th Leq 5min	6th Leq 5min	Leq 30min
27-Oct-09	10:27	49.7	49.7	49.3	49.1	48.6	48.7	49.2
2-Nov-09	10:24	57.0	58.6	60.5	59.8	59.1	58.1	59.0
7-Nov-09	10:29	56.5	55.8	56.0	57.0	55.6	56.9	56.3
13-Nov-09	10:29	59.0	59.3	58.8	58.4	57.7	57.9	58.6
19-Nov-09	10:28	52.4	52.9	54.2	53.6	54.8	54.4	53.8
25-Nov-09	10:43	70.6	71.9	72.6	73.2	75.5	72.1	72.9
Limit Level: Leq30		**75 dB(A)**						

* No façade correction, all measurements in dB(A)

Table 5-8 Summary of Construction Noise Monitoring Results – Channels TKL07-N2

Date	Start Time	1st Leq 5min	2nd Leq 5min	3rd Leq 5min	4th Leq 5min	5th Leq 5min	6th Leq 5min	Leq 30min
27-Oct-09	11:05	67.5	68.1	68.8	68.4	67.8	67.6	68.1
2-Nov-09	11:01	55.1	53.0	51.9	58.3	53.6	52.3	54.7
7-Nov-09	11:08	53.2	51.7	54.7	55.5	53.9	53.4	53.9
13-Nov-09	11:08	73.5	72.4	74.8	71.5	69.9	72.2	72.7
19-Nov-09	11:05	69.2	69.7	70.8	72.6	69.5	68.9	70.3
25-Nov-09	11:21	64.2	64.1	65.4	64.7	66.4	65.0	65.0
Limit Level: Leq30		**75 dB(A)**						

* No façade correction, all measurements in dB(A)

Table 5-9 Summary of Construction Noise Monitoring Results – Channels MUP01/02-N1 / MUP01/02-N1 (MUP05)

Date	Start Time	1st Leq 5min	2nd Leq 5min	3rd Leq 5min	4th Leq 5min	5th Leq 5min	6th Leq 5min	Leq 30min
27-Oct-09	13:30	60.7	59.0	58.3	57.5	57.2	58.9	58.8
2-Nov-09	13:33	61.8	63.7	66.5	64.6	62.2	63.5	64.0
7-Nov-09	13:32	63.3	61.6	60.2	64.9	61.9	62.4	62.6
13-Nov-09	13:35	64.2	63.5	60.0	61.4	59.3	60.6	61.9
19-Nov-09	13:37	51.4	51.0	50.4	54.5	56.2	53.7	53.4
25-Nov-09	13:36	58.3	57.4	54.0	55.6	55.2	56.8	56.5
Limit Level: Leq30		**75 dB(A)**						

* No façade correction, all measurements in dB(A)

Table 5-10 Summary of Construction Noise Monitoring Results – Channels MUP01/02-N2

Date	Start Time	1st Leq 5min	2nd Leq 5min	3rd Leq 5min	4th Leq 5min	5th Leq 5min	6th Leq 5min	Leq 30min
27-Oct-09	16:07	45	43.9	47	52.4	46.5	45.8	47.8
2-Nov-09	16:09	43.1	43.3	45.3	40.7	45.7	44.2	44.0
7-Nov-09	16:08	42.9	43.6	45.2	43	41.8	43.5	43.5
13-Nov-09	16:47	53.2	55.3	52.5	53.2	52.9	53.6	53.5
19-Nov-09	16:13	44.5	48.6	46.1	49.3	51.7	47.4	48.5
25-Nov-09	16:11	43.3	39.2	43.5	51.8	41.3	42.7	45.9
Limit Level: Leq30		**75 dB(A)**						

* No façade correction, all measurements in dB(A)

Table 5-11 Summary of Construction Noise Monitoring Results – Channels MUP01/02-N1

Date	Start Time	1st Leq 5min	2nd Leq 5min	3rd Leq 5min	4th Leq 5min	5th Leq 5min	6th Leq 5min	Leq 30min
27-Oct-09	09:45	54.3	55.4	57.0	51.8	55.0	55.7	55.1
2-Nov-09	09:42	61.1	61.1	60.4	59.1	56.8	55.3	59.5
7-Nov-09	09:44	56.0	59.1	57.5	55.4	54.8	55.3	56.6
13-Nov-09	09:44	52.1	53.0	59.0	57.2	57.7	56.9	56.6
19-Nov-09	09:46	57.1	59.9	60.7	59.1	61.6	60.7	60.1
25-Nov-09	09:50	54.3	53.6	54.9	54.5	52.6	53.9	54.0
Limit Level: Leq30		**75 dB(A)**						

* No façade correction, all measurements in dB(A)

Table 5-12 Summary of Construction Noise Monitoring Results – Channels TKL02-N2

Date	Start Time	1st Leq 5min	2nd Leq 5min	3rd Leq 5min	4th Leq 5min	5th Leq 5min	6th Leq 5min	Leq 30min
27-Oct-09	16:07	45.0	43.9	47.0	52.4	46.5	45.8	47.8
2-Nov-09	16:09	43.1	43.3	45.3	40.7	45.7	44.2	44.0
7-Nov-09	16:08	42.9	43.6	45.2	43	41.8	43.5	43.5
13-Nov-09	16:47	53.2	55.3	52.5	53.2	52.9	53.6	53.5
19-Nov-09	16:13	44.5	48.6	46.1	49.3	51.7	47.4	48.5
25-Nov-09	16:11	43.3	39.2	43.5	51.8	41.3	42.7	45.9
Limit Level: Leq30		**75 dB(A)**						

* No façade correction, all measurements in dB(A)

As shown in ***Tables 5-7*** to ***5-12***, the construction noise levels fluctuated well below the Limit Level. No documented complaints against the construction noise were registered during the Reporting Period. Neither NOE of construction noise nor corrective action was, therefore, required for the parameter.

5.3 WATER QUALITY

Water quality monitoring results at Channels TKL02, TKL07 and MUP01/02 during the Reporting Period are tabulated in Appendix H, where graphical plots of trends of the monitored parameters are presented ***Appendix I***.

According to the existing A/L Levels, only one DO Action Level exceedance of environmental quality criteria was found in TKL07 on 25 November 2009 during the Reporting Period. Based on the investigation to report that the polluted water was observed at channel TKL07 since 23 November 2009 and the dissolved oxygen (DO) level at the upstream (W1) was even lower than the downstream (W2). We would conclude that the exceedance was not works related under the project. No associated corrective actions were therefore required. The results are summarized in ***Table 5-13.***

Table 5-13 Summarized of Water Quality Exceedances of Existing Action and Limit Levels

Station	DO		Turbidity		pH Value		SS		Total	
	Action	Limit	Action	Limit	Action	Limit	Action	Limit	Action	Limit
MUP01/02-W3	0	0	0	0	0	0	0	0	0	0
MUP01/02-W4	0	0	0	0	0	0	0	0	0	0
TKL02-W2	0	0	0	0	0	0	0	0	0	0
TKL07-W2	1	0	0	0	0	0	0	0	1	0
Number of Exceedances	1	0	0	0	0	0	0	0	1	0

Remarks: *[a] impact station; [b] Temporary or mobile station*

Notice of Exceedance of environmental quality criteria (NOE) were issued upon confirmation of the monitoring results, and investigations of the NOE were conducted upon receipt of the information of construction activities and the implemented mitigation measures provided by CHCT.

5.4 ECOLOGY

According to the EM&A Manual [*382486/83//Issue1*] requirements, ecology monitoring is required for Channels MUP01 and MUP02 during the construction phase as weekly basis. In this Reporting Period, four site visits were carried out on 29 October 2009, 05 November 2009, 12 November 2009 and 19 November 2009 in this reporting month by an ecological specialist, and no non-compliance was identified during the reporting period. The upper section of MUP01 which was a small and shallow ditch has been deepened and widened, and the construction of gabion wall was found partly completed. On the other hand, the temporary drainage diversion has also been found widened, and temporary fencing has also been erected in the stockpiling area. No activities were observed on MUP02. The detailed finding and the checklists are attached in ***Appendix L.***

.

5.5 OTHER FACTORS INFLUENCING THE MONITORING RESULTS

There were no other noticeable external factors generally affecting the monitoring results in this Reporting Period.

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

One Action Level exceedance was recorded at TKL07-A2a on 6 November 2009; causes of exceedance are under investigation till present. No Action or Limit Level exceedance was identified for construction noise monitoring in this Reporting Period. However, 1 Action Level exceedances of stream water quality were recorded at TKL07-W2 on 25 November 2009. Based on the investigation, the exceedance of water quality was not related to the works of this Project.

6.2 ENVIRONMENTAL COMPLAINT

No written or verbal complaint was registered during the Reporting Period.

6.3 RECORD OF NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTION

No notification of summons and successful prosecution was reported during this month.

6.4 OTHERS

6.4.1 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 waste flow table is shown in **Appendix M**.

Table 6-1 Summary of Quantities of Waste for Disposal

Type of Waste	Quantity	Disposal Location
C&D Materials (Inert) (m^3)	0-	Tuen Mun 38 Fill Bank
	11,209	Reused in other projects
C&D Materials (Non-inert) (m^3)	0	NENT
Chemical Waste (Litres)	0	NA
General Refuse (m^3)	11	WENT Landfill

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

Type of Waste	Quantity	Disposal Location
Metals for Recycling (kg)	100	NA
Paper for Recycling (kg)	0	NA
Plastics for Recycling (kg)	0	NA

6.4.2 Site Inspection and Environmental Audit

A total of **five** occasions of weekly environmental site inspection and audit were conducted jointly by the ER, EO and ET during the Reporting Period on **27 October 3, 10, 17 and 24 November 2009**. No non-compliance was found during the site inspections, which indicated that the mitigation measures implemented were effective. Minor deficiencies found in the site inspection and audit was promptly rectified within the specified deadlines. Findings of the site inspection and environmental audit are summarized ***Tables 6-3***. The weekly ET site inspection and audit checklists are presented in ***Appendix K***.

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

Date	Findings / Deficiencies	Follow-up Status
27 Oct 09	• Dry haul road was observed at TKL02.The Contractor is reminded to practice water spraying regularly. • Exposed oil containers were observed at TKL07. The Contractor is reminded to keep the site clean and tidy.	The deficiencies have been improved during site inspection on 3 November 2009.
3 Nov 09	• Dry haul road was observed at TKL02 and MUP01/02. The Contractor is reminded to practice water spraying regularly. • C&D waste was found at TKL07. The Contractor is reminded to clear the channel. • As a reminder, the Contractor is advised to further implement desilting facilities to diverted channel at	The deficiencies have been improved during site inspection on 10 November 2009.

Date	Findings / Deficiencies	Follow-up Status
	TKL02 to reduce the SS level.	
10 Nov 09	• Exposed oil container was observed at TKL07. The Contractor is reminded to provide impervious cover and drip tray, or remove from site. • As a reminder, the Contractor should water the haul road regularly at MUP01/02 and TKL02.	The deficiencies have been improved during site inspection on 17 November 2009.
17 Nov 09	• Stagnant water was observed at TKL02. The contractor is reminded to eliminate it or apply larvicide regularly mosquito control. • Exposed chemical containers were observed at TKL07. The Contractor is reminded to provide impervious cover over any chemical containers. • Debris was observed at MUP01/02. The Contractor is reminded to have a clear pathway and to keep the site clean and tidy.	The deficiencies have been improved during site inspection on 24 November 2009.
24 Nov 09	• Dry haul road was observed. Regular water spraying of the site haul road should be performed to minimize the dust nuisance. • Preserved tree without proper protection was observed at MUP02, the contractor was reminded to provide proper protection. • Stagnant water should be removed or applied larvidical oil to prevent mosquitoes breeding	Observations of follow-up audit will be reported in next report:

6.4.3 Works and the Mitigation Measures to be Undertaken Next 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 continue. The constrution activities are summarized below:

Tai Po Tin TKL02

Works to be Undertaken:

- Site clearance;
- Survey setting out;
- Construction of site access; and
- Constrcution of gabion wall

Environmental Mitigation Measures to be Implemented:

- Trees will be properly protected before works commence;
- Water spraying will be provided before and during handling of excavated materials; and
- Excavted area and stockpile of soil material will be dampened/ covered before disposal off-site.
- Retained tree will be properly protected before works commence.

Ping Che TKL07

Works to be Undertaken:

- Survey setting out;
- Construction of site access;
- Site Clearance; and
- Construction of footbridge and gabion walls.

Environmental Mitigation Measures to be Implemented:

- Trees will be properly protected before works commence;
- Excavated area and stockpile of soil material will be dampened/covered before disposed off-site;
- Water spraying will be provided before and during handling of excavated material.;
- Excavated area and stockpile of soil material will be dampened/covered before disposed off-site;
- Concrete lorry mixers will be thoroughly cleansed before leaving the site;

- Wash water, waste concrete and concrete slurry generated will be collected by sump pit and diverted to sedimentation tank before discharge; and
- Barriers will be erected to alleviate noise impact for works in close proximity to the Noise Sensitive Receiver (NSR) if necessary.

Man Uk Pin (MUP01 and MUP02)

Works to be Undertaken:

- Survey setting out;
- Constrcution of site access;
- Site clearance;
- Constrcution of access ramp and gabion wall;
- Tree transplant; and
- Installation of site hoardings and boundary wall

Environmental Mitigation Measures to be Implemented:

- Trees will be properly protected before works commence;
- Excavated area and stockpile of soil material will be dampened/covered before disposed off-site;
- Water spraying will be provided before and during handling of excavated material;
- Excavated area and stockpile of C&D material will be dampened/covered before disposed off-site; and
- Retained tree will be properly protected before works commence.

6.4.4 Future Key Issues for the Forthcoming Month

As dry season is approaching, special attention should be paid to provide air quality mitigation measures including wheel wash facilities, watering of haul roads and covering of dusty materials with tarpaulin sheet, etc.

During excavation work at the channel will be ongoing undertaken, water quality should be a key environmental aspect. So water quality mitigation measures should be properly maintaned as recommended in the ESR and summarized in the Mitigation Measure Implementation Schedule should be fully implemented. Moreover, mitigation measures to avoid ingress of surface runoff into nearby water bodies from the construction site should be properly maintaminated .

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 the Mitigation Measure Implementation Schedule should be fully implemented.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 This is the **12th** monthly EM&A Report for Channels TKL02, TKL07, MUP01 and MUP02 (Non-DP works), covering a period from **26 October to 25 November 2009**.

7.2 One Action Level exceedance at 24-hour TSP was recorded at TKL07-A2a on 6 November. Cause of exceedance is under investigation till present.

7.3 Monitoring results demonstrated no exceedance of Action or Limit Levels of construction noise. No NOE or corrective action was required during the Reporting Period.

7.4 For water quality monitoring, one DO Action level exceedance was found in TKL07 on 25 November 2009. Based on the investigation to report that the polluted water was observed at channel TKL07 since 23 November 2009 and the dissolved oxygen (DO) level at the upstream (W1) was even lower than the downstream (W2). We would conclude that the exceedance was not works related under the project. No associated corrective actions were therefore required.

7.5 No written or verbal complaint, notification of summons or successful prosecution was reported during the month.

7.6 No adverse environmental impacts were observed during the site inspections. Nevertheless, the Contractor was reminded to fully implement all environmental mitigation measures stipulated in the EM&A Manual during works within the river channels. General refuse and stagnant water were observed in some cases. The contractor was reminded that good house keeping practice shall be maintained. Minor deficiencies identified during the site inspection and audit were generally rectified within the specified deadlines.

7.7 The environmental performance of the Project was therefore considered satisfactory.

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

7.9 Attention should be paid to ingress of runoff into the Channels TKL02, TKL07 and MUP01/02 during rainy days when water quality may become the key issue. Mitigation measures for water quality should therefore be planned ahead.

7.10 In addition, attention should also be paid to construction noise and other environmental issues recommended in the EM&A Manual. Those mitigation measures recommended in the ES and summarized in the Mitigation Measure Implementation Schedule should be fully implemented at all times.

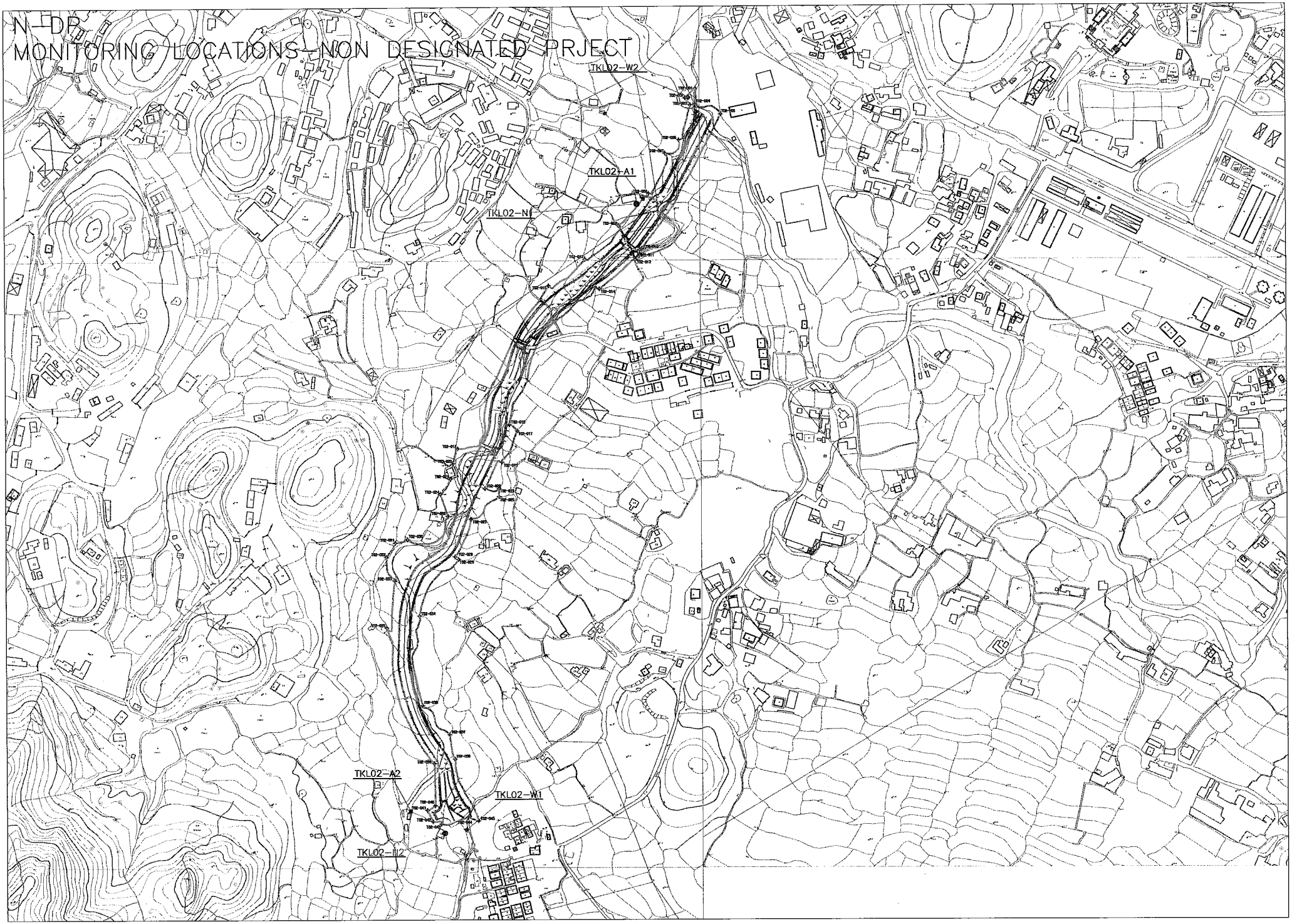
- End of Text -

Appendix A

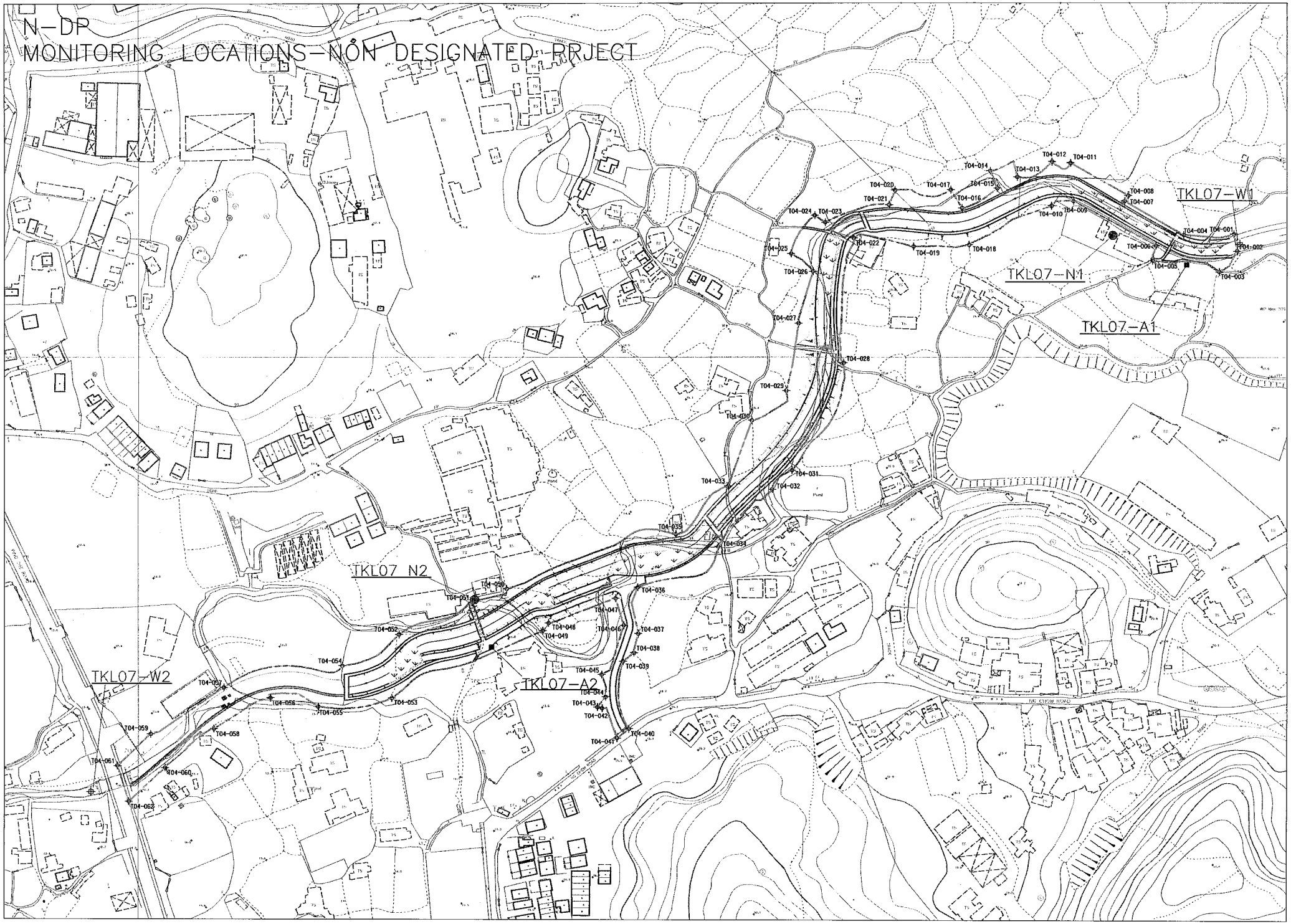
Project Site Location Plan

Channel TKL02

N-DP
MONITORING LOCATIONS-NON DESIGNATED PRJECT

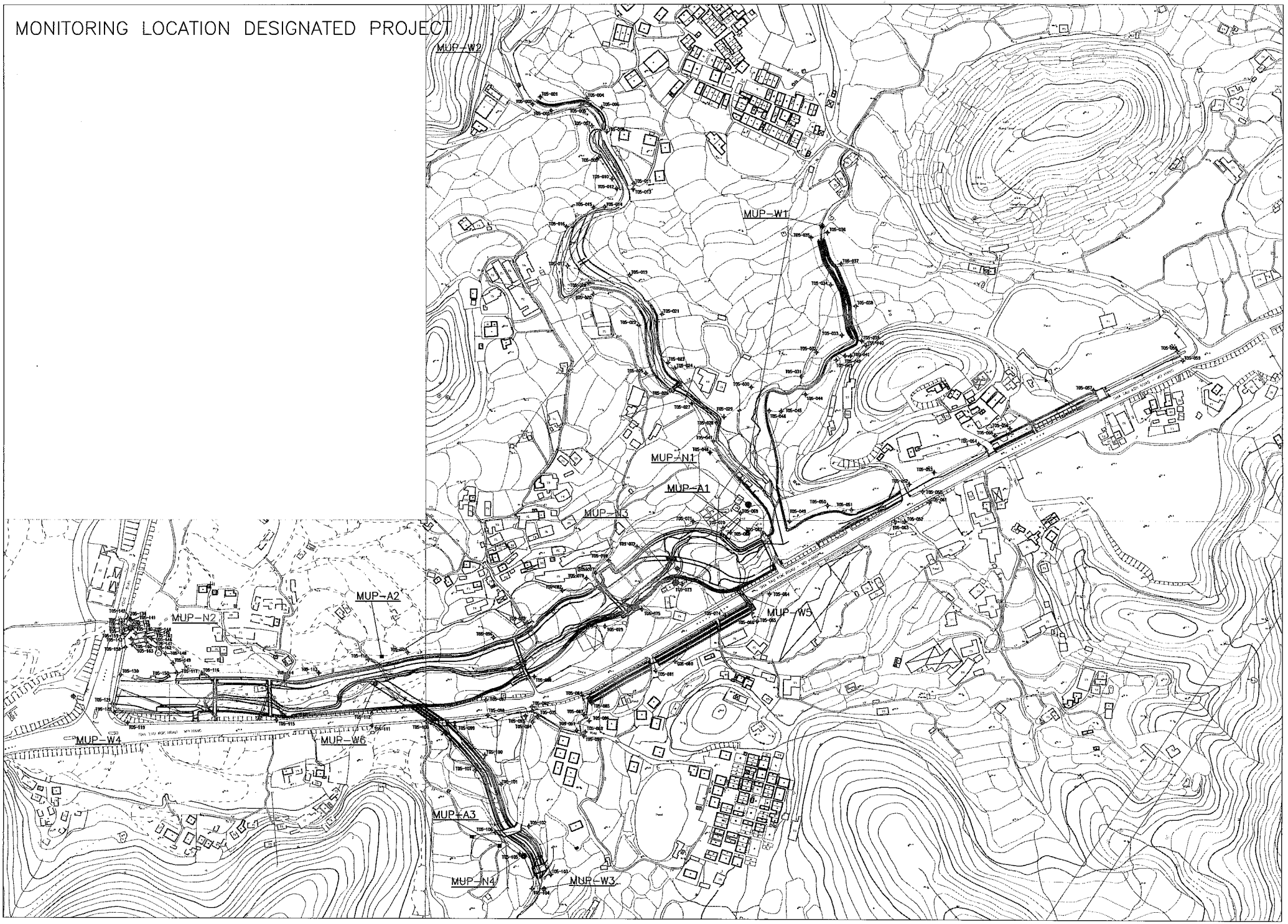


Channel TKL07


N-DP
MONITORING LOCATIONS-NON DESIGNATED PROJECT
TKL07-W1
TKL07-N1
TKL07-A1
TKL07 N2
TKL07-W2
TKL07-A2
T04-001
T04-002
T04-003
T04-004
T04-005
T04-006
T04-007
T04-008
T04-009
T04-010
T04-011
T04-012
T04-013
T04-014
T04-015
T04-016
T04-017
T04-018
T04-019
T04-020
T04-021
T04-022
T04-023
T04-024
T04-025
T04-026
T04-027
T04-028
T04-029
T04-030
T04-031
T04-032
T04-033
T04-034
T04-035
T04-036
T04-037
T04-038
T04-039
T04-040
T04-041
T04-042
T04-043
T04-044
T04-045
T04-046
T04-047
T04-048
T04-049
T04-050
T04-051
T04-052
T04-053
T04-054
T04-055
T04-056
T04-057
T04-058
T04-059
T04-060
T04-061
T04-062

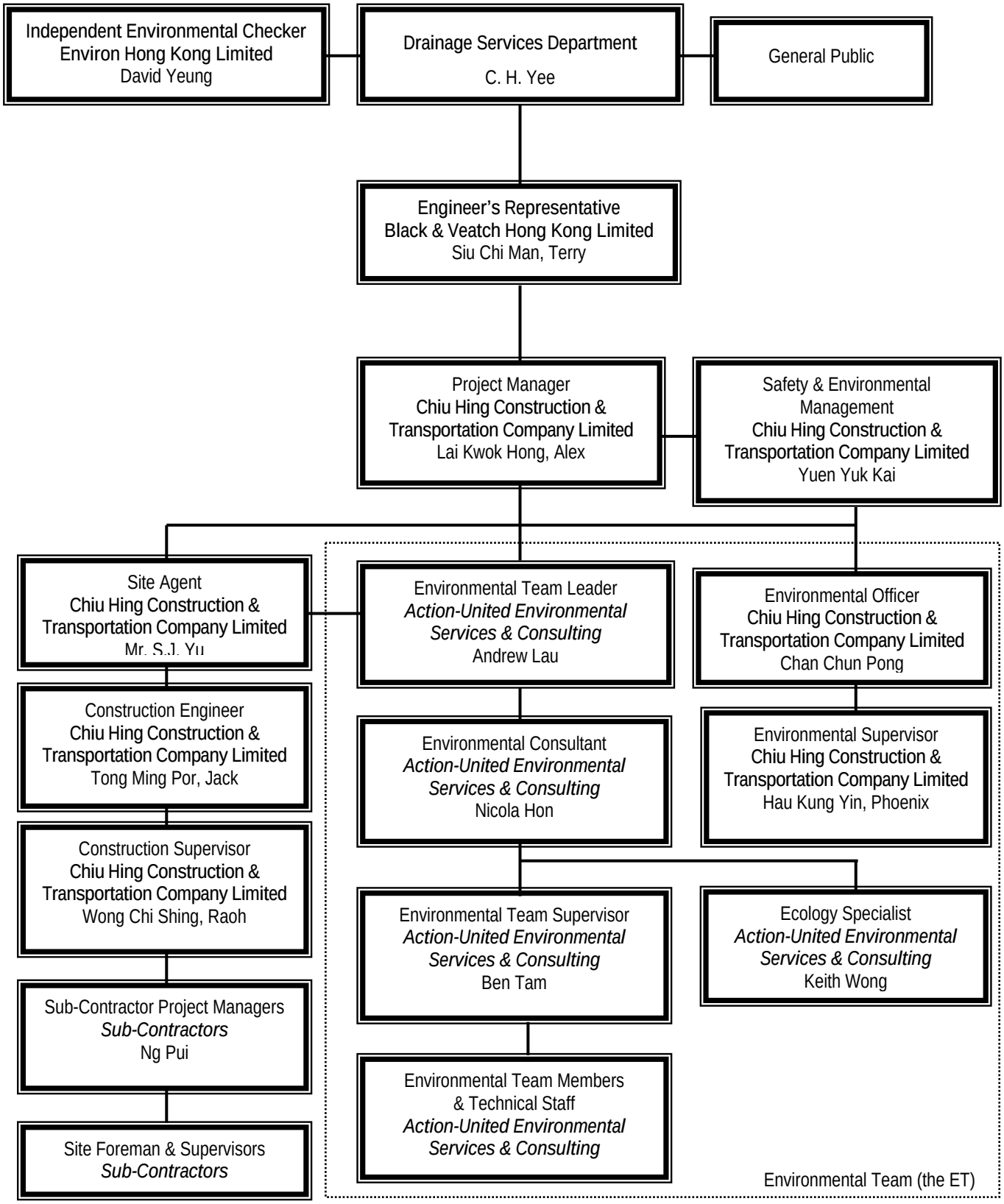
Channels MUP01 & MUP02

MONITORING LOCATION DESIGNATED PROJECT



Appendix B

Organization Chart and Lines of Communication with Environmental Management



Environmental Management Organization

Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
DSD	Employer	Mr. C. H. Yee	2594-7347	2827-8700
B&V	Engineer's Representative	Mr. Siu Chi Man, Terry	2659-8787	2659-8323
Environ	Independent Environmental Checker	Mr. David Yeung	3743-0788	3548-6988
CHCT	Project Manager	Mr. Lai Kwok Hong, Alex	2659-8221	2659-8232
CHCT	Safety & Environmental Manager	Mr. Yuen Yuk Kai	2659-8221	2659-8232
CHCT	Site Agent	Mr. S.J. Yu	2659-8221	2659-8232
CHCT	Construction Engineer	Mr. Tong Ming Por, Jacky	2659-8221	2659-8232
CHCT	Construction Supervisor	Mr. Roah Wong	2659-8221	2659-8232
CHCT	Structural Engineer	Mr. Kwok Chin Ming	2659-8221	2659-8232
CHCT	Site Forman	Mr. Chung Ping Kai	2659-8221	2659-8232
CHCT	Environmental Officer	Mr. C. P. Chan	2659-8221	2659-8232
CHCT	Environmental Supervisor	Miss Phoenix Hau	2659-8221	2659-8232
Kin Tat	Sub-contractor Project Manager	Mr. Ng Pui	2659-8221	2659-8232
AUES	Environmental Team Leader	Mr. Andrew Lau	2959-6059	2959-6079
AUES	Environmental Consultant	Miss Nicola Hon	2959-6059	2959-6079
AUES	Environmental Site Inspector	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, Three-Month Roll Program & Environmental Mitigation Implementation Schedule

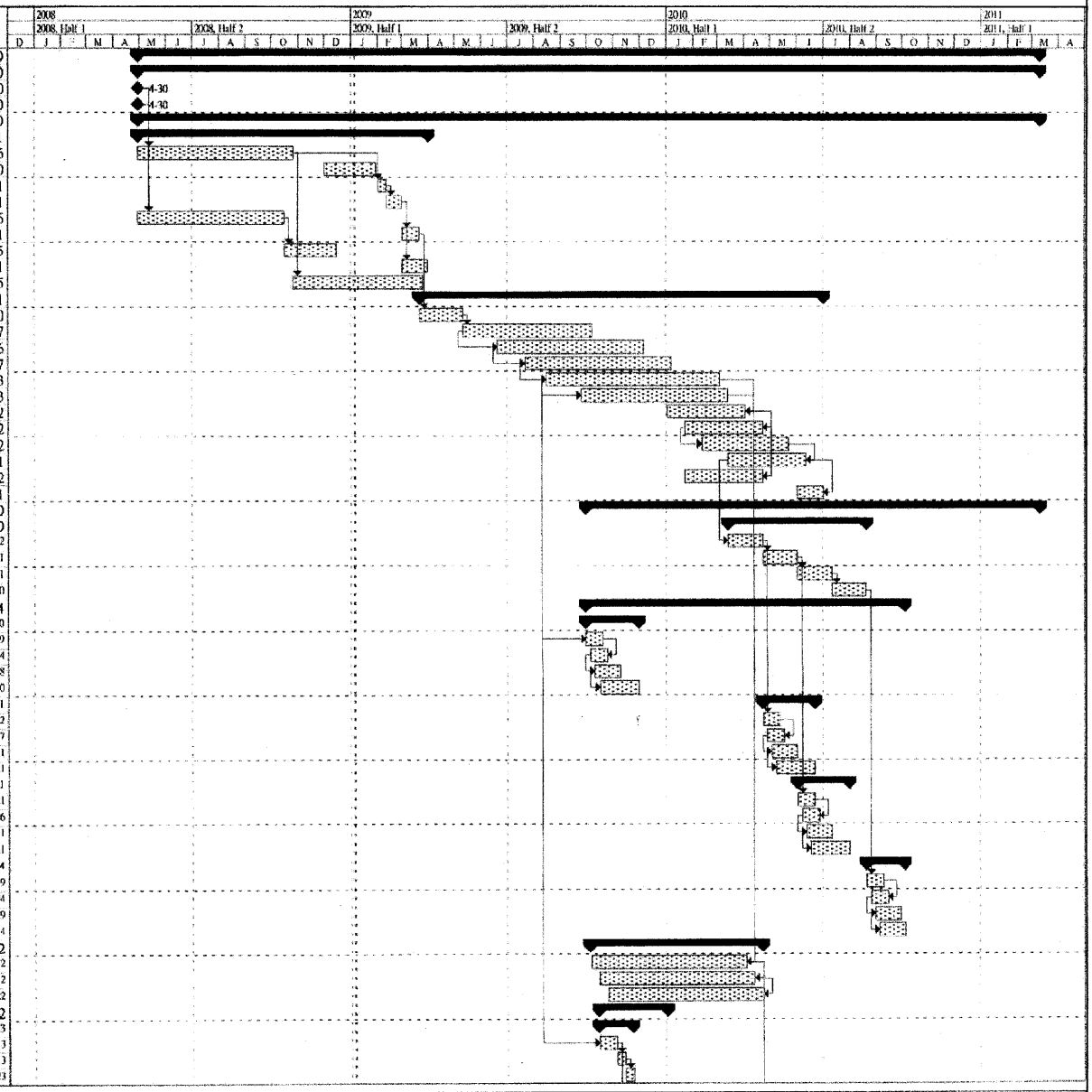
Master Construction Program

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
1	CONTRACT: DC/2007/08 (The Woks)	1045 days	Wed 08-4-30	Thu 11-3-10
2	Section 1 - Tai Po Tin (Portion B)	1045 days	Wed 08-4-30	Thu 11-3-10
3	Commencement Date	0 days	Wed 08-4-30	Wed 08-4-30
4	Handover of Portion B	0 days	Wed 08-4-30	Wed 08-4-30
5	River TKL02 with section 5 of works	1045 days	Wed 08-4-30	Thu 11-3-10
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
8	Initial survery	60 days	Tue 08-12-2	Fri 09-1-30
9	Mobilisation	10 days	Mon 09-2-2	Wed 09-2-11
10	Site clearance	18 days	Thu 09-2-12	Sun 09-3-1
11	Tree survey + report	170 days	Wed 08-4-30	Thu 08-10-16
12	Construct Access Road	20 days	Mon 09-3-2	Sat 09-3-21
13	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
17	Temporary Flow Diversion	50 days	Sun 09-3-22	Sun 09-5-10
18	Open cut excavation	150 days	Mon 09-5-11	Wed 09-10-7
19	Rock & gamular filling for the base of gabion	170 days	Sat 09-6-20	Sun 09-12-6
20	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
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	Foothridge 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
33	PBTB2-2 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
36	At CH0 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
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
42	Granular filling with geotextile filter	20 days	Fri 10-4-23	Wed 10-5-12
43	Concrete for the blinding layer	20 days	Wed 10-4-28	Mon 10-5-17
44	Base slab construction for the ramp	30 days	Mon 10-5-3	Tue 10-6-1
45	Wall construction for the ramp	45 days	Sat 10-5-8	Mon 10-6-21
46	At CH501 Approximate	60 days	Wed 10-6-2	Sat 10-7-31
47	Granular filling with geotextile filter	20 days	Wed 10-6-2	Mon 10-6-21
48	Concrete for the blinding layer	20 days	Mon 10-6-7	Sat 10-6-26
49	Base slab construction for the ramp	30 days	Sat 10-6-12	Sun 10-7-11
50	Wall construction for the ramp	45 days	Thu 10-6-17	Sat 10-7-31
51	At CH662 Approximate	45 days	Sat 10-8-21	Mon 10-10-4
52	Granular filling with geotextile filter	20 days	Sat 10-8-21	Thu 10-9-9
53	Concrete for the blinding layer	20 days	Thu 10-8-26	Tue 10-9-14
54	Base slab construction for the ramp	30 days	Tue 10-8-31	Wed 10-9-29
55	Wall construction for the ramp	30 days	Sat 10-9-5	Mon 10-10-4
56	Verge/footpath construction	200 days	Mon 09-10-5	Thu 10-4-22
57	Sebase construction for the verges	180 days	Mon 09-10-5	Fri 10-4-2
58	Gassed cellular concrete/concrete paving	180 days	Thu 09-10-15	Mon 10-4-12
59	Type 2 railing construction	180 days	Sun 09-10-25	Thu 10-4-22
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

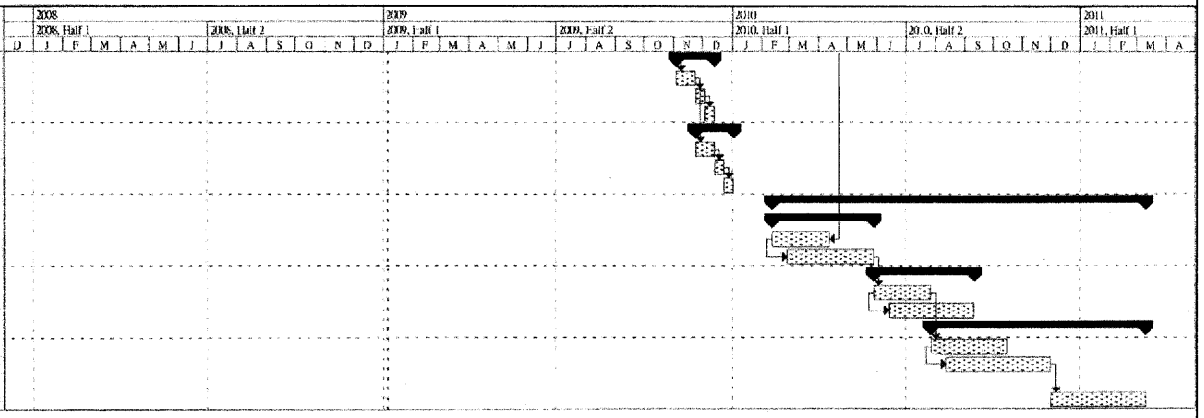


Project: Master Programme (Rev.05)
Date: 01/2009

Task | Progress | Summary | Rolled Up Critical Task | Rolled Up Progress | External Tasks | Group By Summary
Critical Task | Milestone | Rolled Up Task | Rolled Up Milestone | Split | Project Summary | Deadline

CHIU HING CONSTRUCTION & TRANSPORTATION Co., Ltd
MASTER PROGRAMME 05 (Sectiion 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
65	At CH501 Approximate	40 days	Wed 09-11-4	Sun 09-12-13
66	Type D L-shaped RW construction	20 days	Wed 09-11-4	Mon 09-11-23
67	Prefrated pipe installation	10 days	Tue 09-11-24	Thu 09-12-3
68	Backfilling the RW	10 days	Fri 09-12-4	Sun 09-12-13
69	At CH800 Approximate	40 days	Tue 09-11-24	Sat 10-1-2
70	Type D L-shaped RW construction	20 days	Tue 09-11-24	Sun 09-12-13
71	Preferated pipe installation	10 days	Mon 09-12-14	Wed 09-12-23
72	Backfilling the RW	10 days	Thu 09-12-24	Sat 10-1-2
73	U Channel construction	392 days	Fri 10-2-12	Thu 11-3-10
74	600 UC at CH0 Approximate	106 days	Fri 10-2-12	Fri 10-5-28
75	Trench excavation	60 days	Fri 10-2-12	Mon 10-4-12
76	Concrete for the U channel	90 days	Sun 10-2-28	Fri 10-5-28
77	450 UC at CH501 Approximate	106 days	Sat 10-5-29	Sat 10-9-11
78	Trench excavation	60 days	Sat 10-5-29	Tue 10-7-27
79	Concrete for the U channel	90 days	Mon 10-6-14	Sat 10-9-11
80	300 UC at CH800 Approximate	226 days	Wed 10-7-28	Thu 11-3-10
81	Trench excavation	80 days	Wed 10-7-28	Fri 10-10-15
82	Concrete for the U channel	110 days	Fri 10-8-13	Tue 10-11-30
83				
84	the remaining section 5 of works for TKL02	100 days	Wed 10-12-1	Thu 11-3-10

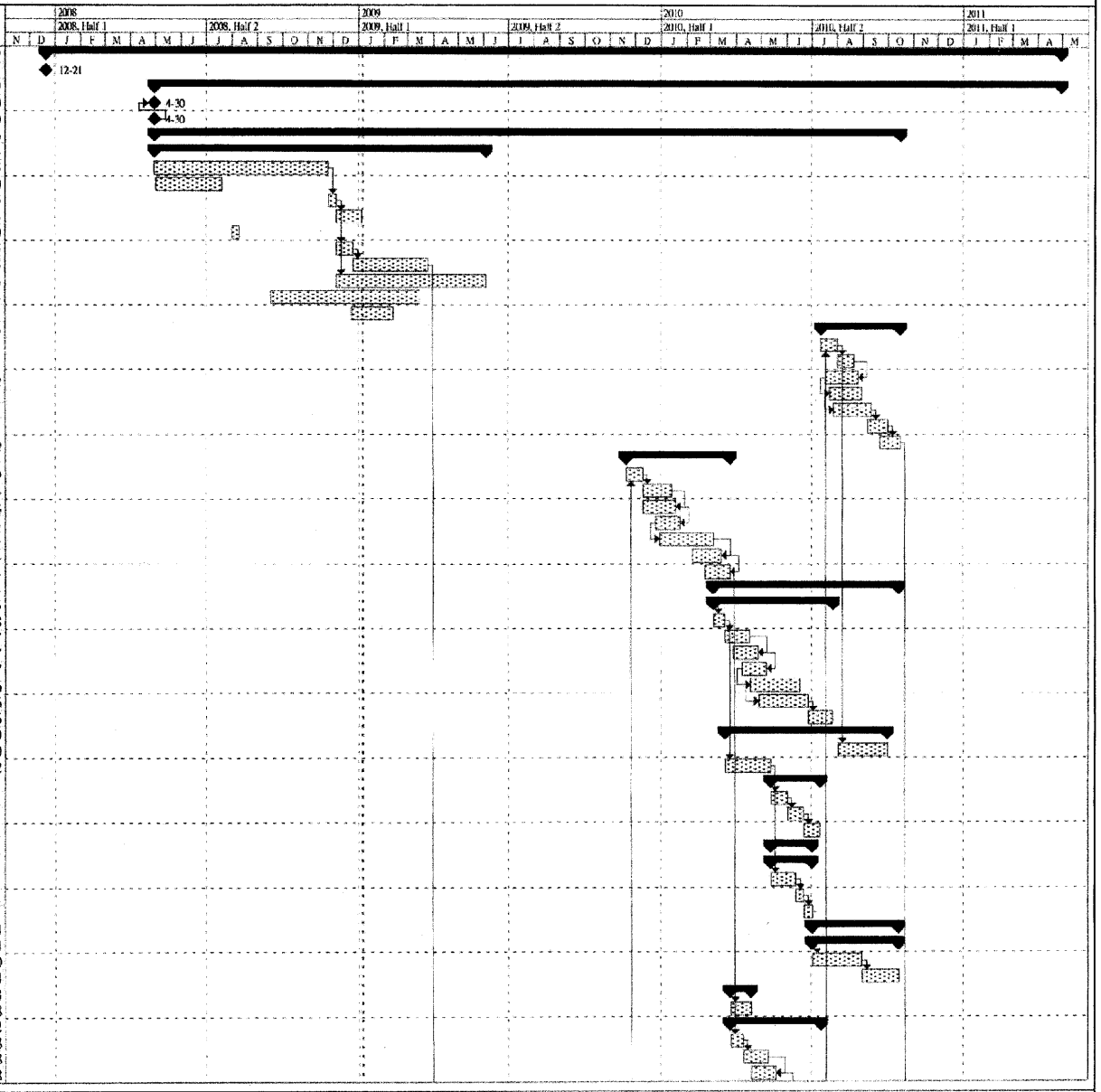


Project: Master Programme (Rev.05)
Date: 01/2009

Task | Progress | Summary | Rolled Up Critical Task | Rolled Up Progress | External Tasks | Group By Summary
Critical Task | Milestone | Rolled Up Task | Rolled Up Milestone | Split | Project Summary | Deadline

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

ID	Task Name	Duration	Start	Finish
1	CONTRACT: DC/2007/08 (The Woks)	1226 days	Fri 07-12-21	Fri 11-4-29
2	Handover of Portion A	0 days	Fri 07-12-21	Fri 07-12-21
3	Section 2 & 5- Ping Che (Portion C & 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	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
11	Site clearance	30 days	Sat 08-12-6	Sun 09-1-4
12	Tree survey	10 days	Fri 08-8-1	Sun 08-8-10
13	Construct Access Road	20 days	Sat 08-12-6	Thu 08 12 25
14	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 constrution by layers	46 days	Wed 10-7-28	Sat 10-9-11
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	Backfilling and gabion constrution by layers	65 days	Wed 09-12-30	Thu 10-3-4
32	Ganular Filling for the river	35 days	Mon 10-2-8	Sun 10-3-14
33	Grassed cellular concrete paving	30 days	Tue 10-2-23	Wed 10-3-24
34	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	Grassed cellular concrete/concrete paving	20 days	Wed 10-6-2	Mon 10-6-21
49	Type 2 milling 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
59	Inlet Pipes	25 days	Thu 10-3-25	Sun 10-4-18
60	Inlet pipe at CH270 Approximate	25 days	Thu 10-3-25	Sun 10-4-18
61	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	Rock & ganular filling for the base of gabion	30 days	Mon 10-4-19	Tue 10-5-18



Project: Master Programme (Rev.05)
Date: 01/2009

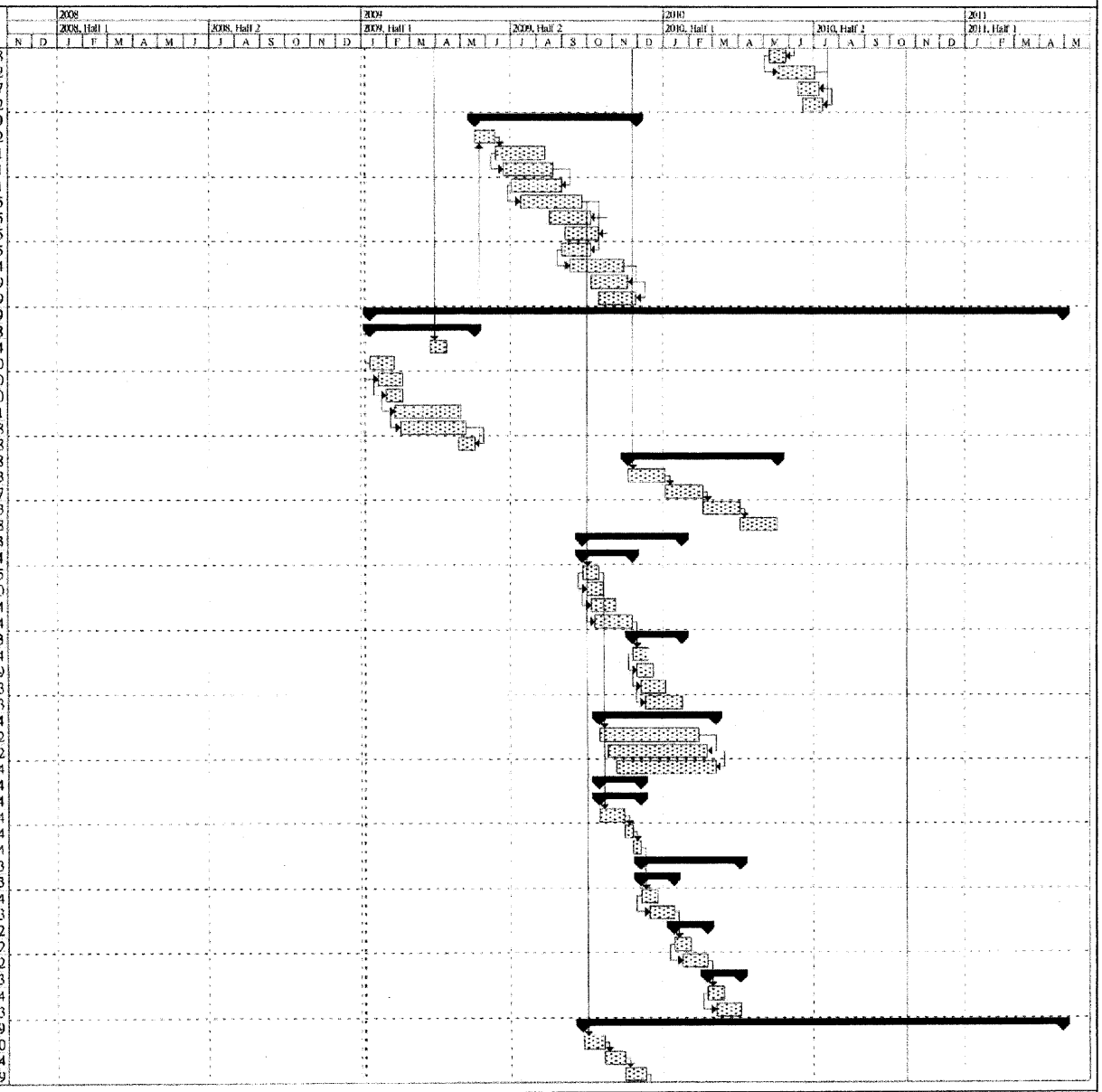
Task | Progress | Summary | Rolled Up Critical Task | Rolled Up Progress | External Tasks | Group By Summary
Critical Task | Milestone | Rolled Up Task | Rolled Up Milestone | Split | Project Summary | Deadline

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

ID	Task Name	Duration	Start	Finish
65	Blinding layer for the gabion construction	20 days	Sun 10-5-9	Fri 10-5-28
66	Backfilling and gabion construtuion by layers	45 days	Wed 10-5-19	Fri 10-7-2
67	Gamular Filling for the river	25 days	Sun 10-6-13	Wed 10-7-7
68	Grassed cellular concrete paving	25 days	Fri 10-6-18	Mon 10-7-12
69	Main River Construction (CH270 to CH670 approxima	195 days	Tue 09-5-19	Sun 09-11-29
70	Temporary Flow Diversion	25 days	Tue 09-5-19	Fri 09-6-12
71	Open cut excavation	60 days	Sat 09-6-13	Tue 09-8-11
72	Rock & ganular filling for the base of gabion	60 days	Tue 09-6-23	Fri 09-8-21
73	Blinding layer for the gabion construction	60 days	Fri 09-7-3	Mon 09-8-31
74	Backfilling and gabion construtuion by layers	75 days	Mon 09-7-13	Fri 09-9-25
75	Gabion block constuction in the middle of the river	50 days	Mon 09-8-17	Mon 09-10-5
76	200 Rip Rap filling	40 days	Sun 09-9-6	Thu 09-10-15
77	Granular fill for the Maintenance access	35 days	Tue 09-9-1	Mon 09-10-5
78	Construction of Maintenance access	65 days	Fri 09-9-11	Sat 09-11-14
79	Rip Rap filling inside the Maintenance access	45 days	Tue 09-10-6	Thu 09-11-19
80	Grassed cellular concrete paving	45 days	Fri 09-10-16	Sun 09-11-29
81	River Associated Works	838 days	Mon 09-1-12	Fri 11-4-29
82	Box culvert construction at (CH670 to CH838 appr	127 days	Mon 09-1-12	Mon 09-5-18
83	Temporary flow diversion	20 days	Thu 09-3-26	Tue 09-4-14
84	Open cut excavation	30 days	Mon 09-1-12	Tue 09-2-10
85	Granular filling with geotextile filter	30 days	Thu 09-1-22	Fri 09-2-20
86	Concrete for blindling layer	20 days	Sun 09-2-1	Fri 09-2-20
87	Base slab construction	80 days	Wed 09-2-11	Fri 09-5-1
88	Wall & Top Slab construction	80 days	Wed 09-2-18	Fri 09-5-8
89	Backfilling	20 days	Wed 09-4-29	Mon 09-5-18
90	Foothridge construction	180 days	Fri 09-11-20	Tue 10-5-18
91	FBT07-3 at CH317 approximate	45 days	Fri 09-11-20	Sun 10-1-3
92	FBT07-4 at CH445 approximate	45 days	Mon 10-1-4	Wed 10-2-17
93	FBT07-5 at CH600 approximate	45 days	Thu 10-2-18	Sat 10-4-3
94	FBT07-6 at CH687 approximate	45 days	Sun 10-4-4	Tue 10-5-18
95	Ramp construction	120 days	Sat 09-9-26	Sat 10-1-23
96	At CH517 Approximate	60 days	Sat 09-9-26	Tue 09-11-24
97	Granular filling with geotextile filter	20 days	Sat 09-9-26	Thu 09-10-15
98	Concrete for the blinding layer	20 days	Thu 09-10-1	Tue 09-10-20
99	Base slab construcion for the ramp	30 days	Tue 09-10-6	Wed 09-11-4
100	Wall construction for the ramp	45 days	Sun 09-10-11	Tue 09-11-24
101	At CH600 Approximate	60 days	Wed 09-11-25	Sat 10-1-23
102	Granular filling with geotextile filter	20 days	Wed 09-11-25	Mon 09-12-14
103	Concrete for the blinding layer	20 days	Mon 09-11-30	Sat 09-12-19
104	Base slab construcion for the ramp	30 days	Sat 09-12-5	Sun 10-1-3
105	Wall construction for the ramp	45 days	Thu 09-12-10	Sat 10-1-23
106	Verge/footpath construction	140 days	Fri 09-10-16	Thu 10-3-4
107	Subase construction for the verges	120 days	Fri 09-10-16	Fri 10-2-12
108	Gassed cellular concrete/concrete paving	120 days	Mon 09-10-26	Mon 10-2-22
109	Type 2 railing construction	120 days	Thu 09-11-5	Thu 10-3-4
110	Retaining wall construction	50 days	Fri 09-10-16	Fri 09-12-4
111	At CH687 Approximate	50 days	Fri 09-10-16	Fri 09-12-4
112	Type D L-shaped RW construction	30 days	Fri 09-10-16	Sat 09-11-14
113	Preforated pipe installation	10 days	Sun 09-11-15	Tue 09-11-24
114	Backfilling the RW	10 days	Wed 09-11-25	Fri 09-12-4
115	U Channel construction	120 days	Sat 09-12-5	Sat 10-4-3
116	375&525 UC at CH352 Approximate	40 days	Sat 09-12-5	Wed 10-1-13
117	Trench excavation	20 days	Sat 09-12-5	Thu 09-12-24
118	Concrete for the U channel	30 days	Tue 09-12-15	Wed 10-1-13
119	525UC at CH552 Approximate	40 days	Thu 10-1-14	Mon 10-2-22
120	Trench excavation	20 days	Thu 10-1-14	Tue 10-2-2
121	Concrete for the U channel	30 days	Sun 10-1-24	Mon 10-2-22
122	525&600 UC at CH690 Approximate	40 days	Tue 10-2-23	Sat 10-4-3
123	Trench excavation	20 days	Tue 10-2-23	Sun 10-3-14
124	Concrete for the U channel	30 days	Fri 10-3-5	Sat 10-4-3
125	Inlet Pipes	581 days	Sat 09-9-26	Fri 11-4-29
126	Inlet pipe at CH100 Approximate	25 days	Sat 09-9-25	Tue 09-10-20
127	Inlet pipe at CH400 Approximate	25 days	Wed 09-10-21	Sat 09-11-14
128	Inlet pipe at CH408 Approximate	25 days	Sun 09-11-15	Wed 09-12-9

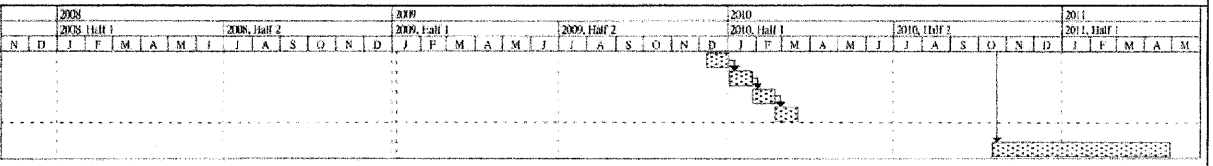


Project: Master Programme (Rev 05)
Date: 01/2009

Task | Progress | Summary | Rolled Up Critical Task | Rolled Up Progress | External Tasks | Group By Summary
Critical Task | Milestone | Rolled Up Task | Rolled Up Milestone | Split | Project Summary | Deadline

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

ID	Task Name	Duration	Start	Finish
129	Inlet pipe at CH450 Approximate	25 days	Thu 09-12-10	Sun 10-1-3
130	Inlet pipe at CH570 Approximate	25 days	Mon 10-1-4	Thu 10-1-28
131	Inlet pipe at CH630 Approximate	25 days	Fri 10-1-29	Mon 10-2-22
132	Inlet pipe at CH750 Approximate	25 days	Tue 10-2-23	Fri 10-3-19
133				
134	Section 5 of works for TKL07	395 days	Sun 10-12-12	Fri 11-4-29



Project: Master Programme (Rev.05)
Date: 01/2009

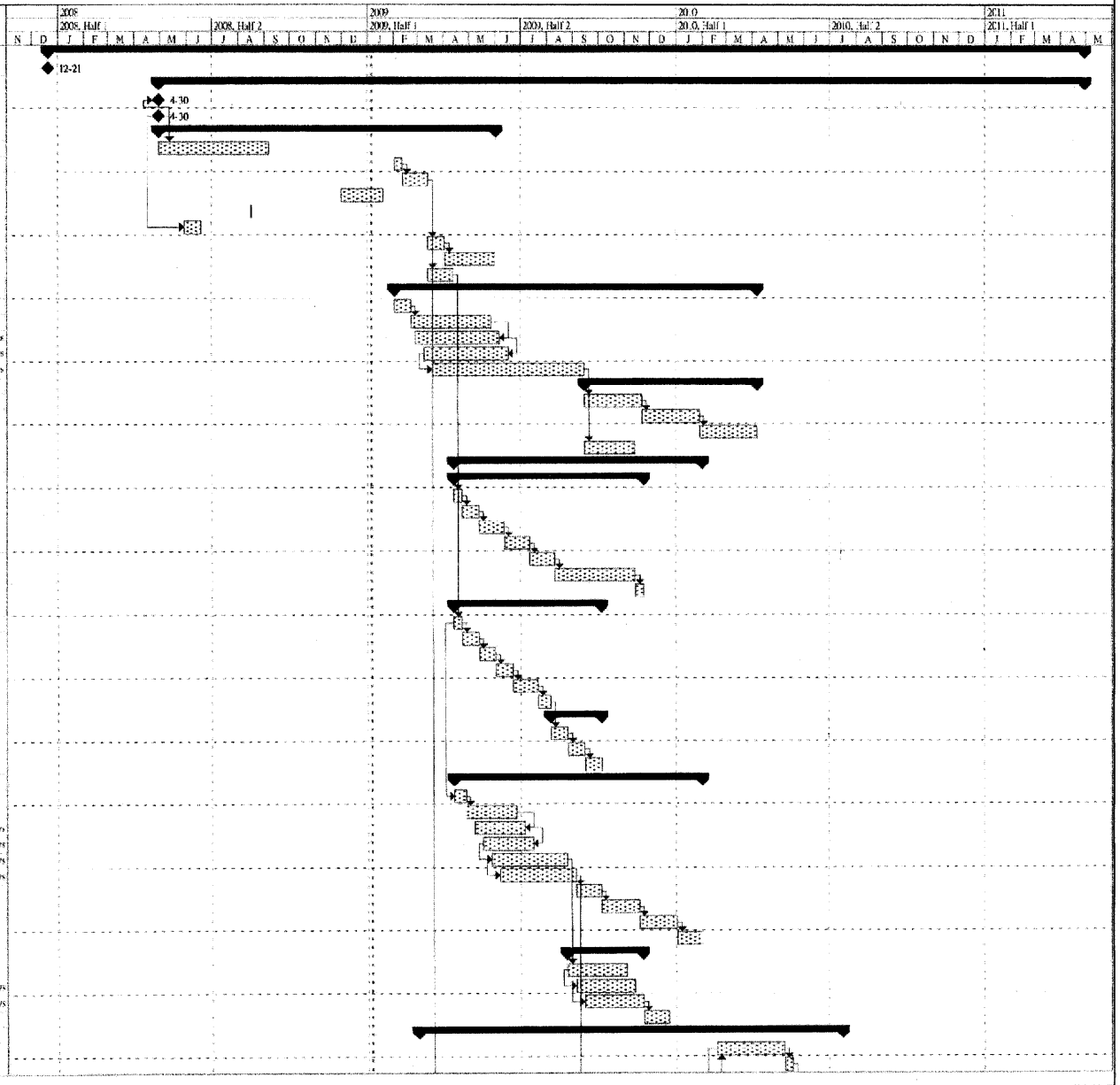
Task | Progress | Summary | Rolled Up Critical Task | Rolled Up Progress | External Tasks | Group By Summary
Critical Task | Milestone | Rolled Up Task | Rolled Up Milestone | Split | Project Summary | Deadline

CHIU HING CONSTRUCTION & TRANSPORTATION Co., Ltd

MASTER PROGRAMME 05 (Section 3 of works)

CONTRACT: DC/2007/8. DRAINAGE IMPROVEMENT WORKS at TAI PO TIN, PING CHE, MAN UK PIN AND LIN MA HANG

ID	Task Name	Duration	Start	Finish	Predecessors
1	CONTRACT: DC/2007/08 (The Woks)	1226 days	Fri 07-12-21	Fri 11-4-29	
2	Handover of Portion A	0 days	Fri 07-12-21	Fri 07-12-21	
3	Section 3 - Man Uk Ping (Portion D & H)	1095 days	Wed 08-4-30	Fri 11-4-29	
4	Commencement Date	0 days	Wed 08-4-30	Wed 08-4-30	5
5	Handover of Portion D	0 days	Wed 08-4-30	Wed 08-4-30	
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	7
19	Rock & garular filling for the base of gabion	100 days	Fri 09-2-27	Sat 09-6-6	8SS+10 days
20	Blinding layer for the gabion construction	100 days	Mon 09-3-9	Tue 09-6-16	9SS+10 days
21	Backfilling and gabion construtions 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 & garular 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 construtions 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
38	Open cut excavation	20 days	Thu 09-4-23	Tue 09-5-12	37
39	Rock & garular 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 construtions 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	47SS
49	Open cut excavation	60 days	Mon 09-4-27	Tue 09-6-25	48
50	Rock & garular 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 construtions by layers	90 days	Wed 09-5-27	Mon 09-8-24	51SS+10 days
53	Gabion block construction in the middle of the river	90 days	Sat 09-6-6	Thu 09-9-3	52SS+10 days
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 09-11-7	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	Tue 09-8-25	Sun 09-11-22	
59	Subase construction for the verges	70 days	Tue 09-8-25	Mon 09-11-2	52
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
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



Project: Master Programme (Rev.05)
Date: 01/2009

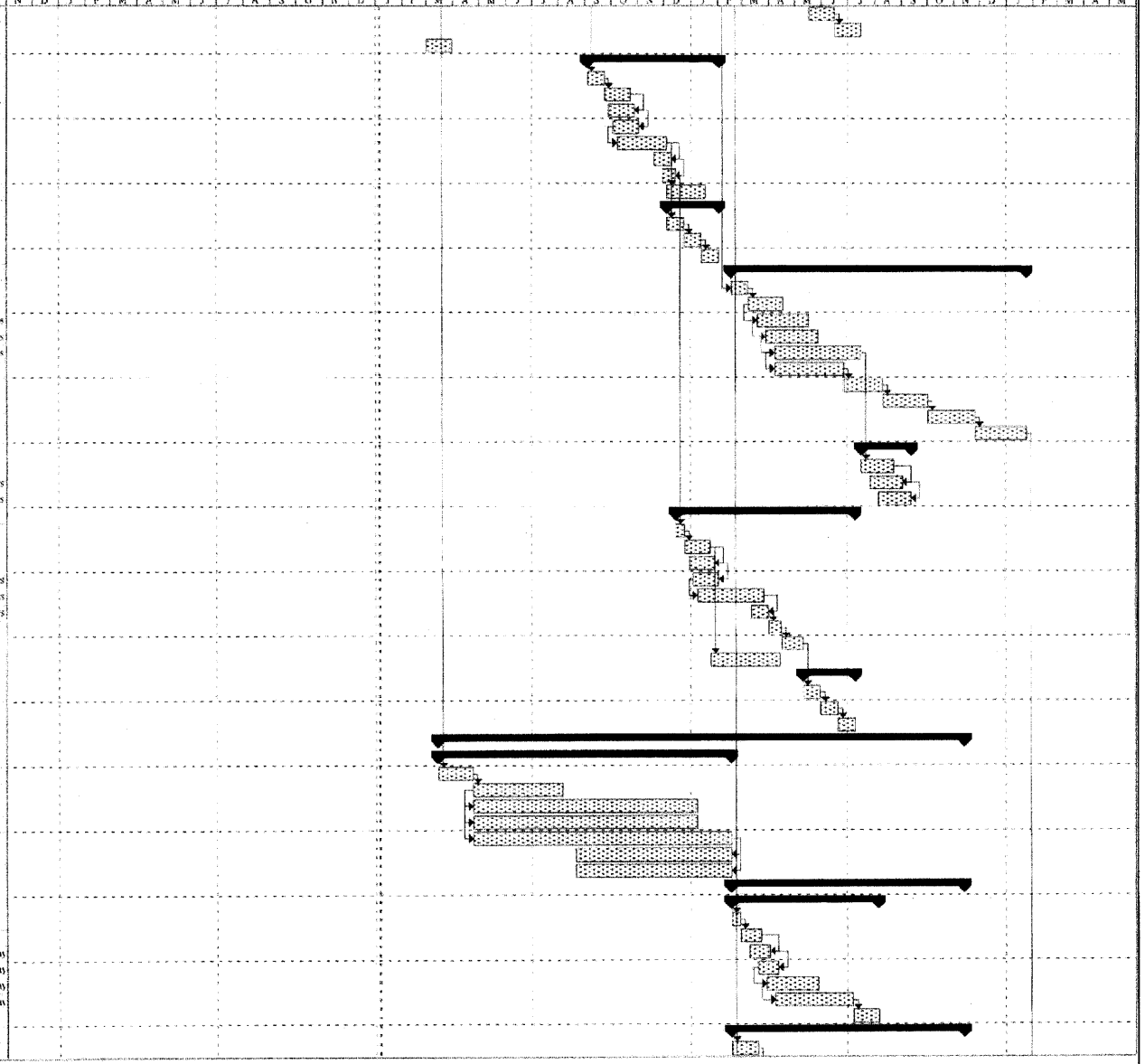
Task | Progress | Summary | Rolled Up Critical Task | Rolled Up Progress | External Tasks | Group By Summary
Critical Task | Milestone | Rolled Up Task | Rolled Up Milestone | Split | Project Summary | Deadline

CHIU HING CONSTRUCTION & TRANSPORTATION Co., Ltd

MASTER PROGRAMME 05 (Section 3 of works)

CONTRACT: DC/2007/8. DRAINAGE IMPROVEMENT WORKS at TAI PO TIN, PING CHE, MAN UK PIN AND LIN MA HANG

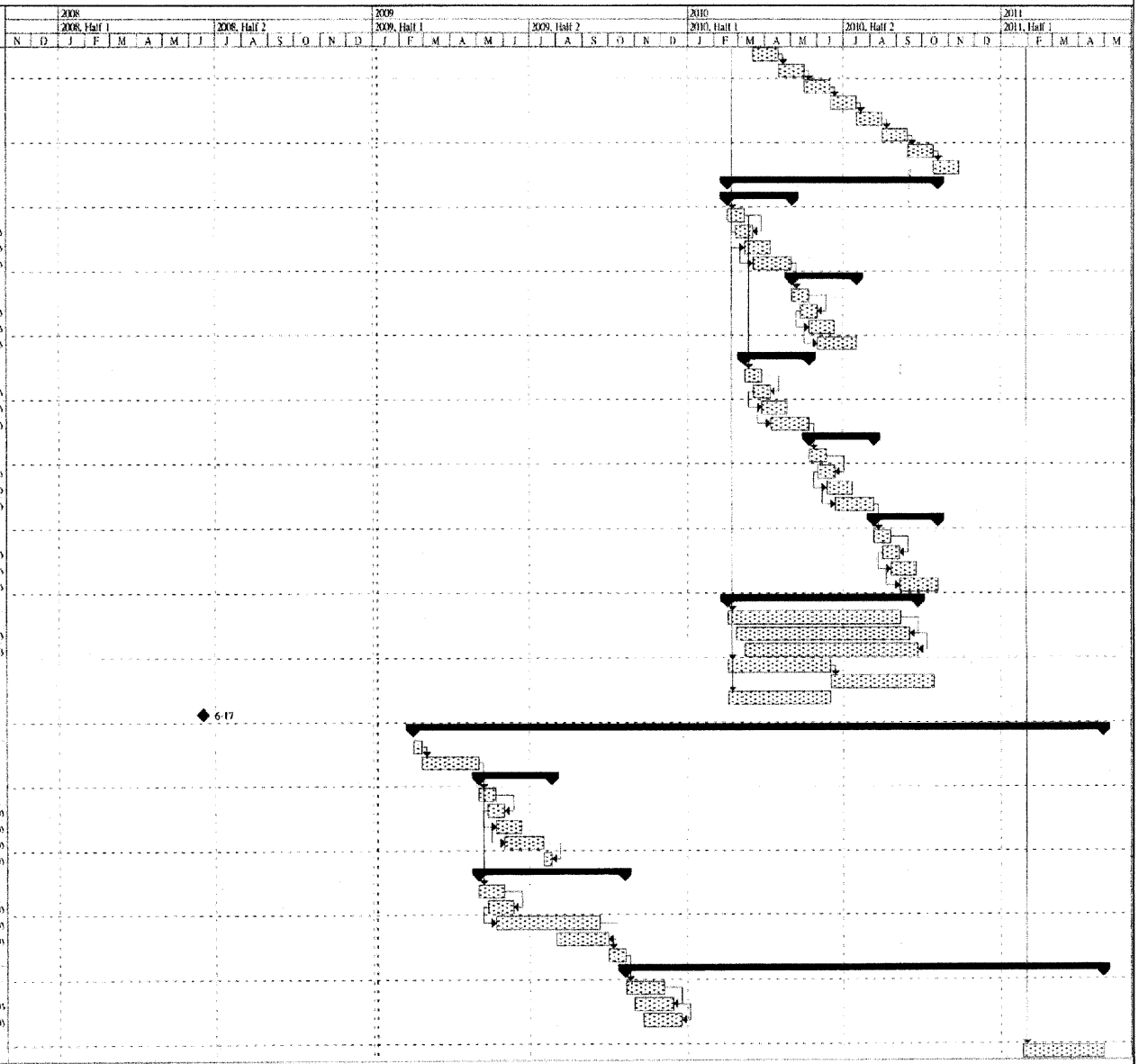
ID	Task Name	Duration	Start	Finish	Predecessors
66	600mm dia. pipe construction	30 days	Tue 10-5-18	Wed 10-6-15	65
67	900mm dia. pipe construction	30 days	Thu 10-6-17	Fri 10-7-16	66
68	B.C. at CH E+95	30 days	Mon 09-3-2	Tue 09-3-31	
69	**River MUP03B (Portion D)**	**152 days**	**Fri 09-9-4**	**Tue 10-2-2**	
70	Temporary Flow Diversion	20 days	Fri 09-9-4	Wed 09-9-23	53
71	Open cut excavation	30 days	Thu 09-9-24	Fri 09-10-23	70
72	Rock & gangular filling for the base of gabion	30 days	Tue 09-9-29	Wed 09-10-28	71FF+5 days
73	Blinding layer for the gabion construction	30 days	Sun 09-10-4	Mon 09-11-2	72FF+5 days
74	Backfilling and gabion construtcion by layers	57 days	Fri 09-10-9	Fri 09-12-4	73SS+5 days
75	Gabion block construction in the middle of the river	20 days	Fri 09-11-20	Wed 09-12-9	74FF+5 days
76	200 Rip Rap filling	15 days	Mon 09-11-30	Mon 09-12-14	75FF+5 days
77	FBM03-1 footbridge at CH E+60 Approximate	45 days	Sat 09-12-5	Mon 10-1-18	74
78	**Verge/footpath construction**	**60 days**	**Sat 09-12-5**	**Tue 10-2-2**	
79	Subase construction for the verges	20 days	Sat 09-12-5	Thu 09-12-24	74
80	Glassed cellular concrete/concrete paving	20 days	Fri 09-12-25	Wed 10-1-13	79
81	Type 2 railing construction	20 days	Thu 10-1-14	Tue 10-2-2	80
82	**River MUP04A (Portion D)**	**342 days**	**Wed 10-2-17**	**Mon 11-1-24**	
83	Temporary Flow Diversion	70 days	Wed 10-2-17	Mon 10-3-8	64SS
84	Open cut excavation	40 days	Tue 10-3-9	Sat 10-4-17	83
85	Rock & gangular filling for the base of gabion	60 days	Fri 10-3-19	Mon 10-5-17	84SS+10 days
86	Blinding layer for the gabion construction	60 days	Mon 10-3-29	Thu 10-5-27	85SS+10 days
87	Backfilling and gabion construtcion by layers	100 days	Thu 10-4-8	Fri 10-7-16	86SS+10 days
88	Gabion block construction in the middle of the river	80 days	Thu 10-4-8	Sat 10-6-26	87SS
89	200 Rip Rap filling	45 days	Sun 10-6-27	Tue 10-8-10	88
90	VBM04-2 vehicular bridge at CHD+11 Approximate	52 days	Wed 10-8-11	Fri 10-10-1	89
91	VBM04-1 vehicular bridge at CH D+48 Approximate	55 days	Sat 10-10-2	Thu 10-11-25	90
92	Concrete 4X1650mm dia. pipes at CH D+185 Approximate	60 days	Fri 10-11-26	Mon 11-1-24	91
93	**Verge/footpath construction**	**58 days**	**Sat 10-7-17**	**Sun 10-9-12**	
94	Subase construction for the verges	38 days	Sat 10-7-17	Mon 10-8-23	87
95	Glassed cellular concrete/concrete paving	38 days	Tue 10-7-27	Thu 10-9-2	94FF+10 days
96	Type 2 railing construction	38 days	Fri 10-8-6	Sun 10-9-12	95FF+10 days
97	**River MUP04B (Portion D)**	**207 days**	**Tue 09-12-15**	**Fri 10-7-9**	
98	Temporary Flow Diversion	10 days	Tue 09-12-15	Thu 09-12-24	76
99	Open cut excavation	30 days	Fri 09-12-25	Sat 10-1-23	98
100	Rock & gangular filling for the base of gabion	30 days	Wed 09-12-30	Thu 10-1-28	99FF+5 days
101	Blinding layer for the gabion construction	30 days	Mon 10-1-4	Tue 10-2-2	100FF+5 days
102	Backfilling and gabion construtcion by layers	77 days	Sat 10-1-9	Fri 10-3-26	101SS+5 days
103	Gabion block construction in the middle of the river	20 days	Fri 10-3-12	Wed 10-3-31	102FF+5 days
104	200 Rip Rap filling	15 days	Thu 10-4-1	Thu 10-4-15	103
105	Construct 1350mm dia. pipes	75 days	Fri 10-4-16	Mon 10-5-10	104
106	Manhole MH1 to MH7 construction	80 days	Sun 10-1-24	Tue 10-4-13	90
107	**Verge/footpath construction**	**60 days**	**Tue 10-5-11**	**Fri 10-7-9**	
108	Subase construction for the verges	20 days	Tue 10-5-11	Sun 10-5-30	105
109	Glassed cellular concrete/concrete paving	20 days	Mon 10-5-31	Sat 10-6-19	108
110	Type 2 railing construction	20 days	Sun 10-6-20	Fri 10-7-9	109
111	**River MUP05 (Portion D)**	**610 days**	**Sat 09-3-14**	**Sat 10-11-13**	
112	**Main River Construction (CH C+0.00 to C+974 approxima**	**340 days**	**Sat 09-3-14**	**Tue 10-2-16**	
113	Temporary flow diversion	40 days	Sat 09-3-14	Wed 09-4-22	9
114	Open cut excavation	105 days	Thu 09-4-23	Wed 09-8-5	113
115	Rock & gangular filling for the base of gabion	260 days	Thu 09-4-23	Thu 10-1-7	114SS
116	Blinding layer for the gabion construction	260 days	Thu 09-4-23	Thu 10-1-7	115SS
117	Backfilling and gabion construtcion by layers	300 days	Thu 09-4-23	Tue 10-2-16	116SS
118	Gangular Filling for the river	180 days	Fri 09-8-21	Tue 10-2-16	117FF
119	Grassed cellular concrete paving	180 days	Fri 09-8-21	Tue 10-2-16	118FF
120	**River associated Works**	**270 days**	**Wed 10-2-17**	**Sat 10-11-13**	
121	**Box culvert construction at CH C+190 approximate**	**170 days**	**Wed 10-2-17**	**Thu 10-8-5**	
122	Temporary flow diversion	10 days	Wed 10-2-17	Fri 10-2-26	117
123	Open cut excavation	25 days	Sat 10-2-27	Mon 10-3-22	122
124	Granular filling with geotextile filter	25 days	Tue 10-3-9	Thu 10-4-1	123FF+10 days
125	Concrete for blinding layer	25 days	Fri 10-3-19	Sun 10-4-11	124FF+10 days
126	Base slab construction	60 days	Mon 10-3-29	Thu 10-5-27	125SS+10 days
127	Wall & Top Slab construction	90 days	Thu 10-4-8	Tue 10-7-6	126SS+10 days
128	Backfilling	30 days	Wed 10-7-7	Thu 10-8-5	127
129	**Footbridge/Vehicular Bridge Construction**	**270 days**	**Wed 10-2-17**	**Sat 10-11-13**	
130	VBM05-1at CH C+70 approximate	30 days	Wed 10-2-17	Thu 10-3-18	117



Project: Master Programme (Rev.05)	Task	Progress	Summary	Rolled Up Critical Task	Rolled Up Progress	External Tasks	Group By Summary				
Date: 01/2009	Critical Task	Milestone	Rolled Up Task	Rolled Up Milestone	Split	Project Summary	Deadline				

CHIU HING CONSTRUCTION & TRANSPORTATION Co., Ltd
MASTER PROGRAMME 05 (Section 3 of works)
CONTRACT: DC/2007/8. DRAINAGE IMPROVEMENT WORKS at TAI PO TIN, PING CHE. MAN UK PIN AND LIN MA HANG

ID	Task Name	Duration	Start	Finish	Predecessors
131	FBM05-1at CH C+139 approximate	30 days	Fri 10-3-19	Sat 10-4-17	130
132	VBM05-2 at CH C+190 approximate	30 days	Sun 10-4-18	Mon 10-5-17	131
133	VBM05-3 at CH C+264 approximate	30 days	Tue 10-5-18	Wed 10-6-16	132
134	VBM05-4 at CH C+398 approximate	30 days	Thu 10-6-17	Fri 10-7-16	133
135	FBM05-2 at CH C+551 approximate	30 days	Sat 10-7-17	Sun 10-8-15	134
136	FBM05-3 at CH C+651 approximate	30 days	Mon 10-8-16	Tue 10-9-14	135
137	FBM05-4 at CH C+894 approximate	30 days	Wed 10-9-15	Thu 10-10-14	136
138	FBM05-5 at CH C+942 approximate	30 days	Fri 10-10-15	Sat 10-11-13	137
139	**Ramp construction**	**245 days**	**Wed 10-2-17**	**Tue 10-10-19**	
140	**At CH C+398 Approximate**	**75 days**	**Wed 10-2-17**	**Sun 10-5-2**	
141	Granular filling with geotextile filter	30 days	Wed 10-2-17	Mon 10-3-18	117
142	Concrete for the blinding layer	20 days	Sat 10-3-27	Thu 10-4-15	141FF+10 day
143	Base slab construction for the ramp	30 days	Tue 10-3-9	Wed 10-4-7	142SS+10 day
144	Wall construction for the ramp	45 days	Fri 10-3-19	Sun 10-5-2	143SS+10 days
145	**At CH C+500 Approximate**	**75 days**	**Mon 10-5-3**	**Fri 10-7-16**	
146	Granular filling with geotextile filter	20 days	Mon 10-5-3	Sat 10-5-22	144
147	Concrete for the blinding layer	20 days	Thu 10-5-13	Tue 10-6-1	146FF+10 day
148	Base slab construction for the ramp	30 days	Sun 10-5-23	Mon 10-6-21	147SS+10 day
149	Wall construction for the ramp	45 days	Wed 10-6-2	Fri 10-7-16	148SS+10 days
150	**At CH C + 551 Approximate**	**75 days**	**Tue 10-3-9**	**Sat 10-5-22**	
151	Granular filling with geotextile filter	20 days	Tue 10-3-9	Sun 10-3-28	141
152	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
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
157	Concrete for the blinding layer	30 days	Wed 10-6-2	Mon 10-6-21	156FF+10 day
158	Base slab construction for the ramp	30 days	Sat 10-6-12	Sun 10-7-11	157SS+10 day
159	Wall construction for the ramp	45 days	Tue 10-6-22	Thu 10-8-5	158SS+10 day
160	**At CH C + 942 Approximate**	**75 days**	**Fri 10-8-6**	**Tue 10-10-19**	
161	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 construction 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	Grassed 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 6**	**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
178	Blinding layer for the gabion construction	30 days	Wed 09-5-13	Mon 09-6-1	177FF+10 day
179	Base slab construction	30 days	Sat 09-5-23	Sun 09-6-21	178SS+10 day
180	Wall construction	45 days	Tue 09-6-2	Thu 09-7-16	179SS+10 day
181	Granular filling inside the channel	10 days	Fri 09-7-17	Sun 09-7-26	180FF+10 day
182	**Gabion Construction**	**170 days**	**Sun 09-5-3**	**Mon 09-10-19**	
183	Rock & ganular filling for the base of gabion	30 days	Sun 09-5-3	Mon 09-6-1	175
184	Blinding layer for the gabion construction	30 days	Wed 09-5-13	Thu 09-6-11	183FF+10 day
185	Backfilling and gabion construction by layers	120 days	Sat 09-5-23	Sat 09-9-19	184SS+10 day
186	Gabion block construction in the middle of the river	60 days	Sat 09-8-1	Tue 09-9-29	185FF+10 day
187	300 Rip Rap filling	20 days	Wed 09-9-30	Mon 09-10-19	186
188	**Verge/footpath construction**	**557 days**	**Tue 09-10-20**	**Fri 11-4-29**	
189	Subase construction for the verges	45 days	Tue 09-10-20	Thu 09-12-3	187
190	Grassed cellular concrete/concrete paving	45 days	Fri 09-10-30	Sun 09-12-13	189FF+10 day
191	Type 2 railing construction	45 days	Mon 09-11-9	Wed 09-12-23	190FF+10 day
192					
193	the Remaining section 5 of works of MUP	95 days	Tue 11-1-25	Fri 11-4-29	93



Project: Master Programme (Rev.05)
Date: 01/2009

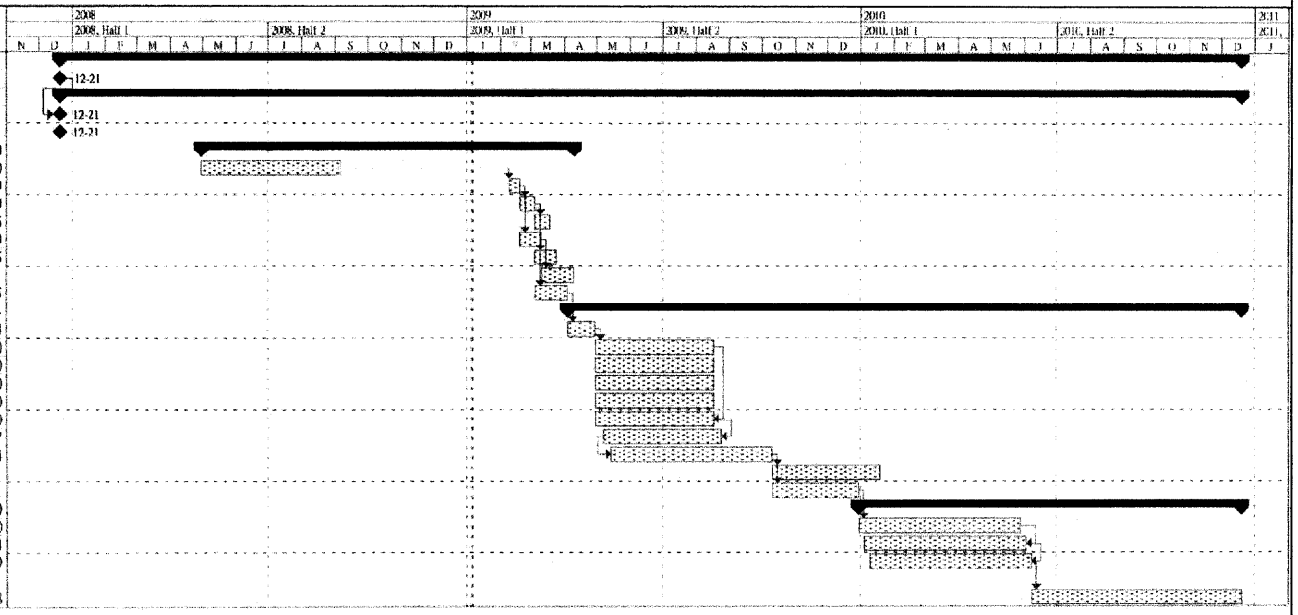
Task | Progress | Summary | Rolled Up Critical Task | Rolled Up Progress | External Tasks | Group By Summary
Critical Task | Milestone | Rolled Up Task | Rolled Up Milestone | Split | Project Summary | Deadline

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
1	CONTRACT: DC/2007/08 (The Woks)	1095 days	Fri 07-12-21
2	Handover of Portion A	0 days	Fri 07-12-21
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
5	Handover of Portion F	0 days	Fri 07-12-21
6	Prelim Works	345 days	Wed 08-4-30
7	Baseline Monitoring	130 days	Wed 08-4-30
8	Mobilisation	10 days	Mon 09-2-9
9	Site clearance	14 days	Thu 09-2-19
10	Initial site survey	14 days	Thu 09-3-5
11	Tree survey	20 days	Thu 09-2-19
12	Construct Access Road	20 days	Thu 09-3-5
13	Remove and Transplant the trees	30 days	Wed 09-3-11
14	Underground Utility Survey	30 days	Thu 09-3-5
15	River LMH01	625 days	Sat 09-4-4
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
18	Open excavation and construction for CH 0+0 to CH 0+35.	110 days	Thu 09-4-30
19	Open excavation and construction for CH R+0 to CH R+35	110 days	Thu 09-4-30
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
22	Blinding layer for the gabion construction	110 days	Thu 09-5-7
23	Backfilling and gabion constrution by layers	150 days	Thu 09-5-14
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
26	Verge/footpath construction	355 days	Wed 09-12-30
27	Subase construction for the verges	150 days	Wed 09-12-30
28	Glassed cellular concrete/concrete paving	150 days	Mon 10-1-4
29	Type 2 railing	150 days	Sat 10-1-9
30			
31	Section 5 of works for Lin Ma Hang	195 days	Tue 10-6-8



Project: Master Programme (Rev 05)
Date: 01/2009

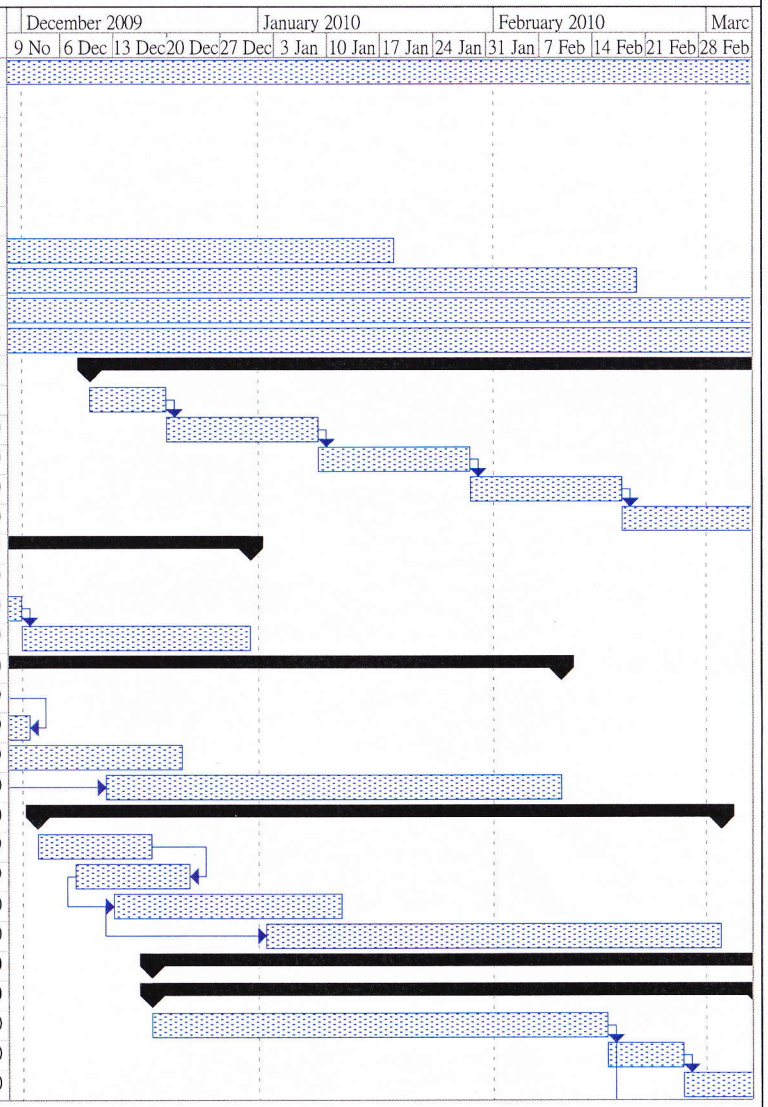
Task | Progress | Summary | Rolled Up Critical Task | Rolled Up Progress | External Tasks | Group By Summary
Critical Task | Milestone | Rolled Up Task | Rolled Up Milestone | Split | Project Summary | Deadline

Program for Next Month

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

Three Month (12)/2009 & (01,02)/2010 Rolling Programme (No.23)

ID	Task Name	Duration	Start	Finish
1	A: Seection 1-Tai Po Tin (TKL02)	974 days	Fri 21/12/07	Fri 20/8/10
2				
3	Open cut excavation	107 days	Tue 23/6/09	Wed 7/10/09
4	Left Bank of G.W. Foundation CH710 to CH787	90 days	Tue 23/6/09	Sun 20/9/09
5	Left Bank of G.W. Foundation CH669 to CH706	90 days	Tue 23/6/09	Sun 20/9/09
6	Right Bank of G.W. Foundation CH507 to CH591	90 days	Fri 10/7/09	Wed 7/10/09
7	Rock & ganular filling for the base of gabion	170 days	Sun 2/8/09	Mon 18/1/10
8	Blinding layer for the gabion constraction	170 days?	Thu 3/9/09	Fri 19/2/10
9	Backfilling and gabion construction by layers	200 days?	Mon 28/9/09	Thu 15/4/10
10	Gabion block constuction in the middle of the river	150 days	Tue 17/11/09	Thu 15/4/10
11	VBT02-1at CH507 & FBT02-1 at CH661 approximate	120 days	Thu 10/12/09	Thu 8/4/10
12	VBT02-1 & FBT02-1 at CH507 approximate	10 days	Thu 10/12/09	Sat 19/12/09
13	Excavation	20 days	Sun 20/12/09	Fri 8/1/10
14	Rock & granular filling for the base of the FB &VB	20 days	Sat 9/1/10	Thu 28/1/10
15	Blinding layer for the FB & VB	20 days	Fri 29/1/10	Wed 17/2/10
16	Formwork & concreting for the FB & VB	50 days	Thu 18/2/10	Thu 8/4/10
17	Diversion for CLP Conflicted poles at Channel TKL02	101 days?	Mon 21/9/09	Wed 30/12/09
18	Indentification of conflicted electricity poles liaise with CLP	31 days?	Mon 21/9/09	Wed 21/10/09
19	Waiting for CLP's Diversion Preparation	40 days?	Thu 22/10/09	Mon 30/11/09
20	Diversion of cnflicted electricity 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 geotextile filter	15 days	Thu 12/11/09	Thu 26/11/09
23	Concrete for the blinding layer	15 days	Tue 17/11/09	Tue 1/12/09
24	Base slab construction for the ramp	30 days	Sun 22/11/09	Mon 21/12/09
25	Wall Construction for the ramp	60 days	Sat 12/12/09	Tue 9/2/10
26	Ramp Construction at CH23 to 55 APProximate	90 days	Thu 3/12/09	Tue 2/3/10
27	Granular filling with geotextile filter	15 days	Thu 3/12/09	Thu 17/12/09
28	Concrete for the blinding layer	15 days	Tue 8/12/09	Tue 22/12/09
29	Base slab construction for the ramp	30 days	Sun 13/12/09	Mon 11/1/10
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 Approximate	80 days	Fri 18/12/09	Sun 7/3/10
33	Type D L-shaped RW construction	60 days	Fri 18/12/09	Mon 15/2/10
34	Preforated pipe installation	10 days	Tue 16/2/10	Thu 25/2/10
35	Backfilling the RW	10 days	Fri 26/2/10	Sun 7/3/10



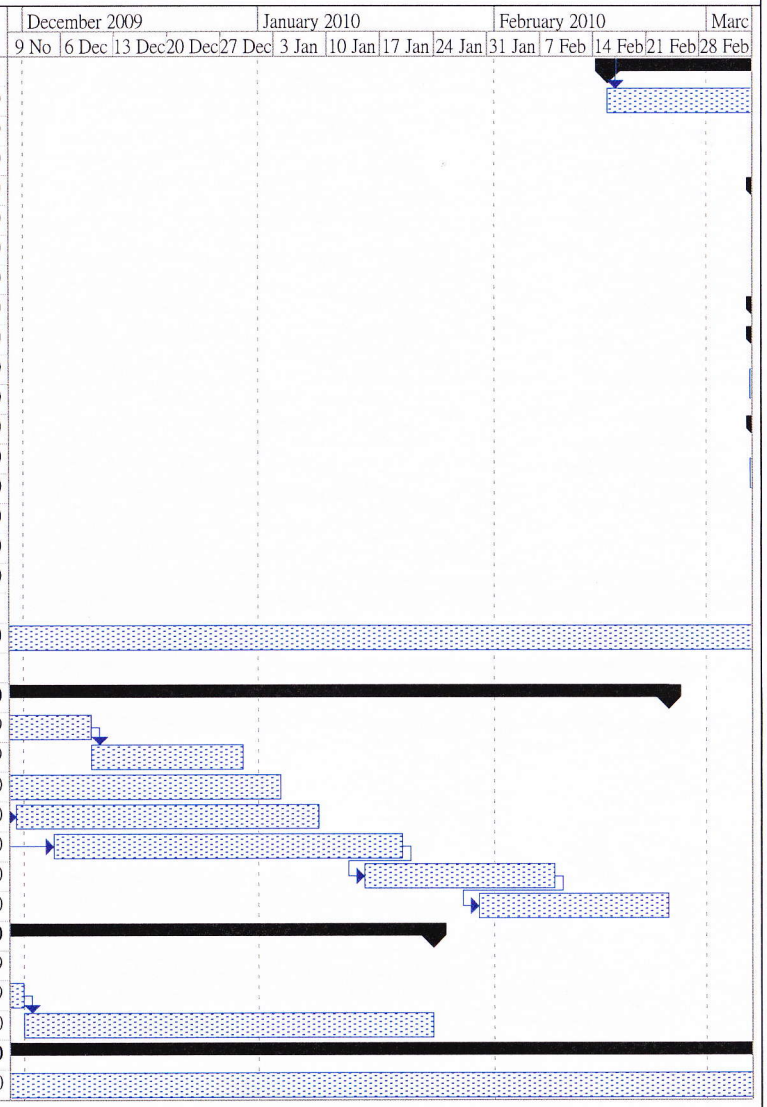
Project: Project 10-R (No.23)
Date: Fri 27/11/09

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

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

Three Month (12)/2009 & (01,02)/2010 Rolling Programme (No.23)

ID	Task Name	Duration	Start	Finish
36	**At CH501 Approximate**	**40 days**	**Tue 16/2/10**	**Sat 27/3/10**
37	Type D L-shaped RW construction	20 days	Tue 16/2/10	Sun 7/3/10
38	Preforated pipe installation	10 days	Mon 8/3/10	Wed 17/3/10
39	Backfilling the RW	10 days	Thu 18/3/10	Sat 27/3/10
40	**At CH800 Approximate**	**40 days**	**Mon 8/3/10**	**Fri 16/4/10**
41	Type D L-shaped RW construction	20 days	Mon 8/3/10	Sat 27/3/10
42	Preforated pipe installation	10 days	Sun 28/3/10	Tue 6/4/10
43	Backfilling the RW	10 days	Wed 7/4/10	Fri 16/4/10
44	**U Channel construction**	**163 days**	**Mon 8/3/10**	**Tue 17/8/10**
45	**600 UC at CH0 Approximate**	**66 days**	**Mon 8/3/10**	**Wed 12/5/10**
46	Trench excavation	40 days	Mon 8/3/10	Fri 16/4/10
47	Concrete for the U channel	50 days	Wed 24/3/10	Wed 12/5/10
48	**450 UC at CH501 Approximate**	**66 days**	**Mon 8/3/10**	**Wed 12/5/10**
49	Trench excavation	40 days	Mon 8/3/10	Fri 16/4/10
50	Concrete for the U channel	50 days	Wed 24/3/10	Wed 12/5/10
51	**300 UC at CH800 Approximate**	**123 days**	**Sat 17/4/10**	**Tue 17/8/10**
52	Trench excavation	80 days	Sat 17/4/10	Mon 5/7/10
53	Concrete for the U channel	107 days	Mon 3/5/10	Tue 17/8/10
54				
55	**B: Section 2 & 5 - Ping Che (TKL07)**	**947 days?**	**Fri 21/12/07**	**Sat 24/7/10**
56				
57	**Main River Construction (CH0 to CH80)**	**96 days**	**Fri 20/11/09**	**Tue 23/2/10**
58	Temporary Flow Diversion	20 days	Fri 20/11/09	Wed 9/12/09
59	Open cut excavation	20 days	Thu 10/12/09	Tue 29/12/09
60	Rock & ganular filling for the base of gabion	40 days	Wed 25/11/09	Sun 3/1/10
61	Blinding layer for the gabion construction	40 days	Mon 30/11/09	Fri 8/1/10
62	Backfilling and gabion constrution by layers	46 days	Sat 5/12/09	Tue 19/1/10
63	Ganular Filling for the river	25 days	Fri 15/1/10	Mon 8/2/10
64	Grassed cellular concrete paving	25 days	Sat 30/1/10	Tue 23/2/10
65	**Diversion for CLP poles at Channel TKL07(around CH220)**	**243 days?**	**Tue 26/5/09**	**Sat 23/1/10**
66	Identification of Conflicted Electrical poles,liaise with CLP Diversion	7 days?	Tue 26/5/09	Mon 1/6/09
67	Waiting for CLP's Diversion Preparation	182 days?	Tue 2/6/09	Mon 30/11/09
68	Diversion of Conflicted Electrical Poles by CLP	54 days?	Tue 1/12/09	Sat 23/1/10
69	**Main River Construction (CH150 to CH270 approximate)**	**188 days**	**Fri 20/11/09**	**Wed 26/5/10**
70	Temporary flow diversion	188 days	Fri 20/11/09	Wed 26/5/10



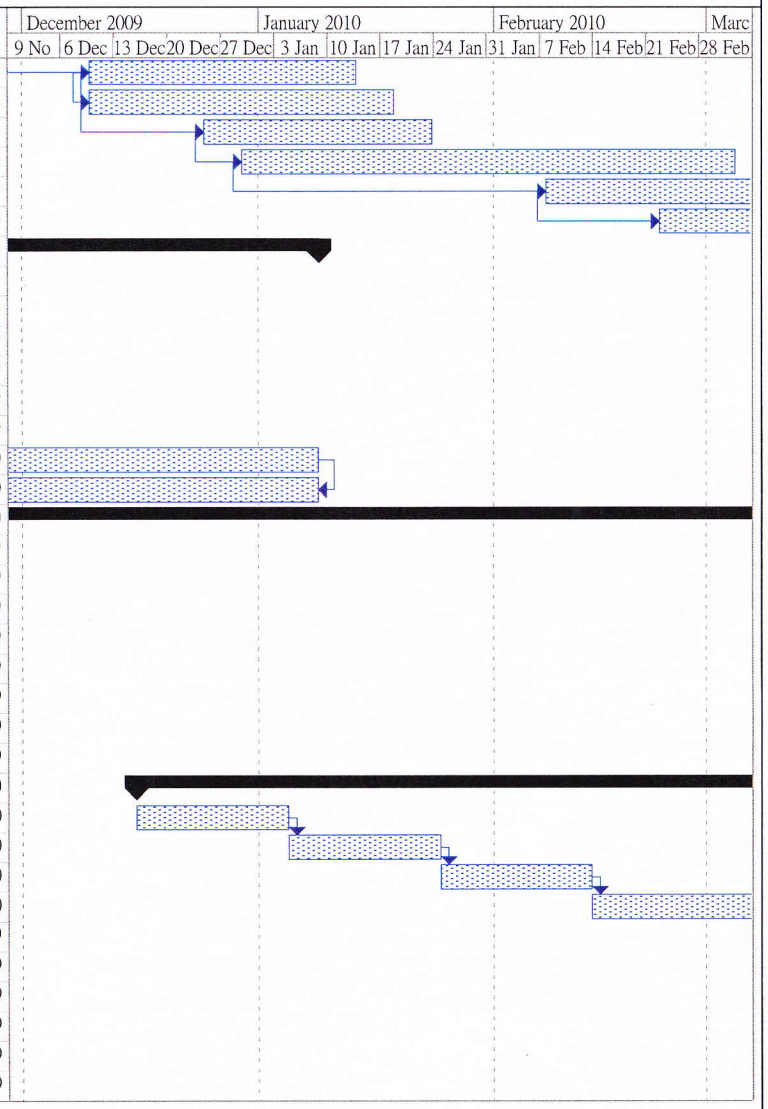
Project: Project 10-R (No.23)
Date: Fri 27/11/09

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

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

Three Month (12)/2009 & (01,02)/2010 Rolling Programme (No.23)

ID	Task Name	Duration	Start	Finish
71	Open cut excavation	35 days	Thu 10/12/09	Wed 13/1/10
72	Rock & ganular filling for the base of gabion	40 days	Thu 10/12/09	Mon 18/1/10
73	Blinding layer for the gabion construction	30 days	Fri 25/12/09	Sat 23/1/10
74	Backfilling and gabion constrution by layers	65 days	Wed 30/12/09	Thu 4/3/10
75	Ganular Filling for the river	35 days	Mon 8/2/10	Sun 14/3/10
76	Grassed cellular concrete paving	30 days	Tue 23/2/10	Wed 24/3/10
77	**Main River Construction(CH270 to CH670)**	**235 days**	**Tue 19/5/09**	**Fri 8/1/10**
78	Temporary Flow Diversion	25 days	Tue 19/5/09	Fri 12/6/09
79	**Open cut excavation**	**120 days**	**Mon 1/6/09**	**Mon 28/9/09**
80	Left Bank of G.W. Foundation CH125 to CH228	120 days	Mon 1/6/09	Mon 28/9/09
81	Left Bank of G.W. Foundation CH552 to CH687	120 days	Mon 1/6/09	Mon 28/9/09
82	Rock & ganular filling for the base of gabion	60 days	Tue 23/6/09	Fri 21/8/09
83	Blinding layer for the gabion construction	60 days	Fri 3/7/09	Mon 31/8/09
84	Backfilling and gabion constrution by layers	180 days	Mon 13/7/09	Fri 8/1/10
85	Gabion block constuction in the middle of the river	80 days	Wed 21/10/09	Fri 8/1/10
86	**River associated Works**	**451 days?**	**Thu 30/4/09**	**Sat 24/7/10**
87	**Box culvert construction at CH230 approximate**	**170 days**	**Thu 30/4/09**	**Fri 16/10/09**
88	Temporary flow diversion	20 days	Thu 30/4/09	Tue 19/5/09
89	Open cut excavation	30 days	Wed 20/5/09	Thu 18/6/09
90	Granular filling with geotextile filter	30 days	Fri 19/6/09	Sat 18/7/09
91	Concrete for blindling layer	20 days	Mon 29/6/09	Sat 18/7/09
92	Base slab construction	70 days	Thu 9/7/09	Wed 16/9/09
93	Wall & Top Slab construction	70 days	Sun 19/7/09	Sat 26/9/09
94	Backfilling	20 days	Sun 27/9/09	Fri 16/10/09
95	**FBT07-1 at CH 35 approximate**	**110 days**	**Wed 16/12/09**	**Sun 4/4/10**
96	Excavation	20 days	Wed 16/12/09	Mon 4/1/10
97	Rock & granular filling for the base of the FB	20 days	Tue 5/1/10	Sun 24/1/10
98	Blinding layer for the FB	20 days	Mon 25/1/10	Sat 13/2/10
99	Formwork & concreting	50 days	Sun 14/2/10	Sun 4/4/10
100	**FBT07-2 at CH250 approximate**	**105 days**	**Mon 1/6/09**	**Sun 13/9/09**
101	Excavation	15 days	Mon 1/6/09	Mon 15/6/09
102	Rock & granular filling for the base of the FB	15 days	Tue 16/6/09	Tue 30/6/09
103	Blinding layer for the FB	15 days	Wed 1/7/09	Wed 15/7/09
104	Formwork & concreting	30 days	Thu 16/7/09	Fri 14/8/09
105	Construction of Gabion Transition (CH228, CH250)	30 days	Sat 15/8/09	Sun 13/9/09



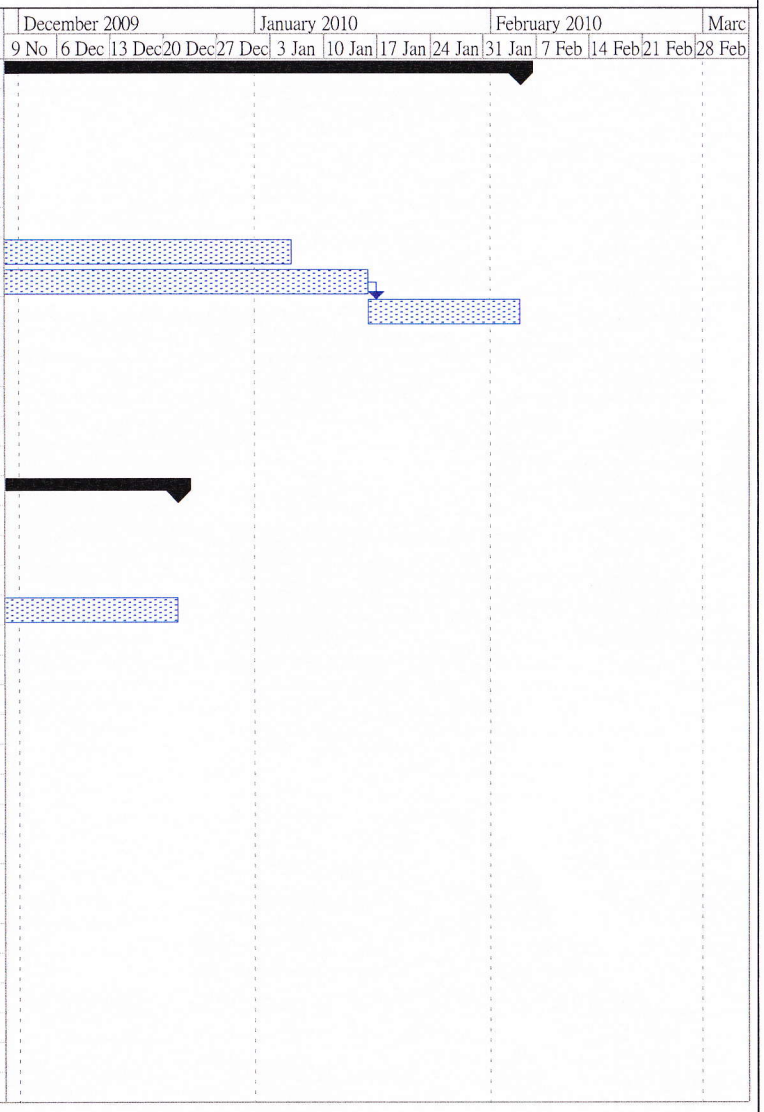
Project: Project 10-R (No.23)
Date: Fri 27/11/09

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

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

Three Month (12)/2009 & (01,02)/2010 Rolling Programme (No.23)

ID	Task Name	Duration	Start	Finish
106	**Box culvert & FBT07-6 construction at (CH670 to CH838 approximate)**	**270 days?**	**Mon 11/5/09**	**Thu 4/2/10**
107	Box culvert (CH688 to CH762) & FBT07-6 completed & handed over	1 day?	Mon 11/5/09	Mon 11/5/09
108		20 days	Thu 30/7/09	Tue 18/8/09
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
112	Base slab construction	70 days	Wed 28/10/09	Tue 5/1/10
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**
116	Excavation	15 days	Thu 18/6/09	Thu 2/7/09
117	Rock & granular filling for the base of the FB	15 days	Fri 3/7/09	Fri 17/7/09
118	Blinding layer for the FB	15 days	Sat 18/7/09	Sat 1/8/09
119	Formwork & concreting	30 days	Sun 2/8/09	Mon 31/8/09
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
123	Blinding layer for the FB	20 days	Tue 13/10/09	Sun 1/11/09
124	Formwork & concreting	50 days	Mon 2/11/09	Mon 21/12/09
125	**FBT07-5 at CH600 approximate**	**110 days**	**Mon 20/7/09**	**Fri 6/11/09**
126	Excavation	20 days	Mon 20/7/09	Sat 8/8/09
127	Rock & granular filling for the base of the FB	20 days	Sun 9/8/09	Fri 28/8/09
128	Blinding layer for the FB	20 days	Sat 29/8/09	Thu 17/9/09
129	Formwork & concreting	50 days	Fri 18/9/09	Fri 6/11/09
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
133	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
135	Wall construction for the ramp	40 days	Tue 27/4/10	Sat 5/6/10
136	**At CH600 Approximate**	**45 days**	**Mon 12/4/10**	**Wed 26/5/10**
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
140	Wall construction for the ramp	30 days	Tue 27/4/10	Wed 26/5/10



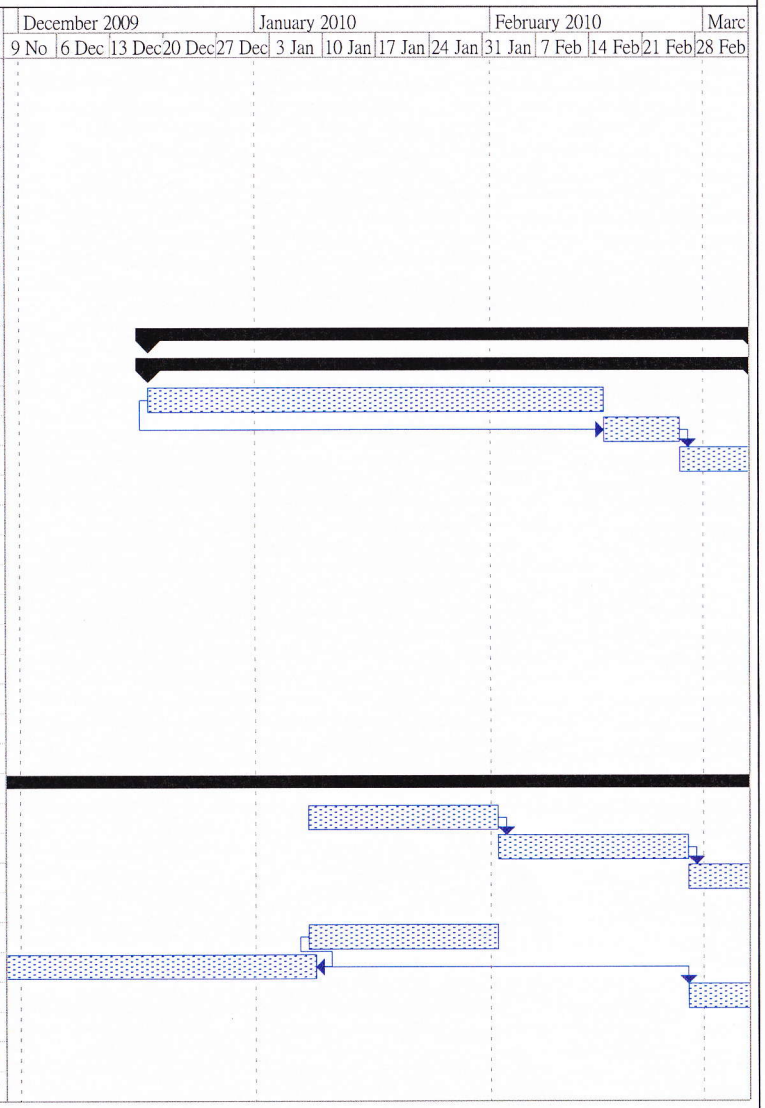
Project: Project 10-R (No.23)
Date: Fri 27/11/09

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

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

Three Month (12)/2009 & (01,02)/2010 Rolling Programme (No.23)

ID	Task Name	Duration	Start	Finish
141	**Verge/footpath construction**	**67 days**	**Mon 12/4/10**	**Thu 17/6/10**
142	Subase construction for the verges	40 days	Mon 12/4/10	Fri 21/5/10
143	Gassed cellular concrete/concrete paving	40 days	Thu 22/4/10	Mon 31/5/10
144	Type 2 railing construction	40 days	Sun 2/5/10	Thu 10/6/10
145	Retaining wall construction	47 days	Sun 2/5/10	Thu 17/6/10
146	**At CH687 Approximate**	**47 days**	**Sun 2/5/10**	**Thu 17/6/10**
147	Type D L-shaped RW construction	20 days	Sun 2/5/10	Fri 21/5/10
148	Preforated pipe installation	10 days	Sat 22/5/10	Mon 31/5/10
149	Backfilling the RW	17 days	Tue 1/6/10	Thu 17/6/10
150	**Retaining wall construction**	**80 days**	**Fri 18/12/09**	**Sun 7/3/10**
151	**At CH35 to 104 Approximate**	**80 days**	**Fri 18/12/09**	**Sun 7/3/10**
152	Type D L-shaped RW construction	60 days	Fri 18/12/09	Mon 15/2/10
153	Preforated pipe installation	10 days	Tue 16/2/10	Thu 25/2/10
154	Backfilling the RW	10 days	Fri 26/2/10	Sun 7/3/10
155	**U Channel construction**	**40 days**	**Sun 2/5/10**	**Thu 10/6/10**
156	**375&525 UC at CH352 Approximate**	**40 days**	**Sun 2/5/10**	**Thu 10/6/10**
157	Trench excavation	20 days	Sun 2/5/10	Fri 21/5/10
158	Concrete for the U channel	30 days	Wed 12/5/10	Thu 10/6/10
159	**525UC at CH552 Approximate**	**30 days**	**Sun 2/5/10**	**Mon 31/5/10**
160	Trench excavation	20 days	Sun 2/5/10	Fri 21/5/10
161	Concrete for the U channel	20 days	Wed 12/5/10	Mon 31/5/10
162	**525&600 UC at CH690 Approximate**	**40 days**	**Sun 2/5/10**	**Thu 10/6/10**
163	Trench excavation	20 days	Sun 2/5/10	Fri 21/5/10
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 Approximate	25 days	Fri 8/1/10	Mon 1/2/10
167	Inlet pipe at CH400 Approximate	25 days	Tue 2/2/10	Fri 26/2/10
168	Inlet pipe at CH408 Approximate	25 days	Sat 27/2/10	Tue 23/3/10
169	Inlet pipe at CH450 Approximate	25 days	Wed 24/3/10	Sat 17/4/10
170	Inlet pipe at CH570 Approximate	25 days	Fri 8/1/10	Mon 1/2/10
171	Inlet pipe at CH630 Approximate	50 days	Fri 20/11/09	Fri 8/1/10
172	Inlet pipe at CH750 Approximate	25 days	Sat 27/2/10	Tue 23/3/10
173				
174	**Section 5 of works for TKL07**	**123 days**	**Wed 24/3/10**	**Sat 24/7/10**
175	Completion of Section 5 of works for TKL07	123 days	Wed 24/3/10	Sat 24/7/10



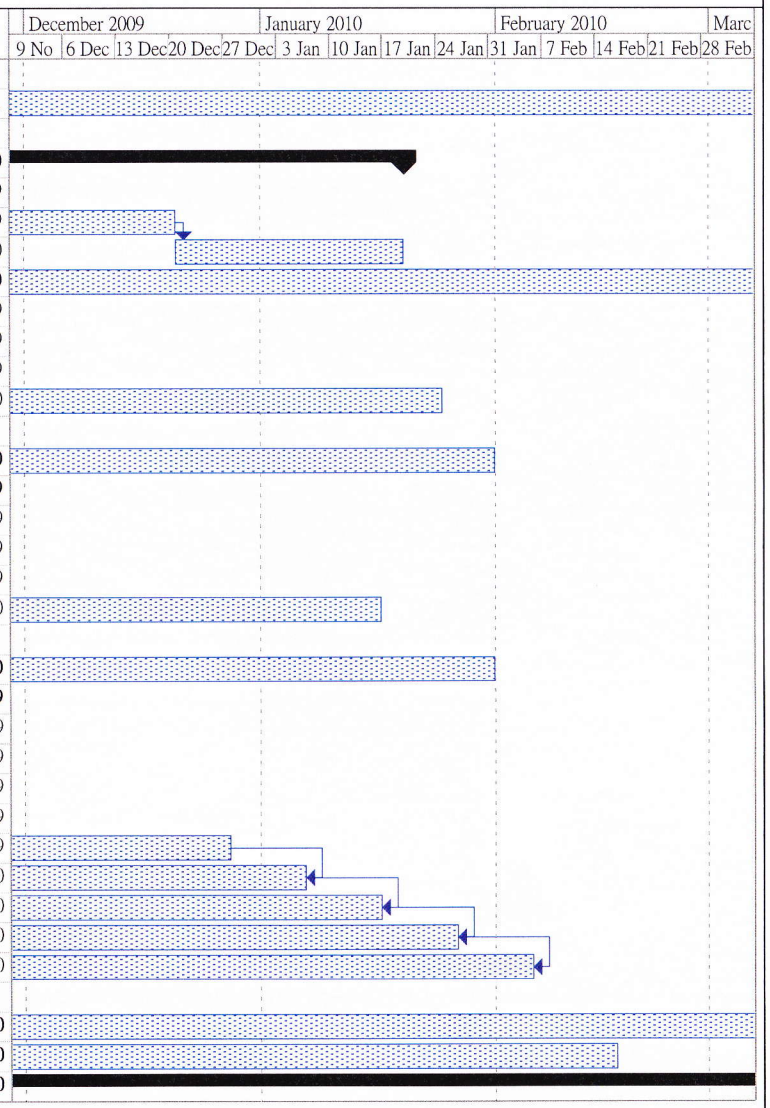
Project: Project 10-R (No.23)
Date: Fri 27/11/09

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

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

Three Month (12)/2009 & (01,02)/2010 Rolling Programme (No.23)

ID	Task Name	Duration	Start	Finish
176				
177	C: Section 3 - Man Uk Ping (Portion D & E)	1126 days?	Fri 21/12/07	Wed 19/1/11
178				
179	Diversion for CLP Conflicted poles at Channel TKL02	121 days?	Mon 21/9/09	Tue 19/1/10
180	Indentification of conflicted electricity poles liaise with CLP	31 days?	Mon 21/9/09	Wed 21/10/09
181	Waiting for CLP's Diversion Preparation	60 days	Thu 22/10/09	Sun 20/12/09
182	Diversion of cnflicted electricity poles by CLP	30 days	Mon 21/12/09	Tue 19/1/10
183	1. River MUP01 (Portion D)	429 days?	Mon 2/2/09	Tue 6/4/10
184	Open cut excavation of Left Bank of G.W. Foundation CH0 to CH93	30 days	Mon 29/6/09	Tue 28/7/09
185	Rock & ganular filling for the base of gabion	100 days	Thu 9/7/09	Fri 16/10/09
186	Blinding layer for the gabion construction	100 days	Sun 19/7/09	Mon 26/10/09
187	Backfilling and gabion constrution by layers	180 days	Wed 29/7/09	Sun 24/1/10
188				
189	2. River MUP02 (Portion D)	294 days	Mon 13/4/09	Sun 31/1/10
190	Stabilise existing river bank	225 days	Mon 13/4/09	Mon 23/11/09
191	Excavate & erect shoring support	30 days	Thu 16/7/09	Fri 14/8/09
192	Rock & ganular filling for the base of gabion	30 days	Sat 15/8/09	Sun 13/9/09
193	Blinding layer for the gabion construction	30 days	Mon 14/9/09	Tue 13/10/09
194	Backfilling and gabion constrution by layers	95 days	Wed 14/10/09	Sat 16/1/10
195				
196	3. Main River of MUP03	294 days?	Mon 13/4/09	Sun 31/1/10
197	Boundry Wall Construction approximate CHB575 to CHC653 & CHC304 to CHC 360	100 days	Tue 21/7/09	Wed 28/10/09
202	Excavation	20 days	Tue 21/7/09	Sun 9/8/09
203	Rock & granular filling for the base of the FB	20 days	Mon 10/8/09	Sat 29/8/09
204	Blinding layer for the FB	20 days	Sun 30/8/09	Fri 18/9/09
205	Formwork & concreting	40 days	Sat 19/9/09	Wed 28/10/09
206	Open cut excavation	60 days	Thu 29/10/09	Sun 27/12/09
207	Rock & ganular filling for the base of gabion	60 days	Sun 8/11/09	Wed 6/1/10
208	Blinding layer for the gabion construction	60 days	Wed 18/11/09	Sat 16/1/10
209	Backfilling and gabion constrution by layers	90 days	Thu 29/10/09	Tue 26/1/10
210	Gabion block constuction in the middle of the river	90 days	Sun 8/11/09	Fri 5/2/10
211				
212	4. River MUP05 (Portion D)	610 days?	Sat 14/3/09	Sat 13/11/10
213	Main River Construction (CH C 0+00 to 0+974)	340 days?	Sat 14/3/09	Tue 16/2/10
214	Open cut excavation	190 days	Wed 23/9/09	Wed 31/3/10



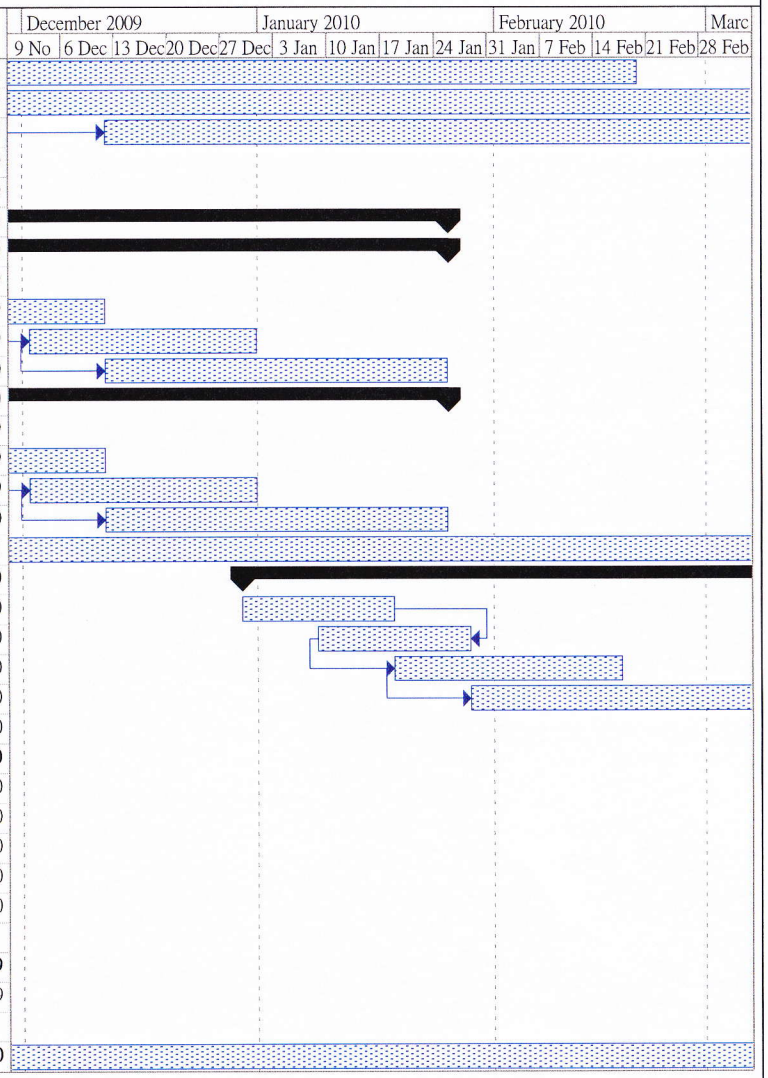
Project: Project 10-R (No.23)
Date: Fri 27/11/09

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

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

Three Month (12)/2009 & (01,02)/2010 Rolling Programme (No.23)

ID	Task Name	Duration	Start	Finish
215	Left Bank of G.W. Foundation CH650 to CH760	150 days	Wed 23/9/09	Fri 19/2/10
216	Left Bank of G.W. Foundation CH960 to CH990	150 days	Mon 2/11/09	Wed 31/3/10
217	Rock & ganular filling for the base of gabion	120 days	Sat 12/12/09	Sat 10/4/10
218	Blinding layer for the gabion construction	120 days	Sun 11/4/10	Sun 8/8/10
219	Backfilling and gabion constrution by layers	200 days	Wed 21/4/10	Sat 6/11/10
220	**Retaining Wall construction**	**85 days**	**Mon 2/11/09**	**Mon 25/1/10**
221	**At CH C+398 to CH500 Approximate**	**85 days**	**Mon 2/11/09**	**Mon 25/1/10**
222	Granular filling with geotextile filter	20 days	Mon 2/11/09	Sat 21/11/09
223	Concrete for the blinding layer	20 days	Sun 22/11/09	Fri 11/12/09
224	Base slab construcion for the Wall	30 days	Wed 2/12/09	Thu 31/12/09
225	Wall construction	45 days	Sat 12/12/09	Mon 25/1/10
226	**At CH + 894 to CH + 942 Approximate**	**85 days**	**Mon 2/11/09**	**Mon 25/1/10**
227	Granular filling with geotextile filter	20 days	Mon 2/11/09	Sat 21/11/09
228	Concrete for the blinding layer	20 days	Sun 22/11/09	Fri 11/12/09
229	Base slab construcion for the Wall	30 days	Wed 2/12/09	Thu 31/12/09
230	Wall construction	45 days	Sat 12/12/09	Mon 25/1/10
231	**5. River MUP05 (Portion E)**	**803 days?**	**Mon 16/2/09**	**Fri 29/4/11**
232	**Rectangular Channel**	**85 days**	**Wed 30/12/09**	**Wed 24/3/10**
233	Rock & ganular filling for the base of gabion	20 days	Wed 30/12/09	Mon 18/1/10
234	Blinding layer for the gabion 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 channel	10 days	Mon 15/3/10	Wed 24/3/10
238	**Gabion Construction**	**170 days**	**Thu 25/3/10**	**Fri 10/9/10**
239	Rock & ganular filling for the base of gabion	30 days	Thu 25/3/10	Fri 23/4/10
240	Blinding layer for the gabion construction	30 days	Thu 25/3/10	Fri 23/4/10
241	Backfilling and gabion constrution by layers	120 days	Thu 25/3/10	Thu 22/7/10
242	Gabion block constuction 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
244				
245	**Wo Keng Shan Garden**	**1 day?**	**Mon 25/5/09**	**Mon 25/5/09**
246	Tree Transplanted & Handed Over for One year maintenance	1 day?	Mon 25/5/09	Mon 25/5/09
247				
248	**D. Section 4 & 5 of Works - LMH (Portion F)**	**1095 days?**	**Fri 21/12/07**	**Sun 19/12/10**



Project: Project 10-R (No.23)
Date: Fri 27/11/09

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

Environmental Mitigation Implementation Schedule

Implementation Schedule of Water Quality Impact Assessment

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
Water Quality - Construction Phase									
**	4.9.2	The Contractor shall observe and comply with the Water Pollution Control Ordinance and its subsidiary regulations. The Contractor shall carry out the Works in such a manner as to minimize adverse impacts on the water quality during execution of the works. In particular he shall arrange his method of working to minimize the effect 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
**	4.9.3	Proper site 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. The Contractor shall follow the practices, and be responsible for the design, construction and maintenance of all the mitigation measures as specified in ProPECC PN 1/94 "*Construction Site Drainage*". The design of the mitigation measures shall be submitted by the Contractor to the Engineer for approval. These mitigation measures shall include the following practices to minimize site surface runoff and the chance of erosion, and also to retain and reduce any suspended solids prior to discharge: (i) Before commencing any site formation work, all sewer and drainage connections	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		√		Water Pollution Control Ordinance ProPECC PN 1/94

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
		shall be sealed to prevent debris, soil, sand etc. from entering public sewers / drains. (ii) Provision of perimeter channels to intercept storm-runoff from outside the site. These shall be constructed in advance of site formation works and earthworks. (iii) Temporary ditches such as channels, earth bunds or sand bag barriers shall be included to facilitate runoff discharge into the stormwater drain, via a sand/silt basin/trap. (iv) Works programmes shall be designed to minimize works areas at any one time, thus minimizing exposed soil areas and reducing the potential for increased siltation and runoff. (v) Sand/silt removal facilities such as sand traps, silt traps and sediment basins shall be provided to remove the sand/silt particles from run-off. These facilities shall be properly and regularly cleaned and maintained. These facilities shall be carefully planned to ensure that they would be installed at appropriate locations to capture all surface water generated on site. (vi) Carefully programming of the works to							

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
		minimize excavation works during the rainy season.							
		(vii) Temporary access roads shall be protected by crushed gravel and exposed slope surfaces shall be protected when rainstorms are likely.							
		(viii) Open stockpiles of construction materials on-site shall be covered with tarpaulin or similar fabric during rainstorms to prevent erosion.							
**	4.9.4	The use of containment structures and diversion channels is recommended wherever practicable to facilitate a dry or at least confined excavation within watercourses. By limiting or confining the works areas the extent of disturbance to the surrounding water bodies will be significantly reduced, and thus resulting impacts on water quality from sediment resuspension will be reduced. Furthermore, excavation works shall be carried out during periods of low flow (dry season) as far as possible to minimize impacts on downstream water quality and sensitive receivers.	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		√		Water Pollution Control Ordinance ProPECC PN 1/94
**	4.9.5	Portable toilets shall be provided by the Contractors, where necessary, to handle sewage from the workforce. To prevent spillage of fuels and solvents to water courses, all fuel tanks and storage areas shall be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank.	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		√		Water Pollution Control Ordinance ProPECC PN 1/94
**	4.9.6	The Contractor shall not discharge directly or	To minimize adverse	All works site /	Construction		√		Water Pollution

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
		indirectly or cause or permit or suffer to be discharged into any public sewer, stormwater drain, channel, stream-course or sea any trade effluent or foul or contaminated water or cooling or hot water without the prior written consent of the Engineer in consultation with the Director of Environmental Protection and Director of Water Supplies, who may as a condition of granting his consent require the Contractor to provide, operate and maintain at the Contractor's own expense to the satisfaction of the Engineer suitable works for the treatment and disposal of such trade effluent or foul or contaminated or cooling or hot water. The design of such treatment works shall be submitted to the Engineer for approval not less than one month before the commencement of the relevant works.	water quality impact during construction	during construction	Contractor				Control Ordinance ProPECC PN 1/94
**	4.9.7	If any office, site canteen or toilet facilities is erected, foul water effluent shall be directly to a foul sewer or to a sewage treatment and disposal facility either directly or indirectly by means of pumping or other means approved by the Engineer.	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		√		Water Pollution Control Ordinance ProPECC PN 1/94

D = Design, C = Construction, O = Operation

Implementation Schedule of Waste

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
Waste - Construction Phase									
7.5.2	5.1.2	*General* 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 include among other environmental nuisances abatement measures 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 should 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 ES Report.	Waste reduction, reuse, recycle and proper disposal of waste	All works site / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
7.5.3	5.1.3	The contractor also should refer to the Construction and Demolition Material Management Plan (C&DMMP) conducted under the Project when preparing the EMP.	Waste reduction, reuse, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.5.4	5.1.4	Training of construction staff should be undertaken by the contractor about the concept of site cleanliness and appropriate waste management procedures. The contractor should develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials. Requirements for staff training should be included in the EMP.	Waste reduction, reuse, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.5.5	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, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.5.6	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 as described below should be followed. A recoding system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be implemented. In order to monitor the disposal of C&D materials and solid wastes at public filling	Waste reduction, reuse, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 31/2004

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
		facilities and landfills and to control fly-tipping, a trip-ticket system should be included. One may make reference to ETWB TCW No. 31/2004 for details.							
7.5.7	5.1.7	Regular cleaning and maintenance of the waste storage area should be provided.	Waste reduction, reuse, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
		On-site Sorting, Reuse and Recycling							
7.5.8	5.1.8	All waste materials should be segregated into categories covering: • excavated materials suitable for reuse on-site; • excavated materials suitable for public filling facilities; • remaining C&D waste for landfill; • chemical waste; and • general refuse for landfill.	Waste reduction, reuse, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.5.9	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, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.5.10	5.1.10	Sorting is important to recover materials for reuse and recycling. Specific area should be allocated for on-site sorting of C&D materials and to	Waste reduction, reuse, recycle and proper disposal of	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
		provide a temporary storage area for those sorted materials 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.	waste						ETWB TCW No. 19/2005, 31/2004
7.5.11	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, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
7.5.12	5.1.12	Prior to export of material from the site, the 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.	Waste reduction, reuse, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.5.13	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, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005, 24/2004 WBTC No. 12/2002
7.5.14	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	Waste reduction, reuse, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
		stream bed material. This is dependent on size of rock fragments but can be achieved by appropriate use of a crusher.							
		Site Clearance / Demolition Materials *Excavated Materials*							
7.5.15	5.1.15	All C&D materials should be sorted on-site into inert and non-inert components by the contractor. Non inert materials (C&D waste) such as wood, glass and plastic should be reuse and recycle before disposal to a designated landfill as a last resort (currently assume to be the nearby NENT Landfill). Inert materials (public fill) such as soil, rubble, sand, rock, brick and concrete should be separated and where appropriate broken down to size suitable for subsequent filling. 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.	Waste reduction, reuse, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005, 31/2004
7.5.16	5.1.16	Excavated sediment from existing stream should be reuse on-site as backfilling material.	Waste reduction, reuse, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.5.17	5.1.17	Good quality reusable topsoil should be stockpiled for later landscaping works. Stockpiles	Waste reduction, reuse, recycle and	All work sites / during	Construction Contractor		√		Waste Disposal Ordinance

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
		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.	proper disposal of waste	construction					ETWB TCW No. 19/2005
7.5.18	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; • disturbance of stockpiled soil should be minimized; • stockpiled soil should be properly covered with tarpaulins especially 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 equipped with silt traps should be installed at the stockpiling area.	Waste reduction, reuse, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.5.19	5.1.19	The Public Fill Committee (PFC) of CEDD should be consulted on designated outlets (e.g.	Waste reduction, reuse, recycle and	All work sites / during	Construction Contractor		√		Waste Disposal Ordinance

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
		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 30% (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.	proper disposal of waste	construction					ETWB TCW No. 19/2005
7.5.20	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.	Waste reduction, reuse, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.5.21	5.1.21	C&D materials should be disposed of at designated public filling facilities or landfills. Disposal of these materials for use at other construction projects is subject to the approval of the Engineer and/or relevant authorities, such as LandsD, PlanD, etc. Furthermore, unauthorized disposal of C&D materials in particular on private agricultural land is prohibited and may be subject to relevant enforcement and regulating actions. The contractor shall refer and strictly follow the trip-ticket system for the disposal of C&D material as stipulated in the ETWB TCW No. 31/2004.	Waste reduction, reuse, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005, 31/2004
		Chemical Waste							
7.5.22	5.1.22	Where the construction processes produce chemical waste, the contractor must register with	Waste reduction, reuse, recycle and	All work sites / during	Construction Contractor		√		Waste Disposal (Chemical Waste) (General)

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
		EPD as a chemical waste producer. Wastes classified as chemical wastes are listed in the Waste Disposal (Chemical Waste) (General) Regulation. These wastes are subject to stringent disposal routes. EPD requires information on the particulars of the waste 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.	proper disposal of waste	construction					Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Waste
7.5.23	5.1.23	Storage, handling, transport and disposal of chemical waste should be arranged in accordance with the 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.	Waste reduction, reuse, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Waste
7.5.24	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	Waste reduction, reuse, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Waste

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
		m height or height of tallest container with adequate ventilation and space.							
7.5.25	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 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. Waste collected from any grease traps should be collected and disposed of by a licensed contractor.		Work sites / During construction	Construction Contractor		√		Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Waste
7.5.26	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, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Waste

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
7.5.27	5.1.27	The registered chemical waste producer (i.e. the contractor) has to arrange for the chemical waste to 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 movement of chemical wastes.	Waste reduction, reuse, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Waste
7.5.28	5.1.28	No lubricants, oils, solvents or paint products should be allowed to discharge into water courses, either by direct discharge, or as contaminants carried in surface water runoff from the construction site.	Waste reduction, reuse, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Waste
		Concrete Waste							
7.5.29	5.1.29	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, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005, 33/2002
		Wooden Materials							
7.5.30	5.1.30	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	Waste reduction, reuse, recycle and proper disposal of	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No.

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
		should be sorted out from other waste and stored separately from all inert waste before being disposed of to landfill.	waste						19/2005, 33/2002
7.5.31	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 timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimize the use of timber formwork.	Waste reduction, reuse, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005, 33/2002 WBTC No. 19/2001
7.5.32	5.1.32	Only waste material need be taken to a landfill. It should be separated from recyclable wood and steel materials. As for all waste types these materials should be reused on-site or other approved sites before disposal is considered as an option. Disposal to landfill should only be considered as a final option. Contractors are responsible for storage of re-useable materials on-site.	Waste reduction, reuse, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005, 33/2002
		Municipal Waste							
7.5.33	5.1.33	General refuse generated on-site should be stored in enclosed bins or skips and collected separately from other construction and chemical wastes and disposed of at designated landfill. A temporary	Waste reduction, reuse, recycle and proper disposal of	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No.

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
		refuse collection point should be set up by the contractor to facilitate the collection of refuse by licensed contractors. The removal of waste from the site should be arranged on a daily or at least on every second day by the contractor to minimise any potential odour impacts, minimise the presence of pests, vermin and other scavengers and prevent unsightly accumulation of waste.	waste						19/2005
7.5.34	5.1.34	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the contractor. The contractor should also be responsible for arranging recycling companies to collect these materials.	Waste reduction, reuse, recycle and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.5.35	5.1.35	The burning of refuse on-site is prohibited under the Air Pollution Control Ordinance (APCO) (Cap.311).	Waste reduction, reuse, recycle and proper disposal of waste, minimize air quality impacts from burning of refuse on-site	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005 Air Pollution Control Ordinance
		Land Contamination							
7.9.1	5.1.43	A site at TKL10 to be resumed may have the potential of contaminated land (Figure 7.1). As	To investigate the potential of	TKL10 (as per Figure 7.1) / prior	Construction Contractor's		√		ProPECC PN 3/94

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
Figure 7.1	Figure 5.1	detailed site investigation study cannot be undertaken at the design stage, it is recommended that the contractor shall engaged an Environmental Team (ET) to conduct detailed site investigation and if necessary prepare a Contamination Assessment Plan for approval by EPD prior to commencement of construction works.	contaminated land at TKL10	to commencement of construction	Environmental Team				
7.9.2	5.1.44	The ET shall conduct a full site inspection to review the validity of the preliminary CAP and define the exact number of sampling points, sampling locations and sampling parameters for site investigation, taking into account the contractor's site clearance / excavation works in the areas. If necessary, the ET shall then prepare an updated CAP in accordance with EPD's Guidance Notes for Investigation and Remediation of Contaminated Sites for Petrol Filling Stations, Boatyards, and Car Repair/Dismantling Workshops and ProPECC PN 3/94 – Contaminated Land Assessment and Remediation for EPD's endorsement prior to commencement of the site sampling	To investigate the potential of contaminated land at TKL10	TKL10 (as per Figure 7.1) / prior to commencement of construction	Construction Contractor's Environmental Team		√		ProPECC PN 3/94
7.9.3	5.1.45	The ET shall conduct a site contamination assessment and remediation (if necessary) for the identified location in accordance with the endorsed CAP. The ET shall complete the corresponding laboratory tests, prepare and complete the Contamination Assessment Report	To investigate the potential of contaminated land at TKL10	TKL10 (as per Figure 7.1) / prior to commencement of construction	Construction Contractor's Environmental Team		√		ProPECC PN 3/94

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
		(CAR) and Remediation Action Plan (RAP), where necessary and submit to EPD for approval prior to the commencement of any construction works in order to avoid or minimise any associated risks or hazards							
7.6.24	5.1.46	Should contaminated materials be identified, the contractor shall carry out the following environmental health and safety precautionary measures, or any other measures as instructed by the Engineer: (1) Site workers should wear appropriate personal protective equipment (gloves, dust mask) when exposed to contaminated materials. (2) The stockpile of contaminated materials, if permitted by the Engineers, should be segregated from the uncontaminated ones. In addition, the contaminated materials (whether stockpiled or being transported) should be properly covered during wet seasons to avoid leaching out of contaminants. (3) Eating, drinking and smoking should not be allowed in contaminated areas to avoid inadvertent ingestion of contaminants. Adequate washing facilities should be provided.	To ensure health and safety to the workers in the event contaminated soil is found at TKL10	TKL10 (as per Figure 7.1) / during construction	Construction Contractor's Environmental Team		√		ProPECC PN 3/94

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
		(4) Bulk earth moving equipment should be utilised as much as possible to minimize workers' handling and contact of the contaminated materials. (5) The stockpiling area should be separated from the nearby water drainage network.							

D = Design, C = Construction, O = Operation

Implementation Schedule of Sediment Quality Investigation

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Time	Implementation Agent	Implementation Stages			Relevant Legislation & Guidelines
						D	C	O	
6.7.1	5.1.38	Excavated sediment from existing stream should be reused on-site as backfilling material.	To minimize offsite disposal of sediment	For channels where sediment removal is required / during construction	Construction Contractor		√		
6.7.2	5.1.39	To minimize the potential impacts on water quality, sediment must be excavated with care	To minimize offsite disposal of sediment	For channels where sediment removal is required / during construction	Construction Contractor		√		
6.7.3	5.1.40	The use of containment structures (e,g, bunds) and diversion channels is recommended wherever practicable to facilitate a dry or at least confined excavation within water courses. By limiting or confining the works areas, the extent of disturbance to the surrounding water bodies will be significantly reduced, and thus the resulting impacts on water quality from sediment re-suspension will also be reduced. Furthermore, excavation works should be carried out during periods of low flow (during dry season) as far as practicable to minimize impacts on downstream water quality and sensitive receivers	To minimize offsite disposal of sediment	For channels where sediment removal is required / during construction	Construction Contractor		√		
6.7.4	5.1.41	The impact arising from water being pumped from streams into adjacent streams, channels or temporary ponds should be mitigated to avoid pollutants. The water should be pumped to temporary sedimentation or other silt removal facilities to allow settlement of suspended solids before any water is discharged into local water courses. If large volumes of water need to be removed from the works area, temporary dams should be constructed using sandbags to prevent mixing of polluted and turbid water with cleaner water blow the dam.	To minimize offsite disposal of sediment	For channels where sediment removal is required / during construction	Construction Contractor		√		
6.7.5	5.1.42	After dewatering of the streams, the sediments should be allowed to dry before excavation. This will facilitate excavation of the sediment and also minimize the risk of drained water following back into water courses as the sediment is handled. Where time or weather constraints require handling of wet sediment, care should be taken in the removal of the sediment and the storage area should bunded to prevent silty runoff entering water courses.	To minimize offsite disposal of sediment	For channels where sediment removal is required / during construction	Construction Contractor		√		

D = Design, C = Construction, O = Operation

Implementation Schedule of Noise Mitigation Measures

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Time	Implementation Agent	Implementation Stages			Relevant Legislation & Guidelines
						D	C	O	
2.6.2 – 2.6.5	Table 3.4	*Level 1 Mitigation – Use of Quiet Plant* The use of quiet plant is considered to be the most effective ways of alleviating Construction noise impact. The Contractor should use quiet plant with sound power level lower than that stipulated in the TM-GW as the Level 1 mitigation for construction noise. The quiet plant used in the construction noise calculation is shown in Appendix B. The Contractor can propose other suitable alternative equipment with similar or lower sound power level. 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. The Contractor should take note of ETWB TCW No. 19/2005 – Environmental Management on Construction Sites which sets out the policy and procedure requiring contractors to among others, adopt Quality Power Mechanical Equipment (QPME)	To Protect NSRs from noise during construction	All works site / during construction	Construction Contractor		√		ProPECC PN 2/93
2.6.7 – 2.6.8 (Figures 2.9 – 2.15)	Table 3.4	*Level 2 Mitigation – Use of Temporary Noise Barriers* 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 7kg/m3. Noise barrier should be provide for noisy construction activities that would be undertaken close (about 25m or less) to NSRs. The noise barriers should have a vertical height of at least 2.5m 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. It should have no gaps or opening at joints. The Contractor should regularly inspect and maintain the noise barrier to ensure its effectiveness. For the construction works which have the potential to exceed the noise standards on nearby NSR and shoes line of sight cannot be effectively blocked by the temporary noise barrier, movable (mobile) barriers should be provided. Movable barriers of at least 2.5m 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 5m 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.	To Protect NSRs from noise during construction	Locations as per Figures 2.9 – 2.15 of ES or all works site located at 25m or less from NSRs / during construction	Construction Contractor		√		ProPECC PN 2/93

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Time	Implementation Agent	Implementation Stages			Relevant Legislation & Guidelines
						D	C	O	
2.9.1	3.8.1	The location of the temporary noise barriers should be further reviewed during the detailed design stage by the detailed design engineer or by the Environmental Team (ET) Leader during construction stage based on the latest construction programme and contemporary site conditions, including any changes with respect to NSRs.	To ensure the proposed temporary noise barriers are effectively implemented	Locations as per Figures 2.9 – 2.15 of ES or all works site located at 25m or less from NSRs / during construction	Detailed Design Engineer / Construction Contractor	√	√		ProPECC PN 2/93
2.6.2 – 2.6.5	Table 3.4	*Good Site Practices* In general, potential construction noise impact can be minimized or avoided by imposing a combination of the following good site practices as mitigation measures: (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. (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 utilized 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 minimize noise impacts on the surrounding environment and shall provide experienced personnel with suitable traning 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 school (especially during examination periods). The Contractor should liaise with the school and the Examination Authority to ascertain the exact dates and times of all examination periods during the course of the contract and to avoid noisy activities during these periods.	To Protect NSRs from noise during construction	All works site / during construction	Construction Contractor		√		ProPECC PN 2/93
2.6.14	Table 3.4	*Public Relation Strategy* To maintain an effective communication channel with the public, a 24-hour hotline system should be established by the project office for the Contractor to receive any enquiry and complaint lodged by the public in the respect of the Project.	To promote good public relation and maintain effective communication	All works site / during construction	Project Office (Engineer) & Construction		√		-----

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Time	Implementation Agent	Implementation Stages			Relevant Legislation & Guidelines
						D	C	O	
		Upon receipt of enquiry / complaint, the Contractor (or its ET) should investigate the causes of the incident and take the appropriate action to rectify the situation. Periodic newsletters, information leaflets, notices or other means of communication should be provided to the affected villages, communities, and residents advising them the current progress, the schedule of works in future, the potential environmental impacts arising from the works and the corresponding mitigation measures.	during construction		Contractor				
2.9.1	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 Environmental Team (ET) Leader and verified by the Independent Environmental Checker (IEC) to ensure the intended noise reduction effectiveness can be achieved.	To ensure proper implementation of noise mitigation measures by the Contractor	All works site / during construction	Construction Contractor		√		ProPECC PN 2/93

D = Design, C = Construction, O = Operation

Implementation Schedule of Landscape and Visual Impact Measures

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Time	Implementation Agent	Implementation Stages			Relevant Legislation & Guidelines
						D	C	O	
5.2.51 – 5.2.52	7.5.10 – 7.5.11	Landscape Mitigation -TKL02 To minimize cutting of native tree species at the proposed channel's beginning, the alignment should be adjusted to reduce tree felling. Where unavoidable, re-vegetation efforts should concentrate on using native species. One of the area's landscape features are the mature bamboo growth clusters. They have been retained in the latest design. The current drainage design includes gabion walls with a tiled angle of 10 degree. This would allow vegetation to establish better when combined with the application of a growth medium, providing more micro-habitat space.	To minimize landscape and visual impact form the Project	TKL02 / during detailed design and construction	Detailed Design Engineer & Construction Contractor	√	√		ETWB TCW No. 3/2006
5.2.58 – 5.2.60	7.5.12 – 7.5.14	Landscape Mitigation - TKL07 To minimize cutting of native tree species at the proposed channel's centre section. Where unavoidable, re-vegetation efforts should concentrate on using native species. To compensate for the loss of riparian habitat due to the river training works and to create breeding and foraging habitats for wetland dependent wildlife, the retained meanders may be developed into marshes. The current drainage design includes gabion walls with a tiled angle of 10 degree. This would allow vegetation to establish better when combined with the application of a growth medium, providing more micro-habitat space.	To minimize landscape and visual impact form the Project	TKL07 / during detailed design and construction	Detailed Design Engineer & Construction Contractor	√	√		ETWB TCW No. 3/2006
5.2.76 – 5.2.79	7.5.16 – 7.5.19	Landscape Mitigation - MUP01 & MUP02 The design modifies to the existing streamcourse only in those areas where there is a particular risk of flooding. Some localized bank stabilization will use materials permitting decolonization by riparian vegetation such as gabion baskets. The proposed treatment would be beneficial, especially in the less disturbed up-stream areas providing roosting and foraging grounds for at least 36 wetland dependent species, the highest number of all studied sites. Natural stream bottom should be retained in situ and works involving disturbance to the stream bottom should be restricted to short sections proceeding upstream to permit survival and subsequent decolonization of worked areas by stream fauna. To minimize cutting of native tree species at southern section of MUP01 and MUP02, the alignment should be adjusted as much as possible so to reduce the need for tree felling (this section represents approximately 200m to 280m downstream from the proposed channel start). If removal of trees remains unavoidable, re-vegetation efforts after work completion should focus on the use of native species as found in the affected areas.	To minimize landscape and visual impact form the Project	MUP01 and MUP02 / during detailed design and construction	Detailed Design Engineer & Construction Contractor	√	√		ETWB TCW No. 3/2006

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Time	Implementation Agent	Implementation Stages			Relevant Legislation & Guidelines
						D	C	O	
5.3.41 – 5.3.42	7.5.26 – 7.5.27	Visual Mitigation – TKL02 To minimize cutting of native tree species at the proposed channel's beginning, the alignment should be adjusted to reduce tree felling and maintain this visual amenity. The current drainage design includes gabion walls with a tilted angle of 10 degree. This would allow vegetation to establish better when combined with the application of a growth medium, providing more micro-habitat space, reducing visual impacts furthermore.	To minimize landscape and visual impact form the Project	TKL02 / during detailed design and construction	Detailed Design Engineer & Construction Contractor	√	√		ETWB TCW No. 3/2006
5.3.46 – 5.3.47	7.5.28 – 7.5.29	Visual Mitigation – TKL07 As much as possible, riverside tree cover should be retained. The current drainage design includes vertical gabion walls. The current drainage design includes gabion walls with a tilted angle of 10 degree. This would be allow vegetation to establish better when combined with the application of a growth medium, providing more micro-habitat space.	To minimize landscape and visual impact form the Project	TKL07 / during detailed design and construction	Detailed Design Engineer & Construction Contractor	√	√		ETWB TCW No. 3/2006
5.3.60	7.5.31	Visual Mitigation – MUP01 and MUP02 To minimize cutting of the Fung Shui woodland at the southern section of MUP01, the alignment should be adjusted. If removal of trees remains unavoidable, re-vegetation efforts after work completion should focus on the use of native species as found in the affected areas.	To minimize landscape and visual impact form the Project	MUP01 and MUP02 / during detailed design and construction	Detailed Design Engineer & Construction Contractor	√	√		ETWB TCW No. 3/2006

D = Design, C = Construction, O = Operation

Implementation Schedule of Ecological Impact Measures

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Time	Implementation Agent	Implementation Stages			Relevant Legislation & Guidelines
						D	C	O	
		MUP01/02							
3.16.15	6.5.15	*Existing stream course* The proposed works within the stream channel should be carried out within the dry season (1st October – 31st March)	Minimize ecological impact on MUP01/02 during construction	All works sites at MUP01/02 during construction	Construction Contractor		√		DSD Technical Circular No. 2/2004
3.16.16	6.5.16	Appropriate site management procedures during the construction phase should be adopted, as recommended in ETWB TCW No. 5/2005, to minimize 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.	Minimize ecological impact on MUP01/02 during construction	All works sites at MUP01/02 during construction			√		ETWB TCW No. 5/2005
3.16.17	6.5.17	In addition, the widened stream bottom should be floored with natural materials (natural rock and fines of varying sizes) to approximate as closely as possible to the rocky components of a natural stream bottom. Natural materials of a smaller particle size (sand and silt grains) will soon be deposited naturally.	Minimize ecological impact on MUP01/02 during construction	All works sites at MUP01/02 during construction	Construction Contractor		√		DSD Technical Circular No. 2/2004
3.16.18	6.5.18	*Stream banks and riparian vegetation* The nature of the woks limits the extent to which minimization of adverse impacts during the construction stage is feasible. However, where possible native riparian trees which would be impacted during construction works should be transplanted to suitable locations within the project area. Impacts to mature native trees close to the stream should be avoided by retaining the trees in-situ wherever possible, especially in those areas of riparian woodland along MUP02 which are to be retained (e.g. along the bypassed meander).	Minimize ecological impact on MUP01/02 during construction in riparian trees	All works sites at TKL02 and TKL07 during construction	Construction Contractor		√		DSD Technical Circular No. 2/2004
		TKL02 & 07							
3.16.20	6.5.20	*Existing stream course* Appropriate site management procedures during the construction phase should be adopted, as recommended in ETWB TCW No. 5/2005, to minimize 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.	Minimize ecological impact on TKL02 and TKL07 during construction	All works sites at TKL02 and TKL07 during construction	Construction Contractor		√		ETWB TCW No. 5/2005
3.16.21	6.5.21	Potential ecological value of the channelised stream beds will be considerably influenced by the extent to which the grasscrete area has the potential to be colonized by a range of facultative or obligate wetland plant species. Accordingly the grasscrete paving should be not more than 33% concrete (i.e. not	Minimize ecological impact on MUP01/02 during construction	All works sites at TKL02 and TKL07 during construction	Construction Contractor		√		DSD Technical Circular No. 2/2004

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Time	Implementation Agent	Implementation Stages			Relevant Legislation & Guidelines
						D	C	O	
		less than 67% "hole")							
3.16.22	6.5.22	*Stream banks and riparian vegetation* The nature of the woks limits the extent to which minimization of adverse impacts during the construction stage is feasible. However, where possible native riparian trees which would be impacted during construction works should be transplanted to suitable locations within the project area. Impacts to mature native trees close to the stream should be avoided by retaining the trees in-situ wherever possible,	Minimize ecological impact on MUP01/02 during construction in particular riparian trees	All works sites at TKL02 and TKL07 during construction	Construction Contractor		√		DSD Technical Circular No. 2/2004
3.6.23	6.5.23	<u>*Proposed Site Management Measures during Construction*</u> The recommended site management measures are generally good site practices and proper water quality control / waste management measures to be implemented by the contractor for all works near stream courses. These measures include: • Construction activities should be restricted to works area that should be clearly demarcated. • Excavation works should be carried out during the dry season where stream flow is low. Where adequate spare is available, works should be carefully phased such that only on side of the channel is constructed and not all of the stream is impacted at any time, to provide refuge for aquatic organisms. 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 by containment structures, such as using bounds or sandbag barriers (wrapped with getextile fabric) or other similar techniques, to facilitate a dry or at least confined excavation within the water courses and 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 carefully planned and located to minimize disturbance to the substrate of stream and riparian vegetation by construction equipment. Temporary access track should be kept to the minimum width and length. Temporary stream crossings should be supported on stilts above the stream bed. • Adequate temporary drainage measures including sediment and oil/grease traps should be provided to prevent contaminated site run-off entering the water bodies.	Minimize ecological impact on the proposed streams during construction	All works sites / during construction	Construction Contractor		√		DSD Technical Circular No. 2/2004 ETWB TCW No. 5/2005

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Time	Implementation Agent	Implementation Stages			Relevant Legislation & Guidelines
						D	C	O	
		• Stockpiling of construction materials, spoils and waste should be properly covered and located away from water bodies to prevent silty runoff and other pollutants from entering 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.							
3.16.24	6.5.24	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.							
3.16.27 Tables 3.78 & 3.79 Figures 3.42 – 3.48	6.5.27 Tables 6.5 & 6.6	*Proposed Measures to Mitigate for Adverse Ecological Impacts* Mitigation planting of native trees, shrubs and bamboos should be undertaken in locations where the project area includes sufficient space adjacent to the stream but outside the channel itself. Appropriate locations for tree and bamboo planting are detail on Figures 3.42 – 3.48 (of ES Report). Table 3.78 details appropriate species of trees and bamboos for streamside planting, whilst Table 3.79 details appropriate species for woodland planting Tree and bamboo species for riparian planting at TKL02 and TKL07: • *Celtis tetranda (sinensis)* • *Ficus hispida* • *Ficus virens (superba)* • *Sapium sebiferum* • *Schefflera octophylla* • *Bambusa eutuldoides*	To mitigate for the loss of shaded stream sections due to loss of bank side trees at TKL02 and TKL07	Mitigation planting at TKL02 and TKL07 in locations as shown in Figures 3.42 – 3.48 (of ES Report) / during construction	Construction Contractor		√		
3.16.28	6.5.28	Detailed planting plans showing location, species and numbers of trees (together with any tress to be transplanted) as part of the Landscape Plan should be prepared and adopted prior to commencement of the project.	To mitigate for the loss of shaded stream sections due to loss of bank side trees at TKL02 and TKL07	Mitigation planting at TKL02 and TKL07 in locations as shown in Figures 3.42 – 3.48 (of ES Report) / during construction	Construction Contractor		√		

D = Design, C = Construction, O = Operation

Implementation Schedule of Air Quality Impact Assessment

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
Air Quality - Construction Phase									
**	2.9.2	*General* General requirements for air pollution control as stated in the EPD's recommended Pollution Control Clauses for Construction Contracts are listed below: (i) The Contractor shall observed and comply with the Air Pollution Control Ordinance and its subsidiary regulations, particularly the Air Pollution Control (Open Burning) Regulation and Air Pollution Control (Construction Dust) Regulation and Air Pollution Control (Smoke) Regulation. (ii) The Contractor shall undertake at all times to prevent dust nuisance and smoke as a result of his activities. (iii) The Contractor shall ensure that there will be adequate water supply / storage for dust suppression. (iv) The Contractor shall devise, arrange methods of working and carrying out the works in such a manner so as to minimise dust impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these methods are	To prevent air quality impacts on sensitive receivers during construction	All works site / during construction	Construction Contractor		√		Air Pollution Control Ordinance Air Pollution Control (Open Burning) Regulation Air Pollution Control (Construction Dust) Regulation Air Pollution Control (Smoke) Regulation

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
		implemented. (v) Before the commencement of any work, the Engineer may require the methods of working, plant, equipment and air pollution control system to be used on the site to be made available for inspection and approval to ensure that they are suitable for the project.							
**	2.9.3	*Dust* The following good construction practices are recommended to be adopted on-site to minimize potential air quality impacts from dust emissions: (i) Use of regular watering (at least twice daily) to reduce dust emissions from exposed site surfaces, particularly during dry weather. (ii) Side enclosure and covering of any aggregate or dusty material stockpiles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be employed to aggregate fines. (iii) Tarpaulin covering of all dusty vehicle loads transported to and from site locations.	To prevent dust nuisance on sensitive receivers during construction	All works site / during construction	Construction Contractor		√		Air Pollution Control Ordinance Air Pollution Control (Construction Dust) Regulation
**	2.9.4	*Odour* The following site practices are recommended to minimize potential air quality impacts from odour nuisance: (i) Any odorous excavated material shall be	To prevent odour nuisance on sensitive receivers during construction	All works site / during construction	Construction Contractor		√		

ES Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation & Guidelines
						D	C	O	
		placed as far away from receivers as possible. (ii) Any stockpiles of odorous excavated material shall be covered with tarpaulin sheets. (iii) Any odorous stockpiled material shall be removed from site as soon as possible (within 3 days) to reduce the amount of time available for decomposition of organic matter.							

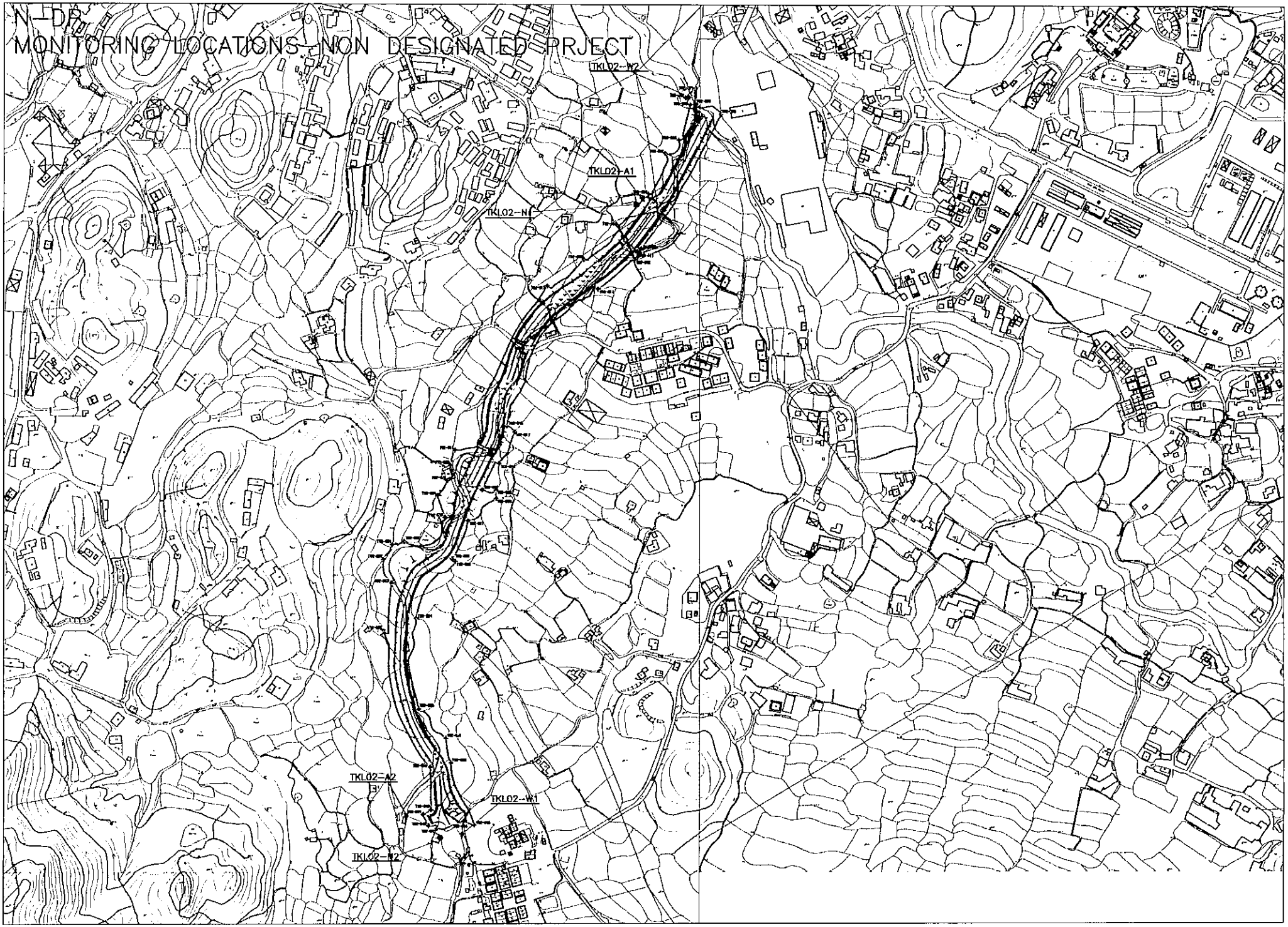
D = Design, C = Construction, O = Operation

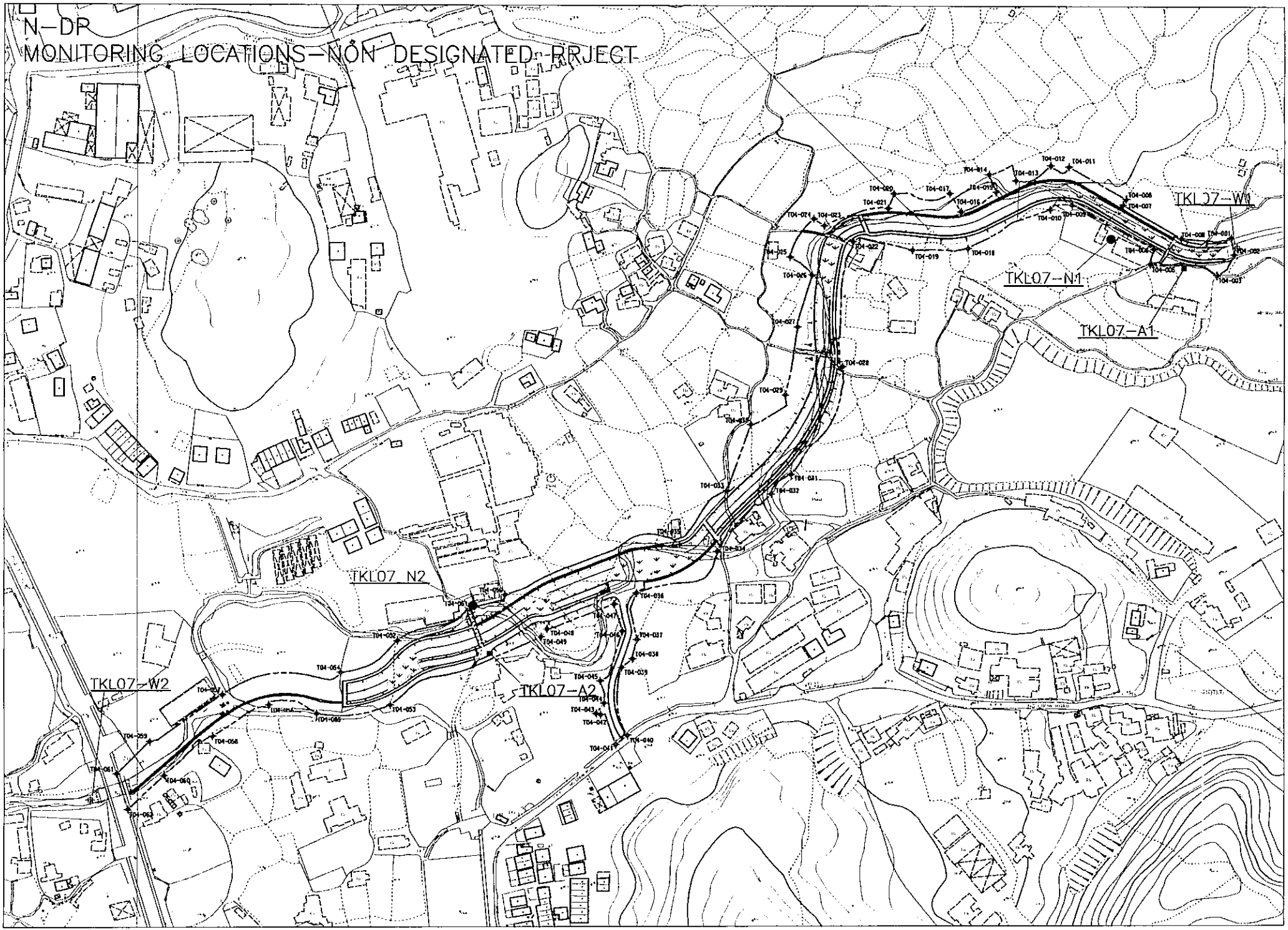
Appendix D

Environmental Monitoring Locations

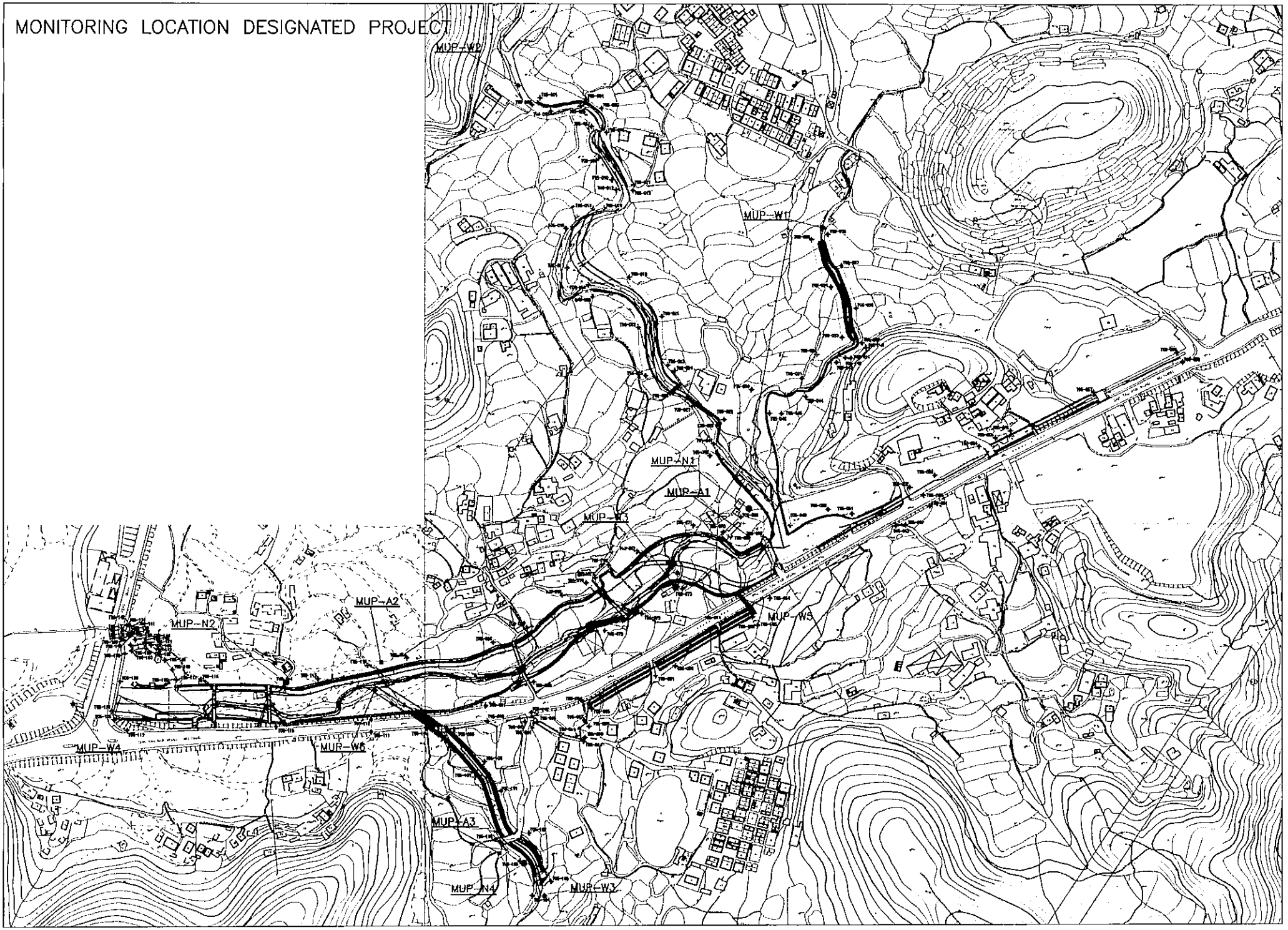
N-DP

MONITORING LOCATIONS - NON DESIGNATED PRJECT




N-DP
MONITORING LOCATIONS-NON DESIGNATED PROJECT
TKL07-W1
TKL07-N1
TKL07-A1
TKL07 N2
TKL07-W2
TKL07-A2

MONITORING LOCATION DESIGNATED PROJECT



Appendix E

Certificates of Calibration

Equipment Calibration List

Items	Aspect	Description of Equipment	Date of Calibration	Date of Next Calibration
1	Air	TSP Sampler Calibration Spreadsheet for MUP01012-A1	10 Sep 09	10 Dec 09
2		TSP Sampler Calibration Spreadsheet for MUP01012 –A2	10 Sep 09	10 Dec 09
3		TSP Sampler Calibration Spreadsheet for TKL02-A1	31 Aug 09	31 Nov 09
4		TSP Sampler Calibration Spreadsheet for TKL02-A2	31 Aug 09	31 Nov 09
5		TSP Sampler Calibration Spreadsheet for TKL07-A1	30 Sep 09	12 Dec 09
6		TSP Sampler Calibration Spreadsheet for TKL07-A2a	30 Sep 09	12 Dec 09
7		TSI DustTrak Model 8520 (Serial No. 21060)	18 Jun 09	18 Jun 10
8		TSI DustTrak Model 8520 (Serial No. 23080)	18 Jun 09	18 Jun 10
10		TSI DustTrak Model 8520 (Serial No. 23079)	18 Jun 09	18 Jun 10
11	Noise	Bruel & Kjaer Integrating Sound Level Meter (Serial No. 2285762)	30 Apr 09	30 Apr 10
12		Bruel & Kjaer Integrating Sound Level Meter (Serial No. 2285690)	30 Apr 09	30 Apr 10
13		Bruel & Kjaer Acoustical Calibrator (Serial No. 2292168)	28 Apr 09	28 Apr 10
14		Bruel & Kjaer Acoustical Calibrator (Serial No. 2326408)	28 Apr 09	28 Apr 10
15	Water	YSI 550A (Serial No. 05F2063AZ)	17 Oct 09	17 Jan 10
16		Extech pH EC 500 (Serial No. 133298)	17 Oct 09	17 Jan 10
17*		Turbidimeter HACH 2100p (Serial No. 950900008735)	27 Oct 09	27 Jan 10

Note: Calibration certificates will only provide when monitoring equipment is re-calibrate or new.

CERTIFICATE OF ANALYSIS

Batch: HK0922029
Date of Issue: 29/10/2009
Client: ACTION UNITED ENVIRO SERVICES
Client Reference: DC_2007_08 - DRAINAGE IMPROVEMENT WORKS AT TAI PO TIN, PING CHE, MAN UK PIN AND LIN MA HANG

Calibration of Turbidity System

Item : Portable Turbidimeter

Model No. : HACH 2100P

Serial No. : 08070C031408

Equipment No. : 3054010

Calibration Method : This meter was calibrated in accordance with standard method APHA (19th Ed.) 2130B

Date of Calibration : 27 October, 2009

Testing Results :

Expected Reading	Recording Reading
0.00 NTU	0.07 NTU
4.00 NTU	3.73 NTU
16.0 NTU	15.7 NTU
80.0 NTU	76.1 NTU
160 NTU	153 NTU
Allowing Deviation	±10%

Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

Appendix F

Details of the Event Action Plan

Event/Action Plan for Construction Noise

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

Event/Action Plan for Water Quality

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

Event/Action Plan for Ecology

EVENT	ACTION			
	ET Leader	IEC	ER	Contractor
Non-conformity on one occasion	1. Identify source 2. Inform the IEC and ER 3. Discuss remedial actions with IEC, the ER and the Contractor 4. Monitor remedial actions until rectification has been completed	1. Check monitoring results 2. Check the Contractor's working method 3. Discuss with the ET and Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 5. Check the implementation of remedial measures	1. Notify Contractor 2. Ensure remedial measures are properly implemented 3. 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	1. Take immediate action to avoid further problem 2. Amend working methods if needed 3. Submit proposals for remedial actions to ET, ER and IEC 4. Rectify damage and implement the agreed remedial actions
Repeated Non-confirmity	1. Identify source 2. Inform the IEC, ER, EPD and AFCD 3. Increase monitoring frequency 4. Discuss remedial actions with IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If exceedance stops, cease additional monitoring	1. Check monitoring results 2. Check the Contractor's working method 3. Discuss with the ET and Contractor on possible remedial measures 4. Supervise the implementation of remedial measures 5. Advise the ER on effectiveness of proposed remedial measures and keep EPD and AFCD informed	1. Notify Contractor 2. Ensure remedial measures are properly implemented 3. 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	1. Take immediate action to avoid further problem 2. Amend working methods if needed 3. Submit proposals for remedial actions to ET, ER and IEC 4. Rectify damage and implement the agreed remedial actions

Event/Action Plan for Landscape and Visual Impact

EVENT	ACTION			
	ET Leader	IEC	ER	Contractor
Non-conformity on one occasion	1. Identify source 2. Inform the IEC and the ER 3. Discuss remedial actions with IEC, the ER and the Contractor 4. Monitor remedial actions until rectification has been completed	1. Check report 2. Check the Contractor's working method 3. Discuss with the ET and Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures	1. Notify the Contractor 2. Ensure remedial measures are properly implemented.	1. Amend working methods if needed 2. Rectify damage and undertake remedial measures or any necessary replacement
Repeated Non-conformity	1. Identify source 2. Inform the IEC, ER, EPD and AFCD 3. Increase monitoring (site audit) frequency 4. Discuss remedial actions with IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If exceedance stops, cease additional monitoring (site audit)	1. Check report 2. Check the Contractor's working method 3. Discuss with the ET and Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures. 5. Supervise the implementation of remedial measures	1. Notify Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods if needed 2. Rectify damage and undertake remedial measures or any necessary replacement

Event/Action Plan for Air Quality

EVENT	ACTION			
	ET Leader	IEC	ER	Contractor
ACTION LEVEL				
Exceedance for one sample	1. Identify source 2. Inform IEC, ER and Contractor 3. Repeat measurement to confirm findings 4. Increase monitoring frequency to daily	1. Check monitoring data submitted by ET Leader 2. Check Contractor's working method	1. Notify Contractor	1. Rectify any unacceptable practice 2. Amend working methods if appropriate
Exceedance for two or more consecutive samples	1. Identify source 2. Inform IEC, ER and Contractor 3. Repeat measurement to confirm findings 4. Increase monitoring frequency to daily 5. Discuss with IEC, Contractor and ER on remedial actions required 6. If exceedance continue, arrange meeting with IEC, ER and Contractor 7. If exceedance stops, cease additional monitoring	1. Check monitoring data submitted by ET Leader 2. Check Contractor's working method 3. Discuss with ET Leader and Contractor on possible remedial measures 4. Advise the ER on the effectiveness of the proposed remedial measures 5. Supervise implementation of remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Ensure remedial measure properly implemented	1. Submit proposals for remedial actions to IEC and ER within 3 working days notification 2. Implement the agreed proposals 3. Amend proposal if apprpriate
LIMIT LEVEL				
Exceedance for one sample	1. Identify source 2. Inform IEC, ER, EPD and Contractor 3. Repeat measurement to confirm findings 4. Increase monitoring frequency to daily 5. Access effectiveness of Contractor's remedial actions and kept IEC, EPD and ER informed of results	1. Check monitoring data submitted by ET Leader 2. Check Contractor's working method 3. Discuss with ET Leader and Contractor on possible remedial measures 4. Advise the ER on the effectiveness of the proposed remedial measures 5. Audit implementation of remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Ensure remedial measures properly implemented	1. Take immediate action to avoid for the exceedance 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification 3. Implement the agreed proposals 4. Amend proposal if appropriate
Exceedance for two or more consecutive samples	1. Notify IEC, ER, Contractor and EPD 2. Identify source 3. Repeat measurement to confirm findings 4. Increase monitoring frequency to daily 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 6. Arrange meeting with IEC, Contractor and ER to discuss the remedial actions to be taken 7. Access effectiveness of Contractor's remedial actions and kept IEC, EPD and ER informed of results 8. If exceedance stops, cease additional monitoring	1. Discuss amongst ER, ET Leader and Contractor on the potential remedial actions 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly 3. Audit the implementation of remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. In consultation with IEC, agree with the Contractor on the remedial measures to be implemented 4. Ensure remedial measures properly implemented 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid for the exceedance 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification 3. Implement the agreed proposals 4. Resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the ER unit the exceedance is abate

Appendix G

Monitoring Schedule

Monitoring Schedule for Channels TKL 07 in the Reporting Period

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

■	Monitoring Day
	Sunday or Public Holiday

Monitoring Schedule for Channels MUP 01-05 in the Reporting Period

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

■	Monitoring Day
■	Sunday or Public Holiday

Monitoring Schedule for Channels TKL02 in the Reporting Period

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

■	Monitoring Day
	Sunday or Public Holiday

Monitoring Schedule for Channels TKL 07 in Coming Month

Date		Air Quality		Noise Leq 30min	Water Quality
		1-hour TSP	24-hour TSP		
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

Monitoring Schedule for Channels MUP 01-05 in Coming Month

Date		Air Quality		Noise Leq 30min	Water Quality	Ecology	
		1-hour TSP	24-hour TSP			Water Quality	Ecology Surveys
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

Monitoring Schedule for Channels TKL-02 in Coming Month

Date		Air Quality		Noise Leq 30min	Water Quality
		1-hour TSP	24-hour TSP		
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

Appendix H

Detailed Impact Monitoring Data of Air Quality and Water Quality

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

Water Quality Monitoring Data for TKL-07

Baseline																
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL07-W1 (control)			n/a	n/a	Action	n/a	Action	n/a	Action	n/a	Action	n/a	Action	n/a
			n/a	n/a	Limit	n/a	Limit	n/a	Limit	n/a	Limit	n/a	Limit	n/a
TKL07-W2			n/a	n/a	**Action**	**3.20**	Action	n/a	**Action**	**42.60**	**Action**	**6.5-8.5**	**Action**	**38.00**
			n/a	n/a	**Limit**	**3.00**	Limit	n/a	**Limit**	**50.00**	**Limit**	**6.0-9.0**	**Limit**	**38.80**
Date	27-Oct-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL07-W1 (control)	01:25	0.28	26.8	26.8	3.37	3.39	52.80	51.95	7.68	7.66	8.12	8.15	3.00	3.00
			26.8		3.41		51.10		7.63		8.17		3.00	
TKL07-W2	01:10	0.5	27.1	27.1	3.48	3.47	53.30	53.45	13.90	13.80	7.93	7.92	3.00	3.00
			27.1		3.46		53.60		13.70		7.91		3.00	

Date	29-Oct-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL07-W1 (control)	01:26	0.3	28.3	28.3	3.23	3.25	51.30	51.75	7.39	7.41	8.01	8.00	<2	2.00
			28.3		3.27		52.20		7.43		7.98		<2	
	01:06	0.45	28.6	28.6	3.83	3.81	56.60	57.35	13.60	13.30	7.68	7.70	17.00	17.00
			28.6		3.78		58.10		13.00		7.71		17.00	

Date	31-Oct-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL07-W1 (control)	09:28	0.25	26.8	26.8	3.38	3.40	49.80	50.95	14.30	14.50	7.16	7.18	2.00	2.00
			26.8		3.42		52.10		14.70		7.19		2.00	
TKL07-W2	09:13	0.4	26.4	26.4	3.68	3.61	52.60	52.00	11.30	11.45	7.38	7.36	4.00	4.00
			26.4		3.54		51.40		11.60		7.34		4.00	

Date	2-Nov-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL07-W1 (control)	02:15	0.3	26.5	26.5	3.26	3.27	49.30	49.60	8.68	8.69	7.96	7.95	4.00	4.00
			26.5		3.28		49.90		8.70		7.94		4.00	
TKL07-W2	02:00	0.4	26.1	26.1	3.39	3.41	51.10	51.70	9.17	9.14	7.88	7.86	10.00	10.00
			26.1		3.43		52.30		9.11		7.83		10.00	

Date	4-Nov-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL07-W1 (control)	01:57	0.25	25.8	25.8	3.23	3.26	43.60	46.45	8.42	8.40	7.17	7.18	3.00	3.00
			25.8		3.28		49.30		8.38		7.19		3.00	
TKL07-W2	01:42	0.3	25.3	25.3	3.36	3.37	50.60	50.85	10.10	10.25	7.33	7.35	5.00	5.00
			25.3		3.37		51.10		10.40		7.36		5.00	

Date	6-Nov-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL07-W1 (control)	01:20	0.3	28.8	28.8	3.13	3.16	52.60	53.00	10.60	10.70	7.42	7.44	8.00	8.00
			28.8		3.18		53.40		10.80		7.46		8.00	
TKL07-W2	01:10	0.5	29.7	29.7	3.39	3.43	58.80	57.10	9.71	9.70	7.63	7.63	9.00	9.00
			29.7		3.47		55.40		9.69		7.63		9.00	

Date	9-Nov-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL07-W1 (control)	01:45	0.15	27.6	27.6	3.19	3.21	50.90	51.50	16.70	16.55	7.47	7.48	9.00	9.00
			27.6		3.23		52.10		16.40		7.49		9.00	
TKL07-W2	01:30	0.3	27.5	27.5	3.33	3.37	56.30	56.55	18.30	18.60	7.26	7.27	9.00	9.00
			27.5		3.41		56.80		18.90		7.28		9.00	

Date	11-Nov-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL07-W1 (control)	01:28	0.1	28.1	28.1	3.26	3.25	52.30	52.05	12.10	12.20	7.68	7.67	122.00	122.00
			28.1		3.23		51.80		12.30		7.66		122.00	
TKL07-W2	01:15	0.1	28.3	28.3	3.51	3.53	53.30	53.60	8.50	8.51	7.21	7.23	3.00	3.00
			28.3		3.54		53.90		8.51		7.24		3.00	

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 TKL-07

Baseline																
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
TKL07-W1 (control)			n/a	n/a	Action	n/a	Action	n/a	Action	n/a	Action	n/a	Action	n/a
			n/a	n/a	Limit	n/a	Limit	n/a	Limit	n/a	Limit	n/a	Limit	n/a
TKL07-W2			n/a	n/a	**Action**	**3.20**	Action	n/a	**Action**	**42.60**	**Action**	**6.5-8.5**	**Action**	**38.00**
			n/a	n/a	**Limit**	**3.00**	Limit	n/a	**Limit**	**50.00**	**Limit**	**6.0-9.0**	**Limit**	**38.80**
Date	**13-Nov-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
TKL07-W1 (control)	09:14	0.13	25.6	25.6	3.33	3.23	52.70	52.90	10.90	11.00	7.80	7.80	21.00	21.00
			25.6		3.13		53.10		11.10		7.80		21.00	
TKL07-W2	09:00	0.17	25.5	25.5	3.36	3.38	52.60	52.75	9.41	9.40	7.30	7.30	4.00	4.00
			25.5		3.39		52.90		9.39		7.30		4.00	

Date	**16-Nov-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
TKL07-W1 (control)	01:10	0.1	19.7	19.7	3.11	3.14	49.80	50.10	18.30	18.45	7.90	7.90	24.00	24.00
			19.7		3.16		50.40		18.60		7.90		24.00	
TKL07-W2	12:55	0.2	19.8	19.8	3.34	3.34	53.30	53.05	13.30	13.35	7.70	7.65	5.00	5.00
			19.8		3.33		52.80		13.40		7.60		5.00	

Date	**18-Nov-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
TKL07-W1 (control)	01:26	0.3	16.5	16.5	3.48	3.51	51.70	51.80	8.83	8.86	8.10	8.10	4.00	4.00
			16.5		3.53		51.90		8.88		8.10		4.00	
TKL07-W2	01:12	0.58	16.0	16.0	3.49	3.48	52.60	52.30	10.50	10.45	6.90	6.90	4.00	4.00
			16.0		3.47		52.00		10.40		6.90		4.00	

Date	**20-Nov-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
TKL07-W1 (control)	10:05	0.3	16.0	16.0	3.46	3.48	52.70	52.75	10.50	10.55	7.90	7.90	2.00	2.00
			16.0		3.49		52.80		10.60		7.90		2.00	
TKL07-W2	09:56	0.58	15.8	15.8	3.58	3.56	53.60	53.45	9.87	9.78	7.70	7.75	<2	2.00
			15.8		3.53		53.30		9.68		7.80		<2	

Date	**23-Nov-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
TKL07-W1 (control)	01:24	0.2	23.1	23.2	3.41	3.43	50.10	50.30	16.30	16.40	7.90	7.45	2.00	2.00
			23.2		3.44		50.50		16.50		7.00		2.00	
TKL07-W2	01:11	0.45	22.9	22.9	3.63	3.61	53.60	53.40	17.80	17.95	7.60	7.65	14.00	14.00
			22.8		3.59		53.20		18.10		7.70		14.00	

Date	**25-Nov-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
TKL07-W1 (control)	10:44	0.2	25.7	25.7	3.09	3.10	48.60	48.95	5.89	5.87	8.10	8.10	<2	2.00
			25.7		3.11		49.30		5.84		8.10		<2	
TKL07-W2	10:30	0.45	26.0	26.0	3.19	3.20	49.40	49.50	8.68	8.70	7.80	7.80	<2	2.00
			26.0		3.20		49.60		8.71		7.80		<2	

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 TKL-02

Baseline																
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL02-W1 (control)			n/a	n/a	Action	n/a	Action	n/a	Action	n/a	Action	n/a	Action	n/a
			n/a	n/a	Limit	n/a	Limit	n/a	Limit	n/a	Limit	n/a	Limit	n/a
TKL02-W2			n/a	n/a	**Action**	**3.08**	Action	n/a	**Action**	**45.74**	**Action**	**6.5-8.5**	**Action**	**39.05**
			n/a	n/a	**Limit**	**3.06**	Limit	n/a	**Limit**	**54.19**	**Limit**	**6.0-9.0**	**Limit**	**43.01**
Date	27-Oct-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL02-W1	12:53	0.2	26.8	26.8	3.31	3.3	52.90	53.3	12.30	12.5	7.21	7.2	11.00	11.0
			26.8		3.34		53.60		12.60		7.19		11.00	
TKL02-W2	12:40	0.2	26.6	26.6	3.63	3.7	49.70	50.3	14.40	14.2	7.34	7.4	12.00	12.0
			26.6		3.68		50.90		14.00		7.38		12.00	

Date	29-Oct-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL02-W1	12:53	0.2	28.0	28.0	3.23	3.3	49.80	49.6	8.64	8.7	7.23	7.2	21.00	21.0
			28.0		3.27		49.40		8.68		7.26		21.00	
TKL02-W2	12:40	0.15	27.7	27.7	3.83	3.8	51.30	51.1	12.60	12.8	7.38	7.4	8.00	8.0
			27.7		3.78		50.80		12.90		7.41		8.00	

Date	31-Oct-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL02-W1	08:58	0.15	26.0	26.4	3.22	3.2	48.80	49.0	20.10	20.5	7.99	8.0	36.00	36.0
			26.7		3.26		49.10		20.80		8.01		36.00	
TKL02-W2	08:45	0.15	26.9	26.9	3.44	3.5	51.10	51.9	12.60	12.9	7.38	7.4	3.00	3.0
			26.9		3.52		52.70		13.10		7.34		3.00	

Date	2-Nov-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL02-W1	01:45	0.15	26.2	26.2	3.41	3.4	53.40	53.3	10.30	10.5	8.03	8.0	14.00	14.0
			26.2		3.36		53.10		10.60		8.06		14.00	
TKL02-W2	01:30	0.15	25.9	25.9	3.50	3.5	56.10	56.5	11.30	11.4	7.69	7.7	10.00	10.0
			25.9		3.55		56.90		11.50		7.69		10.00	

Date	4-Nov-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL02-W1	01:30	0.1	26.1	26.1	3.14	3.2	49.30	49.5	9.69	9.7	7.88	7.9	12.00	12.0
			26.1		3.19		49.60		9.73		7.87		12.00	
TKL02-W2	01:10	0.15	25.8	25.8	3.66	3.7	54.30	54.1	9.88	9.9	7.74	7.8	6.00	6.0
			25.8		3.74		53.90		9.86		7.79		6.00	

Date	6-Nov-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL02-W1	01:00	0.1	29.5	29.5	3.34	3.3	51.10	51.4	11.20	11.4	7.89	7.9	38.00	38.0
			29.5		3.28		51.60		11.60		7.86		38.00	
TKL02-W2	12:50	1	28.5	28.5	3.64	3.6	52.40	52.7	10.70	10.8	7.59	7.6	14.00	14.0
			28.5		3.61		53.00		10.90		7.61		14.00	

Date	9-Nov-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL02-W1	01:20	0.1	27.5	27.5	3.63	3.6	54.40	54.2	10.80	10.6	7.43	7.5	9.00	9.0
			27.5		3.58		53.90		10.40		7.48		9.00	
TKL02-W2	01:00	0.1	27.6	27.6	3.71	3.7	56.70	56.4	0.98	4.5	7.68	7.7	16.00	16.0
			27.6		3.70		56.10		8.03		7.69		16.00	

Date	11-Nov-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL02-W1	01:28	0.1	28.1	28.1	3.26	3.2	52.30	52.1	12.10	12.2	7.68	7.7	76.00	76.0
			28.1		3.23		51.80		12.30		7.66		76.00	
TKL02-W2	01:15	0.1	28.3	28.3	3.51	3.5	53.30	53.6	8.50	8.5	7.21	7.2	37.00	37.0
			28.3		3.54		53.90		8.51		7.24		37.00	

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 TKL-02

Baseline																
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL02-W1 (control)			n/a	n/a	Action	n/a	Action	n/a	Action	n/a	Action	n/a	Action	n/a
			n/a	n/a	Limit	n/a	Limit	n/a	Limit	n/a	Limit	n/a	Limit	n/a
TKL02-W2			n/a	n/a	**Action**	**3.08**	Action	n/a	**Action**	**45.74**	**Action**	**6.5-8.5**	**Action**	**39.05**
			n/a	n/a	**Limit**	**3.06**	Limit	n/a	**Limit**	**54.19**	**Limit**	**6.0-9.0**	**Limit**	**43.01**
Date	13-Nov-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL02-W1	09:14	0.13	25.6	25.6	3.11	3.1	52.70	52.9	10.90	11.0	7.80	7.8	11.00	11.0
			25.6		3.13		53.10		11.10		7.80		11.00	
TKL02-W2	09:00	0.17	25.5	25.5	3.36	3.4	52.60	52.8	9.41	9.4	7.30	7.3	5.00	5.0
			25.5		3.39		52.90		9.39		7.30		5.00	

Date	16-Nov-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL02-W1	01:10	0.1	19.7	19.7	3.11	3.1	49.80	50.1	18.30	18.5	7.90	7.9	8.00	8.0
			19.7		3.16		50.40		18.60		7.90		8.00	
TKL02-W2	12:55	0.2	19.8	19.8	3.34	3.3	53.30	53.1	13.30	13.4	7.70	7.7	13.00	13.0
			19.8		3.33		52.80		13.40		7.60		13.00	

Date	18-Nov-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL02-W1	12:58	0.14	15.8	15.8	3.28	3.3	48.80	49.3	10.90	11.1	7.30	7.4	5.00	5.0
			15.8		3.31		49.80		11.20		7.40		5.00	
TKL02-W2	12:45	0.11	16.0	16.0	3.36	3.4	50.30	50.6	14.80	15.0	7.10	7.1	22.00	22.0
			16.0		3.39		50.90		15.10		7.10		22.00	

Date	20-Nov-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL02-W1	09:45	0.14	16.1	16.1	3.31	3.3	47.70	47.8	11.20	11.4	7.90	7.9	15.00	15.0
			16.1		3.33		47.80		11.60		7.90		15.00	
TKL02-W2	09:30	0.1	16.0	16.0	3.66	3.6	51.30	51.6	11.30	11.4	7.40	7.5	17.00	17.0
			16.0		3.61		51.90		11.40		7.50		17.00	

Date	23-Nov-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL02-W1	12:58	0.1	23.1	23.2	3.41	3.4	50.10	50.3	16.30	16.4	7.90	8.0	8.00	8.0
			23.2		3.44		50.50		16.50		8.00		8.00	
TKL02-W2	12:45	0.1	22.9	22.9	3.63	3.6	53.60	53.4	17.80	18.0	7.60	7.7	10.00	10.0
			22.8		3.59		53.20		18.10		7.70		10.00	

Date	25-Nov-09													
Location	Time	Depth (m)	Temp(oC)		DO (mg/L)		DOS(%)		Turbidity(NTU)		pH		SS	
TKL02-W1	10:15	0.15	25.8	25.8	3.14	3.1	51.10	51.2	22.20	22.7	7.60	7.6	34.00	34.0
			25.8		3.13		51.30		23.10		7.50		34.00	
TKL02-W2	10:00	0.1	25.8	25.8	3.26	3.3	50.60	50.7	8.55	8.6	7.50	7.5	3.00	3.0
			25.8		3.29		50.80		8.58		7.50		3.00	

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 MUP01/02

W1 (Control)			n/a	n/a	Action	n/a	Action	n/a	Action	n/a	Action	n/a	Action	n/a
			n/a	n/a	Limit	n/a	Limit	n/a	Limit	n/a	Limit	n/a	Limit	n/a
W2 (Control)			n/a	n/a	Action	n/a	Action	n/a	Action	n/a	Action	n/a	Action	n/a
			n/a	n/a	Limit	n/a	Limit	n/a	Limit	n/a	Limit	n/a	Limit	n/a
W3 (Impact)			n/a	n/a	**Action**	**3.92**	**Action**	**n/a**	**Action**	**8.62**	**Action**	**6.5-8.5**	**Action**	**4.00**
			n/a	n/a	**Limit**	**3.91**	**Limit**	**n/a**	**Limit**	**9.32**	**Limit**	**6.0-9.0**	**Limit**	**4.00**
W4 (mobile)			n/a	n/a	**Action**	**5.12**	**Action**	**n/a**	**Action**	**8.34**	**Action**	**6.5-8.5**	**Action**	**77.25**
			n/a	n/a	**Limit**	**5.11**	**Limit**	**n/a**	**Limit**	**8.47**	**Limit**	**6.0-9.0**	**Limit**	**123.45**
Date	**27-Oct-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
W1 (Control)	02:55	0.2	27.1	27.1	3.44	3.5	54.40	55.3	8.18	8.2	7.88	7.9	2.00	2.0
			27.1		3.48		56.10		8.24		7.84		2.00	
W2 (Control)	01:38	0.25	26.3	26.3	5.88	5.8	60.30	60.2	3.59	3.5	7.48	7.5	<2	2.0
			26.3		5.81		60.10		3.48		7.46		<2	
W3 (Impact)	02:39	0.4	27.3	27.3	4.18	4.2	49.90	51.3	6.26	6.2	7.69	7.7	<2	2.0
			27.3		4.23		52.60		6.19		7.67		<2	
W4 (Temp)	01:45	0.15	26.4	26.4	5.74	5.8	61.30	61.6	3.41	3.4	7.47	7.5	<2	2.0
			26.4		5.79		61.80		3.47		7.46		<2	

Date	**29-Oct-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
W1 (Control)	02:46	0.2	28.4	28.4	3.84	3.8	48.80	48.6	13.30	13.1	6.99	7.0	19.00	19.0
			28.4		3.77		48.30		12.90		7.04		19.00	
W2 (Control)	01:30	0.15	27.6	27.6	5.38	5.4	59.60	59.2	3.63	3.7	7.63	7.6	<2	2.0
			27.6		5.37		58.80		3.72		7.58		<2	
W3 (Impact)	02:32	0.4	27.9	27.9	4.24	4.2	53.60	53.4	6.11	6.1	7.58	7.6	<2	2.0
			27.9		4.18		53.10		6.17		7.61		<2	
W4 (Temp)	01:37	0.15	28.1	28.1	5.41	5.4	58.60	58.8	3.82	3.9	7.62	7.6	<2	2.0
			28.1		5.39		58.90		3.88		7.60		<2	

Date	**31-Oct-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
W1 (Control)	11:03	0.2	27.1	27.1	3.67	3.7	54.40	54.3	9.47	9.5	7.68	7.7	17.00	17.0
			27.1		3.69		54.10		9.53		7.65		17.00	
W2 (Control)	09:41	0.2	26.3	26.3	5.39	5.4	56.30	56.6	3.88	3.9	7.67	7.7	<2	2.0
			26.3		5.44		56.90		3.85		7.66		<2	
W3 (Impact)	10:46	0.5	26.8	26.8	4.33	4.3	51.10	50.9	6.54	6.6	7.17	7.2	<2	2.0
			26.8		4.26		50.60		6.58		7.19		<2	
W4 (Temp)	09:50	0.15	26.5	26.5	5.43	5.4	59.80	60.1	3.94	4.0	7.66	7.7	<2	2.0
			26.5		5.41		60.30		3.99		7.65		<2	

Date	**2-Nov-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
W1 (Control)	03:40	0.2	26.6	26.6	3.80	3.8	49.70	48.8	11.10	11.0	7.28	7.3	4.00	4.0
			26.6		3.76		47.80		10.80		7.26		4.00	
W2 (Control)	02:26	0.2	25.8	25.8	5.33	5.4	60.10	60.3	3.68	3.7	7.58	7.6	<2	2.0
			25.8		5.38		60.40		3.66		7.54		<2	
W3 (Impact)	03:24	0.5	26.1	26.1	4.12	4.2	58.60	58.9	6.33	6.3	7.74	7.7	<2	2.0
			26.1		4.20		59.10		6.29		7.71		<2	
W4 (Temp)	02:32	0.1	25.9	25.9	5.36	5.4	60.80	60.4	3.73	3.7	7.51	7.5	<2	2.0
			25.9		5.34		60.00		3.71		7.53		<2	

Date	**4-Nov-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
W1 (Control)	03:13	0.1	25.9	25.9	3.66	3.6	49.90	49.6	8.17	8.2	7.74	7.7	11.00	11.0
			25.9		3.54		49.30		8.19		7.75		11.00	
W2 (Control)	02:10	0.2	25.2	25.2	5.26	5.3	61.10	61.6	3.46	3.5	7.58	7.6	<2	2.0
			25.2		5.29		62.10		3.52		7.58		<2	
W3 (Impact)	02:59	0.45	25.4	25.4	4.26	4.3	54.10	55.1	7.03	7.1	7.88	7.9	2.00	2.0
			25.4		4.33		56.10		7.08		7.83		2.00	
W4 (Temp)	02:07	0.15	25.2	25.2	5.31	5.3	62.30	62.6	3.58	3.6	7.54	7.5	<2	2.0
			25.2		5.28		62.80		3.61		7.53		<2	

Date	**6-Nov-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
W1 (Control)	02:22	0.3	28.5	28.5	3.86	3.8	49.80	49.4	11.40	11.3	7.49	7.5	8.00	48.0
			28.5		3.74		49.00		11.10		7.47		88.00	
W2 (Control)	01:30	0.3	28.5	28.5	5.42	5.4	63.10	63.5	3.36	3.4	7.13	7.2	<2	2.0
			28.5		5.44		63.80		3.43		7.18		<2	
W3 (Impact)	02:15	0.5	29.3	29.3	3.99	4.1	54.40	55.3	6.89	6.9	7.29	7.3	<2	2.0
			29.3		4.11		56.10		6.94		7.30		<2	
W4 (Temp)	01:37	0.5	27.8	27.8	5.39	5.4	61.80	62.1	3.44	3.5	7.08	7.1	6.00	6.0
			27.8		5.43		62.40		3.50		7.13		6.00	

Date	**9-Nov-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
W1 (Control)	03:05	0.1	27.6	27.6	3.44	3.4	48.60	48.5	6.39	6.4	7.21	7.2	4.00	4.0
			27.6		3.41		48.30		6.42		7.19		4.00	
W2 (Control)	01:55	0.15	28.0	28.0	5.26	5.3	52.20	52.6	3.06	3.1	7.61	7.6	3.00	3.0
			28.0		5.33		52.90		3.11		7.58		3.00	
W3 (Impact)	02:52	0.4	27.5	27.5	4.00	4.0	49.80	49.9	8.17	8.1	7.73	7.7	3.00	3.0
			27.5		4.08		49.90		8.11		7.75		3.00	
W4 (Temp)	02:05	0.15	27.8	27.8	5.28	5.3	54.60	54.8	2.53	2.6	7.58	7.6	<2	2.0
			27.8		5.30		54.90		2.61		7.58		<2	

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 MUP01/02

W1 (Control)			n/a	n/a	Action	n/a	Action	n/a	Action	n/a	Action	n/a	Action	n/a
			n/a	n/a	Limit	n/a	Limit	n/a	Limit	n/a	Limit	n/a	Limit	n/a
W2 (Control)			n/a	n/a	Action	n/a	Action	n/a	Action	n/a	Action	n/a	Action	n/a
			n/a	n/a	Limit	n/a	Limit	n/a	Limit	n/a	Limit	n/a	Limit	n/a
W3 (Impact)			n/a	n/a	**Action**	**3.92**	**Action**	**n/a**	**Action**	**8.62**	**Action**	**6.5-8.5**	**Action**	**4.00**
			n/a	n/a	**Limit**	**3.91**	**Limit**	**n/a**	**Limit**	**9.32**	**Limit**	**6.0-9.0**	**Limit**	**4.00**
W4 (mobile)			n/a	n/a	**Action**	**5.12**	**Action**	**n/a**	**Action**	**8.34**	**Action**	**6.5-8.5**	**Action**	**77.25**
			n/a	n/a	**Limit**	**5.11**	**Limit**	**n/a**	**Limit**	**8.47**	**Limit**	**6.0-9.0**	**Limit**	**123.45**
Date	**11-Nov-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
W1 (Control)	03:24	0.2	27.6	27.6	3.32	3.3	50.30	50.5	39.10	39.3	7.31	7.3	115.00	115.0
			27.6		3.30		50.60		39.40		7.29		115.00	
W2 (Control)	02:05	0.1	27.7	27.6	5.34	5.4	58.60	58.7	3.68	3.7	7.53	7.5	7.00	7.0
			27.6		5.39		58.80		3.67		7.55		7.00	
W3 (Impact)	03:08	0.5	27.8	27.8	4.13	4.1	54.10	54.5	7.01	7.0	7.51	7.5	<2	2.0
			27.8		4.16		54.80		6.94		7.53		<2	
W4 (Temp)	02:16	0.1	27.4	27.4	5.38	5.4	57.90	58.1	3.73	3.8	7.56	7.6	<2	2.0
			27.4		5.36		58.30		3.77		7.55		<2	

Date	**13-Nov-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
W1 (Control)	11:20	0.2	25.4	25.4	3.83	3.8	49.70	49.6	6.09	6.1	7.20	7.2	2.00	2.0
			25.4		3.81		49.40		6.11		7.10		2.00	
W2 (Control)	09:58	0.25	25.0	25.0	5.51	5.5	58.80	58.6	3.79	3.8	7.90	7.9	<2	2.0
			25.0		5.48		58.40		3.71		7.80		<2	
W3 (Impact)	11:05	0.45	25.7	25.7	4.63	4.6	59.90	59.9	4.12	4.1	7.40	7.4	<2	2.0
			25.7		4.66		59.80		4.11		7.30		<2	
W4 (Temp)	10:10	0.15	25.2	25.2	5.48	5.5	59.30	59.5	3.66	3.7	7.80	7.8	<2	2.0
			25.2		5.49		59.70		3.69		7.80		<2	

Date	**16-Nov-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
W1 (Control)	02:45	0.1	19.6	19.6	3.41	3.4	51.60	51.6	4.06	4.1	8.00	8.0	2.00	2.0
			19.6		3.43		51.60		4.11		8.00		2.00	
W2 (Control)	01:40	0.2	19.8	19.8	5.23	5.2	54.10	54.5	5.30	5.3	7.40	7.4	<2	2.0
			19.8		5.24		54.80		5.28		7.40		<2	
W3 (Impact)	02:37	0.61	19.7	19.7	4.44	4.4	58.20	58.1	3.87	3.9	7.00	7.2	<2	2.0
			19.7		4.42		58.00		3.88		7.30		<2	
W4 (Temp)	01:50	0.2	19.7	19.7	5.29	5.3	56.10	56.4	3.27	3.3	7.40	7.4	<2	2.0
			19.7		5.31		56.60		3.24		7.30		<2	

Date	**18-Nov-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
W1 (Control)	02:53	0.2	16.0	16.0	3.68	3.7	52.00	52.3	3.71	3.7	7.80	7.8	2.00	2.0
			16.0		3.71		52.50		3.77		7.80		2.00	
W2 (Control)	01:40	0.23	16.1	16.1	5.36	5.4	61.10	61.4	1.89	1.9	7.60	7.7	<2	2.0
			16.1		5.39		61.60		1.93		7.70		<2	
W3 (Impact)	02:40	0.5	15.9	15.9	4.33	4.3	53.30	53.1	2.57	2.6	7.30	7.4	<2	2.0
			15.9		4.29		52.80		2.61		7.40		<2	
W4 (Temp)	01:48	0.2	16.3	16.3	5.37	5.4	62.10	62.2	1.88	1.9	7.60	7.6	<2	2.0
			16.3		5.40		62.20		1.86		7.60		<2	

Date	**20-Nov-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
W1 (Control)	11:42	0.2	16.1	16.1	3.36	3.3	49.80	49.6	6.93	6.9	7.20	7.2	<2	2.0
			16.1		3.33		49.40		6.91		7.10		<2	
W2 (Control)	10:20	0.25	16.5	16.5	5.41	5.4	61.10	61.4	2.85	2.9	7.60	7.7	<2	2.0
			16.5		5.42		61.70		2.86		7.70		<2	
W3 (Impact)	11:30	0.5	16.0	16.0	4.29	4.3	53.90	54.2	5.08	5.1	7.20	7.2	<2	2.0
			16.0		4.31		54.40		5.12		7.20		<2	
W4 (Temp)	10:30	0.2	16.3	16.3	5.36	5.4	62.60	62.7	2.53	4.0	7.70	7.7	<2	2.0
			16.3		5.39		62.80		5.56		7.70		<2	

Date	**23-Nov-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
W1 (Control)	02:54	0.15	23.2	23.3	3.63	3.6	50.60	50.8	8.62	8.7	7.40	7.4	13.00	13.0
			23.3		3.66		50.90		8.68		7.40		13.00	
W2 (Control)	01:38	0.15	21.9	22.5	5.31	5.3	59.90	59.8	2.89	2.9	7.70	7.7	<2	2.0
			23.0		5.33		59.60		2.91		7.70		<2	
W3 (Impact)	02:39	0.5	23.2	23.3	4.11	4.1	54.20	54.3	3.55	3.5	7.70	7.8	<2	2.0
			23.3		4.14		54.40		3.54		7.80		<2	
W4 (Temp)	01:48	0.1	23.0	23.2	5.36	5.4	58.80	59.1	2.90	2.9	7.60	7.6	<2	2.0
			23.3		5.38		59.30		2.91		7.50		<2	

Date	**25-Nov-09**													
Location	**Time**	**Depth (m)**	**Temp(oC)**		**DO (mg/L)**		**DOS(%)**		**Turbidity(NTU)**		**pH**		**SS**	
W1 (Control)	12:13	0.1	26.0	26.0	3.36	3.3	52.10	51.8	4.83	4.8	8.00	8.0	<2	2.0
			26.0		3.33		51.40		4.79		7.90		<2	
W2 (Control)	11:00	0.15	25.6	25.6	5.18	5.2	56.30	56.2	4.54	4.6	7.30	7.4	14.00	14.0
			25.6		5.16		56.00		4.58		7.40		14.00	
W3 (Impact)	11:58	0.5	25.7	25.7	4.21	4.2	58.60	58.4	5.93	5.9	7.70	7.7	2.00	2.0
			25.7		4.18		58.20		5.91		7.60		2.00	
W4 (Temp)	11:09	0.15	25.9	25.9	5.19	5.2	56.60	56.5	5.56	5.6	7.40	7.4	2.00	2.0
			25.9		5.19		56.40		5.59		7.40		2.00	

DSD CONTRACT NO. DC/2007/08

Drainage Improvements Works in Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang

24-Hr TSP Monitoring Data

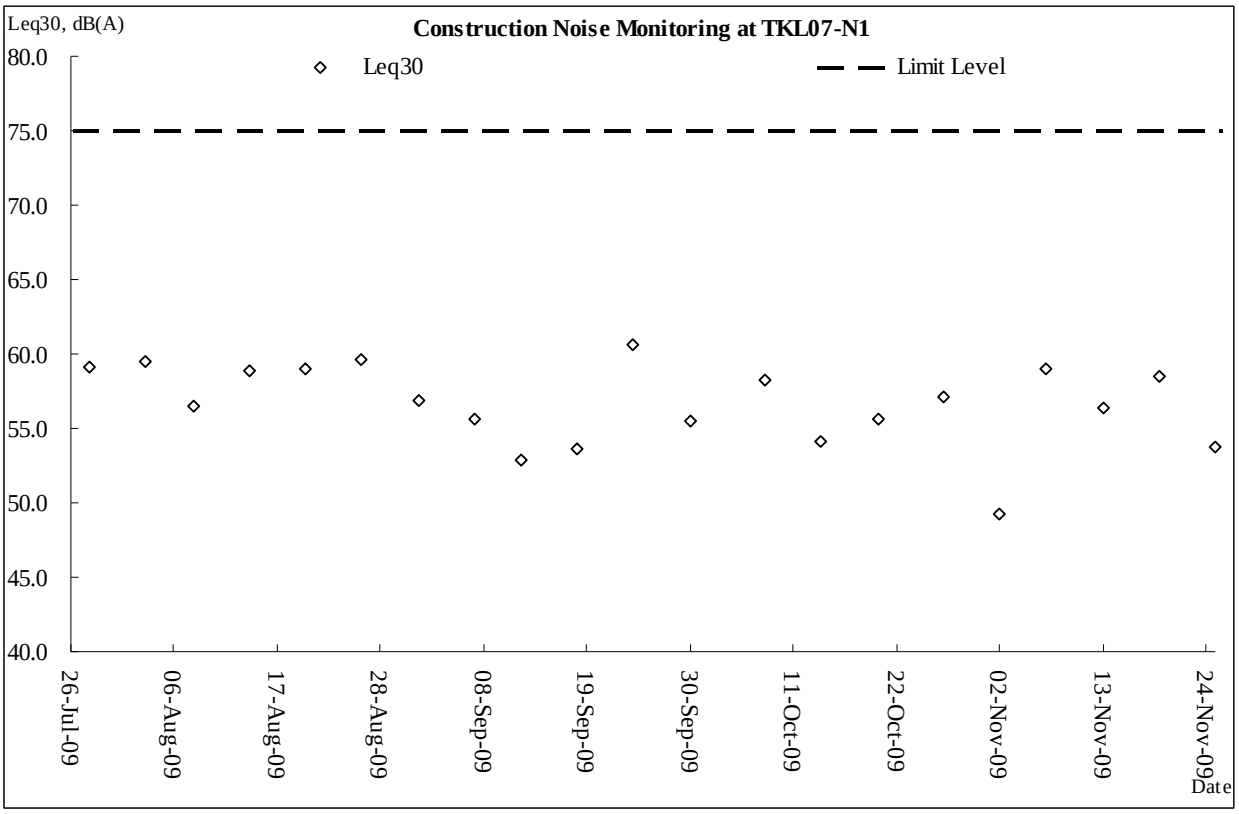
DATE	SAMPLE NUMBER	ELAPSED TIME INITIAL	ELAPSED TIME FINAL	ELAPSED TIME (min)	MIN CHART READING	MAX CHART READING	AVG CHART READING	AVG TEMP (oC)	AVG PRESS (hPa)	STANDARD FLOW RATE (m3/min)	AIR VOLUME (std m3)	BLANK SAMPLE NUMBER	BLANK INTIAL WEIGHT (g)	BLANK FINAL WEIGHT (g)	BLANK DIFF WEIGHT (g)	INITIAL FILTER WEIGHT (g)	FINAL FILTER WEIGHT (g)	WEIGHT DUST OLLECTE (g)	Dust 24-Hr TSP in Air (ug/m3)	Action Level	Limit Level
24-Hr TSP Monitoring Data for TKL-07-A1																					
31-Oct-09	20857	1561.63	1585.14	1410.60	32	34	33	25.1	1014.0	1.222	1723.168	NA	2.8856	2.8862	0.001	2.8380	3.1045	0.2665	154	166	260
6-Nov-09	20893	1585.14	1608.59	1407.00	32	34	33	22.9	1015.8	1.226	1724.721	NA	2.885	2.8847	0.001	2.8306	3.1089	0.2783	161	166	260
12-Nov-09	20970	1608.59	1631.97	1402.80	32	34	33	23.3	1012.6	1.224	1716.658	NA	2.8847	2.8835	0.001	2.8051	2.8960	0.0909	52	166	260
18-Nov-09	21004	1631.97	1655.37	1404.00	20	22	21	9.8	1023.5	0.906	1271.659	NA	2.8822	2.8825	0.001	2.8686	2.9048	0.0362	28	166	260
24-Nov-09	21034	1655.37	1678.8	1405.80	32	34	33	19.0	1016.4	1.232	1732.277	NA	8.8828	8.882	0.001	2.8961	3.1550	0.2589	149	166	260
24-Hr TSP Monitoring Data for TKL-07-A2a																					
31-Oct-09	20860	1574.93	1598.36	1405.80	42	48	45	25.1	1014.0	1.5441695	2170.79353	NA	2.8862	2.8856	0.001	2.8182	2.9506	0.1324	61	155	260
6-Nov-09	20898	1598.36	1621.8	1406.40	30	32	31	22.9	1015.8	1.1685457	1643.44268	NA	2.885	2.8847	0.001	2.8460	3.1974	0.3514	213	155	260
12-Nov-09	20975	1621.8	1645.24	1406.40	53	55	54	23.3	1012.6	1.7915529	2519.64001	NA	2.8847	2.8835	0.001	2.8015	2.9061	0.1046	41	155	260
18-Nov-09	20998	1645.24	1668.67	1405.80	53	57	55	9.8	1023.5	1.8621852	2617.8599	NA	2.8822	2.8825	0.001	2.8252	2.9934	0.1682	64	155	260
24-Nov-09	20994	1668.67	1692.05	1402.80	53	56	54.5	19	1016.4	1.818797	2551.40847	NA	2.8828	2.882	0.001	2.8350	3.1780	0.3430	134	155	260
24-Hr TSP Monitoring Data for MUP01/02- A1																					
31-Oct-09	20864	1296.69	1320.1	1404.60	37	40	38.5	25.1	1014.0	1.3756	1932.18	NA	2.8856	2.8862	0.001	2.8667	3.0002	0.1335	69	194	260
6-Nov-09	20897	1320.1	1343.48	1402.80	37	39	38	22.9	1015.8	1.3656	1915.63	NA	2.885	2.8847	0.001	2.8058	2.9331	0.1273	66	194	260
12-Nov-09	20969	1343.48	1366.92	1406.40	36	38	37	23.3	1012.6	1.3320	1873.34	NA	2.8847	2.8835	0.001	2.8121	2.8632	0.0511	27	194	260
18-Nov-09	21003	1366.92	1390.45	1411.80	38	40	39	9.8	1023.5	1.4289	2017.35	NA	2.8822	2.8825	0.001	2.8741	2.956	0.0819	40	194	260
24-Nov-09	20963	1390.45	1413.87	1405.20	38	40	39	19	1016.4	1.4050	1974.27	NA	2.8828	2.882	0.001	2.8622	3.0273	0.1651	83	194	260
24-Hr TSP Monitoring Data for MUP01/02- A2																					
31-Oct-09	20867	1259.1	1283.11	1440.60	38	40	39	25.1	1014.0	1.7543	2527.24	NA	2.8856	2.8862	0.001	2.8050	2.9017	0.0967	38	155	260
6-Nov-09	20899	1283.11	1306.36	1395.00	27	29	28	22.9	1015.8	1.4203	1981.26	NA	2.885	2.8847	0.001	2.8086	2.8440	0.0354	17	155	260
12-Nov-09	no power																			155	260
18-Nov-09	no power																			155	260
24-Nov-09	no power																			155	260
24-Hr TSP Monitoring Data for TKL02- A1																					
31-Oct-09	20863	947.67	971.85	1450.80	20	22	21	25.1	1014.0	0.8502	1233.53	NA	2.8856	2.8862	0.001	2.8150	2.8997	0.0847	68	155	260
6-Nov-09	20902	971.85	996.02	1450.20	20	22	21	22.9	1015.8	0.8526	1236.40	NA	2.885	2.8847	0.001	2.8290	2.9407	0.1117	90	155	260
12-Nov-09	20971	996.02	1020.11	1445.40	32	34	33	23.3	1012.6	1.1424	1651.16	NA	2.8847	2.8835	0.001	2.8330	2.9144	0.0814	49	155	260
18-Nov-09	21009	1020.11	1044.21	1446.00	20	22	21	9.8	1023.5	0.8662	1252.57	NA	2.8822	2.8825	0.001	2.8808	2.9396	0.0588	46	155	260
24-Nov-09	20988	1044.21	1068.34	1447.80	20	22	21	19	1016.4	0.8561	1239.49	NA	2.8828	2.882	0.001	2.8450	2.9486	0.1036	83	155	260
24-Hr TSP Monitoring Data for TKL02- A2																					
31-Oct-09	20865	931.11	955.03	1435.20	32	34	33	25.1	1014.0	1.2134	1741.53	NA	2.8856	2.8862	0.001	2.8358	2.9450	0.1092	62	155	260
6-Nov-09	20901	955.03	978.94	1434.60	32	34	33	22.9	1015.8	1.2172	1746.23	NA	2.885	2.8847	0.001	2.8330	2.9366	0.1036	59	155	260
12-Nov-09	20974	978.94	1002.74	1428.00	32	34	33	23.3	1012.6	1.2154	1735.54	NA	2.8847	2.8835	0.001	2.8142	2.8692	0.0550	31	155	260
18-Nov-09	21006	1002.74	1026.62	1432.80	34	36	35	9.8	1023.5	1.2907	1849.33	NA	2.8822	2.8825	0.001	2.8672	2.9845	0.1173	63	155	260
24-Nov-09	20927	1026.62	1050.46	1430.40	32	34	33	19	1016.4	1.2230	1749.33	NA	2.8828	2.882	0.001	2.8342	3.0236	0.1894	108	155	260

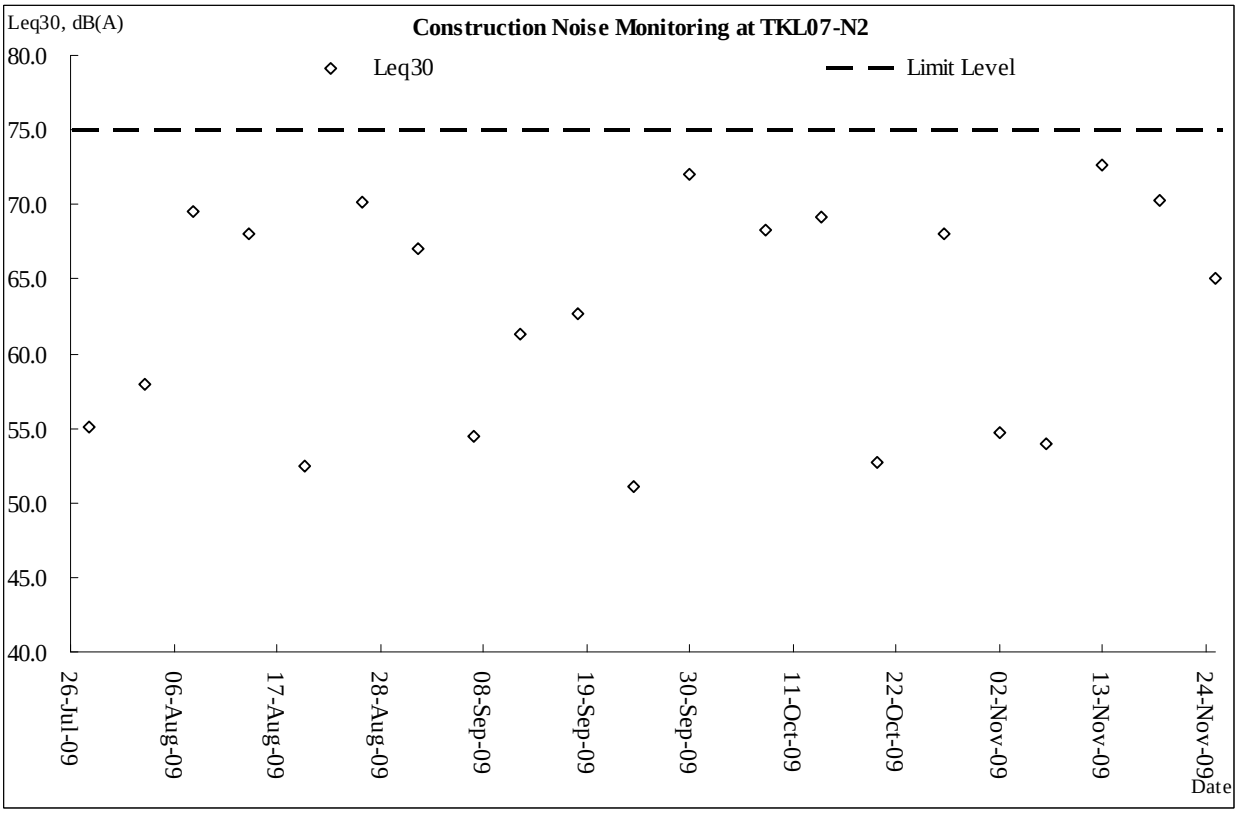
Appendix I

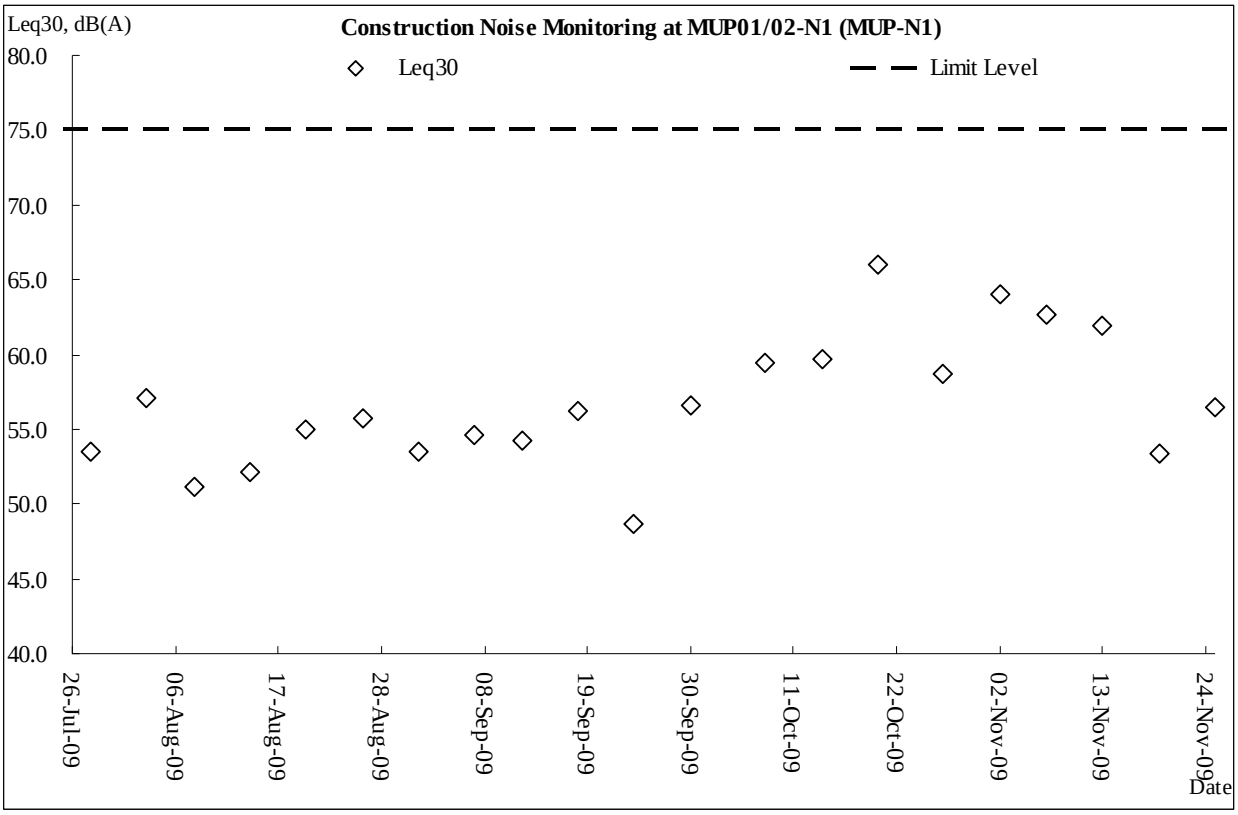
Graphic Plot of Monitoring

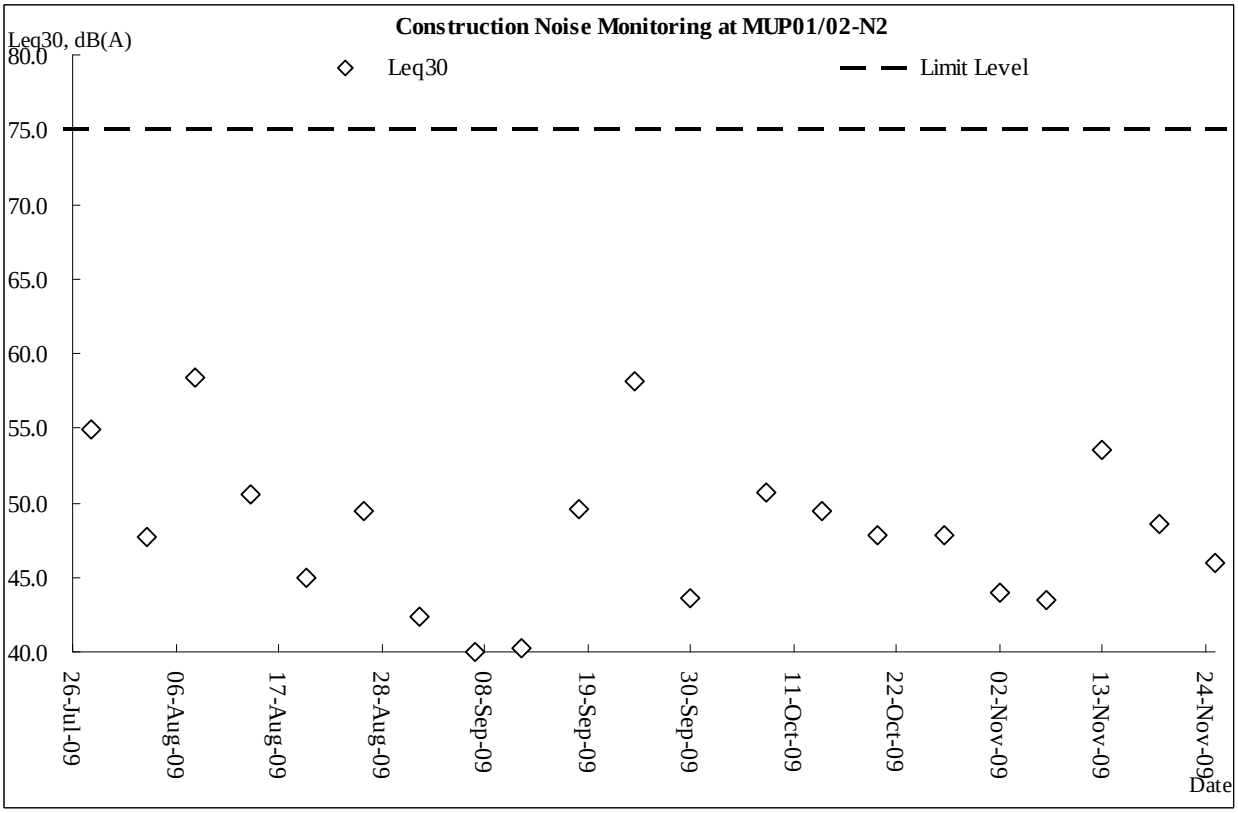
1. Construction Noise
2. Air Quality
3. Water Quality

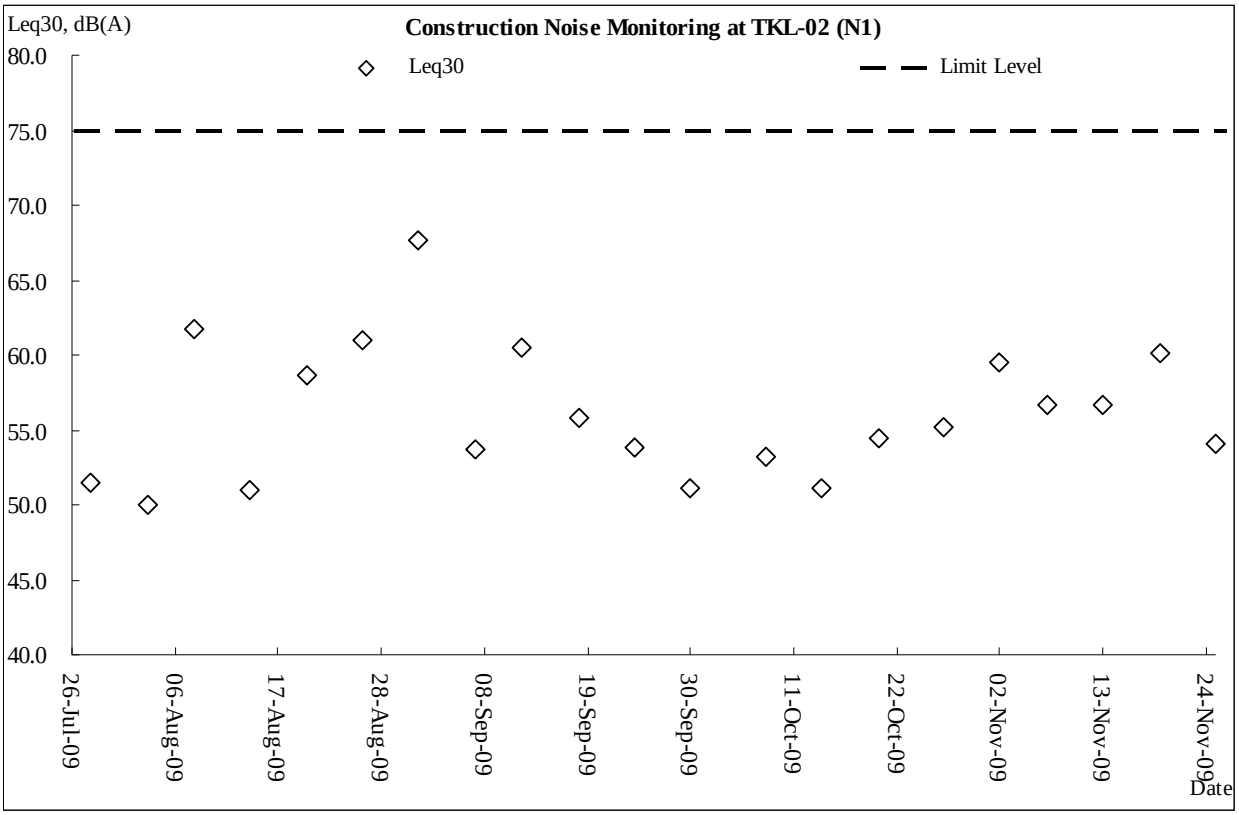
Graphic Plot of Monitoring – Construction Noise

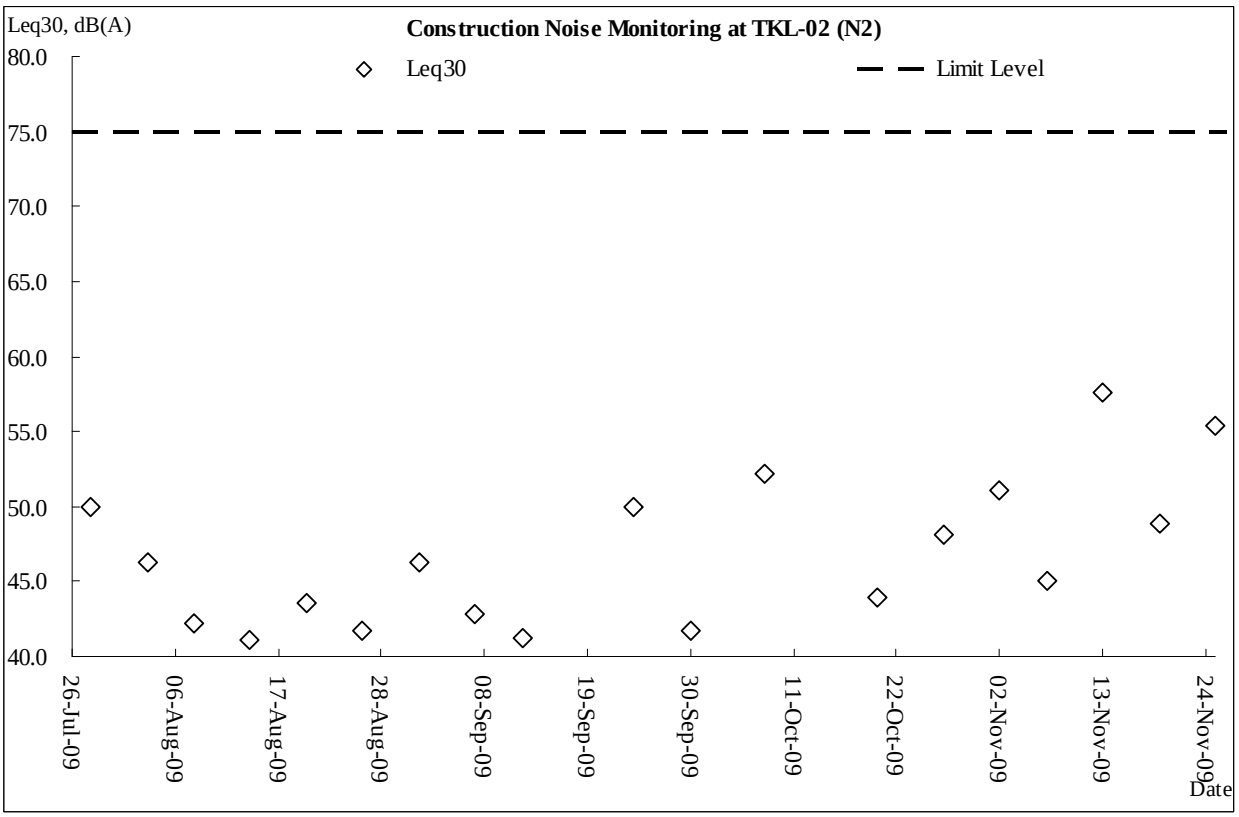




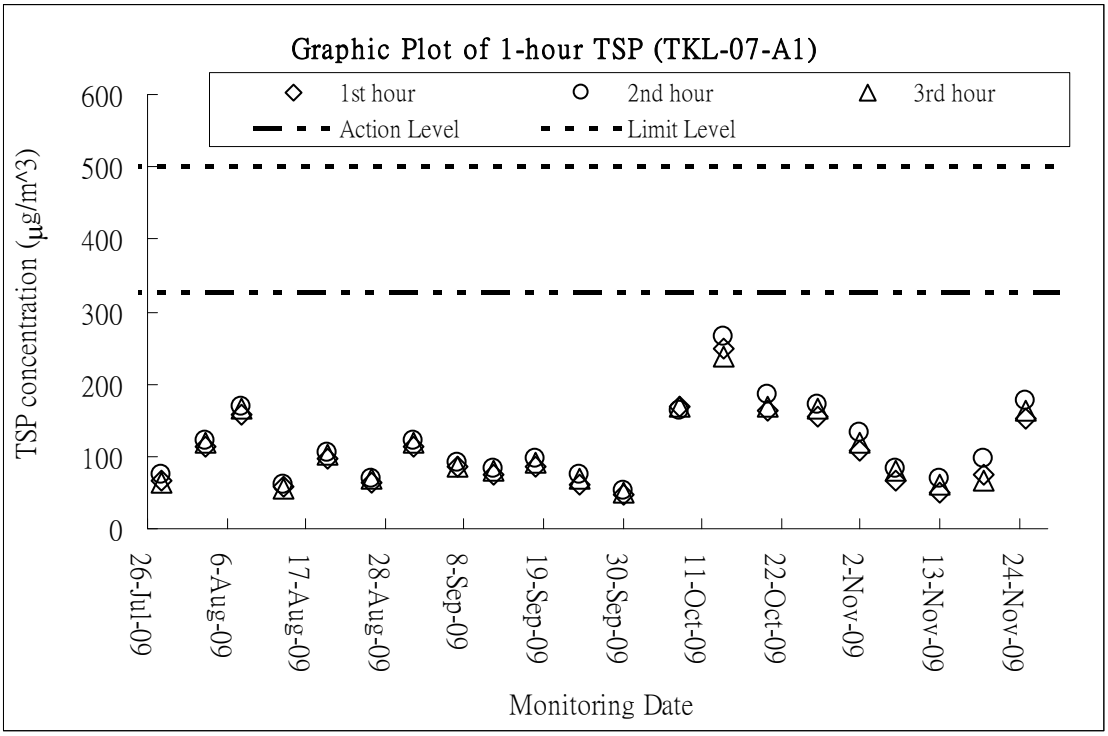

Construction Noise Monitoring at MUP01/02-N1 (MUP-N1)
Leq30, dB(A)
Leq30
Limit Level
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
26-Jul-09
06-Aug-09
17-Aug-09
28-Aug-09
08-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
02-Nov-09
13-Nov-09
24-Nov-09
Date

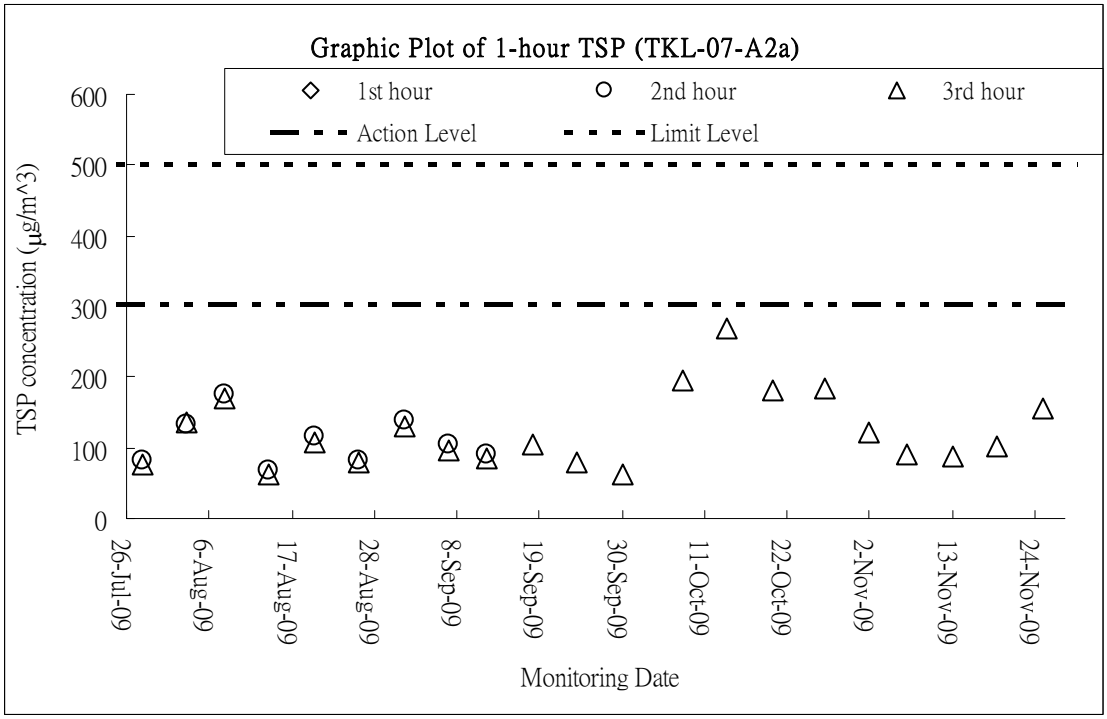

Construction Noise Monitoring at MUP01/02-N2
Leq30, dB(A)
Leq30
Limit Level
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
26-Jul-09
06-Aug-09
17-Aug-09
28-Aug-09
08-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
02-Nov-09
13-Nov-09
24-Nov-09
Date

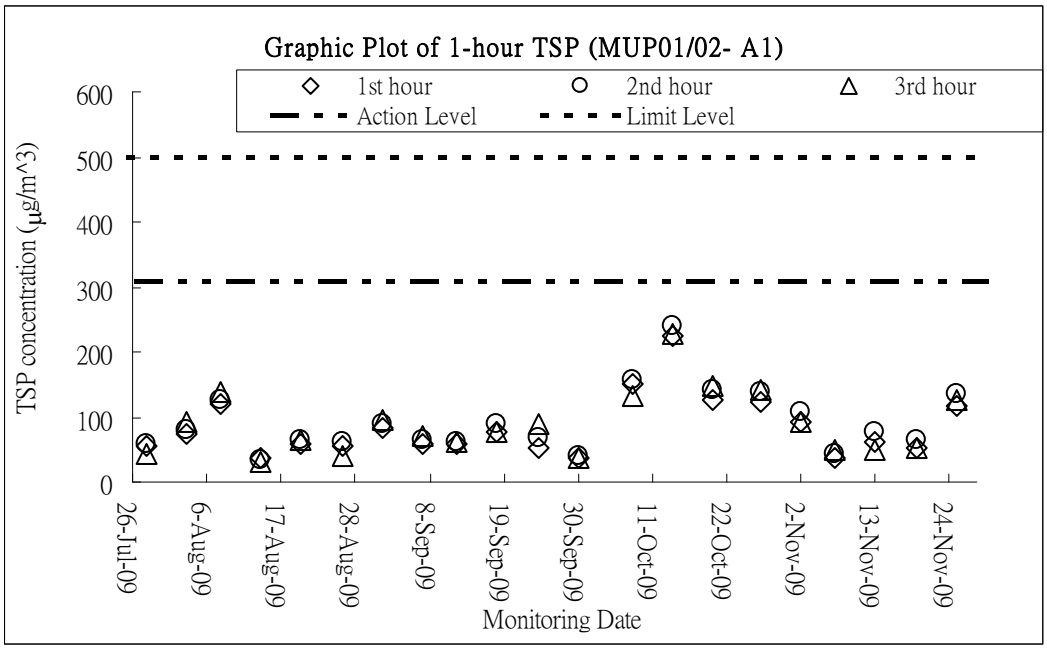

Construction Noise Monitoring at TKL-02 (N1)
Leq30, dB(A)
Leq30
Limit Level
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
26-Jul-09
06-Aug-09
17-Aug-09
28-Aug-09
08-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
02-Nov-09
13-Nov-09
24-Nov-09
Date

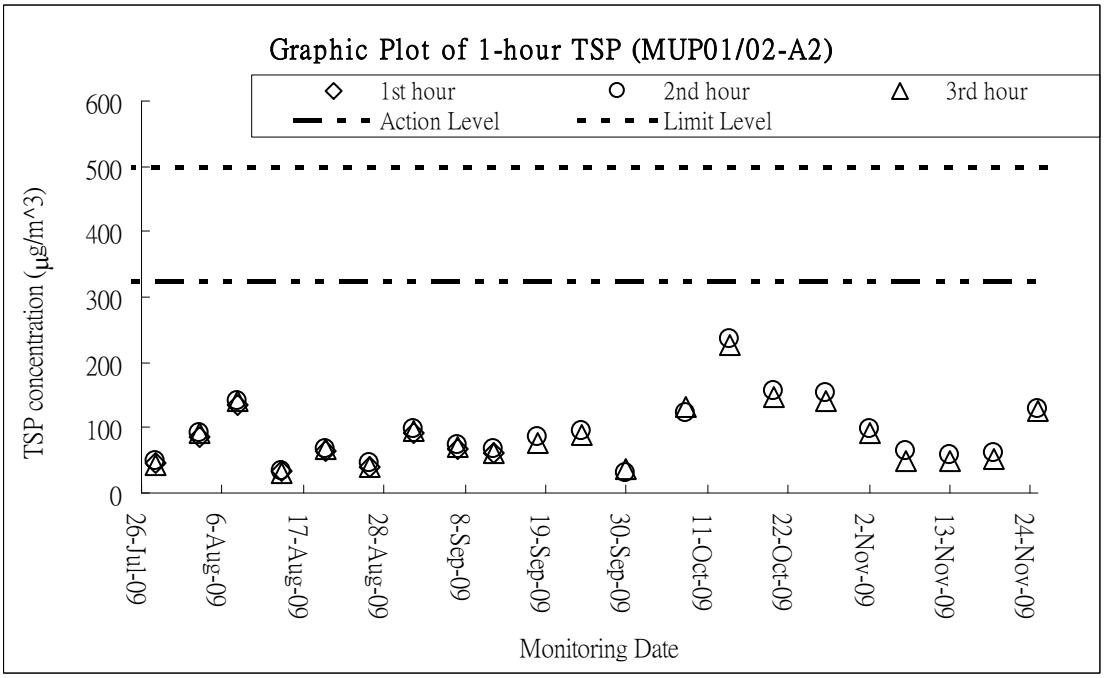

Construction Noise Monitoring at TKL-02 (N2)
Leq30, dB(A)
Leq30
Limit Level
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
26-Jul-09
06-Aug-09
17-Aug-09
28-Aug-09
08-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
02-Nov-09
13-Nov-09
24-Nov-09
Date

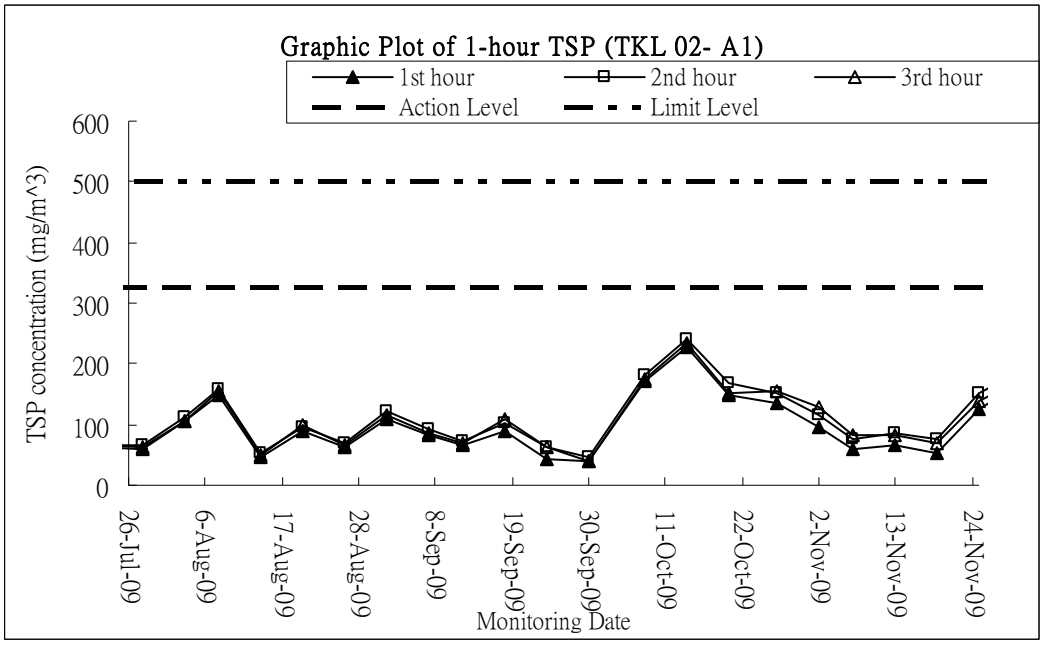
Graphic Plot of Monitoring – Air Quality

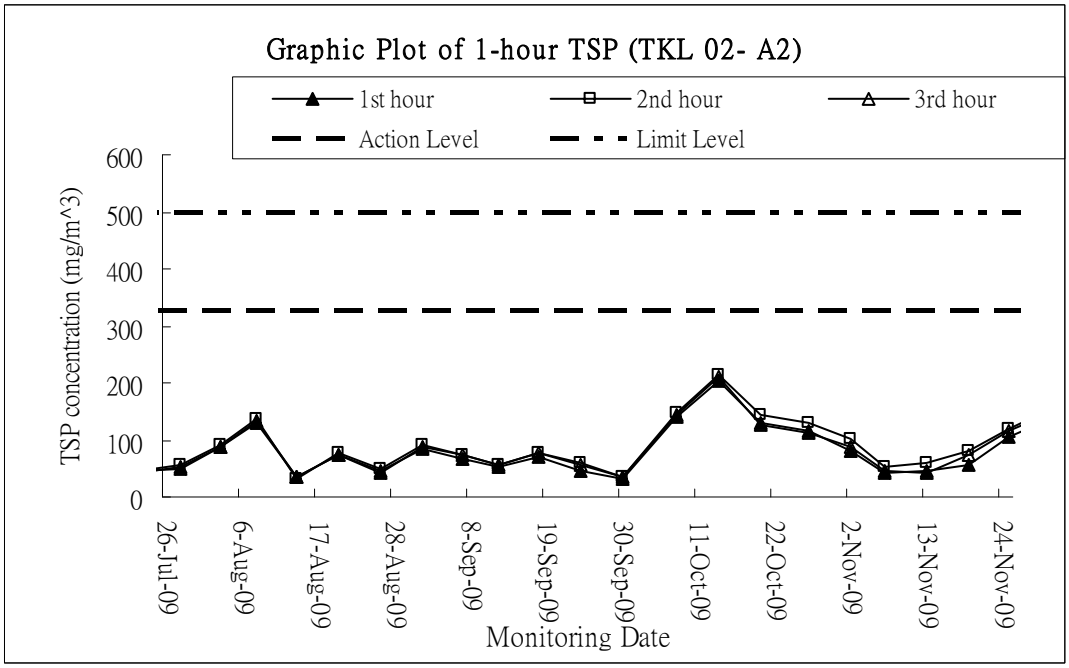


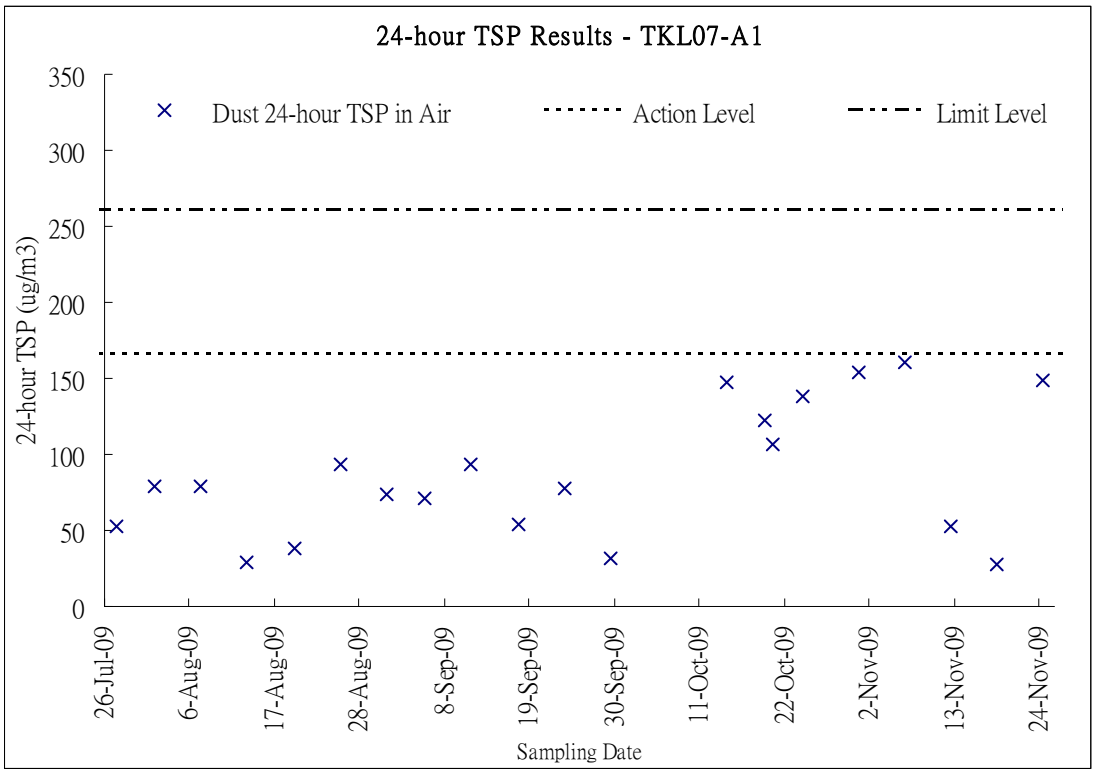


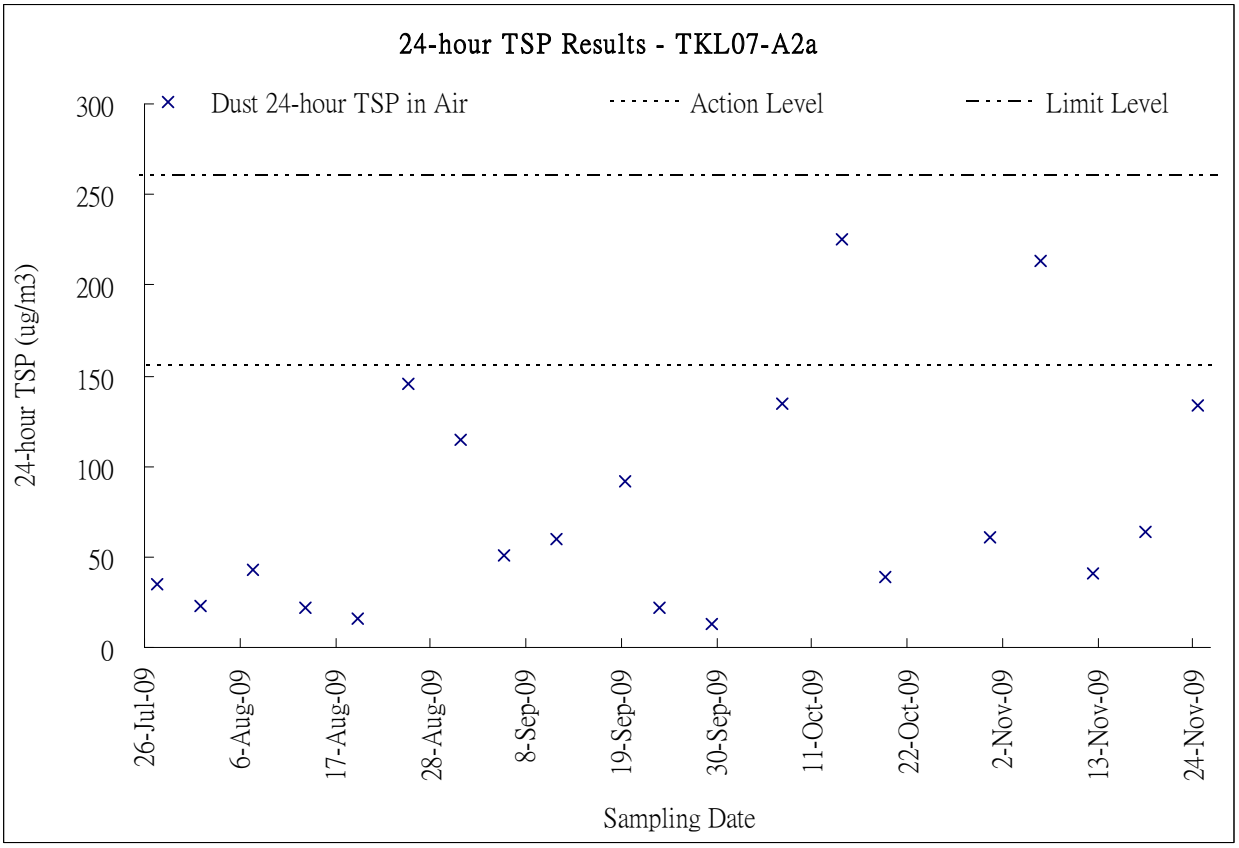

Graphic Plot of 1-hour TSP (MUP01/02- A1)
1st hour
2nd hour
3rd hour
Action Level
Limit Level
TSP concentration (μg/m^3)
600
500
400
300
200
100
0
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Monitoring Date

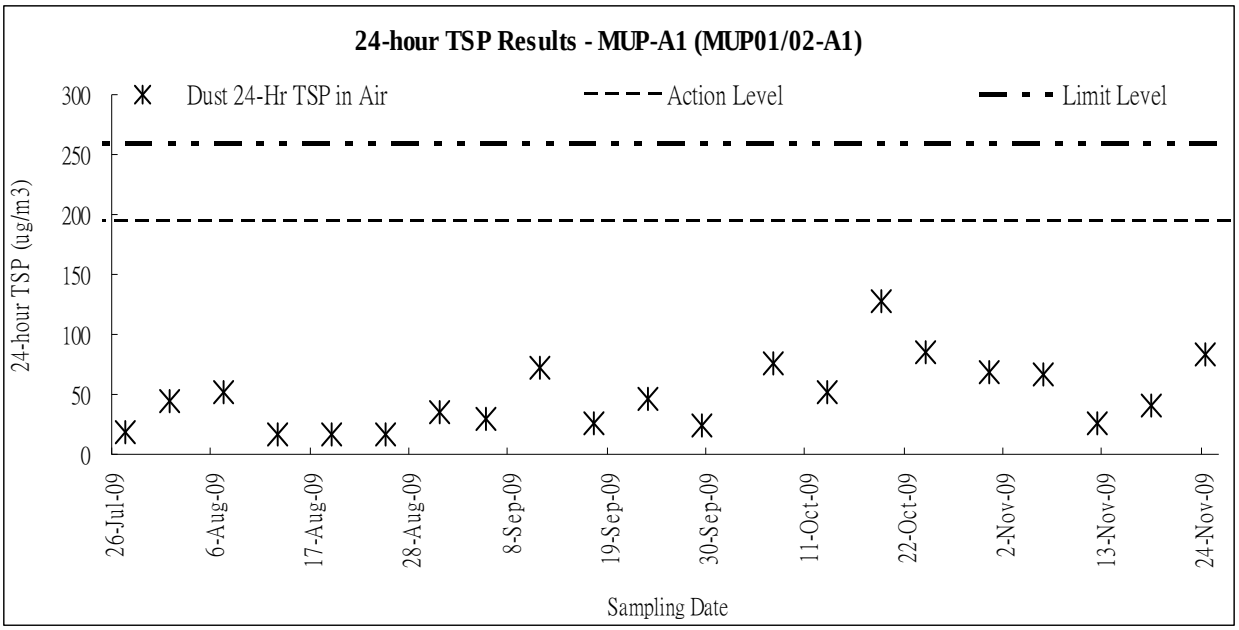

Graphic Plot of 1-hour TSP (MUP01/02-A2)
1st hour
2nd hour
3rd hour
Action Level
Limit Level
TSP concentration (μg/m^3)
600
500
400
300
200
100
0
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Monitoring Date

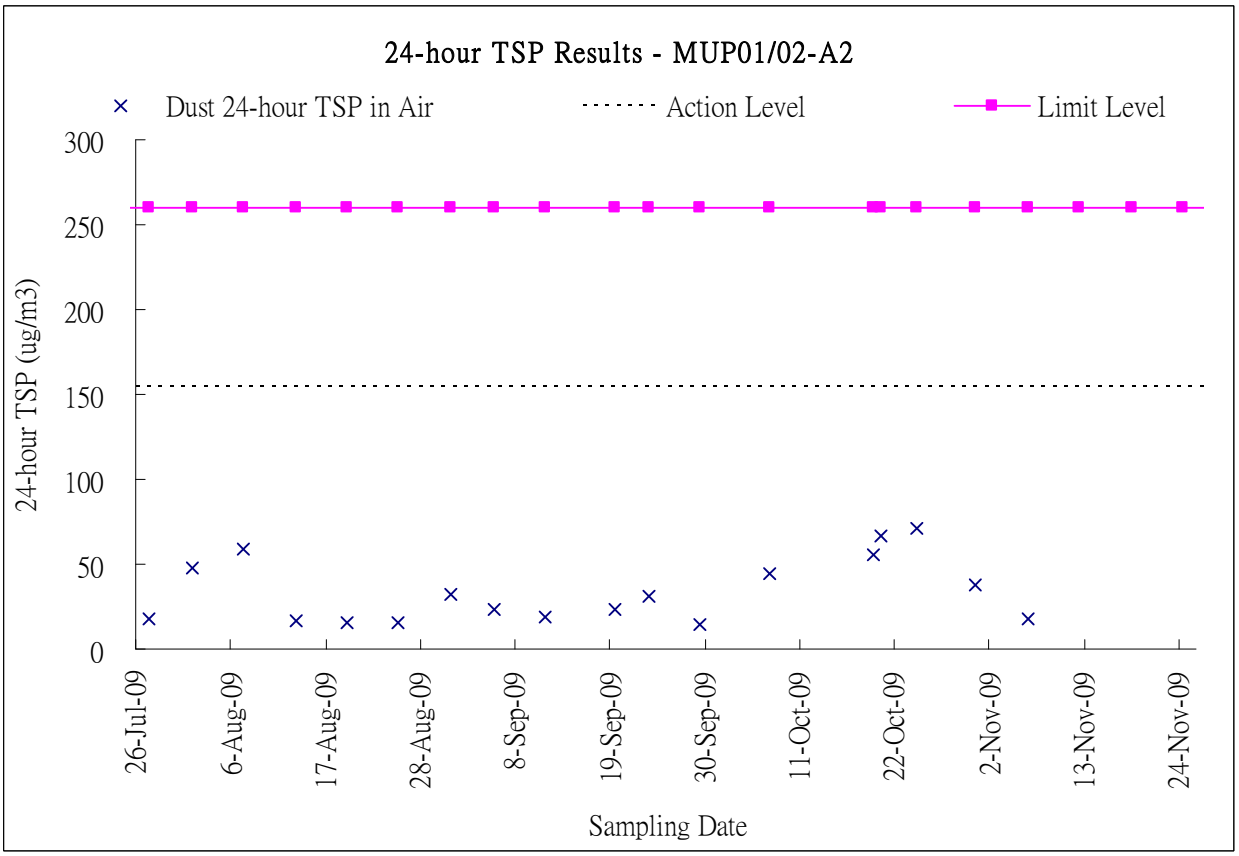

Graphic Plot of 1-hour TSP (TKL 02- A1)
1st hour
2nd hour
3rd hour
Action Level
Limit Level
TSP concentration (mg/m^3)
600
500
400
300
200
100
0
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Monitoring Date

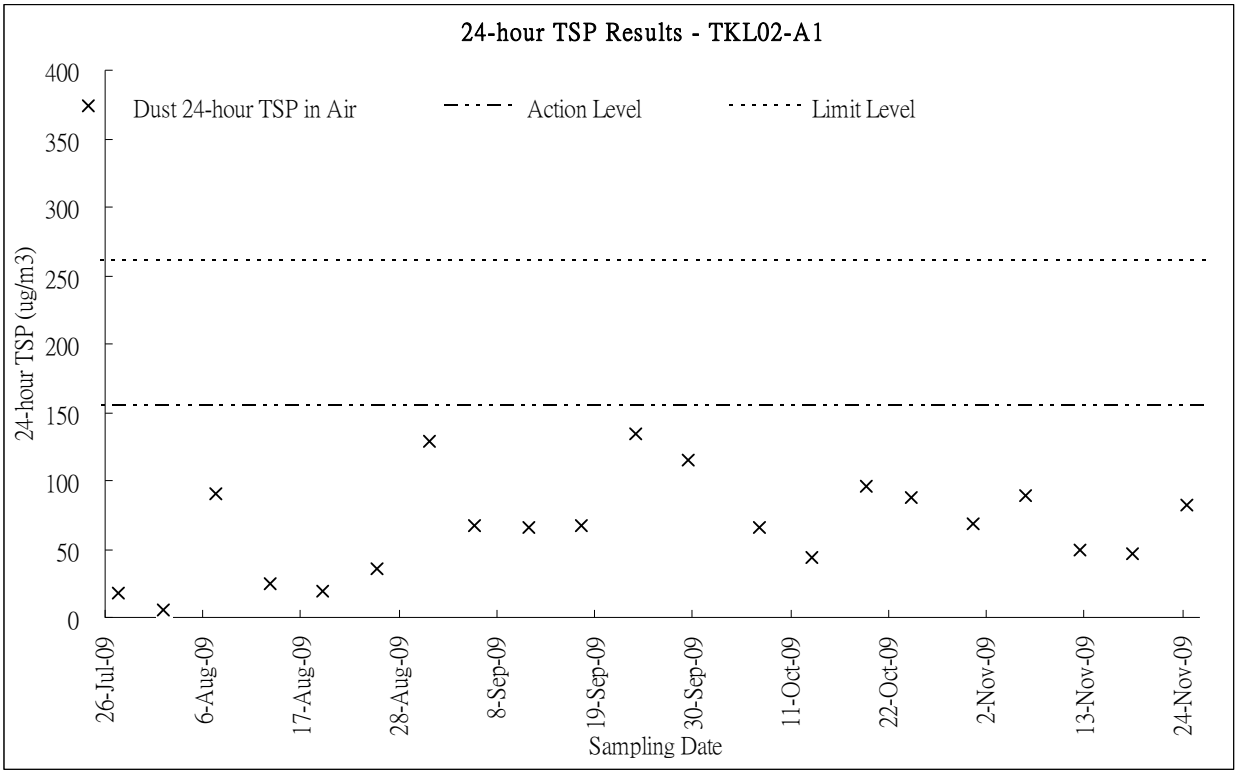

Graphic Plot of 1-hour TSP (TKL 02- A2)
1st hour
2nd hour
3rd hour
Action Level
Limit Level
TSP concentration (mg/m^3)
600
500
400
300
200
100
0
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Monitoring Date

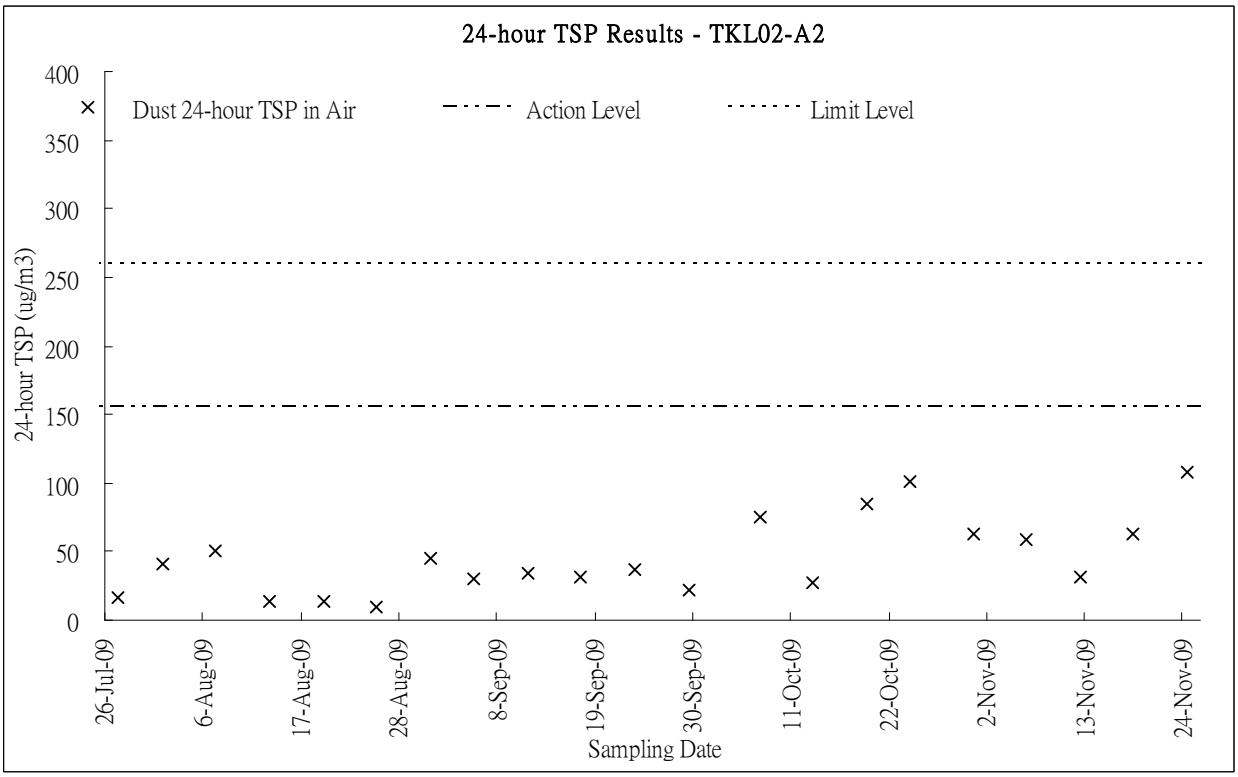

24-hour TSP Results - TKL07-A1
Dust 24-hour TSP in Air
Action Level
Limit Level
24-hour TSP (ug/m3)
350
300
250
200
150
100
50
0
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Sampling Date


24-hour TSP Results - TKL07-A2a
Dust 24-hour TSP in Air
Action Level
Limit Level
24-hour TSP (ug/m3)
300
250
200
150
100
50
0
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Sampling Date

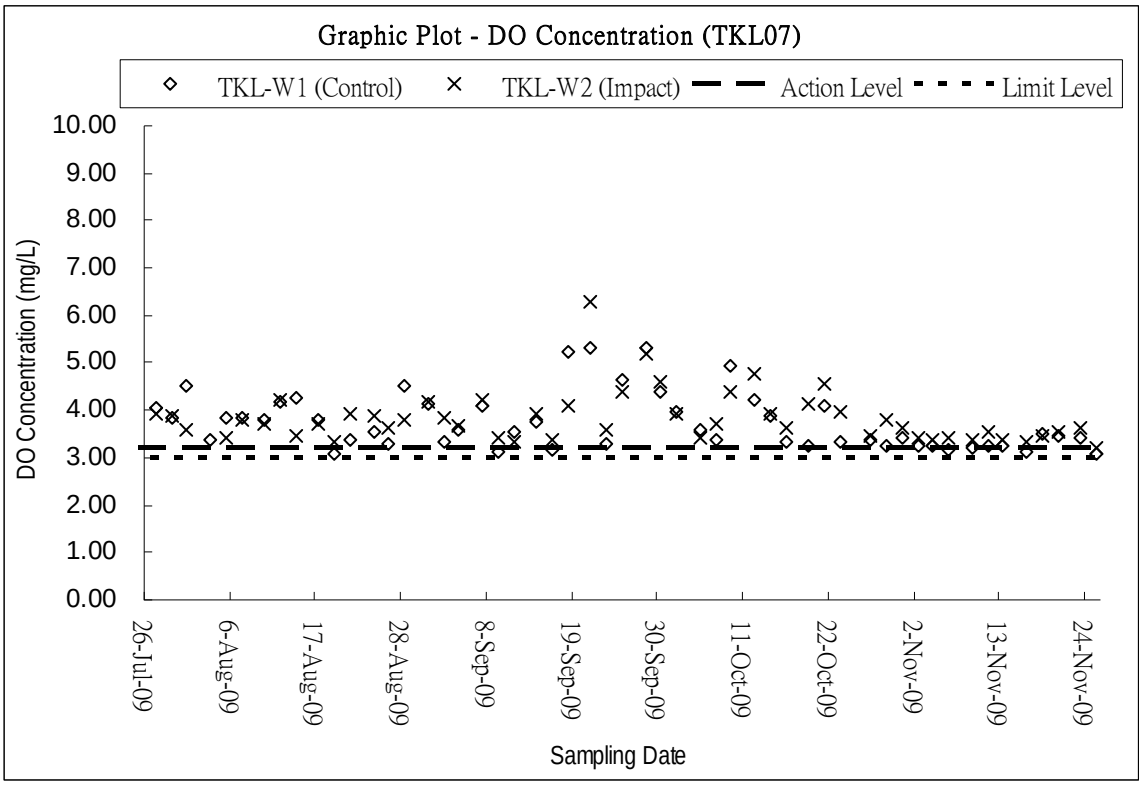

24-hour TSP Results - MUP-A1 (MUP01/02-A1)
Dust 24-Hr TSP in Air
Action Level
Limit Level
24-hour TSP (ug/m3)
300
250
200
150
100
50
0
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Sampling Date

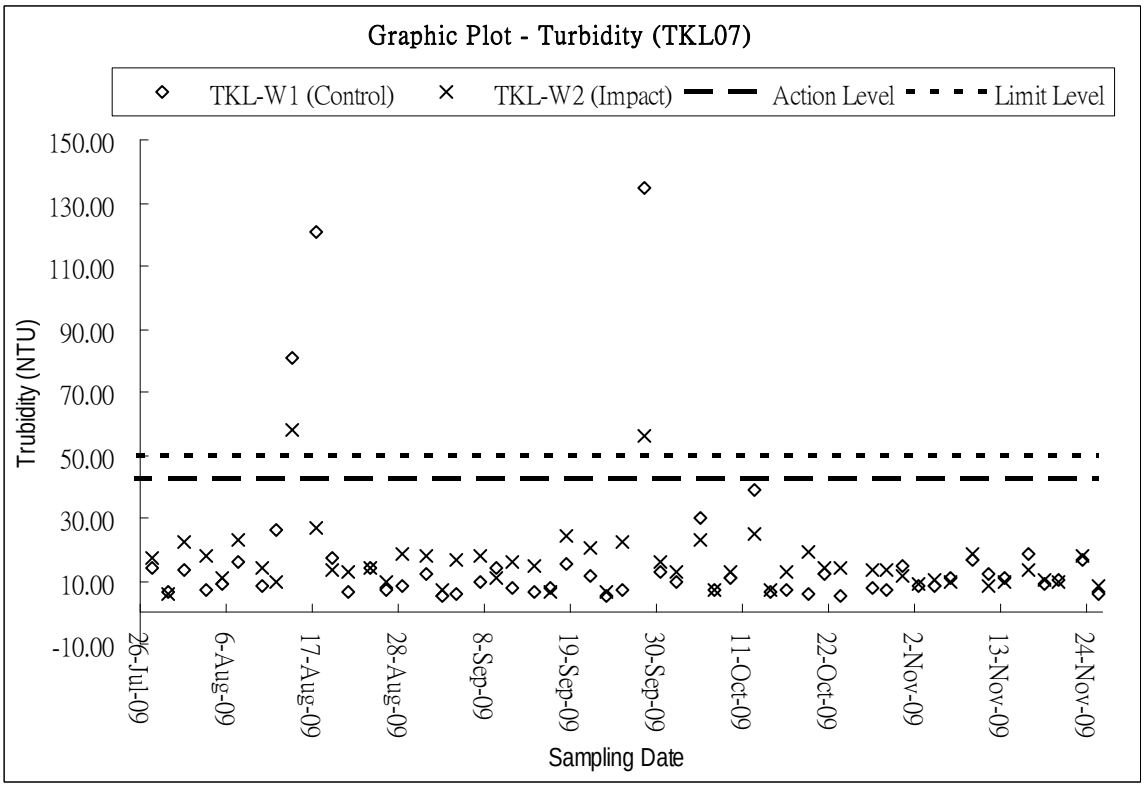

24-hour TSP Results - MUP01/02-A2
Dust 24-hour TSP in Air
Action Level
Limit Level
24-hour TSP (ug/m3)
300
250
200
150
100
50
0
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Sampling Date

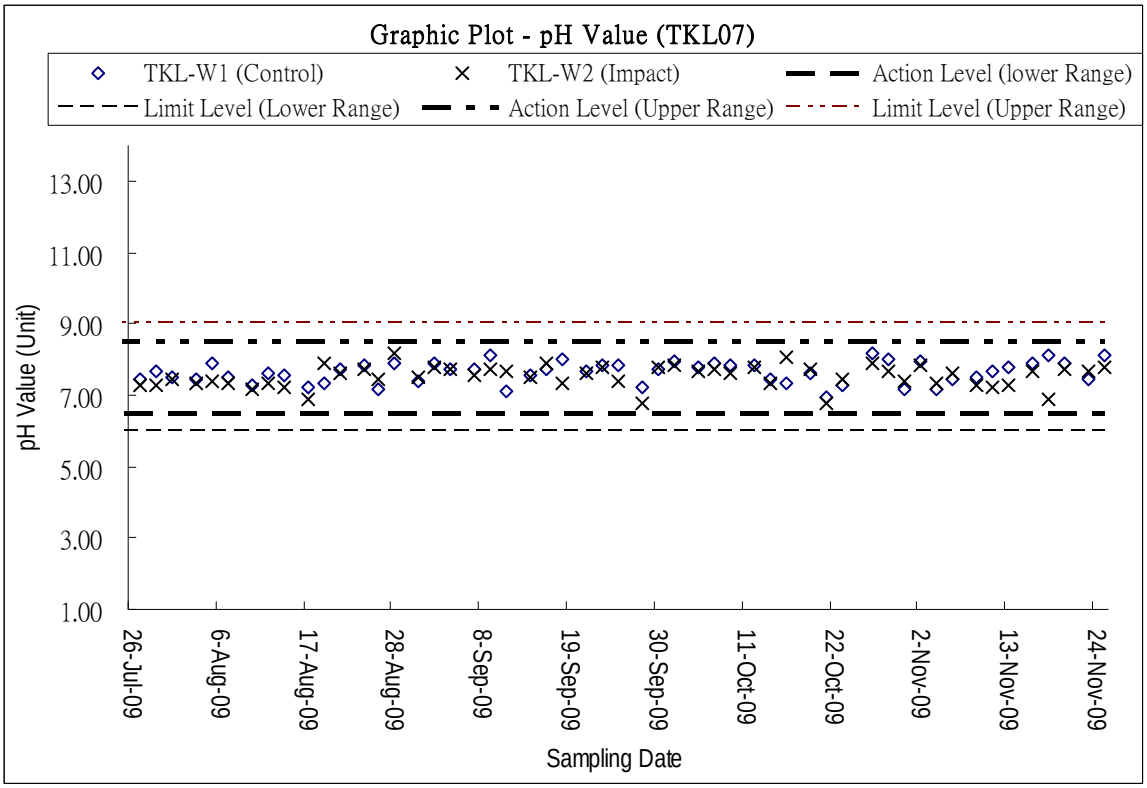

24-hour TSP Results - TKL02-A1
Dust 24-hour TSP in Air
Action Level
Limit Level
24-hour TSP (ug/m3)
400
350
300
250
200
150
100
50
0
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Sampling Date

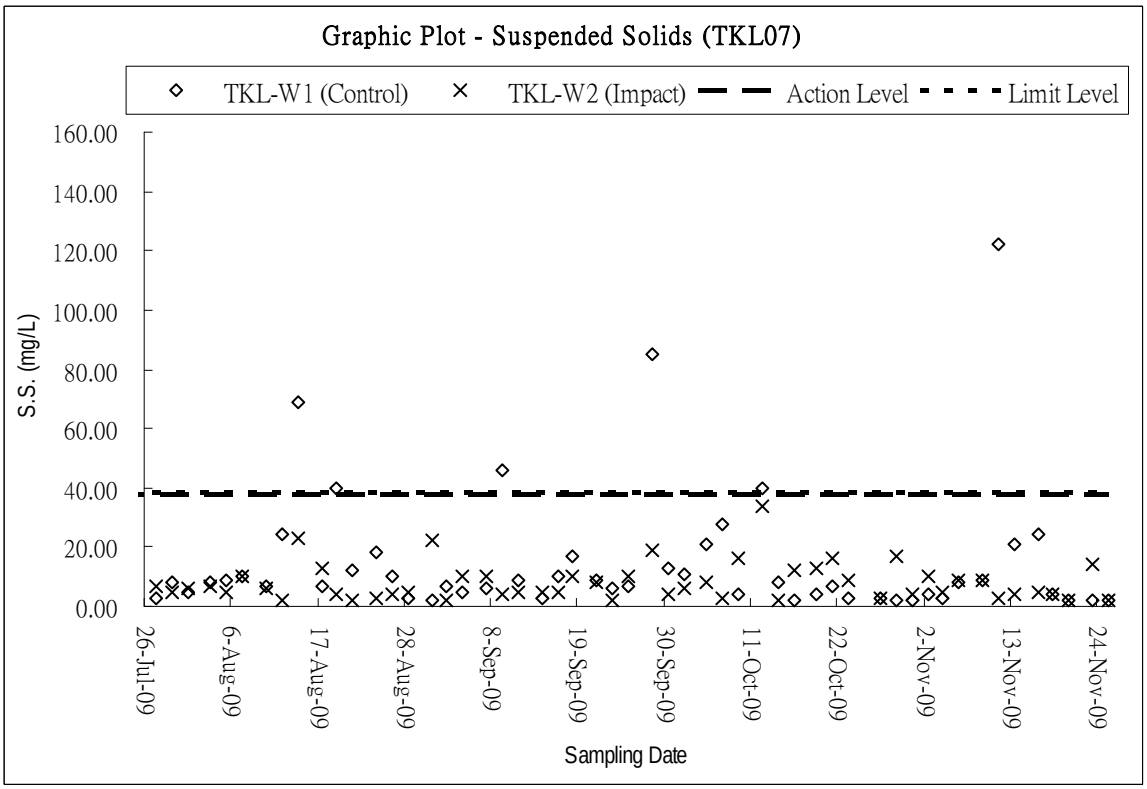

24-hour TSP Results - TKL02-A2
Dust 24-hour TSP in Air
Action Level
Limit Level
24-hour TSP (ug/m3)
400
350
300
250
200
150
100
50
0
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Sampling Date

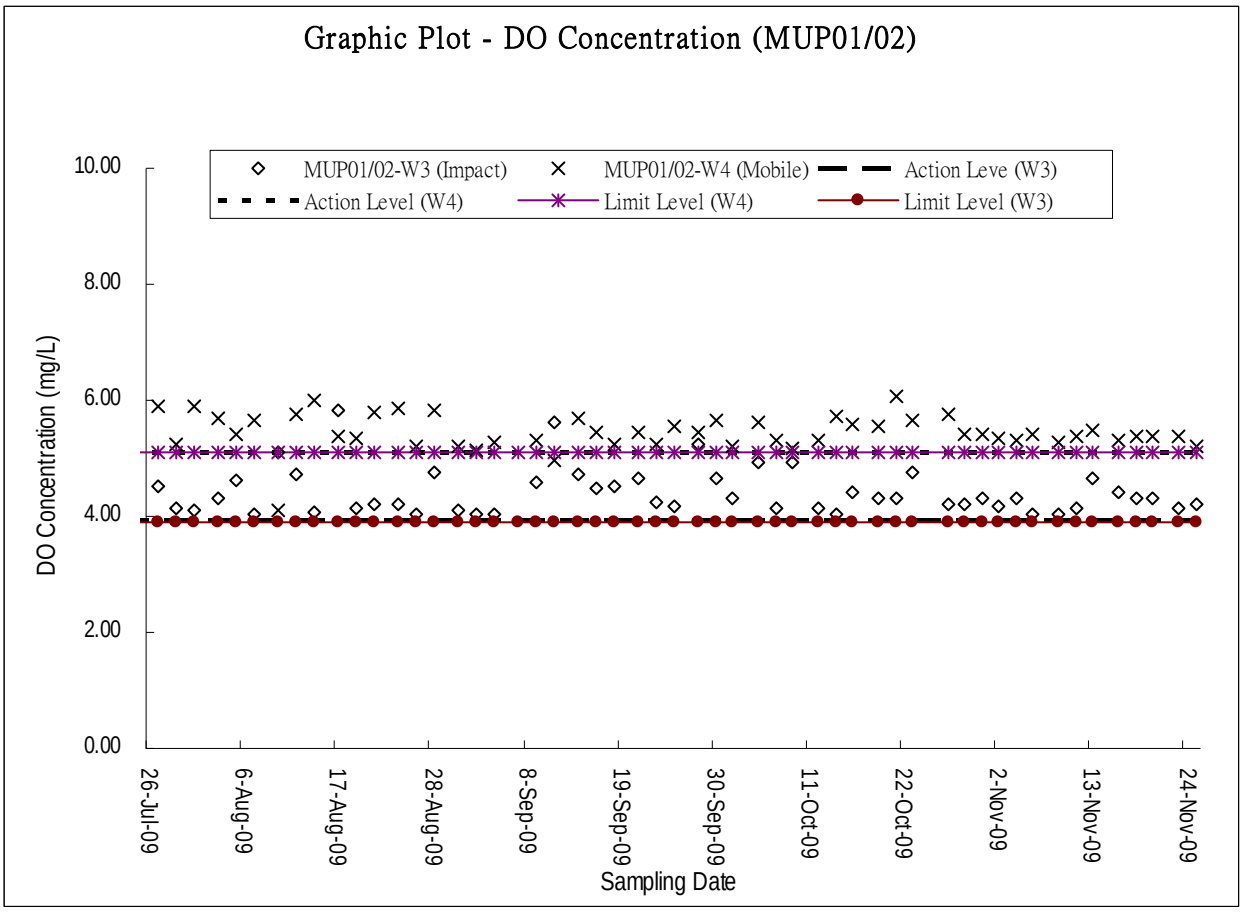
Graphic Plot of Monitoring - Water Quality

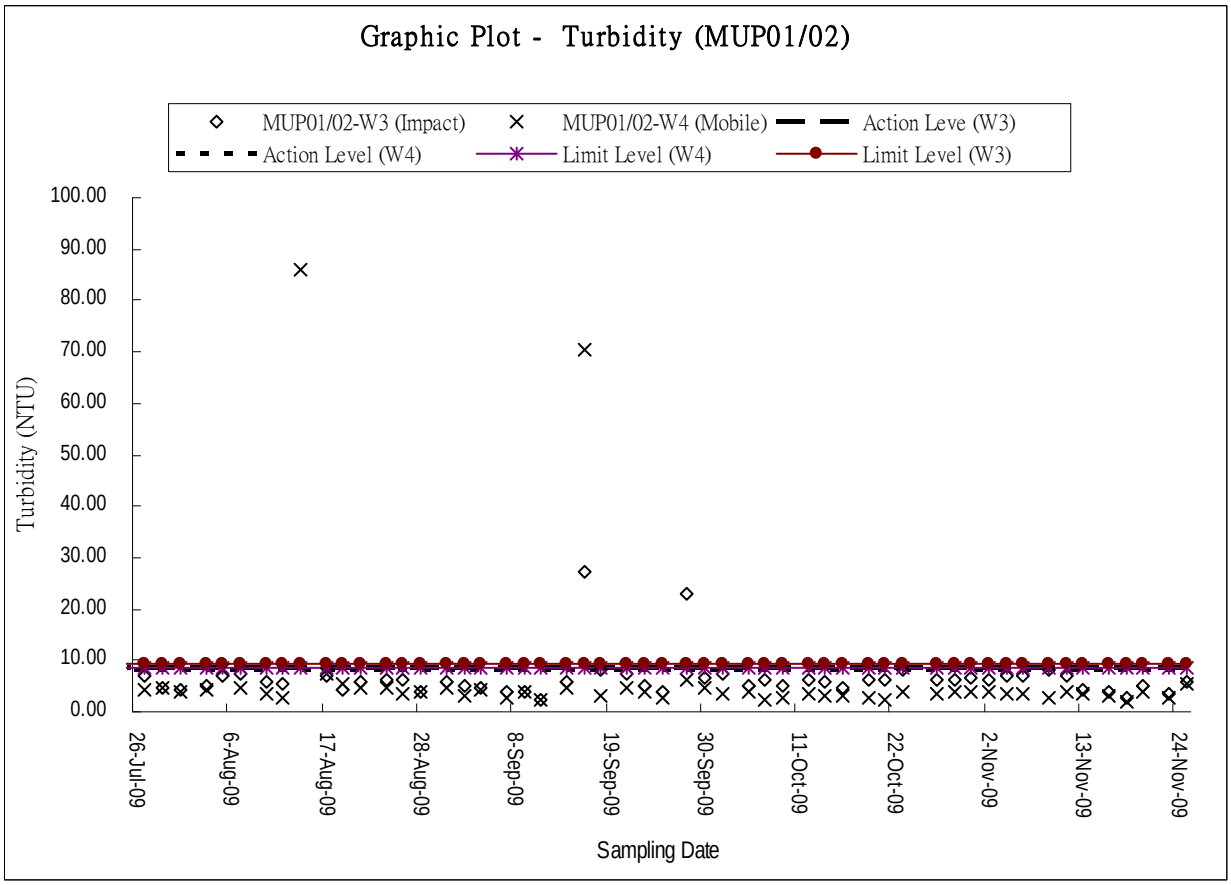


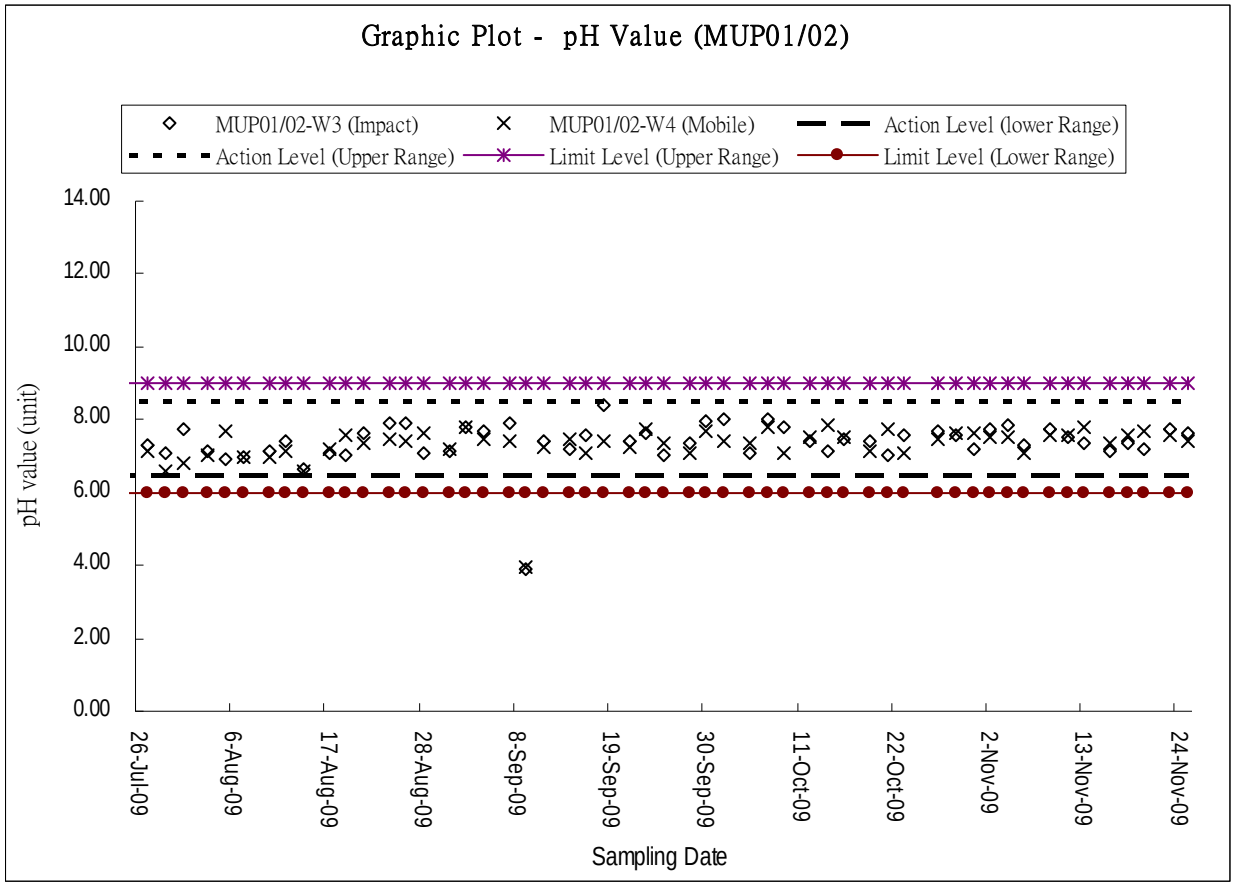


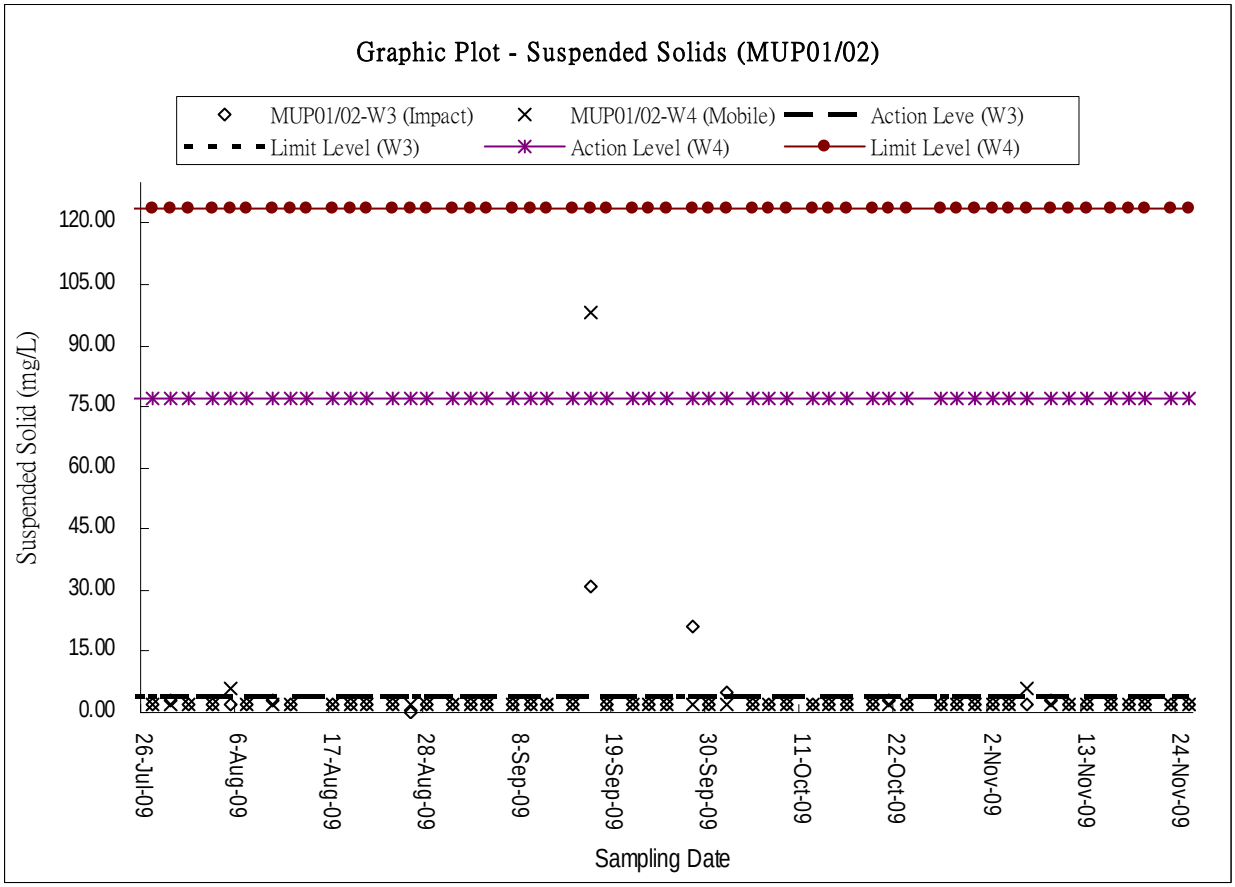

Graphic Plot - pH Value (TKL07)
TKL-W1 (Control)
TKL-W2 (Impact)
Action Level (lower Range)
Limit Level (Lower Range)
Action Level (Upper Range)
Limit Level (Upper Range)
pH Value (Unit)
13.00
11.00
9.00
7.00
5.00
3.00
1.00
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Sampling Date

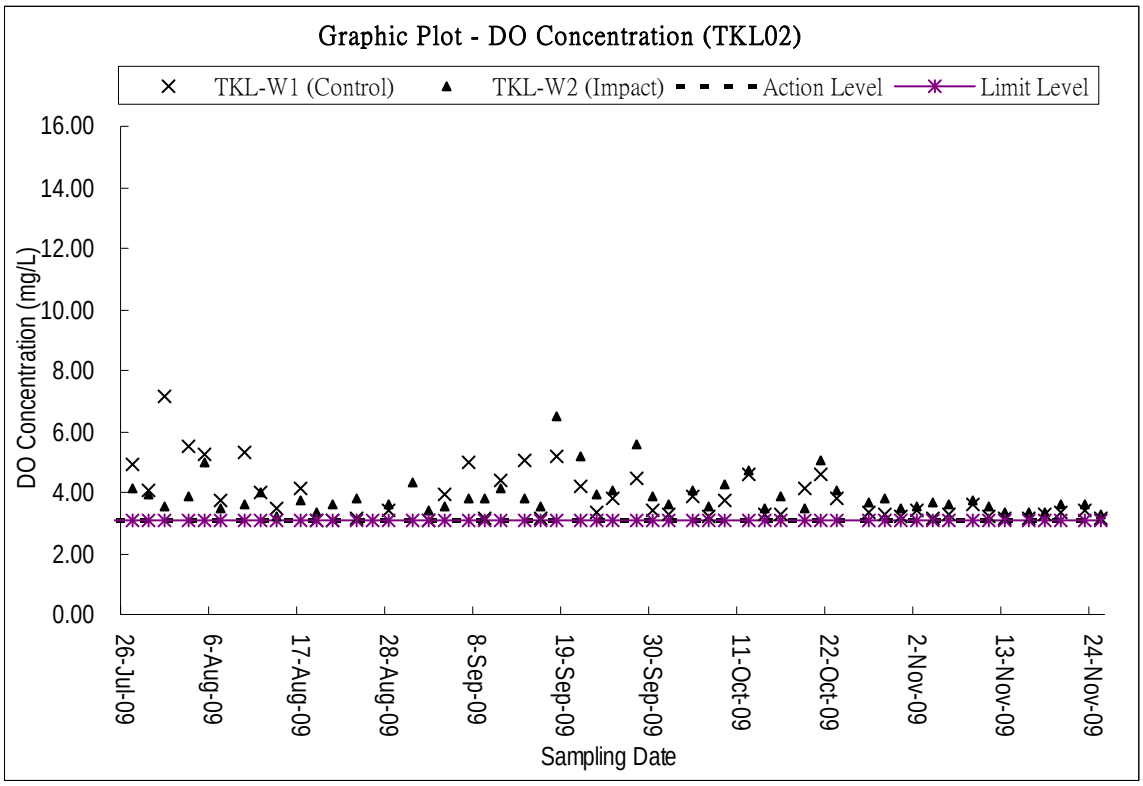

Graphic Plot - Suspended Solids (TKL07)
TKL-W1 (Control)
TKL-W2 (Impact)
Action Level
Limit Level
S.S. (mg/L)
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Sampling Date

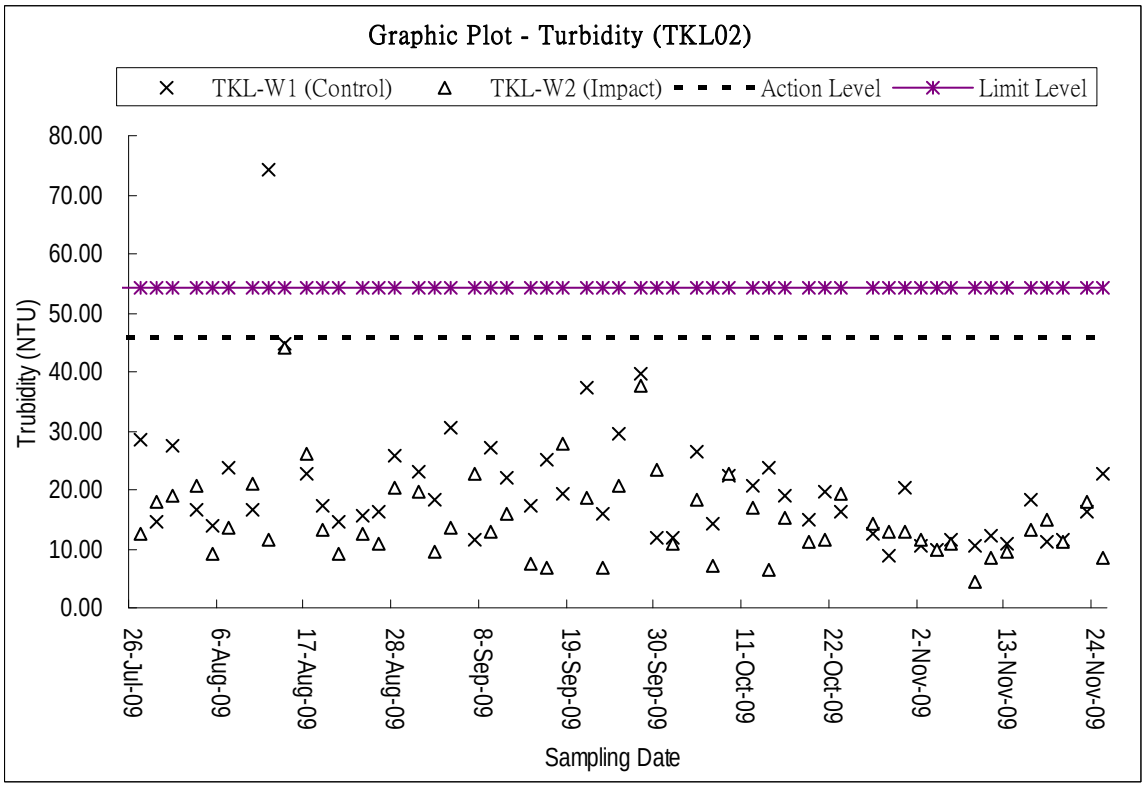

Graphic Plot - DO Concentration (MUP01/02)
MUP01/02-W3 (Impact)
MUP01/02-W4 (Mobile)
Action Leve (W3)
Action Level (W4)
Limit Level (W4)
Limit Level (W3)
DO Concentration (mg/L)
10.00
8.00
6.00
4.00
2.00
0.00
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Sampling Date

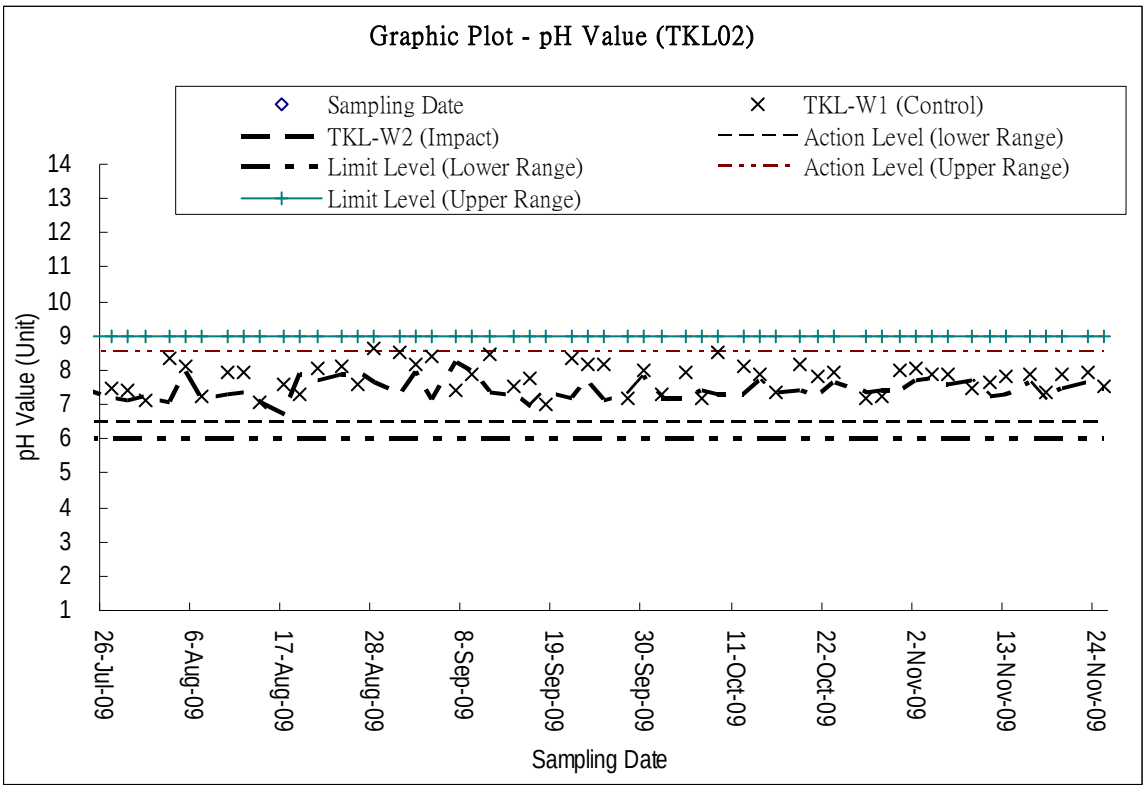

Graphic Plot - Turbidity (MUP01/02)
MUP01/02-W3 (Impact)
MUP01/02-W4 (Mobile)
Action Leve (W3)
Action Level (W4)
Limit Level (W4)
Limit Level (W3)
Turbidity (NTU)
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Sampling Date

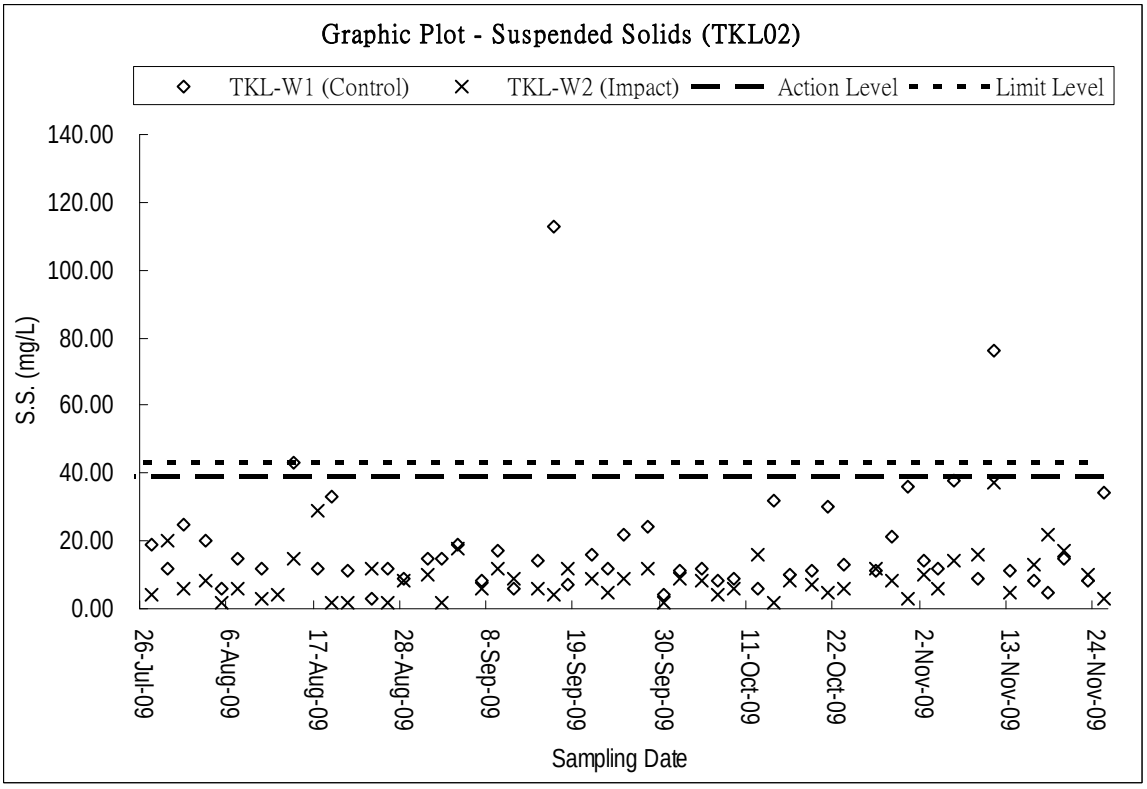

Graphic Plot - pH Value (MUP01/02)
MUP01/02-W3 (Impact)
MUP01/02-W4 (Mobile)
Action Level (lower Range)
Action Level (Upper Range)
Limit Level (Upper Range)
Limit Level (Lower Range)
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
pH value (unit)
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Sampling Date


Graphic Plot - Suspended Solids (MUP01/02)
MUP01/02-W3 (Impact)
MUP01/02-W4 (Mobile)
Action Leve (W3)
Limit Level (W3)
Action Level (W4)
Limit Level (W4)
120.00
105.00
90.00
75.00
60.00
45.00
30.00
15.00
0.00
Suspended Solid (mg/L)
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Sampling Date


Graphic Plot - DO Concentration (TKL02)
TKL-W1 (Control)
TKL-W2 (Impact)
Action Level
Limit Level
DO Concentration (mg/L)
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Sampling Date


Graphic Plot - Turbidity (TKL02)
TKL-W1 (Control)
TKL-W2 (Impact)
Action Level
Limit Level
Trubidity (NTU)
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Sampling Date


Graphic Plot - pH Value (TKL02)
Sampling Date
TKL-W1 (Control)
TKL-W2 (Impact)
Action Level (lower Range)
Limit Level (Lower Range)
Action Level (Upper Range)
Limit Level (Upper Range)
pH Value (Unit)
14
13
12
11
10
9
8
7
6
5
4
3
2
1
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Sampling Date


Graphic Plot - Suspended Solids (TKL02)
TKL-W1 (Control)
TKL-W2 (Impact)
Action Level
Limit Level
S.S. (mg/L)
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Sampling Date

Appendix K

Proforma of the Weekly ET Site Inspection Checklist

Environmental Team – Weekly Site Inspection and Audit Checklist

Project:	***DSD Contract No. DC/2007/08***	**Inspected by**	**Checklist No.** DC200708-271009
	Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang	**IEC/IEC's Representative:**	-
		SRE/ SRE's Representative:	William Tang
Inspection		**ETL/ ET's Representative:**	Carson Chan
Date:	27 October 2009	**EO/ EO's Representative:**	C.P. Chan
Time:	10:00	**Contractor's Representative:**	S. J. Yu

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

Weather: ☑ Sunny ☐ Fine ☐ Cloudy ☐ Rainy ☐ Calm ☐

Temperature: 25 ^{0}C ☐

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

Wind: ☐ Strong ☐ Breeze ☐ Light ☑ Calm

Channel **Area Inspected**

TKL02
TKL07
MUP01/02

PART B: **SITE AUDIT**

Note: **Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-up actions **N/A**: Not Applicable		**Not Obs.**	**Yes**	**No**	**Follow Up**	**N/A**	**Photo/ Remarks**
Section 1: Water Quality							
1.01	Is an effluent discharge license obtained for the Project?	☑	☐	☐	☐	☐	
1.02	Is the effluent discharged in accordance with the discharge licence?	☑	☐	☐	☐	☐	
1.03	Is the discharge of turbid water avoided?	☐	☑	☐	☐	☐	
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	☐	☑	☐	☐	☐	
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	☐	☑	☐	☐	☐	
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	☐	☑	☐	☐	☐	
1.07	Is drainage system well maintained?	☐	☑	☐	☐	☐	
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	☐	☑	☐	☐	☐	
1.09	Are temporary exposed slopes properly covered?	☐	☑	☐	☐	☐	
1.10	Are earthworks final surfaces well compacted or protected?	☐	☑	☐	☐	☐	
1.11	Are manholes adequately covered or temporarily sealed?	☑	☐	☐	☐	☐	
1.12	Are there any procedures and equipment for rainstorm protection?	☐	☑	☐	☐	☐	
1.13	Are wheel washing facilities well maintained?	☐	☑	☐	☐	☐	
1.14	Is runoff from wheel washing facilities avoided?	☐	☑	☐	☐	☐	
1.15	Are there toilets provided on site?	☐	☑	☐	☐	☐	
1.16	Are toilets properly maintained?	☐	☑	☐	☐	☐	
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	☐	☑	☐	☐	☐	
1.18	Is the oil leakage or spillage avoided?	☐	☑	☐	☐	☐	
1.19	Are there any measures to prevent leaked oil from entering the drainage system?	☐	☑	☐	☐	☐	
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	☑	☐	☐	☐	☐	

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

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?	☐	☑	☐	☐	☐	
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	☑	☐	☐	☐	☐	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	☐	☑	☐	☐	☐	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	☐	☑	☐	☐	☐	
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).	☑	☐	☐	☐	☐	
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)	☑	☐	☐	☐	☐	
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).	☑	☐	☐	☐	☐	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	☐	☑	☐	☐	☐	
4.02	Are receptacles available for general refuse collection?	☐	☑	☐	☐	☐	
4.03	Is general refuse sorting or recycling implemented?	☐	☑	☐	☐	☐	
4.04	Is general refuse disposed of properly and regularly?	☐	☑	☐	☐	☐	
4.05	Is the Contractor registered as a chemical waste producer?	☑	☐	☐	☐	☐	
4.06	Are the chemical waste containers properly labelled?	☑	☐	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☑	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☑	☐	☐	☐	☐	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	☑	☐	☐	☐	☐	
4.10	Are incompatible chemical wastes stored in different areas?	☑	☐	☐	☐	☐	
4.11	Are the chemical wastes disposed of by licensed collectors?	☑	☐	☐	☐	☐	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	☑	☐	☐	☐	☐	
4.13	Are chemical/fuel storage areas bunded?	☐	☐	☐	☑	☐	Photo B & C
4.14	Are designated areas identified for storage and sorting of construction wastes?	☑	☐	☐	☐	☐	
4.15	Are construction wastes sorted (inert and non-inert) on site?	☑	☐	☐	☐	☐	
4.16	Are construction wastes reused?	☑	☐	☐	☐	☐	
4.17	Are construction wastes disposed of properly?	☐	☑	☐	☐	☐	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	☐	☑	☐	☐	☐	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	☐	☑	☐	☐	☐	
4.20	Are appropriate procedures followed if contaminated material exists?	☐	☑	☐	☐	☐	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	☐	☑	☐	☐	☐	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	☐	☑	☐	☐	☐	
4.23	Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	☐	☑	☐	☐	☐	

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

Remarks :

Remarks
Follow-Up of Last Site Inspection (20 October 2009):

Stagnant water was cleared at MUP01/02.

Soil stockpile was removed at TKL07.

Slope was stabilized at TKL07.

Crushed stones were paved along TKL02.

Findings of Site Inspection on 27 October 2009:

Photo A

Dry haul road was observed at TKL02.
The Contractor is reminded to practice water spraying regularly.

Photo B

Exposed oil containers were observed at TKL07.
The Contractor is reminded to keep the site clean and tidy.

Photo C

Exposed paint containers were found at MUP05.
The Contractor is reminded to place all chemical containers in proper storage areas, and provide drip tray to prevent any leakage.

IEC's representative	*SRE's representative*	*ET's representative*	*EO's representative*	*Contractor's representative*
( )	( )	(Carson Chan)	( )	( )

Environmental Team – Weekly Site Inspection and Audit Checklist

Project:	***DSD Contract No. DC/2007/08***	**Inspected by**	**Checklist No.** DC200708-031109
	Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang	**IEC/IEC's Representative:**	-
		SRE/ SRE's Representative:	William Tang
Inspection		**ETL/ ET's Representative:**	Carson Chan
Date:	3 November 2009	**EO/ EO's Representative:**	C.P. Chan
Time:	10:00	**Contractor's Representative:**	S. J. Yu

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

Weather: ☑ Sunny ☐ Fine ☐ Cloudy ☐ Rainy ☐ Calm ☐ **EP-277/2007**

Temperature: 25 ^{0}C ☐

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

Wind: ☐ Strong ☐ Breeze ☐ Light ☑ Calm

Channel **Area Inspected**

TKL02
TKL07
MUP01/02

PART B: **SITE AUDIT**

		Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
Note:	**Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable						
Section 1: Water Quality							
1.01	Is an effluent discharge license obtained for the Project?	☑	☐	☐	☐	☐	
1.02	Is the effluent discharged in accordance with the discharge licence?	☑	☐	☐	☐	☐	
1.03	Is the discharge of turbid water avoided?	☐	☑	☐	☐	☐	
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	☐	☐	☐	☑	☐	Photo C
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	☐	☑	☐	☐	☐	
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	☐	☑	☐	☐	☐	
1.07	Is drainage system well maintained?	☐	☐	☐	☑	☐	Photo D
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	☐	☑	☐	☐	☐	
1.09	Are temporary exposed slopes properly covered?	☐	☐	☐	☐	☐	
1.10	Are earthworks final surfaces well compacted or protected?	☐	☑	☐	☐	☐	
1.11	Are manholes adequately covered or temporarily sealed?	☑	☐	☐	☐	☐	
1.12	Are there any procedures and equipment for rainstorm protection?	☐	☑	☐	☐	☐	
1.13	Are wheel washing facilities well maintained?	☐	☑	☐	☐	☐	
1.14	Is runoff from wheel washing facilities avoided?	☐	☑	☐	☐	☐	
1.15	Are there toilets provided on site?	☐	☑	☐	☐	☐	
1.16	Are toilets properly maintained?	☐	☑	☐	☐	☐	
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	☐	☑	☐	☐	☐	
1.18	Is the oil leakage or spillage avoided?	☐	☑	☐	☐	☐	
1.19	Are there any measures to prevent leaked oil from entering the drainage system?	☐	☑	☐	☐	☐	
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	☑	☐	☐	☐	☐	

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

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?	☐	☑	☐	☐	☐	
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	☑	☐	☐	☐	☐	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	☐	☑	☐	☐	☐	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	☐	☑	☐	☐	☐	
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).	☑	☐	☐	☐	☐	
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)	☑	☐	☐	☐	☐	
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).	☑	☐	☐	☐	☐	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	☐	☑	☐	☐	☐	
4.02	Are receptacles available for general refuse collection?	☐	☑	☐	☐	☐	
4.03	Is general refuse sorting or recycling implemented?	☐	☑	☐	☐	☐	
4.04	Is general refuse disposed of properly and regularly?	☐	☐	☐	☑	☐	
4.05	Is the Contractor registered as a chemical waste producer?	☑	☐	☐	☐	☐	
4.06	Are the chemical waste containers properly labelled?	☑	☐	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☑	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☑	☐	☐	☐	☐	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	☑	☐	☐	☐	☐	
4.10	Are incompatible chemical wastes stored in different areas?	☑	☐	☐	☐	☐	
4.11	Are the chemical wastes disposed of by licensed collectors?	☑	☐	☐	☐	☐	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	☑	☐	☐	☐	☐	
4.13	Are chemical/fuel storage areas bunded?	☐	☑	☐	☐	☐	
4.14	Are designated areas identified for storage and sorting of construction wastes?	☑	☐	☐	☐	☐	
4.15	Are construction wastes sorted (inert and non-inert) on site?	☑	☐	☐	☐	☐	
4.16	Are construction wastes reused?	☑	☐	☐	☐	☐	
4.17	Are construction wastes disposed of properly?	☐	☑	☐	☐	☐	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	☐	☑	☐	☐	☐	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	☐	☑	☐	☐	☐	
4.20	Are appropriate procedures followed if contaminated material exists?	☐	☑	☐	☐	☐	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	☐	☑	☐	☐	☐	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	☐	☑	☐	☐	☐	
4.23	Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	☐	☑	☐	☐	☐	

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

Remarks :

Remarks
Follow-Up of Last Site Inspection (27 October 2009):


Water spraying was practiced regularly at TKL02.


Oil containers were removed at TKL07.


Paint containers were cleared at MUP05.

Findings of Site Inspection on 3 November 2009:

Photo A

Dry haul road was observed at TKL02 and MUP05.
The Contractor is reminded to practice water spraying regularly.

Photo B

Photo C

As a reminder, the Contractor is advised to further implement desilting facilities to diverted channel at TKL02 to reduce the SS level

Photo D

C&D waste was found at TKL07.
The Contractor is reminded to clear the channel.

IEC's representative	*SRE's representative*	*ET's representative*	*EO's representative*	*Contractor's representative*
( )	( )	(Carson Chan)	( )	( )

Environmental Team – Weekly Site Inspection and Audit Checklist

Project:	***DSD Contract No. DC/2007/08***	**Inspected by**	**Checklist No.** DC200708-101109
	Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang	**IEC/IEC's Representative:**	-
		SRE/ SRE's Representative:	William Tang
Inspection		**ETL/ ET's Representative:**	Carson Chan
Date:	10 November 2009	**EO/ EO's Representative:**	C.P. Chan
Time:	10:00	**Contractor's Representative:**	S. J. Yu

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

Weather: ☑ Sunny ☐ Fine ☐ Cloudy ☐ Rainy ☐ Calm ☐ **EP-277/2007**

Temperature: 25 ^{0}C ☐

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

Wind: ☐ Strong ☐ Breeze ☐ Light ☑ Calm

Channel **Area Inspected**

TKL02
TKL07
MUP01/02

PART B: **SITE AUDIT**

	Note: **Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable	**Not Obs.**	**Yes**	**No**	**Follow Up**	**N/A**	**Photo/ Remarks**
Section 1: Water Quality							
1.01	Is an effluent discharge license obtained for the Project?	☑	☐	☐	☐	☐	
1.02	Is the effluent discharged in accordance with the discharge licence?	☑	☐	☐	☐	☐	
1.03	Is the discharge of turbid water avoided?	☐	☑	☐	☐	☐	
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	☐	☑	☐	☐	☐	
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	☐	☑	☐	☐	☐	
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	☐	☑	☐	☐	☐	
1.07	Is drainage system well maintained?	☐	☑	☐	☐	☐	
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	☐	☑	☐	☐	☐	
1.09	Are temporary exposed slopes properly covered?	☐	☐	☐	☐	☐	
1.10	Are earthworks final surfaces well compacted or protected?	☐	☑	☐	☐	☐	
1.11	Are manholes adequately covered or temporarily sealed?	☑	☐	☐	☐	☐	
1.12	Are there any procedures and equipment for rainstorm protection?	☐	☑	☐	☐	☐	
1.13	Are wheel washing facilities well maintained?	☐	☑	☐	☐	☐	
1.14	Is runoff from wheel washing facilities avoided?	☐	☑	☐	☐	☐	
1.15	Are there toilets provided on site?	☐	☑	☐	☐	☐	
1.16	Are toilets properly maintained?	☐	☑	☐	☐	☐	
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	☐	☑	☐	☐	☐	
1.18	Is the oil leakage or spillage avoided?	☐	☑	☐	☐	☐	
1.19	Are there any measures to prevent leaked oil from entering the drainage system?	☐	☑	☐	☐	☐	
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	☑	☐	☐	☐	☐	

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

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?	☐	☑	☐	☐	☐	
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	☑	☐	☐	☐	☐	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	☐	☑	☐	☐	☐	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	☐	☑	☐	☐	☐	
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).	☑	☐	☐	☐	☐	
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)	☑	☐	☐	☐	☐	
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).	☑	☐	☐	☐	☐	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	☐	☑	☐	☐	☐	
4.02	Are receptacles available for general refuse collection?	☐	☑	☐	☐	☐	
4.03	Is general refuse sorting or recycling implemented?	☐	☑	☐	☐	☐	
4.04	Is general refuse disposed of properly and regularly?	☐	☐	☐	☑	☐	
4.05	Is the Contractor registered as a chemical waste producer?	☑	☐	☐	☐	☐	
4.06	Are the chemical waste containers properly labelled?	☑	☐	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☑	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☑	☐	☐	☐	☐	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	☑	☐	☐	☐	☐	
4.10	Are incompatible chemical wastes stored in different areas?	☑	☐	☐	☐	☐	
4.11	Are the chemical wastes disposed of by licensed collectors?	☑	☐	☐	☐	☐	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	☑	☐	☐	☐	☐	
4.13	Are chemical/fuel storage areas bunded?	☐	☐	☐	☑	☐	Photo C
4.14	Are designated areas identified for storage and sorting of construction wastes?	☑	☐	☐	☐	☐	
4.15	Are construction wastes sorted (inert and non-inert) on site?	☑	☐	☐	☐	☐	
4.16	Are construction wastes reused?	☑	☐	☐	☐	☐	
4.17	Are construction wastes disposed of properly?	☐	☑	☐	☐	☐	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	☐	☑	☐	☐	☐	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	☐	☑	☐	☐	☐	
4.20	Are appropriate procedures followed if contaminated material exists?	☐	☑	☐	☐	☐	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	☐	☑	☐	☐	☐	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	☐	☑	☐	☐	☐	
4.23	Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	☐	☑	☐	☐	☐	

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

Remarks :

Remarks
Follow-Up of Last Site Inspection (3 November 2009):

Water spraying was practiced regularly at TKL02 and MUP05.

Crushed stones were paved at TKL02.

C&D waste was cleared at TKL07.

Findings of Site Inspection on 10 November 2009:

Photo A

Photo B

As a reminder, the Contractor should water the haul road regularly at MUP01/02 and TKL02.

Photo C

Exposed oil container was observed at TKL07.
The Contractor is reminded to provide impervious cover and drip tray, or remove from site.

IEC's representative	***SRE's representative***	***ET's representative***	***EO's representative***	***Contractor's representative***
( )	( )	(Carson Chan)	( )	( )

Environmental Team – Weekly Site Inspection and Audit Checklist

Project:	***DSD Contract No. DC/2007/08***	**Inspected by**	**Checklist No.** DC200708-171109
	Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang	**IEC/IEC's Representative:**	-
		SRE/ SRE's Representative:	William Tang
Inspection		**ETL/ ET's Representative:**	Billy Ng
Date:	17 November 2009	**EO/ EO's Representative:**	C.P. Chan
Time:	10:00	**Contractor's Representative:**	S. J. Yu

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

Weather: ☐ Sunny ☐ Fine ☑ Cloudy ☐ Rainy ☐ Calm ☐ **EP-277/2007**

Temperature: 9 ^{0}C ☐

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

Wind: ☐ Strong ☑ Breeze ☐ Light ☑ Calm

Channel **Area Inspected**

TKL02
TKL07
MUP01/02

PART B: **SITE AUDIT**

Note: **Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable		**Not Obs.**	**Yes**	**No**	**Follow Up**	**N/A**	**Photo/ Remarks**
Section 1: Water Quality							
1.01	Is an effluent discharge license obtained for the Project?	☑	☐	☐	☐	☐	
1.02	Is the effluent discharged in accordance with the discharge licence?	☑	☐	☐	☐	☐	
1.03	Is the discharge of turbid water avoided?	☐	☑	☐	☐	☐	
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	☐	☑	☐	☐	☐	
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	☐	☑	☐	☐	☐	
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	☐	☑	☐	☐	☐	
1.07	Is drainage system well maintained?	☐	☐	☐	☐	☐	
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	☐	☑	☐	☐	☐	
1.09	Are temporary exposed slopes properly covered?	☐	☐	☐	☐	☐	
1.10	Are earthworks final surfaces well compacted or protected?	☐	☑	☐	☐	☐	
1.11	Are manholes adequately covered or temporarily sealed?	☑	☐	☐	☐	☐	
1.12	Are there any procedures and equipment for rainstorm protection?	☐	☑	☐	☐	☐	
1.13	Are wheel washing facilities well maintained?	☐	☑	☐	☐	☐	
1.14	Is runoff from wheel washing facilities avoided?	☐	☑	☐	☐	☐	
1.15	Are there toilets provided on site?	☐	☑	☐	☐	☐	
1.16	Are toilets properly maintained?	☐	☑	☐	☐	☐	
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	☐	☑	☐	☐	☐	
1.18	Is the oil leakage or spillage avoided?	☐	☑	☐	☐	☐	
1.19	Are there any measures to prevent leaked oil from entering the drainage system?	☐	☑	☐	☐	☐	
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	☑	☐	☐	☐	☐	

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

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?	☐	☑	☐	☐	☐	
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	☑	☐	☐	☐	☐	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	☐	☑	☐	☐	☐	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	☐	☑	☐	☐	☐	
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).	☑	☐	☐	☐	☐	
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)	☑	☐	☐	☐	☐	
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).	☑	☐	☐	☐	☐	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	☐	☑	☐	☐	☐	
4.02	Are receptacles available for general refuse collection?	☐	☑	☐	☐	☐	
4.03	Is general refuse sorting or recycling implemented?	☐	☑	☐	☐	☐	
4.04	Is general refuse disposed of properly and regularly?	☐	☐	☐	☑	☐	Photo C
4.05	Is the Contractor registered as a chemical waste producer?	☑	☐	☐	☐	☐	
4.06	Are the chemical waste containers properly labelled?	☑	☐	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☑	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☑	☐	☐	☐	☐	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	☑	☐	☐	☐	☐	
4.10	Are incompatible chemical wastes stored in different areas?	☑	☐	☐	☐	☐	
4.11	Are the chemical wastes disposed of by licensed collectors?	☑	☐	☐	☐	☐	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	☑	☐	☐	☐	☐	
4.13	Are chemical/fuel storage areas bunded?	☐	☐	☐	☑	☐	Photo B
4.14	Are designated areas identified for storage and sorting of construction wastes?	☑	☐	☐	☐	☐	
4.15	Are construction wastes sorted (inert and non-inert) on site?	☑	☐	☐	☐	☐	
4.16	Are construction wastes reused?	☑	☐	☐	☐	☐	
4.17	Are construction wastes disposed of properly?	☐	☑	☐	☐	☐	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	☐	☑	☐	☐	☐	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	☐	☑	☐	☐	☐	
4.20	Are appropriate procedures followed if contaminated material exists?	☐	☑	☐	☐	☐	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	☐	☑	☐	☐	☐	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	☐	☑	☐	☐	☐	
4.23	Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	☐	☑	☐	☐	☐	

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

Remarks :

Stagnant water was observed after rainfall, it should be eliminated of larvicidal oil should be applied for mosquito control Photo A

Remarks

Follow-Up of Last Site Inspection (10 November 2009):

Water spraying was practiced regularly at TKL02 and MUP01/02..

Findings of Site Inspection on 17 November 2009:

Photo A

Stagnant water was observed at TKL02
The contractor is reminded to eliminate it or apply larvicide regularly mosquito control..

Photo B

Exposed chemical containers were observed at TKL07. The Contractor is reminded to provide impervious cover over any chemical containers.

Photo C

Debris was observed at MUP01/02. The Contractor is reminded to have a clear pathway and to keep the site clean and tidy.

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

Environmental Team – Weekly Site Inspection and Audit Checklist

Project:	***DSD Contract No. DC/2007/08***	**Inspected by**	**Checklist No.** DC200708-241109
	Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang	**IEC/IEC's Representative:**	-
		SRE/ SRE's Representative:	William Tang
Inspection		**ETL/ ET's Representative:**	Billy Ng
Date:	24 November 2009	**EO/ EO's Representative:**	C.P. Chan
Time:	10:00	**Contractor's Representative:**	S. J. Yu

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

Weather: ☑ Sunny ☐ Fine ☐ Cloudy ☐ Rainy ☐ Calm ☐ **EP-277/2007**

Temperature: 20 ^{0}C ☐

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

Wind: ☐ Strong ☐ Breeze ☑ Light ☐ Calm

Channel **Area Inspected**

TKL02
TKL07
MUP01/02

PART B: **SITE AUDIT**

Note: **Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-up actions **N/A**: Not Applicable		**Not Obs.**	**Yes**	**No**	**Follow Up**	**N/A**	**Photo/ Remarks**
Section 1: Water Quality							
1.01	Is an effluent discharge license obtained for the Project?	☑	☐	☐	☐	☐	
1.02	Is the effluent discharged in accordance with the discharge licence?	☑	☐	☐	☐	☐	
1.03	Is the discharge of turbid water avoided?	☐	☑	☐	☐	☐	
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	☐	☑	☐	☐	☐	
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	☐	☑	☐	☐	☐	
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	☐	☑	☐	☐	☐	
1.07	Is drainage system well maintained?	☐	☑	☐	☐	☐	
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	☐	☑	☐	☐	☐	
1.09	Are temporary exposed slopes properly covered?	☐	☑	☐	☐	☐	
1.10	Are earthworks final surfaces well compacted or protected?	☐	☑	☐	☐	☐	
1.11	Are manholes adequately covered or temporarily sealed?	☑	☐	☐	☐	☐	
1.12	Are there any procedures and equipment for rainstorm protection?	☐	☑	☐	☐	☐	
1.13	Are wheel washing facilities well maintained?	☐	☑	☐	☐	☐	
1.14	Is runoff from wheel washing facilities avoided?	☐	☑	☐	☐	☐	
1.15	Are there toilets provided on site?	☐	☑	☐	☐	☐	
1.16	Are toilets properly maintained?	☐	☑	☐	☐	☐	
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	☐	☑	☐	☐	☐	
1.18	Is the oil leakage or spillage avoided?	☐	☑	☐	☐	☐	
1.19	Are there any measures to prevent leaked oil from entering the drainage system?	☐	☑	☐	☐	☐	
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	☑	☐	☐	☐	☐	

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

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?	☐	☑	☐	☐	☐	
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	☑	☐	☐	☐	☐	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	☐	☑	☐	☐	☐	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	☐	☑	☐	☐	☐	
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).	☑	☐	☐	☐	☐	
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)	☑	☐	☐	☐	☐	
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).	☑	☐	☐	☐	☐	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	☐	☑	☐	☐	☐	
4.02	Are receptacles available for general refuse collection?	☐	☑	☐	☐	☐	
4.03	Is general refuse sorting or recycling implemented?	☐	☑	☐	☐	☐	
4.04	Is general refuse disposed of properly and regularly?	☐	☑	☐	☐	☐	
4.05	Is the Contractor registered as a chemical waste producer?	☑	☐	☐	☐	☐	
4.06	Are the chemical waste containers properly labelled?	☑	☐	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☑	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☑	☐	☐	☐	☐	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	☑	☐	☐	☐	☐	
4.10	Are incompatible chemical wastes stored in different areas?	☑	☐	☐	☐	☐	
4.11	Are the chemical wastes disposed of by licensed collectors?	☑	☐	☐	☐	☐	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	☑	☐	☐	☐	☐	
4.13	Are chemical/fuel storage areas bunded?	☐	☑	☐	☐	☐	
4.14	Are designated areas identified for storage and sorting of construction wastes?	☑	☐	☐	☐	☐	
4.15	Are construction wastes sorted (inert and non-inert) on site?	☑	☐	☐	☐	☐	
4.16	Are construction wastes reused?	☑	☐	☐	☐	☐	
4.17	Are construction wastes disposed of properly?	☐	☑	☐	☐	☐	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	☐	☑	☐	☐	☐	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	☐	☑	☐	☐	☐	
4.20	Are appropriate procedures followed if contaminated material exists?	☐	☑	☐	☐	☐	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	☐	☑	☐	☐	☐	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	☐	☑	☐	☐	☐	
4.23	Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	☐	☑	☐	☐	☐	

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

Remarks :

Stagnant water should be removed or applied larvidical oil to prevent mosquitoes breeding Photo C & D

Remarks
Follow-Up of Last Site Inspection (17 November 2009):

Stagnant water Stagnant water at TKL02 was cleared.

Exposed chemical containers were removed at TKL07.

Debris was cleaned up at MUP01/02

Findings of Site Inspection on 24 November 2009:

Photo A

Dry haul road was observed. Regular water spraying of the site haul road should be performed to minimize the dust nuisance

Photo B

Preserved tree without proper protection was observed at MUP02, the contractor was reminded to provide proper protection.

Photo C

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

Photo D

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

Appendix L

Proforma of Ecology Site Audit Checklist

Environmental Team – Ecological Site Inspection and Audit Checklist

AUES

Project:	DSD Contract No. DC/2007/08 Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang	Inspected by	Checklist No. 9/10-04
		IEC/IEC's Representative:	
		RE/RE's Representative:	
Inspection		ETL/ ET's Representative:	YW Wong
Date:	28/10/08	EO/EO's Representative:	C P Chan
Time:	1130	Contractor's Representative:	

PART A: GENERAL INFORMATION

Environmental Permit No.

Weather: ☑ Sunny ☐ Fine ☐ Cloudy ☐ Rainy ☐ Calm ☐ EP-277/2007

Temperature: [ ] °C ☐

Humidity: ☐ High ☐ Moderate ☑ Low ☐ N/A

Wind: ☐ Strong ☑ Breeze ☐ Light ☐ Calm

Channel: MUP05 /MUP05/02

Area Inspected: All stream

PART B: SITE AUDIT

Note:	EM&A REF:	Not Obs. Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
Section 6: Ecology								
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	☐	☑	☐	☐	☐	MUP0/05
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	☐	☐	☐	☐	☐	On-going
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	☐	☑	☐	☐	☐	MUP 01/05
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.	☐	☑	☐	☐	☐	MUP01
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	☐	☑	☐	☐	☐	
1.09	6.5.22	Temporary access track on streambed have been kept to the minimum width and length	☐	☐	☐	☐	☑	No work on streambed
1.09	6.5.22	Temporary stream crossings are supported on stilts above the stream bed.	☐	☑	☐	☐	☐	MUP05
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	☐	☑	☐	☐	☐	

Environmental Team – Ecological Site Inspection and Audit Checklist

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	☐	☑	☐	☐	☐	
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

MVP01/02 - No work on MVP01 and mitigation measures for MVP01 were all in place

MVP05 - The contractor has been reminded to carry out maintenance on the sediment trap to ensure its functioning; and all wastes generated from site clearance should be removed promptly or stored away from water bodies.

IEC's representative	*RE's representative*	*ET's representative*	*EO's representative*	*Contractor's representative*
( )	( )	(Kath Wong)	(C.P. Chan)	( )

Environmental Team – Ecological Site Inspection and Audit Checklist

AUES

Project:	*DSD Contract No. DC/2007/08* Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang	Inspected by IEC/IEC's Representative: RE/RE's Representative:	Checklist No. e/11-01
Inspection Date:	05/11/01	ETL/ ET's Representative:	YW Wong
Time:		EO/EO's Representative:	CF Chan
		Contractor's Representative:	

PART A: GENERAL INFORMATION

Environmental Permit No. EP-277/2007

Weather: ☑ Sunny ☐ Fine ☐ Cloudy ☐ Rainy ☐ Calm

Temperature: 22 °C

Humidity: ☐ High ☐ Moderate ☑ Low ☐ N/A

Wind: ☐ Strong ☐ Breeze ☑ Light ☐ Calm

Channel	Area Inspected
MUP05 / MUP01 / MUP02	Whole stream

PART B: SITE AUDIT

Note:	EM&A REF:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
Section 6: Ecology								
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	☐	☑	☐	☐	☐	MUP01/05
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	☐	☐	☐	☑	☐	On-going
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	☐	☑	☐	☐	☐	MUP01/05
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	☐	☑	☐	☐	☐	MUP01/05
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.	☐	☑	☐	☐	☐	MUP01 only
1.07	6.5.22	The proposed works site inside or in the proximity of natural streams have been temporarily isolated	☐	☑	☐	☐	☐	See notes
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	☐	☐	☐	☐	☑	No work on stream bed
1.09	6.5.22	Temporary stream crossings are supported on stilts above the stream bed.	☐	☑	☐	☐	☐	MUP05 only
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	☐	☐	☐	☑	☐	See note
1.11	6.5.22	Stockpiling of construction materials, spoils and waste have been properly covered and located away from water bodies	☐	☐	☐	☑	☐	See note.

Environmental Team – Ecological Site Inspection and Audit Checklist

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	☐	☑	☐	☐	☐	
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

MuP05 - The contractor has been reminded to review the capacity and maintenance schedule of the sediment trap to ensure the proper functioning of those equipment as sediment-loaded water was observed in the outfall of the trap. The contractor should also review the location of stockpiling area to make sure it is located away from water bodies as far as possible and properly covered, and waste should be removed promptly or store away from water bodies

MuP01 - All mitigation in place.

MuP02 - No ~~no~~ activities observed.

IEC's representative	*RE's representative*	*ET's representative*	*EO's representative*	*Contractor's representative*
( )	( )	(Leeds Ng)	( )	( )

Environmental Team – Ecological Site Inspection and Audit Checklist

AUES

Project:	*DSD Contract No. DC/2007/08* Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang	Inspected by IEC/IEC's Representative: RE/RE's Representative:	Checklist No. 01/11-02
Inspection Date:	12/11/07	ETL/ ET's Representative:	YW Wong
Time:	9:30	EO/EO's Representative:	C.F. Chan
		Contractor's Representative:	

PART A: GENERAL INFORMATION

Environmental Permit No. EP-277/2007

Weather:	☐ Sunny	☐ Fine	☑ Cloudy	☐ Rainy	☐ Calm	☐
Temperature:	[ ] °C					☐
Humidity:	☐ High	☑ Moderate	☐ Low			☐ N/A
Wind:	☐ Strong	☑ Breeze	☐ Light	☐ Calm		

Channel	Area Inspected
MUP05 / MUP 01 / MUP 02	whole stream

PART B: SITE AUDIT

Note:	EM&A REF:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
Section 6: Ecology								
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	☐	☑	☐	☐	☐	MUP01 / 05
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	☐	☐	☐	☑	☐	on-going
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	☐	☑	☐	☐	☐	MUP01 / 05
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	☐	☑	☐	☐	☐	MUP01 / 05
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.	☐	☑	☐	☐	☐	MUP 05
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	☐	☑	☐	☐	☐	
1.09	6.5.22	Temporary access track on streambed have been kept to the minimum width and length	☐	☐	☐	☐	☑	no work on streambed
1.09	6.5.22	Temporary stream crossings are supported on stilts above the stream bed.	☐	☑	☐	☐	☐	MUP05
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 woste have been properly covered and located away from water bodies	☐	☐	☐	☑	☐	see notes

Environmental Team – Ecological Site Inspection and Audit Checklist

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	☐	☑	☐	☐	☐	
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

MUP01/02 - mitigation measures were found in place for MUP01 and no activities observed at MUP02

MUP05 - work area has all been fenced up and sediment traps has been properly maintained, no contaminated run-off was observed.

IEC's representative	*RE's representative*	*ET's representative*	*EO's representative*	*Contractor's representative*
( )	( )	(Kelvin Wong)	(C. P. Chan)	( )

Environmental Team – Ecological Site Inspection and Audit Checklist

AUES

Project:	*DSD Contract No. DC/2007/08* Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang	Inspected by IEC/IEC's Representative: RE/RE's Representative:	Checklist No. 9/11.03
Inspection Date:	19/11/09	ETL/ ET's Representative:	YW Wong
Time:	1115	EO/EO's Representative: Contractor's Representative:	CT Chan

PART A: GENERAL INFORMATION

Environmental Permit No. EP-277/2007

Weather:	☑ Sunny	☐ Fine	☐ Cloudy	☐ Rainy	☐ Calm	☐
Temperature:	[ ] °C					☐
Humidity:	☐ High	☐ Moderate	☑ Low			☐ N/A
Wind:	☐ Strong	☐ Breeze	☑ Light	☐ Calm		

Channel	Area Inspected
MUP05	MUP01/02 All streams

PART B: SITE AUDIT

Note:	EM&A REF:	Not Obs.: Not Observed, Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
Section 6: Ecology								
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	☐	☑	☐	☐	☐	MUP01/05
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	☐	☐	☐	☑	☐	on-going
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	☐	☑	☐	☐	☐	MUP01/05
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	☐	☑	☐	☐	☐	MUP01/05
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.	☐	☑	☐	☐	☐	MUP01 only
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	☐	☑	☐	☐	☐	
1.09	6.5.22	Temporary access track on streambed have been kept to the minimum width and length	☐	☐	☐	☐	☑	no work on stream bed
1.09	6.5.22	Temporary stream crossings are supported on stilts above the stream bed.	☐	☑	☐	☐	☐	MUP05
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	☐	☑	☐	☐	☐	

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	☐	☑	☐	☐	☐	
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

All mitigation measures were found properly implemented and no observations on potential issues noted

IEC's representative	*RE's representative*	*ET's representative*	*EO's representative*	*Contractor's representative*
( )	( )	(Keith Wong)	(C.P. Hui)	( )

Appendix M

Monthly Summary Waste Flow Table

Name of Department: DSD **Contract No.: DC/2007/08** **Date: 27-Nov-09**

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

Month	Actual Quantities of Inert C&D Wastes Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	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											
Total	66.593	0.3	0.3	47.588	0	18.705	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

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 (Non-designated Project)

Item	Section / Paragraph	Comment	Response
1	Section 5.3 and 7.4	Please insert "Action level" for the exceedance of DO in the relevant paragraphs.	Revised
2	ES.04, Summary Table	Please update the exceedances table as there was a Action Limit Level exceedance only during the reporting period.	Updated
3	Table 2-1 and 3-1	The construction activities at Channel MUP01/02 during the reporting period do not match with each other, please counter check the construction works that were taken.	Modified
4	Section 5.1 - Paragraph below Table 5-6	There should be 1 Action Level exceedance of 24-hr TSP during the reporting period, please update the information in the paragraph.	Revised
5	Section 5.4	Please check if the days of ecological audits are match with the checklist in Appendix L	Amended
6	Appendix M	The wastes flow table does not exist in the Appendix, please provide the table accordingly.	Added

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 (Non-designated Project)

Item	Section / Paragraph	Comment	Response
1	ES.04	Please update the column of "Total" in the summary table.	Revised
2	Table 2-1 and 3-1	Survey setting out was conducted at Man Uk Pin during the reporting period	Updated