

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

10<sup>TH</sup> MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT FOR THE DESIGNATED WORKS UNDER THE PROJECT – DECEMBER 2009 CHANNELS MUP03A&B, MUP04A&B, MUP05 AND LMH01

**PREPARED FOR** 

CHIU HING CONSTRUCTION & TRANSPORTATION COMPANY LIMITED

### **Quality Index**

| Date            | Reference No.           | <b>Prepared By</b> | Certified by |
|-----------------|-------------------------|--------------------|--------------|
| 13 January 2010 | TCS00409/08/600/R0668v2 | Anh                | TX Y         |

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

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### ENVIRON

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13 January 2010

By Fax (26598323) and By Post

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

Attention: Mr. Gilbert Ying

Dear Mr. Ying,

#### Re: Contract No. DC/2007/08 (EP No. EP-277/2007/A) Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk and Lin Ma Hang Monthly EM&A Report for Channels MUP03A&B, MUP04A&B, MUP05 and LMH01 for December 2009 (Rev. 2)

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

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

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

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

Yours sincerely,

David Yeung Independent Environmental Checker

c.c. AUES

Attn: Mr. Andrew Lau

Fax: 29596079

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#### EXECUTIVE SUMMARY

- ES.01 This is the **10<sup>th</sup>** monthly EM&A Report for Channels MUP03A&B, MUP04A&B, MUP05 and LMH01 covering a period from **26 November 2009 to 25 December 2009** (the Reporting Period). These works are classified as Designated Projects under the Environmental Impact Assessment Ordinance (Cap. 499) and Environmental Permit No.EP277/2007/A.
- ES.02 As construction works were undertaken only at Channels MUP03A&B, MUP04A&B, MUP05 during the Reporting Period, environmental monitoring of air quality, construction noise, water quality and ecology was therefore performed at those channels only.
- ES.03 The monitored results of air quality and construction noise demonstrated were in full compliance with the environmental quality criteria. However, eight (8) exceedances of stream water quality (Limit Levels) were recorded, which included three (3) Limit Level exceedances in turbidity and five (5) Limit Level exceedances in suspended solids (SS). Based on the investigation reports, all exceedances were considered not related to the works of the Project. No associated corrective actions were therefore required.

| Station   | D      | 0     | Turb   | idity | pH V   | <b>alu</b> e | S      | S     | Total Exc | ceedance |
|---|--------|-------|--------|-------|--------|--------------|--------|-------|-----------|----------|
| Station   | Action | Limit | Action | Limit | Action | Limit        | Action | Limit | Action    | Limit    |
| MUP-W4 <sup>(a)</sup>   | 0      | 0     | 0      | 0     | 0      | 0            | 0      | 0     | 0         | 0        |
| MUP-W5 <sup>(b)</sup>   | 0      | 0     | 0      | 2     | 0      | 0            | 0      | 3     | 0         | 5        |
| MUP-W6 <sup>(b)</sup>   | 0      | 0     | 0      | 1     | 0      | 0            | 0      | 2     | 0         | 3        |
| Exceedances   | 0      | 0     | 0      | 3     | 0      | 0            | 0      | 5     | 0         | 8        |
| Pemarks: <sup>(a)</sup> impact station: <sup>(be)</sup> Temporary or mobile station |        |       |        |       |        |              |        |       |           |          |

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

- ES.04 **Five** ecological general audits were performed in this reporting month at the nominated construction channel (MUP05). It was noticed that sediment-loaded water was drained into the natural stream after passing through the sedimentation tank, and the contractor has been reminded to carry out routine inspection/maintenance to ensure the effectiveness of the facilities, and make sure the capacity of the sedimentation tank could meet the volume of the water extracted from the work site.
- ES.05 No written or verbal complaint, notification of summons or successful prosecution was received (written or verbal) for each media during the Reporting Period. No adverse environmental impacts were observed during the weekly site inspection and environmental audit which indicated that the implemented mitigation measures for air quality, construction noise, water quality and ecology were effective. Minor deficiencies found during the weekly site inspection were in general rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.
- ES.06 Due to the coming excavation works of the channels, ingression of surface runoff into the river within MUP Channels continues to be the key issue in future months. Mitigation measures for water quality and ecology should therefore be fully implemented.
- ES.07 As dry season has come, dust control measures to avoid dust emissions should be properly provided and maintained, as appropriate.
- ES.08 In addition, attention should also be paid to dust emission and noise impact during the construction work progress, and with other environmental issues identified in the EM&A Manual. Mitigation measures recommended in the Environmental Study Report (ESR) and summarized in Mitigation Measure Implementation Schedule should continually be applied.

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#### 1. INTRODUCTION

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

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

 Table 1-1
 Summary of the Channels under the Project

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

This is the **10<sup>th</sup>** monthly report covering data from **26 November to 25 December 2009** to present the monitoring results of air quality, construction noise, water quality and ecology for the Designated Project of Channels MUP03A&B, MUP04A&B, MUP05 and LMH01 under the Environmental Monitoring & Audit Manual [*382486/73//Issue2*]. A set of location plans showing all DP works covered in this report are illustrated in *Appendix A*. Details of EM&A requirements for the Designated Project are summarized below:

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

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

#### 1.1 **REPORT STRUCTURE**

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

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

#### 2. BASIC PROJECT INFORMATION

#### 2.1 PROJECT ORGANIZATION

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

#### 2.2 MASTER CONSTRUCTION PROGRAM FOR THE PROJECT

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

#### 2.3 WORKS UNDERTAKEN DURING THE REPORTING MONTH

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

| <u>Channel</u>                     | Construction Work Activities   |  |
|------------------------------------|--|--|
| MUP03A&B,<br>MUP04A&B and<br>MUP05 | <ul> <li>Construction of site access</li> <li>Site clearance</li> <li>Survey setting out</li> <li>Installation of site hoardings and boundary wall</li> <li>Construction of access ramp and gabion wall</li> </ul> |  |
| LMH01                              | Not yet commenced  |  |

Future construction works is provided in Appendix C.

#### 3. ENVIRONMENTAL STATUS

3.1 WORK UNDERTAKEN DURING THE MONTH WITH ILLUSTRATIONS

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

| Table | 21  |
|-------|-----|
| Table | 3-1 |

#### Environmental Mitigation Measures Undertake in the Reporting Month

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

#### 3.2 IMPLEMENTATION OF ENVIRONMENTAL PROTECTION AND POLLUTION CONTROL

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

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

Table 3-2 Status of Environmental Licenses and Permits

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

#### 4. SUMMARY OF IMPACT MONITORING REQUIREMENTS

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

#### 4.1 MONITORING PARAMETERS

The monitoring parameters are summarized in Table 4-1.

| Table 4-1 | Sum |
|-----------|-----|
|           | oun |

#### Summary of Monitoring Parameters

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

#### 4.2 MONITORING LOCATIONS

#### 4.2.1 Monitoring Locations Proposed in the EM&A manuals

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

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

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

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| Issue   | Channel | Sensitive<br>Receiver                | Monitoring<br>Location ID | Detailed Address   |  |
|---------|---------|--------------------------------------|---------------------------|--|--|
|         |         | Control Station                      | LMH-W1                    | Upstream of LMH01 works  |  |
|         |         | Control Station                      | LMH-W2                    | Upstream of LMH01 works  |  |
|         | LMH01   | Impact Station                       | LMH-W3                    | Downstream of all LMH01 works immediately at the discharge point to Shenzhen River |  |
| Water   |         | Temporary /<br>Mobile Station        | LMH-W4                    | Upstream and downstream of particular group of LMH01 works                         |  |
|         |         | Temporary /<br>Mobile Station        | LMH-W5                    | Upstream and downstream of particular group of LMH01 works                         |  |
|         |         | Temporary /<br>Mobile Station        | LMH-W6                    | Upstream and downstream of particular group of LMH01 works                         |  |
|         | MUP05   | Water Quality of Str                 | eam                       | Upstream and downstream of Construction site                                       |  |
|         | and     | General Site audit (with emphasis on |                           | Along stream channel, within 100m upstream and                                     |  |
| Ecology | LMH01   |                                      |                           | downstream of construction site  |  |
|         | LMH01   |                                      |                           | Along stream channel, within 100m upstream and downstream of construction site     |  |

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

#### 4.3 MONITORING FREQUENCY

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

#### Air Quality

| Parameters: | 24-hour TSP and 1-hour TSP.  |
|-------------|--|
| Frequency:  | Once every 6 days for 24-hour TSP & three times every 6 days for 1-hour TSP. |
| Duration:   | During the course of construction works                                      |

#### **Construction Noise**

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

#### Water Quality

| Parameters: | Duplicate in-situ measurements of water depth, temperature, DO, pH & turbidity; |
|-------------|---|
|             | and laboratory testing of SS. Relevant data will also be measured time of       |
|             | sampling, DO Saturation, weather conditions and special phenomena.              |
| Depths:     | All measurements will be carried out at three water depths, namely, 1 m below   |
|             | water surface, mid-water depth, and 1 m above river bed. If the water depth is  |
|             | less than 6 m, the mid-depth measurement will be omitted. If the depth is less  |
|             | than 3 m, only the mid-depth measurement will be taken.                         |
| Frequency:  | 3 days a week with an interval of at least 36 hours between two consecutive     |
|             | sampling days   |
| Duration:   | During the construction period of the channel works                             |

### Ecology

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

#### Parameters:

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

#### Frequency:

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

#### Duration:

Throughout the whole construction period

#### 4.4 MONITORING EQUIPMENT

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

#### 4.4.1 Air Quality

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

#### Table 4-3 Air Quality Monitoring Equipment

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

#### 4.4.2 Construction Noise

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

#### Table 4-4 Construction Noise Monitoring Equipment

| Equipment                     | Model            |  |  |
|-------------------------------|------------------|--|--|
| Integrating Sound Level Meter | B&K Type 2236    |  |  |
| Calibrator                    | B&K Type 4231    |  |  |
| Portable Wind Speed Indicator | Testo Anemometer |  |  |

#### 4.4.3 Water Quality

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

#### Table 4-5

Water Quality Monitoring Equipment

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

#### 4.4.4 Equipment Calibration

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

#### Air Quality

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

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

#### <u>Noise</u>

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

#### Water Quality

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

#### 4.4.5 Ecology

The following equipment will be used for monitoring:-

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

#### 4.4.6 Others EM&A Requirement

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

#### Landscape & Visual

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

#### Cultural Heritage

Cultural heritage of the Terrance Wall (AAHB-855) at Lin Ma Hang (LMH01) is required to be carried out during the construction phase in accordance with the EM&A Manual [382486/73//Issue2].

#### 4.5 MONITORING PROCEDURE

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

#### 4.5.1 Air Quality

#### 18 <u>hour TSP</u>

Operation of the 1-hour TSP meter is follow manufacturer's Operation and Service Manual. The 1-hour TSP monitor, a TSI Dust Track Aerosol Monitor Model 8520, or Sibata LD-3 Laser Dust Meter is a portable, battery-operated laser photometer. The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 90<sup>0</sup> light scattering. The 1-hour TSP monitor consists of the following:

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

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

#### <u> 24 –hour TSP</u>

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

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

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

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

#### Meteorological Information

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

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

#### 4.5.2 Construction Noise

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

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

The sound level meter is set higher than 1.2m above the existing ground. The microphone is pointed to the site with the microphone facing perpendicular to the line of sight. The windshield is fitted for all measurements. The measurement point at impact locations is normally set close to the exterior of the building.

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

#### 4.5.3 Water Quality

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

#### Water Depth

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

#### Dissolved Oxygen (DO)

A portable Extech Instrument, ExStik<sup>R</sup> 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<sup>o</sup>C for ease of comparison of the data under the changing reality, the temperature readings of the DO Meter is recorded.

#### <u>рН</u>

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

#### Turbidity

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

#### Suspended Solids (SS)

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

#### Water Sampler

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

#### Sample Container

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

#### Sample Storage and delivery

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

#### Chemical Analysis

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

#### 4.5.4 Ecology

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

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

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

#### 4.6 Environmental Quality Performance Limits

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

Table 4-6 Action and Limit Levels for Air Quality

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

Table 4-7

#### Action and Limit Levels for Construction Noise

| Time Period                        | Action Level in dB(A)                        | Limit Level in dB(A) |  |  |
|------------------------------------|--|----------------------|--|--|
| 0700-1900 hours on normal weekdays | When one documented complaint<br>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<br>(mg/L)    |                | Turbidity<br>(NTU) |                | pH<br>(Unit)    |                | SS<br>(mg/L)    |                |
|---------------------|-----------------|-----------------|----------------|--------------------|----------------|-----------------|----------------|-----------------|----------------|
| ID                  | Station<br>Type | Action<br>Level | Limit<br>Level | Action<br>Level    | Limit<br>Level | Action<br>Level | Limit<br>Level | Action<br>Level | Limit<br>Level |
| MUP-W1              | Control         | NA              | NA             | NA                 | NA             | NA              | NA             | NA              | NA             |
| MUP-W2              | Control         | NA              | NA             | NA                 | NA             | NA              | NA             | NA              | NA             |
| MUP-W3              | Control         | NA              | NA             | NA                 | NA             | NA              | NA             | NA              | NA             |
| MUP-W4              | Impact          | 5.27            | 5.18           | 18.03              | 24.81          | 6.5 –<br>8.5    | 6.0 –<br>9.0   | 15.8            | 17.6           |
| MUP-W5              | Mobile          | 4.42            | 4.37           | 7.88               | 8.54           | 6.5 –<br>8.5    | 6.0 –<br>9.0   | 6.0             | 6.0            |
| MUP-W6              | Mobile          | 4.54            | 4.51           | 11.81              | 14.84          | 6.5 –<br>8.5    | 6.0 –<br>9.0   | 3.9             | 4.8            |
| LMH-W1              | Control         | NA              | NA             | NA                 | NA             | NA              | NA             | NA              | NA             |
| LMH-W2              | Control         | NA              | NA             | NA                 | NA             | NA              | NA             | NA              | NA             |
| LMH-W3              | Impact          | 3.96            | 3.62           | 11.31              | 12.10          | 6.5 –<br>8.5    | 6.0 –<br>9.0   | 8.8             | 10.6           |
| LMH-W4              | Mobile          | 4.34            | 3.98           | 5.33               | 5.95           | 6.5 –<br>8.5    | 6.0 –<br>9.0   | 3.0             | 3.0            |
| LMH-W5              | Mobile          | 2.14            | 2.07           | 31.46              | 35.33          | 6.5 –<br>8.5    | 6.0 –<br>9.0   | 25.0            | 29.8           |
| LMH-W6              | Mobile          | 2.67            | 2.65           | 12.32              | 13.02          | 6.5 –<br>8.5    | 6.0 –<br>9.0   | 4.8             | 6.6            |

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

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

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

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

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

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

| Parameter | Action Level | Limit Level |
|-----------|--------------|-------------|
|           |              |             |

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

#### 4.7 EVENT AND ACTION PLANS

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

#### 4.8 Environmental Mitigation Measures

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

#### 4.9 DATA MANAGEMENT AND DATA QA/QC CONTROL

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

The monitoring data recorded in the equipment e.g. 1-hour TSP meters and noise meters are downloaded directly at the end of each monitoring day. The downloaded monitoring data are input into a computerized database properly maintained by the ET. The laboratory results are input directly into the computerized database and QA/QC checked by personnel other than those who input the data.

For monitoring activities which require laboratory analysis, the responsible laboratory, ALS, follows the QA/QC requirements as set out under their HOKLAS scheme for all laboratory testing.

#### 5. IMPACT MONITORING RESULTS

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

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

#### 5.1 AIR QUALITY

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

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

Table 5-1 Summary of 1-hour TSP Monitoring Results (µg/m<sup>3</sup>)

Table 5-2 Summary of 24-hour TSP Monitoring Results (µg/m<sup>3</sup>)

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

# Power failure and no make up of lose samples.

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

#### 5.2 CONSTRUCTION NOISE

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

Table 5-3 Resu

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

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

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

Table 5-5

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

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

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

| Date          | Start<br>Time | 1 <sup>st</sup> Leq5 | 2 <sup>nd</sup> Leq5 | 3 <sup>rd</sup> Leq5 | 4 <sup>th</sup> Leq5 | 5 <sup>th</sup> Leq5 | 6 <sup>th</sup> Leq5 | Leq30<br>dB(A) |
|---------------|---------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------|
| 1-Dec-09      | 14:56         | 51.3                 | 50.8                 | 47.4                 | 48.5                 | 48.2                 | 49.2                 | 49.5           |
| 7-Dec-09      | 10:20         | 56.4                 | 57.3                 | 56.7                 | 58.2                 | 57.9                 | 58.5                 | 57.6           |
| 12-Dec-09     | 11:30         | 66.1                 | 65.4                 | 65.9                 | 66.2                 | 67.3                 | 66.1                 | 66.2           |
| 18-Dec-09     | 15:31         | 67.1                 | 65.4                 | 66.2                 | 67.2                 | 67.7                 | 66.8                 | 66.8           |
| 24-Dec-09     | 15:40         | 61.4                 | 62                   | 61.9                 | 61.4                 | 62.1                 | 61.8                 | 61.8           |
| Limit Level ( | Leq30)        | 75 dB(A)             |                      |                      |                      |                      |                      |                |

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

#### 5.3 WATER QUALITY

In this reporting month, a total of 12 sampling days were performed for stream water quality monitoring according to the EM&A Manual requirements. Detailed in-situ measurements and laboratory results are shown in *Appendix H* and graphic plots given in *Appendix I*.

There were eight (8) exceedances of stream water quality (Limit Levels) were recorded, which included three (3) Limit Level exceedances in turbidity and five (5) Limit Level exceedances in suspended solids (SS). Based on the investigation reports, all exceedances were considered not related to the works of the Project. No associated corrective actions were therefore required. NOEs were issued and Investigations were conducted in accordance with EM&A Manual requirements. It was observed during site inspection that the increased water turbidity was probably due to algae growth in Channel MUP05; also turbid water was found being discharged from other construction sites at Channel MUP04 which significantly affected the water quality. Therefore, it was concluded that all exceedances of stream water quality were not related to the works of the Project. A summary of exceedances in this reporting month is provided in **Table 5-7** below.

 Table 5-7
 Summary of Stream Water Quality Exceedances

| Station               | D      | 0     | Turb   | idity | pH V   | alue  | S      | S     | Total Exc | ceedance |
|-----------------------|--------|-------|--------|-------|--------|-------|--------|-------|-----------|----------|
| Station               | Action | Limit | Action | Limit | Action | Limit | Action | Limit | Action    | Limit    |
| MUP-W4 (a)            | 0      | 0     | 0      | 0     | 0      | 0     | 0      | 0     | 0         | 0        |
| MUP-W5 <sup>(b)</sup> | 0      | 0     | 0      | 2     | 0      | 0     | 0      | 3     | 0         | 5        |
| MUP-W6 <sup>(b)</sup> | 0      | 0     | 0      | 1     | 0      | 0     | 0      | 2     | 0         | 3        |
| Exceedances           | 0      | 0     | 0      | 3     | 0      | 0     | 0      | 5     | 0         | 8        |

Remarks: <sup>(a)</sup> impact station; <sup>(b)</sup> Temporary or mobile station

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

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

#### 5.4 ECOLOGY

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

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

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

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

#### 5.5 OTHER FACTORS INFLUENCING THE MONITORING RESULTS

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

5.6 QA/QC RESULTS AND DETECTION LIMITS

Not applicable.

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

6.1 RECORD OF NON-COMPLIANCE OF ACTION AND LIMIT LEVELS

No Action or Limit Level exceedance was identified for air quality and construction noise monitoring in this reporting month. However, **8** Limit Level exceedances of stream water quality were recorded. Based on the subsequent investigations, all exceedances of stream water quality were considered as not related to the works of the Project.

#### 6.2 ENVIRONMENTAL COMPLAINTS

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

#### 6.3 RECORD OF NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTION No notification of summons or successful prosecutions was recorded during the Reporting Period.

6.4 REVIEW OF REASONS FOR AND IMPLICATION OF NON-COMPLIANCE, COMPLAINT AND NOTICE OF SUMMONS No non-compliance, complaint or Notice of Summons was received in this reporting month.

#### 6.5 DESCRIPTION OF FOLLOW-UP ACTIONS TAKEN It follows from **Sections 6.1** and **6.4** that no follow-up actions were necessary.

#### 6.6 OTHERS

#### 6.6.1 Solid and Liquid Waste Management Status

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

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

## Table 6-1 Summary of Quantities of Waste for Disposal

Table 6-2

Summary of Quantities of Waste for Reuse/Recycling

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

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

#### 6.6.2 Site Inspection and Environmental Audit

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



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

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

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

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

The forthcoming activities in the next two months:

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

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

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

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

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

#### 7 CONCLUSIONS AND RECOMMENDATIONS

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

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

However, eight (8) exceedances of stream water quality (Limit Levels) were recorded, which included three (3) Limit Level exceedances in turbidity and five (5) Limit Level exceedances in suspended solids (SS). Based on the investigation reports, all exceedances were considered not related to the works of the Project. No associated corrective actions were therefore required.

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

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

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

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

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

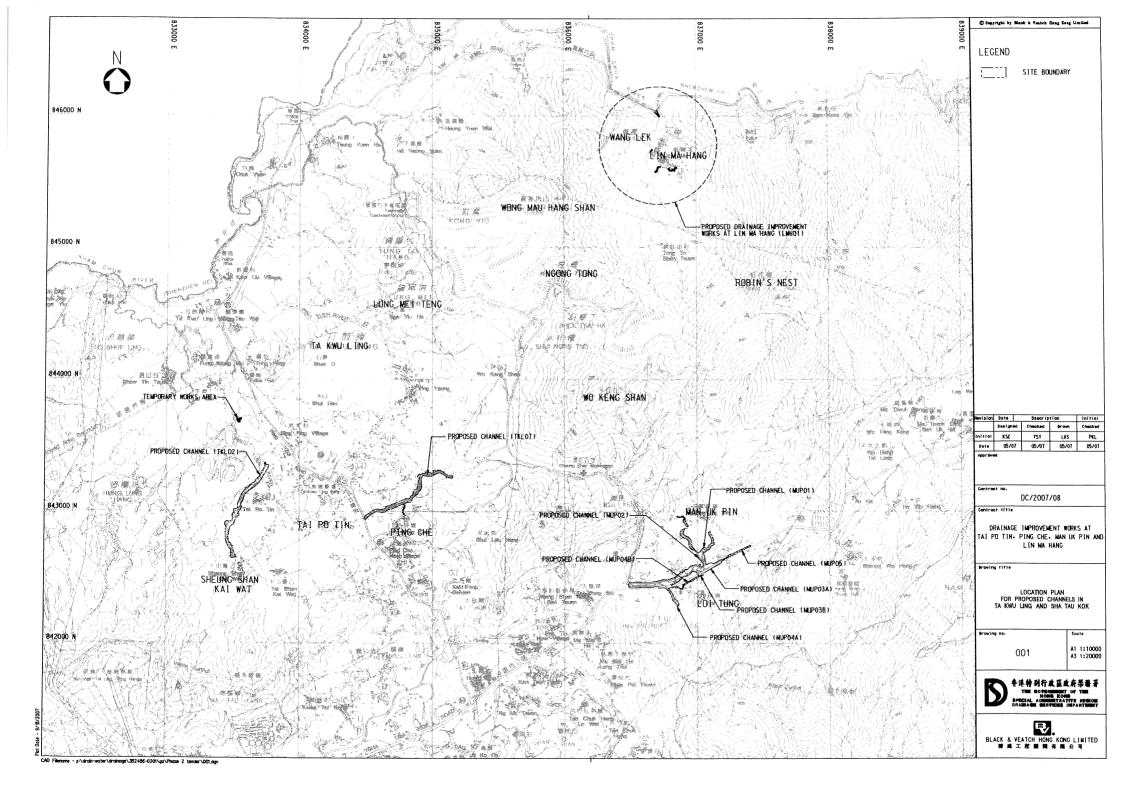
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## Appendix A

## **Site Location Plan**

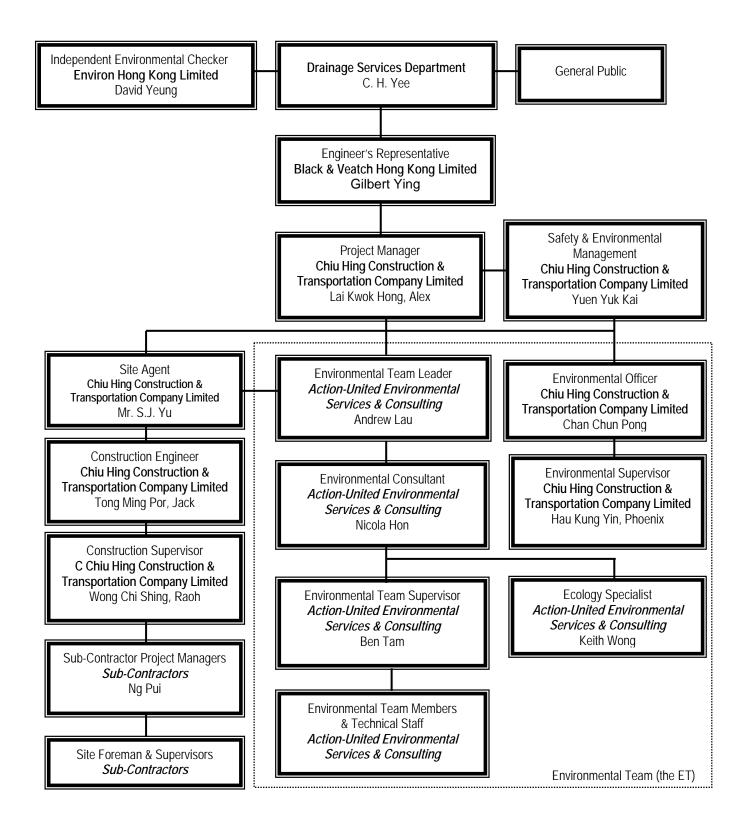
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## Appendix B

# Environmental Management Organization and Contacts of Key Personnel



**Environmental Management Organization** 

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### **Contact Details of Key Personnel**

| Organization | Project Role                         | Name of Key Staff        | Tel No.   | Fax No.   |
|--------------|--------------------------------------|--------------------------|-----------|-----------|
| DSD          | Employer                             | Mr. C. H. Yee            | 2594-7347 | 2827-8700 |
| B&V          | Engineer's Representative            | Mr. Gilbert Ying         | 2659-8787 | 2659-8323 |
| Environ      | Independent Environmental<br>Checker | Mr. David Yeung          | 3743-0788 | 3548-6988 |
| СНСТ         | Project Manager                      | Mr. Lai Kwok Hong, Alex  | 2659-8221 | 2659-8232 |
| СНСТ         | Safety & Environmental<br>Manager    | Mr. Yuen Yuk Kai         | 2659-8221 | 2659-8232 |
| СНСТ         | Site Agent                           | Mr. S.J. Yu              | 2659-8221 | 2659-8232 |
| СНСТ         | Construction Engineer                | Mr. Tong Ming Por, Jacky | 2659-8221 | 2659-8232 |
| СНСТ         | Construction Supervisor              | Mr. Roah Wong            | 2659-8221 | 2659-8232 |
| СНСТ         | Structural Engineer                  | Mr. Kwok Chin Ming       | 2659-8221 | 2659-8232 |
| СНСТ         | Site Forman                          | Mr. Chung Ping Kai       | 2659-8221 | 2659-8232 |
| СНСТ         | Environmental Officer                | Mr. C. P. Chan           | 2659-8221 | 2659-8232 |
| СНСТ         | Environmental Supervisor             | Miss Phoenix Hau         | 2659-8221 | 2659-8232 |
| Kin Tat      | Sub-contractor Project<br>Manager    | Mr. Ng Pui               | 2659-8221 | 2659-8232 |
| AUES         | Environmental Team Leader            | Mr. Andrew Lau           | 2959-6059 | 2959-6079 |
| AUES         | Environmental Consultant             | Miss Nicola Hon          | 2959-6059 | 2959-6079 |
| AUES         | Environmental Team Supervisor        | Mr. Ben Tam              | 2959-6059 | 2959-6079 |
| AUES         | Ecologist                            | Dr. Keith Wong           | 2959-6059 | 2959-6079 |

#### Legends:

| DSD     | (Employer) – Drainage Services Department                                   |
|---------|---|
| B&V     | (Engineer) – Black & Veatch Hong Kong Limited                               |
| CHCT    | (Main Contractor) – Chiu Hing Construction & Transportation Company Limited |
| Environ | (IEC) – Environ Hong Kong Limited   |
| AUES    | (ET) – Action-United Environmental Services & Consulting                    |

## Appendix C

Master Construction Program Future Construction Works & Environmental Mitigation Implementation Schedule **Master Construction Program** 

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

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

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

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

## CHIU HING CONSTRUCTION & TRANSPORTATION Co., Ltd MASTER PROGRAMME 05 (Section 2 of works)

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

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

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

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

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

| me                                   | Duration  | Start   | Finish Predecessors  |   | 2008   | DODG Half D  | 2009<br>2009, Half 1  | In   | 2000 Half 2  | 2010 11   | alf 1  | 2010, Half 2   | 2011<br>2011, Half 1  |
|--------------------------------------|---|---|--|---|--|--|---|--|--|---|--|--|---|
|                                      |   |   |  | N D   | J F M A M J  | J A S O N E  | 2009, Han 1<br>J F M  | AMJ  | J A S O  |   |  | J J A S O N  | D J F M   |
| 600mm dia. pipe construction         |   |   |  |   | 1  |  | 12  |  |  | 1   |  | ( Tangang )  | 1   |
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|                                      |   |   |  |   | 1  | 1  | 18  |  | E-0-0-0  |   |  | t<br>t   |   |
|                                      |   |   |  |   | *  |  |   | <u>k</u>   |  |   |  |  |   |
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|                                      |   |   |  |   |  | 1  | 18  |  |  | E H   |  | 1  | 1   |
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|                                      |   |   |  |   | 1  | 4  | 1 S.<br>1 R.  |  |  | 1   | REFER.   |  | ÷   |
| VBM05-1at CH C+70 approximate        | 30 days   | wea 10-2-17   | inu 10-3-18 117  |   | 1  | 1  | i <b>s</b>  | 1  |  |   | Utiti  | 1  |   |
|                                      |   |   |  |   |  |  |   |  |  |   |  |  |   |
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| rogramme (Rev.05) Task Critical Task |   | +   | Summary<br>Rolled Up Task  | -   | Rolled Up Critic   |  | d Up Progress   |  | External Tasks<br>Project Summary  |   | Group By Summary<br>Deadline   |  |   |
|                                      | 600mm dia. pipe construction         900mm dia. pipe construction         B.C. at CH E+93         River MUP03B (Portion D)         Temporary Flow Diversion         Orgen cut excavation         Rock. & gamular filling for the base of gabion         Blinding layer for the gabion construction         Backfilling and gabion construction         Backfilling and gabion construction         Backfilling and gabion construction         Subuse construction         Subuse construction         Rock & gamular filling for the verges         Gassed cellular concrete/concrete paving         Type 2 railing construction         Rock & gamular filling for the base of gabion         Bising layer for the gabion construction         Backfilling and gabion construction         Subuse construction in the middle of the river         200 Rip Rap filling         VBM04-2 vehicutar bridge at CHD11 Approximate         Verge/footpath construction         Subuse construction for the verges         Gases delular concrete/concrete paving         Type 2 raiting construction | 900mm dia. pipe construction30 daysBC. at CH E+9330 daysRiver MUP0R1 (Portion D)152 daysConstruction30 daysRock. & ganular filling for the base of gabion30 daysBinding layer for the gabion construction30 daysBackElling and gabion construction by layers57 daysGabion block construction the middle of the river20 days200 Rip Rap filling15 daysCabion block construction the middle of the river20 days200 Rip Rap filling15 daysVerge/Gordpath construction60 daysSubase construction for the verges20 daysGassed cellular concreto/concret paving20 daysTemporary Flow Diversion20 daysRock. & ganular filling for the base of gabion60 daysRock. & ganular filling for the base of gabion60 daysBackfilling and gabion construction60 daysGabion block construction in the middle of the river80 days200 Rip Rap filling45 daysVBM04-2 velicular bridge at CHD-14 Approximate55 daysVBM04-2 velicular bridge at CHD-148 Approximate56 daysVarge/Godpath construction30 daysSubase construction for the verges38 daysGased cellular concreto/concrete paving38 daysCassed cellular concreto/concrete paving38 daysSubase construction for the verges38 daysSubase construction for the verges38 daysSubase construction for the verges39 daysSubase construction for the verges <td< td=""><td>900mm dia_pipe construction         90 days         The 10-512           B.C. at CH E493         90 days         Mon 09-32           River MU29B (Portion D)         152 days         Fif 09-94           Temporary How Diversion         30 days         The 09-920           Binding layer for the gabion construction         30 days         Sm 09-104           Backfilling and gabion construction         30 days         Sm 09-114           Backfilling and gabion construction         30 days         Sm 09-115           D200 Rip Rap filling         15 days         Mon 09-11-30           D1FM03-11 Fortholing at CH 15-60 Approximate         45 days         Sm 09-125           Subuse construction for the verges         20 days         Fin 10-125           Subuse construction for the verges         20 days         Fin 10-12-17           Creer at exavaion         20 days         Well 10-2-17           Open cut exavaion         20 days         Well 10-2-17           Open cut exavaion         40 days         The 10-39           Rock &amp; gamiar filling for the base of gabion         60 days         Fin 10-149           Rock construction the middle of the river         20 days         The 10-432           D0 pen cut exavaion         60 days         Sm 10-42           Rock &amp;</td><td>"900mm dia pipe cassmetion         90 days         "The 10-5-12         The 97-53           Rice MUR3B (Portion D)         152 days         The 97-54         The 97-54           River MUR3B (Portion D)         152 days         The 97-94         Wet 09-923         3           Open cit excaration         30 days         The 07-944         Fri 07-104         Wet 09-923         17           Binding layer for the pairs occaration         30 days         Star 07-944         Fri 07-124         1728-5 days           Binding layer for the pairs occaration         30 days         Star 07-944         Fri 07-124         1728-5 days           Binding layer for the pairs occaration         60 days         Star 07-125         Mon 01-11-12         1787-5 days           Owing Rap filling         Clifox openinate         45 days         Star 07-125         Mon 10-11-12         1787-5 days           Starse construction for the regis         20 days         Star 00-125         Mon 10-11-12         178         1787-178           Rever MUH40 (Vertion D)         32 days         Star 04-178         Mon 11-12         178         178           Rever MUH40 (Vertion D)         32 days         Wet 10-2-17         Mon 11-24         178         178           Rever MUH40 (Vertion D)         32 days</td><td>Othern dia pipe construction         Use of the set of t</td><td>600m da per connucion         90 days         The 105-18         We 106-16         64           BC. 42 (15:0)         80 days         The 09-38         The 09-38         The 09-38           BC. 42 (15:0)         80 days         The 09-44         The 10-24         We 109-105         100           BC. 42 (15:0)         80 days         The 09-34         We 109-52         55           Temporary Flow Revision         30 days         The 09-34         We 109-52         117         54           Binklag for far back on sensition         30 days         The 09-34         We 109-12         117         54           Binklag for far back on sensition         30 days         Sen 00-125         Me 100-113         117         54           Binklag for far back on sensition         64 days         Sc 071-125         The 01-124         117         117         117         117         117         117         117         117         117         117         117         117         118</td><td>Other du pre contraction         Other d</td><td>Open in pre service     Distance     Pre Distance     <t< td=""><td>Image: 100 model in production (1)     Mathe (1)     Mathe (1)     N</td><td>Second Process Proces</td><td>Open Prior Prior</td><td>Market Processor     Mark     Processor     Market Processor     Market Processor       Security Control     Name     Name     Name     Name     Name       Security Control     Security Control     Name     Name     Name     Name       Name     Name     Name     Name     Name     Name     Name       Name     Name     Name     Name     Name     Name     Name       Name     Name     Name     Name     Name     Name</td><td>Owner properties of the constraint of the constra</td></t<></td></td<> | 900mm dia_pipe construction         90 days         The 10-512           B.C. at CH E493         90 days         Mon 09-32           River MU29B (Portion D)         152 days         Fif 09-94           Temporary How Diversion         30 days         The 09-920           Binding layer for the gabion construction         30 days         Sm 09-104           Backfilling and gabion construction         30 days         Sm 09-114           Backfilling and gabion construction         30 days         Sm 09-115           D200 Rip Rap filling         15 days         Mon 09-11-30           D1FM03-11 Fortholing at CH 15-60 Approximate         45 days         Sm 09-125           Subuse construction for the verges         20 days         Fin 10-125           Subuse construction for the verges         20 days         Fin 10-12-17           Creer at exavaion         20 days         Well 10-2-17           Open cut exavaion         20 days         Well 10-2-17           Open cut exavaion         40 days         The 10-39           Rock & gamiar filling for the base of gabion         60 days         Fin 10-149           Rock construction the middle of the river         20 days         The 10-432           D0 pen cut exavaion         60 days         Sm 10-42           Rock & | "900mm dia pipe cassmetion         90 days         "The 10-5-12         The 97-53           Rice MUR3B (Portion D)         152 days         The 97-54         The 97-54           River MUR3B (Portion D)         152 days         The 97-94         Wet 09-923         3           Open cit excaration         30 days         The 07-944         Fri 07-104         Wet 09-923         17           Binding layer for the pairs occaration         30 days         Star 07-944         Fri 07-124         1728-5 days           Binding layer for the pairs occaration         30 days         Star 07-944         Fri 07-124         1728-5 days           Binding layer for the pairs occaration         60 days         Star 07-125         Mon 01-11-12         1787-5 days           Owing Rap filling         Clifox openinate         45 days         Star 07-125         Mon 10-11-12         1787-5 days           Starse construction for the regis         20 days         Star 00-125         Mon 10-11-12         178         1787-178           Rever MUH40 (Vertion D)         32 days         Star 04-178         Mon 11-12         178         178           Rever MUH40 (Vertion D)         32 days         Wet 10-2-17         Mon 11-24         178         178           Rever MUH40 (Vertion D)         32 days | Othern dia pipe construction         Use of the set of t | 600m da per connucion         90 days         The 105-18         We 106-16         64           BC. 42 (15:0)         80 days         The 09-38         The 09-38         The 09-38           BC. 42 (15:0)         80 days         The 09-44         The 10-24         We 109-105         100           BC. 42 (15:0)         80 days         The 09-34         We 109-52         55           Temporary Flow Revision         30 days         The 09-34         We 109-52         117         54           Binklag for far back on sensition         30 days         The 09-34         We 109-12         117         54           Binklag for far back on sensition         30 days         Sen 00-125         Me 100-113         117         54           Binklag for far back on sensition         64 days         Sc 071-125         The 01-124         117         117         117         117         117         117         117         117         117         117         117         117         118 | Other du pre contraction         Other d | Open in pre service     Distance     Pre Distance <t< td=""><td>Image: 100 model in production (1)     Mathe (1)     Mathe (1)     N</td><td>Second Process Proces</td><td>Open Prior Prior</td><td>Market Processor     Mark     Processor     Market Processor     Market Processor       Security Control     Name     Name     Name     Name     Name       Security Control     Security Control     Name     Name     Name     Name       Name     Name     Name     Name     Name     Name     Name       Name     Name     Name     Name     Name     Name     Name       Name     Name     Name     Name     Name     Name</td><td>Owner properties of the constraint of the constra</td></t<> | Image: 100 model in production (1)     Mathe (1)     Mathe (1)     N | Second Process Proces | Open Prior | Market Processor     Mark     Processor     Market Processor     Market Processor       Security Control     Name     Name     Name     Name     Name       Security Control     Security Control     Name     Name     Name     Name       Name     Name     Name     Name     Name     Name     Name       Name     Name     Name     Name     Name     Name     Name       Name     Name     Name     Name     Name     Name  | Owner properties of the constraint of the constra |

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

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

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

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

| Project: Master Programme (Rev.05)<br>Date: 01/2009 | Task<br>Critical Task | Progress<br>Milestone | + | Summary<br>Rolled Up Task |  | Rolled Up Critical Task | Rolled Up Progress<br>Split |  |  |  |  | <del></del> |  |  |
|---|-----------------------|-----------------------|---|---------------------------|--|-------------------------|-----------------------------|--|--|--|--|-------------|--|--|
| Page 1  |                       |                       |   |                           |  |                         |                             |  |  |  |  |             |  |  |

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

| ID Task N                                 | lame  | Duration  | Start        | Finish Predecessors       |   |
|---|---|-----------|--------------|---------------------------|---|
|   |   |           |              |                           | V         V |
| 1 CONT                                    | RACT: DC/2007/08 (The Woks)                         | 1226 days | Fri 07-12-21 | Fri 11-4-29               |   |
|   | andover of Portion A                                | 0 days    | Fri 07-12-21 | Fri 07-12-21              | ◆ 12-21   |
|   | ection 3 - Man Uk Ping (Portion D & E)              | 1095 days | Wed 08-4-30  | Fri 11-4-29               |   |
| 4   | Commencement Date                                   | 0 days    | Wed 08-4-30  | Wed 08-4-30 5             | <b>→ 4</b> -30  |
| 5   | Handover of Portion D                               | 0 days    | Wed 08-4-30  | Wed 08-4-30               | 1-30  |
| 6   | Prelim Works  | 398 days  | Wed 08-4-30  | Mon 09-6-1                |   |
| 7   | Baseline Monitoring                                 | 130 days  | Wed 08-4-30  | Sat 08-9-6 5              |   |
| 8   | Mobilisation  | 10 days   | Mon 09-2-2   | Wed 09-2-11               |   |
| 9   | Site clearance                                      | 30 days   | Thu 09-2-12  | Fri 09-3-13 8             |   |
| 10  | Initial site survey                                 | 50 days   | Mon 08-12-1  | Mon 09-1-19               |   |
| 11  | Application of XP                                   | 1 day     | Sun 08-8-17  | Sun 08-8-17               |   |
| 12  | Tree survey   | 20 days   | Fri 08-5-30  | Wed 08-6-18 5SS+30 days   |   |
| 13  | Construct Access Road                               | 20 days   | Sat 09-3-14  | Thu 09-4-2 9              |   |
| 14  | Removal and Transplanting of trees                  | 60 days   | Fri 09-4-3   | Mon 09-6-1 13             |   |
| 15  | Underground Utility Survey                          | 30 days   | Sat 09-3-14  | Sun 09-4-12 9             |   |
| 16  | River MUP01 (Portion D)                             | 429 days  | Mon 09-2-2   | Tue 10-4-6                |   |
| 17  | Temporary Flow Diversion                            | 20 days   | Mon 09-2-2   | Sat 09-2-21               |   |
| 18  | Open cut excavation                                 | 95 days   | Sun 09-2-22  | Wed 09-5-27 17            |   |
| 19  | Rock & ganular filling for the base of gabion       | 100 days  | Fri 09-2-27  | Sat 09-6-6 18FF+10 days   |   |
| 20  | Blinding layer for the gabion construction          | 100 days  | Mon 09-3-9   | Tue 09-6-16 19FF+10 days  |   |
| 21  | Backfilling and gabion constrution by layers        | 180 days  | Thu 09-3-19  | Mon 09-9-14 20SS+10 days  |   |
| 22  | Verge/footpath construction                         | 204 days  | Tue 09-9-15  | Tue 10-4-6                |   |
| 23  | Subase construction for the verges                  | 68 days   | Tue 09-9-15  | Sat 09-11-21 21           |   |
| 24  | Gassed cellular concrete/concrete paving            | 68 days   | Sun 09-11-22 | Thu 10-1-28 23            |   |
| 25  | Type 2 railing construction                         | 68 days   | Fri 10-1-29  | Tue 10-4-6 24             |   |
| 26  | 300UC construction                                  | 60 days   | Tue 09-9-15  | Fri 09-11-13 21           |   |
| 27  | River MUP02 (Portion D)                             | 294 days  | Mon 09-4-13  | Sun 10-1-31               |   |
| 28  | Stabilise existing river bank                       | 225 days  | Mon 09-4-13  | Mon 09-11-23              |   |
| 29  | Temporary flow diversion                            | 10 days   | Mon 09-4-13  | Wed 09-4-22 15            |   |
| 30  | Sheet pile installation                             | 20 days   | Thu 09-4-23  | Tue 09-5-12 29            |   |
| 31  | Excavate & erect shoring support                    | 30 days   | Wed 09-5-13  | Thu 09-6-11 30            |   |
| 32  | Rock & ganular filling for the base of gabion       | 30 days   | Fri 09-6-12  | Sat 09-7-11 31            |   |
| 33  | Blinding layer for the gabion construction          | 30 days   | Sun 09-7-12  | Mon 09-8-10 32            |   |
| 34  | Backfilling and gabion constrution by layers        | 95 days   | Tue 09-8-11  | Fri 09-11-13 33           |   |
| 35  | Removal of the sheet piles                          | 10 days   | Sat 09-11-14 | Mon 09-11-23 34           |   |
| 36  | MUP02 Bypass  | 175 days  | Mon 09-4-13  | Sun 09-10-4               |   |
| 37  | Temporary Flow Diversion                            | 10 days   | Mon 09-4-13  | Wed 09-4-22 15            | , la  |
| 38  | Open cut excavation                                 | 20 days   | Thu 09-4-23  | Tue 09-5-12 37            |   |
| 39  | Rock & ganular filling for the base of gabion       | 20 days   | Wed 09-5-13  | Mon 09-6-1 38             |   |
| 40  | Blinding layer for the gabion construction          | 20 days   | Tue 09-6-2   | Sun 09-6-21 39            |   |
| 41  | Backfilling and gabion constrution by layers        | 30 days   | Mon 09-6-22  | Tue 09-7-21 40            |   |
| 42  | Filling of Rip Rap                                  | 15 days   | Wed 09-7-22  | Wed 09-8-5 41             |   |
| 43  | Verge/footpath construction                         | 60 days   | Thu 09-8-6   | Sun 09-10-4               |   |
| 44  | Subase construction for the verges                  | 20 days   | Thu 09-8-6   | Tue 09-8-25 42            |   |
| 45  | Gassed cellular concrete/concrete paving            | 20 days   | Wed 09-8-26  | Mon 09-9-14 44            |   |
| 46  | Type 2 railing construction                         | 20 days   | Tue 09-9-15  | Sun 09-10-4 45            |   |
| 47  | Main River of MUP02                                 | 294 days  | Mon 09-4-13  | Sun 10-1-31               |   |
| 48  | Temporary Flow Diversion                            | 14 days   | Mon 09-4-13  | Sun 09-4-26 37SS          |   |
| 49  | Open cut excavation                                 | 60 days   | Mon 09-4-27  | Thu 09-6-25 48            |   |
| 50  | Rock & ganular filling for the base of gabion       | 60 days   | Thu 09-5-7   | Sun 09-7-5 49FF+10 days   |   |
| 51  | Blinding layer for the gabion construction          | 60 days   | Sun 09-5-17  | Wed 09-7-15 50FF+10 days  |   |
| 52  | Backfilling and gabion constrution by layers        | 90 days   | Wed 09-5-27  | Mon 09-8-24 51SS+10 days  |   |
| 53  | Gabion block constuction in the middle of the river | 90 days   | Sat 09-6-6   | Thu 09-9-3 52SS+10 days   | 49/5  |
| 54  | 200 Rip Rap filling                                 | 30 days   | Fri 09-9-4   | Sat 09-10-3 53            |   |
| 55  | FBM02-1 footbridge at CH 8+455 Approximate          | 45 days   | Sun 09-10-4  | Tue 09-11-17 54           |   |
| 56  | FBM02-2 footbridge at CH 8+260 Approximate          | 45 days   | Wed 09-11-18 | Fri 10-1-1 55             |   |
| 57  | RW type D at CH8+525 Approximate                    | 30 days   | Sat 10-1-2   | Sun 10-1-31 56            |   |
| 58  | Verge/footpath construction                         | 90 days   | Tuc 09-8-25  | Sun 09-11-22              |   |
| 59  | Subase construction for the verges                  | 70 days   | Tue 09-8-25  | Mon 09-11-2 52            | 12 <u>22222223</u>  |
| 60  | Gassed cellular concrete/concrete paving            | 70 days   | Fri 09-9-4   | Thu 09-11-12 59SS+10 days |   |
| 61  | Type 2 railing construction                         | 70 days   | Mon 09-9-14  | Sun 09-11-22 60SS+10 days | 4/5   |
| 62  | 300 &375 UC at CH8+400 Approximate                  | 30 days   | Mon 09-11-23 | Tue 09-12-22 61           |   |
| 63  | River MUP03A (Portion D)                            | 502 days  | Mon 09-3-2   | Fri 10-7-16               |   |
| 64  | 600UC construction                                  | 80 days   | Wed 10-2-17  | Fri 10-5-7 117            |   |
| 65  | Manholes construction                               | 10 days   | Sat 10-5-8   | Mon 10-5-17 64            |   |
|   |   |           |              |                           |   |
| roject: Master I                          | Programme (Rev.05) Task                             | Progress  |              | Summary                   | Rolled Up Critical Task 2022222222 Rolled Up Progress External Tasks Group By Summary   |
| (2. ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( | Critical Task                                       | Milestone | •            | Rolled Up Task            | sk 🔢 🔢 Rolled Up Milestone 🔷 Split Project Summary 🖤 Deadline 🕘   |
| e: 01/2009                                |   |           |              |                           |   |



**Future Construction Program** 

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

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

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

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

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

| ID      | Task Name  | Duration  | Start           | Finish   | January 2010                | February 2010                            | March 2010                |             |
|---------|--|-----------|-----------------|--|-----------------------------|--|---------------------------|-------------|
| 106     | Box culvert & FBT07-6 construction at (CH670 to CH838 approximate) | 270 days? | Mon 11/5/09     | 27<br>Thu 4/2/10   | / Dec  3 Jan  10 Jan 17 Jan | 24 Jan 31 Jan 7 Feb 14 Feb               | 21 Feb[28 Feb]7 Mar 14 Ma | r21 Mar28 M |
| 107     | Box culvert (CH688 to CH762) & FBT07-6 completed & handed over     | 1 day?    | Mon 11/5/09     | Mon 11/5/09  | 8 (<br>8 (                  |  |                           |             |
| 108     |  | 20 days   | Thu 30/7/09     | Tue 18/8/09  | 8<br>8                      |  |                           |             |
| 109     | Open cut excavation (CH762 to CH838)                               | 30 days   | Wed 19/8/09     | Thu 17/9/09  |                             |  |                           |             |
| 110     | Granular filling with geotextile filter                            | 30 days   | Fri 18/9/09     | Sat 17/10/09   |                             |  |                           |             |
| 111     | Concrete for blindling layer                                       | 20 days   | Sun 18/10/09    | Fri 6/11/09  | 5<br>8                      |  |                           |             |
| 112     | Base slab construction   | 70 days   | Wed 28/10/09    | Tue 5/1/10   |                             | E<br>E                                   |                           |             |
| 113     | Wall & Top Slab construction                                       | 70 days   | Sat 7/11/09     | Fri 15/1/10  |                             |  |                           |             |
| 114     | Backfilling  | 20 days   | Sat 16/1/10     | Thu 4/2/10   |                             |  |                           |             |
| 115     | FBT07-3 at CH317 approximate                                       | 75 days   | Thu 18/6/09     | Mon 31/8/09  | () [100000000<br>()<br>()   | (1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)( |                           |             |
| 16      | Excavation   | 15 days   | Thu 18/6/09     | Thu 2/7/09   | 5  <br>8  <br>5             |  |                           |             |
| 117     | Rock & granular filling for the base of the FB                     | 15 days   | Fri 3/7/09      | Fri 17/7/09  | 6 1<br>6 1<br>6 1           |  |                           |             |
| 118     | Blinding layer for the FB  | 15 days   | Sat 18/7/09     | Sat 1/8/09   | 8 :<br>8 :<br>8 :           |  |                           |             |
| 119     | Formwork & concreting  | 30 days   | Sun 2/8/09      | Mon 31/8/09  | 8 .<br>8 .                  |  |                           |             |
| 120     | FBT07-4 at CH445 approximate                                       | 110 days  | Thu 3/9/09      | Mon 21/12/09   |                             |  |                           |             |
| 121     | Excavation   | 20 days   | Thu 3/9/09      | Tue 22/9/09  |                             |  |                           |             |
| 122     | Rock & granular filling for the base of the FB                     | 20 days   | Wed 23/9/09     | Mon 12/10/09   | 9 1<br>9 1<br>9 1           |  |                           |             |
| 23      | Blinding layer for the FB  | 20 days   | Tue 13/10/09    | Sun 1/11/09  | # 1<br># 1<br># 1           |  |                           |             |
| 124     | Formwork & concreting  | 50 days   | Mon 2/11/09     | Mon 21/12/09   | 2  <br>2  <br>8             |  |                           |             |
| 125     | FBT07-5 at CH600 approximate                                       | 110 days  | Mon 20/7/09     | Fri 6/11/09  | 8 i<br>8 i                  |  |                           |             |
| 126     | Excavation   | 20 days   | Mon 20/7/09     | Sat 8/8/09   | 8 .<br>9 .<br>8 .           |  |                           |             |
| 127     | Rock & granular filling for the base of the FB                     | 20 days   | Sun 9/8/09      | Fri 28/8/09  | 8.<br>8.                    |  |                           |             |
| 128     | Blinding layer for the FB  | 20 days   | Sat 29/8/09     | Thu 17/9/09  | 5<br>5                      |  |                           |             |
| 129     | Formwork & concreting  | 50 days   | Fri 18/9/09     | Fri 6/11/09  | 9 i<br>9 i<br>9 i           |  |                           |             |
| 130     | Ramp construction  | 67 days   | Mon 12/4/10     | Thu 17/6/10  |                             |  |                           |             |
| 131     | At CH517 Approximate   | 55 days   | Mon 12/4/10     | Sat 5/6/10   |                             |  |                           |             |
| 132     | Granular filling with geotextile filter                            | 20 days   | Mon 12/4/10     | Sat 1/5/10   |                             |  |                           |             |
| 33      | Concrete for the blinding layer                                    | 20 days   | Sat 17/4/10     | Thu 6/5/10   |                             |  |                           |             |
| 134     | Base slab construcion for the ramp                                 | 30 days   | Thu 22/4/10     | Fri 21/5/10  | н<br>н<br>н                 |  |                           |             |
| 35      | Wall construction for the ramp                                     | 40 days   | Tue 27/4/10     | Sat 5/6/10   |                             |  |                           |             |
| 36      | At CH600 Approximate   | 45 days   | Mon 12/4/10     | Wed 26/5/10  | 8                           |  |                           |             |
| 137     | Granular filling with geotextile filter                            | 20 days   | Mon 12/4/10     | Sat 1/5/10   | *<br>*                      |  |                           |             |
| 138     | Concrete for the blinding layer                                    | 20 days   | Sat 17/4/10     | Thu 6/5/10   |                             |  |                           |             |
| 139     | Base slab construcion for the ramp                                 | 30 days   | Thu 22/4/10     | Fri 21/5/10  | 8  <br>8  <br>8             |  |                           |             |
| 140     | Wall construction for the ramp                                     | 30 days   | Tue 27/4/10     | Wed 26/5/10  |                             |  |                           |             |
|         | (T++++++++++++++++++++++++++++++++++++                             |           |                 |  | Altowardshi                 |  | Level .                   |             |
|         | Project 10-R (No.24) Task Progress                                 |           | Summary         |  | External Tasks              | Deadlin                                  | e 🖓                       |             |
| ate: Th | u 31/12/09 Split Mileston  | ne 🔶      | Project Summary | Contraction of the second seco | External Milestone 🚸        |  |                           |             |
| Chron M | Ionth 01,02,03/2010 Rolling Programme (No. 24)                     |           | Page 4          |  |                             |  |                           |             |

| ID [     | Fask Name   |                      | Duration           | Start                     | Finish   | January 2010                 | February 2010                  | March 2010                  | 1       |
|----------|---|----------------------|--------------------|---------------------------|--|------------------------------|--------------------------------|-----------------------------|---------|
| 141      | Verge/footpath constru                                      | ction                | 67 days            | Mon 12/4/10               | 27<br>Thu 17/6/10  | / Dec  3 Jan  10 Jan  17 Jar | 1 24 Jan 31 Jan 7 Feb 14 Feb 2 | 1 Feb[28 Feb]7 Mar 14 Mar21 | Mar28 M |
| 142      | Subase constructio  |                      | 40 days            | Mon 12/4/10               | Fri 21/5/10  |                              |                                |                             |         |
| 143      |   | hor the verges       | 40 days            | Thu 22/4/10               | Mon 31/5/10  | 8<br>3                       |                                |                             |         |
| 143      | Type 2 railing con  |                      | 40 days            | Sun 2/5/10                | Thu 10/6/10  | 8                            |                                |                             |         |
| 145      | Retaining wall con  |                      | 40 days<br>47 days | Sun 2/5/10                | Thu 10/0/10<br>Thu 17/6/10   | 8 -<br>8 -                   |                                |                             |         |
| 145      | At CH687 Approximat   |                      | 47 days            | Sun 2/5/10                | Thu 17/6/10  | 8 1<br>8 1<br>8 1            |                                |                             |         |
| 147      | Type D L-shaped I   |                      | 20 days            | Sun 2/5/10                | Fri 21/5/10  | 9 .<br>9                     |                                |                             |         |
| 147      | Preforated pipe ins   |                      | 10 days            | Sat 22/5/10               | Mon 31/5/10  |                              |                                |                             |         |
| 140      | Backfilling the RW  |                      | 10 days            | Tue 1/6/10                | Thu 17/6/10  |                              |                                |                             |         |
| 150      | Retaining wall construction                                 |                      | 80 days            | Fri 18/12/09              | Sun 7/3/10   |                              |                                |                             |         |
| 150      | At CH35 to 104 Appro  |                      | 80 days<br>80 days | Fri 18/12/09              | Sun 7/3/10   |                              |                                |                             |         |
| 152      | en este en              |                      | 60 days            | Fri 18/12/09              | Mon 15/2/10  | · ·                          |                                |                             |         |
| 152      | Type D L-shaped I   |                      |                    |                           | Thu 25/2/10  |                              |                                | 1777)                       |         |
| 155      | Preforated pipe ins   |                      | 10 days            | Tue 16/2/10               |  | 8  <br>8  <br>8              |                                |                             |         |
| 154      | Backfilling the RW  |                      | 10 days            | Fri 26/2/10<br>Sun 2/5/10 | Sun 7/3/10<br>Thu 10/6/10  |                              |                                |                             |         |
| 155      | U Channel construction                                      |                      | 40 days            | Sun 2/5/10<br>Sun 2/5/10  | Thu 10/6/10<br>Thu 10/6/10   |                              |                                |                             |         |
| 150      | 375&525 UC at CH352   |                      | 40 days            |                           |  | *                            |                                |                             |         |
|          | Trench excavation   | 1                    | 20 days            | Sun 2/5/10                | Fri 21/5/10  | 8 1<br>8 1<br>8 1            |                                |                             |         |
| 158      | Concrete for the U  |                      | 30 days            | Wed 12/5/10               | Thu 10/6/10  | # 1<br># 1<br># 1            |                                |                             |         |
| 159      | 525UC at CH552 App  | oximate              | 30 days            | Sun 2/5/10                | Mon 31/5/10  | 8 1<br>8 1<br>8 1            |                                |                             |         |
| 160      | Trench excavation   | 1                    | 20 days            | Sun 2/5/10                | Fri 21/5/10  | 8 L<br>8 L<br>9 L            |                                |                             |         |
| 161      | Concrete for the U  |                      | 20 days            | Wed 12/5/10               | Mon 31/5/10  | * ·<br>• ·                   |                                |                             |         |
| 162      | 525&600 UC at CH69  | ) Approximate        | 40 days            | Sun 2/5/10                | Thu 10/6/10  | ¥ )<br>\$ )                  |                                |                             |         |
| 163      | Trench excavation   |                      | 20 days            | Sun 2/5/10                | Fri 21/5/10  | 8  <br>8  <br>8              |                                |                             |         |
| 164      | Concrete for the U  | channel              | 30 days            | Wed 12/5/10               | Thu 10/6/10  |                              |                                |                             |         |
| 165      | Inlet Pipes   |                      | 149 days           | Fri 20/11/09              | Sat 17/4/10  |                              |                                |                             |         |
| 166      | Inlet pipe at CH100 Ap                                      |                      | 25 days            | Fri 8/1/10                | Mon 1/2/10   |                              |                                |                             |         |
| 167      | Inlet pipe at CH400 Ap                                      |                      | 25 days            | Tue 2/2/10                | Fri 26/2/10  | 9 C<br>8 C                   |                                |                             |         |
| 168      | Inlet pipe at CH408 Ap                                      |                      | 25 days            | Sat 27/2/10               | Tue 23/3/10  | 8 1<br>9 1<br>9 1            |                                |                             |         |
| 169      | Inlet pipe at CH450 Ap                                      |                      | 25 days            | Wed 24/3/10               | Sat 17/4/10  |                              | 1                              |                             |         |
| 170      | Inlet pipe at CH570 Ap                                      |                      | 25 days            | Fri 8/1/10                | Mon 1/2/10   |                              |                                |                             |         |
| 171      | Inlet pipe at CH630 Ap                                      |                      | 50 days            | Fri 20/11/09              | Fri 8/1/10   | (                            |                                | +                           |         |
| 172      | Inlet pipe at CH750 Ap                                      | proximate            | 25 days            | Sat 27/2/10               | Tue 23/3/10  | * 1<br>* 1<br>* 1            |                                |                             |         |
| 173      |   |                      |                    |                           |  | * :<br>* :<br>* :            |                                |                             | 1       |
| 174      | Section 5 of works for TKL                                  |                      | 123 days           | Wed 24/3/10               | Sat 24/7/10  | 8 i<br>8 i<br>8 1            |                                |                             |         |
| 175      | Completion of Section 2                                     | 5 of works for TKL07 | 123 days           | Wed 24/3/10               | Sat 24/7/10  | R .<br>K .                   |                                |                             |         |
|          | roject 10-R (No.24)   | Task Progress        |                    | Summary                   |  | External Tasks               | Deadline                       | . J                         |         |
| ate: Thu | 31/12/09  | Split Milestone      | •                  | Project Summary           | Water Street Str | External Milestone 🔌         | •                              |                             |         |
|          | onth 01,02,03/2010 Rolling Prog<br>by S. J. Yu Thu 31/12/09 | ramme (No. 24)       |                    | Page 5                    |  |                              |                                |                             |         |

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

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

## **Environmental Mitigation Implementation Schedule**

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### APPENDIX A IMPLEMENTATION SCHEDULE OF THE PROPOSED MITIGATION MEASURES

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# Table A1 Implementation Schedule of Air Quality Mitigation Measures

| EIA<br>Ref | EM&A<br>Ref | <b>Recommended Mitigation Measures</b>  | Objectives of the<br>Recommended                           | Location /                                 | Implementation             | Im       | plementa<br>Stages* | tion | Relevant   |
|------------|-------------|---|--|--|----------------------------|----------|---------------------|------|--|
|            |             |   | Measures and Main<br>Concerns to addressed                 | Timing                                     | Agent                      | D        | C                   | 0    | Legislation &<br>Guidelines                        |
| Air Q      | uality - Co | nstruction Phase  |  |  |                            | <u> </u> |                     | L    | <u> </u>   |
|            |             | Construction Dust   |  |  |                            |          | T                   |      | I  |
| 3.6.1      | 2.9.2       | In order to comply with Air Pollution Control<br>Ordinance (APCO), the Contractor should undertake<br>at all times measures to prevent dust nuisance as a<br>results of his activities. The Contractors are required      | To prevent dust<br>nuisance on ASRs<br>during construction | All works site /<br>during<br>construction | Construction<br>Contractor |          | 4                   |      | Air Pollution<br>Control Ordinanc<br>Air Pollution |
|            |             | to follow all the requirements for dust control<br>stipulated in the Air Pollution Control (Construction<br>Dust) Regulation. Dust suppression measures should<br>be installed as part of good construction practice, and |  |  |                            |          |                     |      | Control<br>(Construction<br>Dust) Regulation       |
| 1          | l.          | they should be incorporated in the Contract<br>Specification and implemented to minimize dust<br>nuisance to within acceptable levels arising from the  |  |  |                            | i        |                     |      |  |
|            |             | works. The followings are examples of the dust suppression measures.  |  |  |                            |          |                     |      |  |
|            |             | <ul> <li>The area in which excavation takes place shall<br/>be sprayed with water immediately prior to,<br/>during and immediately after the excavation to<br/>minimise dust generation.</li> </ul>                       |  |  |                            | -        |                     |      |  |
|            |             | (ii) The Contractor shall frequently clean and water<br>the site to minimize fugitive dust emissions.   |  |  |                            |          |                     |      |  |

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

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

| EIA    | EM&A         | Recommended Mitigation Measures   | Objectives of the<br>Recommended           | Location / | Implementation | Imj | plementa<br>Stages*                    |   | Relevant<br>Legislation & |
|--------|--------------|-----------------------------------|--|------------|----------------|-----|--|---|---------------------------|
| Ref    | Ref          | Accommences (Anglesse (Account)   | Measures and Main<br>Concerns to addressed | Timing     | Agent          | D   | C                                      | 0 | Guidelines                |
|        |              | avoid any odour nuisance arising. |  |            |                |     |  |   |                           |
| Air Qı | uality - Ope | erational Phase                   |  |            |                |     | ······································ | T | F                         |
|        |              | N/A                               |  |            |                |     |  |   |                           |

## Table A2 Implementation Schedule of Noise Mitigation Measures

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

| EIA EM8          | A Recommended Mitigation Measures   | Objectives of the<br>Recommended           | Location /  | Implementation             | Im | plementa<br>Stages* |   | Relevant  |
|------------------|---|--|---|----------------------------|----|---------------------|---|---|
| Ref Ref          | 8   | Measures and Main<br>Concerns to addressed | Timing  | Agent                      | D  | C                   | 0 | Legislation &<br>Guidelines                     |
|                  |   |  |   |                            |    |                     |   |   |
|                  | Level 2 Mitigation - Use of Temporary Noise<br>Barriers   |  |   |                            |    |                     |   |   |
| 4.6.7 –<br>4.6.8 | 3.4 Since most of the NSRs within the Project area are typically low-rise village houses of not more than 3 storeys tall, it would be effective to have noise screening structures or temporary noise barriers purposely-built along the site boundary to provide additional protection to NSRs close to the construction site boundary. This could be in the form of purposely-built site hoarding constructed from appropriate materials with a minimum superficial density of 7 kg/m <sup>2</sup> . Noise barrier should be provided for noisy construction activities that would be undertaken close (about 25m or less) to NSRs. With the exception of NSRs MUP04A-2 and MUP05-6, the noise barrier should have a vertical height of at least 2.5 m or (depending on the height of the NSRs to be protected) a height ensuring that the operating equipment can be shielded from the view of the NSRs. For NSR MUP04A-2, the temporary noise barrier should have a minimum height of 3.5m with a small cantilevered upper portion. For MUP05-6, the temporary noise barrier should have a minimum height of 3m with a small cantilevered upper portion. The temporary noise barrier should have no gaps or opening at joints. The Contractor should regularly inspect and maintain the noise | noise during<br>construction               | All works site<br>located at 25m or<br>less from NSRs<br>as shown in<br>Figures 4.4 – 4.6<br>/ during<br>construction | Construction<br>Contractor |    |                     |   | Environmental<br>Impact Assessment<br>Ordinance |

| EIA<br>Ref | EM&A<br>Ref | <b>Recommended Mitigation Measures</b>   | Objectives of the<br>Recommended                     | Location /                                 | Implementation             | Im | plement<br>Stages <sup>3</sup> |   | Relevant                                       |
|------------|-------------|--|--|--|----------------------------|----|--------------------------------|---|--|
|            |             |  | Measures and Main<br>Concerns to addressed           | Timing                                     | Agent                      | D  | С                              | 0 | Legislation &<br>Guidelines                    |
|            |             | barrier to ensure its effectiveness.   |  |  |                            |    |                                | 1 |  |
|            |             | For the construction works which have the potential to exceed the noise standards on nearby NSR and whose line of sight cannot be effectively blocked by the temporary noise barrier, movable (mobile) barriers should be provided. Movable barriers of at least 2.5 m height with a small cantilevered upper portion and skid footing can be located within a few meters of stationary plant (e.g. generator, compressor) and within about 5 m or more of a mobile equipment (e.g. excavator, mobile crane), such that the line of sight to the NSR is blocked by the barriers. |  |  |                            |    |                                |   |  |
|            |             | Good Site Practices  |  |  |                            |    |                                |   |  |
| 4.6.11     | Table 3.4   | In general, potential construction noise impact can<br>be minimised or avoided by imposing a<br>combination of the following good site practices as<br>mitigation measures:  | To protect NSRs from<br>noise during<br>construction | All works site /<br>during<br>construction | Construction<br>Contractor | ·  | V                              |   | Environmental<br>Impact Assessmer<br>Ordinance |
|            |             | (a) Only well-maintained plant should be<br>operated on-site and plant should be<br>serviced regularly during the construction<br>period.  |  | · ,· ·                                     | , .                        |    | •                              | : |  |
|            |             | (b) Construction plant should be sited away<br>from NSRs.  |  |  |                            |    |                                |   |  |

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

| EIA<br>Ref            | EM&A<br>Ref | Recommended Mitigation Measures  | Objectives of the<br>Recommended   | Location /   | Implementation   | Im | plementa<br>Stages* | tion . | Relevant                                       |
|-----------------------|-------------|--|--|--|--|----|---------------------|--------|--|
|                       |             |  | Measures and Main<br>Concerns to addressed   | Timing   | Agent  | D  | C                   | 0      | Legislation &<br>Guidelines                    |
|                       |             | ascertain the exact dates and times of all<br>examination periods during the course of the<br>contract and to avoid noisy activities during<br>these periods.  |  |  |  |    |                     |        |  |
| 4.6.13<br>-<br>4.6.14 | Table 3.4   | To adopt good public relation with the local<br>communities and maintain effective<br>communication channel with the public such as<br>setting up a 24-hour hotline system for enquiry<br>and complaint.   | To promote good<br>public relation and<br>maintain effective<br>communication during<br>construction | All works site /<br>during<br>construction   | Project Office<br>(Engineer) &<br>Construction<br>Contractor |    | 1                   |        | Environmental<br>Impact Assessmer<br>Ordinance |
| 4.6.17<br>&<br>4.6.18 | Table 3.4   | Further mitigation by restricting concurrent usage<br>of several equipment at the same time.   | To further mitigate<br>construction noise at<br>NSRs MUP04A-2 &<br>MUP04B-2                          | For works within<br>20m of NSRs<br>MUP04A-2 &<br>MUP04B-2 /<br>during<br>construction                          | Construction<br>Contractor                                   |    | 1                   |        | Environmental<br>Impact Assessmer<br>Ordinance |
| 4.6.19                | Table 3.4   | The use of purpose built temporary noise barriers<br>would not be practicable for works at LMH01 as<br>the works are small scale, short duration and<br>within village environs with very limited working<br>space. It may also hamper access causing<br>inconvenience to the villagers. The process of<br>installing and dismantling the noise barriers itself<br>would create additional noise nuisance. The use of<br>light-weight mobile barrier is considered more<br>preferable. | To protect NSRs at<br>LMH01 from noise<br>during construction  | All works site<br>located at 25m or<br>less from NSRs<br>as shown in<br>Figure 4.6 /<br>during<br>construction | Construction<br>Contractor                                   |    | 1                   |        | Environmental<br>Impact Assessmen<br>Ordinance |

| EIA    | EM&A      | Recommended Mitigation Measures   | Objectives of the<br>Recommended  | Location /  | Implementation             | Imj | plementa<br>Stages* |   | Relevant  |
|--------|-----------|---|---|---|----------------------------|-----|---------------------|---|---|
| Ref    | Ref       |   | Measures and Main<br>Concerns to addressed  | Timing  | Agent                      | D   | C                   | 0 | Legislation &<br>Guidelines                     |
| 4.6.20 | Table 3.4 | Employ quiet working method (e.g. mini-concrete<br>crusher, saw & lift) during demolition works of<br>crossings, restrict concurrent usage of several<br>equipment at the same time such as parking dump<br>truck, concrete lorry mixer outside main village<br>area. The use of dump truck or concrete lorry<br>mixer will be limited to only about 1 trip every few<br>days.  | To further mitigate<br>construction noise at<br>NSRs for LMH01  | Construction<br>works at LMH01<br>/ during<br>construction    | Construction<br>Contractor |     | ~                   |   | Environmental<br>Impact Assessment<br>Ordinance |
| 4.8.4  | Table 3.4 | It is recommended that works programme should<br>be scheduled such that only one crossing is<br>constructed at any one time. Bank improvement<br>work can be conducted concurrently.  | To mitigate cumulative<br>noise impact at<br>LMH01  | Crossing<br>construction at<br>LMH01 / during<br>construction | Construction<br>Contractor |     | 4                   |   | Environmental<br>Impact Assessment<br>Ordinance |
| 4.9.1  | 3.8.1     | The Contractor should design, construct, operate<br>and maintain the mitigation measures throughout<br>the construction stage and as required by the<br>Engineer. Before commencement of the works, the<br>Contractor should submit to the Engineer for<br>approval (as part of their method statement) details<br>of the mitigation measures to be employed under<br>the works. The Contractor's proposed mitigation<br>measures should also be certified by the ET Leader<br>and verified by the IEC to ensure the intended<br>noise reduction effectiveness can be achieved. | To protect NSRs from<br>noise during<br>construction and to<br>ensure the Contractor<br>will properly<br>implement the<br>mitigation measures | All works site /<br>during<br>construction                    | Construction<br>Contractor |     | 1                   |   | Environmental<br>Impact Assessment<br>Ordinance |

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

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### Table A3 Implementation Schedule of Water Quality Mitigation Measures

| EIA   | EM&A        |  | Objectives of the<br>Recommended                                   | Location /                                 | Implementation             | - | lementa<br>Stages* | tion | Relevant<br>Legislation &                  |
|-------|-------------|--|--|--|----------------------------|---|--------------------|------|--|
| Ref   | Ref         | Recommended Mitigation Measures  | Measures and Main<br>Concerns to addressed                         | Timing                                     | Agent                      | D | C                  | 0    | Guidelines                                 |
| Water | Quality - ( | Construction Phase   |  | -  |                            |   |                    |      |  |
|       |             | General  | -<br>-   |  |                            |   |                    |      | ,  |
| 5.6.2 | 4.9.2       | The contractor shall observe and comply with the<br>Water Pollution Control Ordinance (WPCO) and<br>its subsidiary regulations. The contractor shall<br>carry out the works in such a manner as to<br>minimise adverse impacts on the water quality<br>during execution of the works. In particular the<br>contractor shall arrange his method of working to<br>minimise the effects on the water quality within<br>and outside the site and on the transport routes.  | To minimize adverse<br>water quality impact<br>during construction | All works site /<br>during<br>construction | Construction<br>Contractor |   | ~                  |      | Water Pollution<br>Control Ordinance       |
| 5.6.3 | 4.9.3       | The contractor shall follow the practices, and be<br>responsible for the design, construction, operation<br>and maintenance of all the mitigation measures<br>below and as specified in ProPECC PN 1/94 -<br>Construction Site Drainage. In particular, the<br>contractor shall submit and implement an Erosion<br>Control Plan (as part of the Environmental<br>Management Plan) which shall incorporate details<br>of the mitigation measures recommended below to<br>reduce water quality impacts arising from<br>construction works. The design of the mitigation<br>measures and the Plan shall be submitted by the<br>contractor to the Engineer for approval. |  | All works site /<br>during<br>construction | Construction<br>Contractor |   | 1                  |      | ProPECC PN 1/94<br>ETWB TCW No.<br>19/2005 |

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| EM&A<br>Ref | <b>Recommended Mitigation Measures</b>   | Objectives of the<br>Recommended   | Location /  | Implementation  | Im   | plement:<br>Stages*   |  | Relevant   |
|-------------|--|--|---|---|--|---|--|--|
|             |  | Concerns to addressed  | Timing  | Agent   | D  | C   | 0  | Legislation &<br>Guidelines  |
|             | ·  |  |   |   | •  |   |  |  |
| 4.9.4       | Proper construction site drainage management<br>measures shall be implemented to control site<br>runoff and drainage, and thereby prevent high<br>sediment loadings from reaching downstream<br>sections of the river and adjacent agricultural land.  | To minimize adverse<br>water quality impact<br>during construction   | All works site /<br>during<br>construction  | Construction<br>Contractor  |  | V   |  | ProPECC PN 1/9   |
| 4.9.5       | Turbid water from construction sites must be<br>treated to minimise the solids content before being<br>discharged. Advice on the handling and disposal<br>of site discharge is given in the ProPECC Note PN<br>1/94 - Construction Site Drainage.  | To minimize adverse<br>water quality impact<br>during construction   | All works site /<br>during<br>construction  | Construction<br>Contractor  |  | 4   |  | ProPECC PN 1/94  |
| 4.9.6       | In general, surface run-off from construction sites<br>should be discharged into waterbodies via<br>adequately designed sand/silt removal facilities<br>such as sand traps, silt traps and sediment basins.<br>Channels or earth bunds or sand bag barriers<br>should be provided on site to properly direct<br>stormwater to such silt removal facilities.<br>Perimeter channels at site boundaries should be<br>provided to intercept storm run-off from outside<br>the site so that it will not wash across the site (or<br>into the proposed channel works area). Catchpits<br>and perimeter channels should be constructed in<br>advance of earthworks. | To minimize adverse<br>water quality impact<br>during construction   | All works site /<br>during<br>construction  | Construction<br>Contractor  |  | 1   | -<br>-<br>-<br>-   | ProPECC PN 1/94  |
|             | 4.9.4  | <ul> <li>Site Surface Runoff</li> <li>4.9.4 Proper construction site drainage management measures shall be implemented to control site runoff and drainage, and thereby prevent high sediment loadings from reaching downstream sections of the river and adjacent agricultural land.</li> <li>4.9.5 Turbid water from construction sites must be treated to minimise the solids content before being discharged. Advice on the handling and disposal of site discharge is given in the ProPECC Note PN 1/94 - Construction Site Drainage.</li> <li>4.9.6 In general, surface run-off from construction sites should be discharged into waterbodies via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels or earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries should be provided to intercept storm run-off from outside the site so that it will not wash across the site (or into the proposed channel works area). Catchpits and perimeter channels should be constructed in</li> </ul> | <ul> <li>4.9.4 Proper construction site drainage management measures shall be implemented to control site runoff and drainage, and thereby prevent high sediment loadings from reaching downstream sections of the river and adjacent agricultural land.</li> <li>4.9.5 Turbid water from construction sites must be treated to minimise the solids content before being discharged. Advice on the handling and disposal of site discharge is given in the ProPECC Note PN 1/94 - Construction Site Drainage.</li> <li>4.9.6 In general, surface run-off from construction sites should be discharged into waterbodies via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels or earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries should be provided to intercept storm run-off from outside the site so that it will not wash across the site (or into the proposed channel works area). Catchpits and perimeter channels should be constructed in</li> </ul> | Measures and Main<br>Concerns to addressed       Timing         4.9.4       Proper construction site drainage management<br>measures shall be implemented to control site<br>runoff and drainage, and thereby prevent high<br>sediment loadings from reaching downstream<br>sections of the river and adjacent agricultural land.       To minimize adverse<br>water quality impact<br>during construction       All works site /<br>during<br>construction         4.9.5       Turbid water from construction sites must be<br>treated to minimise the solids content before being<br>discharged. Advice on the handling and disposal<br>of site discharge is given in the ProPECC Note PN<br>1/94 - Construction Site Drainage.       To minimize adverse<br>water quality impact<br>during construction       All works site /<br>during<br>construction         4.9.6       In general, surface run-off from construction sites<br>should be discharged into waterbodies via<br>adequately designed sand/silt removal facilities<br>such as sand traps, silt traps and sediment basins.<br>Channels or earth bunds or sand bag barriers<br>should be provided on site to properly direct<br>stormwater to such silt removal facilities.<br>Perimeter channels at site boundaries should be<br>provided to intercept storm run-off from outside<br>the site so that it will not wash across the site (or<br>into the proposed channel works area). Catchpits<br>and perimeter channels should be constructed in       All works site /<br>during | Measures and Main<br>Concerns to addressed       Timing       Agent         4.9.4       Site Surface Runoff       To minimize adverse<br>measures shall be implemented to control site<br>runoff and drainage, and thereby prevent high<br>sediment loadings from reaching downstream<br>sections of the river and adjacent agricultural land.       To minimize adverse<br>water quality impact<br>during construction       All works site /<br>during<br>construction       Construction<br>Contractor         4.9.5       Turbid water from construction sites<br>discharged. Advice on the handling and disposal<br>of site discharge is given in the ProPECC Note PN<br>1/94 - Construction Site Drainage.       To minimize adverse<br>water quality impact<br>during construction       All works site /<br>during<br>construction       Construction<br>Contractor         4.9.6       In general, surface run-off from construction sites<br>should be discharged into waterbodies via<br>adequately designed sand/silt removal facilities<br>such as sand traps, silt traps and sediment basins.<br>Channels or earth bunds or sand bag barriers<br>should be provided on site to properly direct<br>stornwater to such sit removal facilities.<br>Perimeter channels at site boundaries should be<br>provided to intercept storm run-off from outside<br>the site so that it will not wash across the site (or<br>into the proposed channel works area). Catchpits<br>and perimeter channels works area). Catchpits       To minimize adverse<br>water quality impact<br>during construction       All works site /<br>during<br>construction       Construction<br>Contractor | Measures and Main<br>Concerns to addressed       Timing       Agent       D         4.9.4       Proper construction site drainage management<br>measures shall be implemented to control site<br>runoff and drainage, and thereby prevent high<br>sediment loadings from reaching downstream<br>sections of the river and adjacent agricultural land.       To minimize adverse<br>water quality impact<br>during construction       All works site /<br>during<br>construction       Construction<br>Contractor         19.5       Turbid water from construction sites must be<br>treated to minimise the solids content before being<br>discharged. Advice on the handling and disposal<br>of site discharge is given in the ProPECC Note PN<br>1/94 - Construction Site Drainage.       To minimize adverse<br>water quality impact<br>during construction       All works site /<br>during<br>construction       Construction<br>Contractor         4.9.6       In general, surface run-off from construction sites<br>should be discharged into waterbodies via<br>adequately designed sand/silt removal facilities,<br>such as sand traps, silt traps and sediment basins.<br>Channels or earth bunds or sand bag barriers<br>should be provided on site to properly direct<br>stornwater to such silt removal facilities.<br>Perimeter channels at site boundaries should be<br>provided to intercept storm run-off from outside<br>the site so that it will not wash across the site (or<br>into the proposed channel works area). Catchpits<br>and perimeter channels should be constructed in       To minimize adverse<br>water quality impact       All works site /<br>during construction       Construction<br>Contractor | Measures and Main<br>Concerns to addressed       Timing       Agent       D       C         4.9.4       Site Surface Runoff       Proper construction site drainage management<br>measures shall be implemented to control site<br>runoff and drainage, and thereby prevent high<br>sediment loadings from reaching downstream<br>sections of the river and adjacent agricultural land.       To minimize adverse<br>water quality impact<br>during construction       All works site /<br>during<br>construction       Construction       V         19.5       Turbid water from construction sites must be<br>freated to minimise the solids content before being<br>discharged. Advice on the handling and disposal<br>of site discharge is given in the ProPECC Note PN<br>1/94 - Construction Site Drainage.       To minimize adverse<br>water quality impact<br>during construction       All works site /<br>during<br>construction       Construction<br>Contractor       V         4.9.6       In general, surface run-off from construction sites<br>should be discharged into waterbodies via<br>adequately designed. sand/silt removal facilities<br>such as sand traps, silt traps and sediment basins.<br>Channels or earth bunds or sand bag barriers<br>should be provided on site to properly direct<br>stormwater to such silt removal facilities<br>Perimeter channels at site boundaries should be<br>provided to intercept storm run-off from outside<br>the site so that it will not wash across the site (or<br>into the proposed channel works area). Catchpits<br>and perimeter channels would be constructed in       All works site /<br>during<br>construction       Construction<br>Contractor       I | Measures and Main<br>Concerns to addressed       Timing       Agent       D       C       O         4.9.4       Site Surface Runoff       Proper construction site drainage management<br>measures shall be implemented to control site<br>runoff and drainage, and thereby prevent high<br>sediment loadings from reaching downstream<br>sections of the river and adjacent agricultural land.       To minimize adverse<br>water quality impact<br>during construction       All works site /<br>during construction       Construction       Image: Construction         19.5       Turbid water from construction sites must be<br>treated to minimise the solids content before being<br>discharged. Advice on the handling and disposal<br>of site discharge is given in the ProPECC Note PN<br>1/94 - Construction Site Drainage.       To minimize adverse<br>water quality impact<br>during construction       All works site /<br>during<br>construction       Construction       Image: Construction         4.9.6       In general, surface run-off from construction sites<br>should be discharged into waterbodies via<br>adequately designed. sand/silt removal facilities<br>such as sand traps, silt traps and sediment basins.<br>Channels or earth bunds or sand bag barriers<br>should be provided to intercept storm run-off from custide<br>the site so that it will not wash across the site (or<br>into the proposed channel works area). Catchpits<br>and perimeter channels should be constructed in       All works site /<br>during<br>construction       Construction       Image: Construction |

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

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

| EIA    | EM&A   |  | Objectives of the<br>Recommended   | Location /  | Implementation             | Im | plementa<br>Stages* |   | Relevant                             |
|--------|--------|--|--|---|----------------------------|----|---------------------|---|--------------------------------------|
| Ref    | Ref    | Recommended Mitigation Measures  | Measures and Main<br>Concerns to addressed   | Timing  | Agent                      | D  | C                   | 0 | Legislation &<br>Guidelines          |
|        |        | improvement works or one vehicular crossing<br>reconstruction should be carried out at any one<br>time.  | construction   |   |                            |    |                     |   |                                      |
| 5.6.14 | 4.9.14 | After dewatering of the streams, the sediments<br>should be allowed to dry before excavation (yet<br>still maintain a moist state to avoid dust nuisance).<br>This will facilitate excavation of the sediments and<br>also minimise the risk of drained water flowing<br>back into watercourses as the sediment is handled.<br>Where time or weather constraints require<br>handling of wet sediment, care should be taken in<br>the removal of sediment and the storage area<br>should be bunded to prevent silty runoff entering<br>watercourses. Given its small quantity, all<br>excavated sediment should be reused on-site as<br>backfilling material. | To minimize adverse<br>water quality impact<br>during construction (in<br>particular when<br>excavating and handling<br>sediments) | All works site<br>where sediment<br>removal is<br>required / during<br>construction | Construction<br>Contractor |    | 7                   |   | Water Pollution<br>Control Ordinance |
| 5.6.15 | 4.9.15 | Excavated sediment will likely be temporarily<br>stored on-site for reuse as backfilling material.<br>This should be stored in a bunded area and<br>covered during wet season or when rainstorm is<br>forecasted to avoid inadvertent release of silts and<br>suspended solids to nearby water bodies.   | To minimize adverse<br>water quality impact<br>during construction (in<br>particular when<br>excavating and handling<br>sediments) | All works site<br>where sediment<br>removal is<br>required / during<br>construction | Construction<br>Contractor |    | 1                   |   | Water Pollution<br>Control Ordinance |
| 5.6.16 | 4.9.16 | Regular monitoring of suspended solids and<br>turbidity should be conducted during excavation<br>works. Any exceedance of water quality in the   | To minimize adverse<br>water quality impact<br>during construction   | All works site /<br>during<br>construction  | Construction<br>Contractor |    | 1                   |   | Water Pollution<br>Control Ordinance |

| EIA<br>Ref | EM&A<br>Ref | <b>Recommended Mitigation Measures</b>  | Objectives of the<br>Recommended  | Location /  | Implementation             | Imj | olements<br>Stages* |   | Relevant  |
|------------|-------------|---|---|---|----------------------------|-----|---------------------|---|---|
|            |             | N   | Measures and Main<br>Concerns to addressed  | Timing  | Agent                      | D   | C                   | 0 | - Legislation &<br>Guidelines                   |
|            |             | nearby water bodies caused by inadvertent release<br>of site runoff should be rectified in accordance<br>with EM&A programme for this Project.  |   |   |                            | •   |                     |   |   |
|            |             | Concreting Work   |   | ·   |                            |     |                     |   |   |
| 5.6.17     | 4.9.17      | Runoff should be carefully channelled to prevent<br>concrete-contaminated water from entering<br>watercourses. Adjustment of pH can be achieved<br>by adding a suitable neutralising reagent to<br>wastewater prior to discharge. Re-use of the<br>supernatant from the sediment pits for washing out<br>of concrete lorries should be practised. | To minimize adverse<br>water quality impact<br>during construction (in<br>particular concreting<br>works) | All works site /<br>during<br>construction                  | Construction<br>Contractor |     | 4                   |   | Water Pollution<br>Control Ordinance            |
| 5.6.18     | 4.9.18      | Any exceedance of acceptable range of pH levels<br>in the nearby water bodies caused by inadvertent<br>release of site runoff containing concrete should<br>be monitored and rectified under the EM&A<br>programme for this Project.  | To minimize adverse<br>water quality impact<br>during construction (in<br>particular concreting<br>works) | All works site /<br>during<br>construction                  | Construction<br>Contractor |     | 1                   |   | Water Pollution<br>Control Ordinance            |
| 5.6.19     | 4.9.19      | To protect the sensitive stream of Lin Ma Hang,<br>no concrete should be used during bank<br>improvement works at LMH01.  | To minimize adverse<br>water quality impact on<br>LMH01 during<br>construction                            | LMH01 bank<br>improvement<br>works / during<br>construction | Construction<br>Contractor |     | 1                   |   | Environmental<br>Impact Assessment<br>Ordinance |
|            |             | Site Workshop or Depot  |   |   |                            |     | . :                 |   | •   |
| 5.6.20     | 4.9.20      | Any contractor generating waste oil or other  | To minimize adverse   | All works site /  | Construction               |     | 1                   |   | Water Pollution                                 |

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

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

## Table A4 Implementation Schedule of Waste Management Measures

| EIA<br>Ref          | EM&A<br>Ref   | <b>Recommended Mitigation Measures</b>   | Objectives of the<br>Recommended<br>Measures and Main                | Location /<br>Timing                       | Implementation<br>Agent    | Implementation<br>Stages* |          |   | Relevant<br>Legislation &                             |
|---------------------|---------------|--|--|--|----------------------------|---------------------------|----------|---|---|
|                     |               |  | Concerns to addressed  | Timing                                     | Agent                      | D                         | C        | 0 | Guidelines  |
| Waste               | - Construc    | tion Phase   |  |  |                            |                           | J        | I |   |
|                     |               | General  |  |  |                            |                           | <u> </u> |   | l   |
| 6.5.2<br>-<br>5.5.3 | 5.1.2 - 5.1.3 | Upon appointment, the main contractor of each<br>construction contract should prepare and<br>implement an Environmental Management Plan<br>(EMP) in accordance with ETWB TCW No.<br>19/2005 – Environmental Management on<br>Construction Sites which should describe the<br>arrangements for avoidance, reuse, recovery,<br>recycling, storage, collection, treatment and<br>disposal of different categories of waste to be<br>generated from the construction activities. Such a<br>management plan should incorporate site specific<br>factors, such as the designation of areas for<br>segregation and temporary storage of reusable and<br>recyclable materials. The EMP should be submitted<br>to the Engineer for approval. The contractor shall<br>implement the waste management practices in the<br>EMP throughout the construction stage of the<br>Project. The EMP should be reviewed regularly and<br>updated (preferably monthly) by the contractor.<br>The EMP should take into account the<br>recommended mitigation measures in the EIA<br>Report. The contractor also should refer to the<br>Construction and Demolition Material Management<br>Plan (C&DMMP) in Appendix D1 (of the EIA) to<br>facilitate him in the preparation of the EMP of the | Waste reduction, reuse,<br>recycling and proper<br>disposal of waste | All works site /<br>during<br>construction | Construction<br>Contractor |                           | 4        |   | Waste Disposal<br>Ordinance<br>ETWB TCW No<br>19/2005 |
|                     |               | Contract.  |  |  |                            |                           |          |   |   |

| EIA   | EM&A  | Recommended Mitigation Measures   | Objectives of the<br>Recommended                                     | Location /                                 | Implementation             | Im | olementa<br>Stages* | tion | Relevant<br>Legislation &  |
|-------|-------|---|--|--|----------------------------|----|---------------------|------|--|
| Ref   | Ref   |   | Measures and Main<br>Concerns to addressed                           | Timing                                     | Agent                      | Ø  | C                   | 0    | Guidelines   |
|       | 5.1.4 | Training of construction staff should be undertaken<br>by the contractor about the concept of site<br>cleanliness and appropriate waste management<br>procedures. The contractor should develop and<br>provide toolbox talk for on-site sorting of C&D<br>materials to enhance worker's awareness in<br>handling, sorting, reuse and recycling of C&D<br>materials. Requirements for staff training should be<br>included in the EMP.   | Waste reduction, reuse,<br>recycling and proper<br>disposal of waste | All work sites /<br>during<br>construction | Construction<br>Contractor |    | V                   |      | Waste Disposal<br>Ordinance<br>ETWB TCW No.<br>19/2005           |
| 6.5.5 | 5.1.5 | Good planning and site management practice<br>should be employed to eliminate over ordering or<br>mixing of construction materials to reduce wastage.<br>Proper storage and site practices will minimise the<br>damage or contamination of construction materials.  | Waste reduction, reuse,<br>recycling and proper<br>disposal of waste | All work sites /<br>during<br>construction | Construction<br>Contractor |    | ~                   |      | Waste Disposal<br>Ordinance<br>ETWB TCW No.<br>19/2005           |
| 6.5.6 | 5.1.6 | Where waste generation is unavoidable, the<br>potential for recycling or reuse should be rigorously<br>explored. If wastes cannot be recycled, disposal<br>routes described in the EMP should be followed. A<br>recoding system for the amount of waste generated,<br>recycled and disposed (including the disposal sites)<br>should be implemented. In order to monitor the<br>disposal of C&D material and solid wastes at<br>public filling facilities and landfills and to control<br>fly-tipping, a trip-ticket system should be included. | Waste reduction, reuse,<br>recycling and proper<br>disposal of waste | All work sites /<br>during<br>construction | Construction<br>Contractor |    | ٨                   |      | Waste Disposal<br>Ordinance<br>ETWB TCW No<br>19/2005<br>31/2004 |
| 6.5.7 | 5.1.7 | Regular cleaning and maintenance of the waste storage area should be provided.  | Waste reduction, reuse,<br>recycling and proper<br>disposal of waste | All work sites /<br>during<br>construction | Construction<br>Contractor |    | 4                   |      | Waste Disposal<br>Ordinance                                      |

| EIA<br>Ref | EM&A<br>Ref | <b>Recommended Mitigation Measures</b>  | Objectives of the<br>Recommended                                     | Location /                                   | Implementation             | Im  | plementa<br>Stages* |           | Relevant                         |
|------------|-------------|---|--|--|----------------------------|-----|---------------------|-----------|----------------------------------|
|            |             |   | Measures and Main<br>Concerns to addressed                           | Timing                                       | Agent                      | D   | C                   | 0         | – Legislation &<br>Guidelines    |
|            |             |   |  |  |                            |     |                     |           | ETWB TCW No.<br>19/2005          |
|            |             | On-site Sorting, Reuse and Recycling  |  | -  |                            |     | -                   |           |                                  |
| 6.5.8      | 5.1.8       | All waste materials should be segregated into categories covering:  | Waste reduction, reuse,<br>recycling and proper<br>disposal of waste | All work sites /<br>during<br>construction   | Construction<br>Contractor |     | V                   |           | Waste Disposal<br>Ordinance      |
|            |             | • excavated materials suitable for reuse on-site;   |  |  |                            |     |                     |           | ETWB TCW No.                     |
|            |             | <ul> <li>excavated materials suitable for public filling<br/>facilities;</li> </ul>   |  |  |                            |     |                     |           | 19/2005                          |
|            |             | <ul> <li>remaining C&amp;D waste for landfill;</li> </ul>   |  |  |                            |     |                     |           |                                  |
| :          |             | • chemical waste; and   |  | [  |                            |     |                     |           |                                  |
|            |             | • general refuse for landfill.  |  |  |                            |     |                     |           |                                  |
| 6.5.9      | 5.1.9       | Proper segregation and disposal of construction<br>waste should be implemented. Separate containers<br>should be provided for inert and non-inert wastes. | Waste reduction, reuse, recycling and proper                         | · All work sites /<br>during<br>construction | Construction<br>Contractor | • . | 1                   | . Arenner | Waste Disposal<br>Ordinance      |
|            |             | should be provided for men and non-ment wastes.   | disposal of waste  | construction                                 |                            |     |                     |           | ETWB TCW No.<br>19/2005          |
| 6.5.10     | 5.1.10      | Sorting is important to recover materials for reuse   | 117  |  |                            |     |                     |           |                                  |
|            | 5.1.10      | and recycling. Specific area should be allocated for<br>on-site sorting of C&D materials and to provide a   | Waste reduction, reuse,<br>recycling and proper                      | All work sites /<br>during<br>construction   | Construction<br>Contractor |     | . √                 |           | Waste Disposal<br>Ordinance      |
|            |             | temporary storage area for those sorted materials   | disposal of waste  | construction                                 |                            |     |                     |           | ETWB TCW No.<br>19/2005, 31/2004 |

| EIA    | EM&A   | Recommended Mitigation Measures  | Objectives of the<br>Recommended                                     | Location /                                 | Implementation             | Imp | olementa<br>Stages* | tion | Relevant   |
|--------|--------|--|--|--|----------------------------|-----|---------------------|------|--|
| Ref    | Ref    | Accommended mangaton measures  | Measures and Main<br>Concerns to addressed                           | Timing                                     | Agent                      | D   | C                   | 0    | Legislation &<br>Guidelines                            |
| Ĩ      |        | such as metals, concrete, timber, plastics, glass,<br>excavated spoils, bricks / tiles and waste papers. If<br>area is limited, all C&D materials should at least be<br>sorted on-site into inert and non-inert component.<br>Non-inert materials (C&D waste) such as bamboo,<br>timber, vegetation, packaging waste and other<br>organic materials should be reused and recycled<br>wherever possible and disposed of to designated<br>landfill only as a last resort. Inert materials (public<br>fill) such as concrete, stone, clay, brick, soil,<br>asphalt and the like should be separated and reuse<br>in this or other projects (subject to approval by the<br>relevant parties in accordance with the ETWB<br>TCW No. 31/2004) before disposed of at a public<br>filling facility operated by Civil Engineering and<br>Development Department (CEDD). Steel and other<br>metals should be recovered from demolition waste<br>stream and recycled. |  |  |                            |     |                     |      |  |
| 6.5.11 | 5.1.11 | The reuse of inert materials such as soil, rock and<br>broken concrete should be maximised. Waste<br>should be separated into fine, soft and hard<br>materials. With the use of a crusher coarse material<br>can be crushed to make it suitable for use as fill<br>material where fill is required in the works. This<br>minimises the use of imported material and<br>maximises use of the C&D material produced.   | Waste reduction, reuse,<br>recycling and proper<br>disposal of waste | All work sites /<br>during<br>construction | Construction<br>Contractor |     | 1                   |      | Waste Disposal<br>Ordinance<br>ETWB TCW No.<br>19/2005 |
| 6.5.12 | 5.1.12 | Prior to export of material from the site, the   | Waste reduction, reuse,  | All work sites /                           | Construction               |     | 1                   |      | Waste Disposal   |

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

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

| EIA<br>Ref | EM&A<br>Ref | <b>Recommended Mitigation Measures</b>  | Objectives of the<br>Recommended                                     | Location /                                 | Implementation             | Imj | plementa<br>Stages* |   | Relevant   |
|------------|-------------|---|--|--|----------------------------|-----|---------------------|---|--|
|            |             |   | Measures and Main<br>Concerns to addressed                           | Timing                                     | Agent                      | D   | C                   | 0 | Legislation &<br>Guidelines                            |
|            |             |   |  |  |                            |     |                     |   |  |
| 6.5.17     | 5.1.17      | Good quality reusable topsoil should be stockpiled<br>for later landscaping works. Stockpiles should be<br>less than 2 m in height, formed to a safe angle of<br>repose and hydroseeded or covered with tarpaulin<br>to prevent erosion during the rainy season and to<br>minimise dust generation.   | Waste reduction, reuse,<br>recycling and proper<br>disposal of waste | All work sites /<br>during<br>construction | Construction<br>Contractor |     | 4                   |   | Waste Disposal<br>Ordinance<br>ETWB TCW No<br>19/2005  |
| 5.5.18     | 5.1.18      | <ul> <li>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:</li> <li>surface of stockpiled soil should be regularly wetted with water especially during dry season;</li> </ul>   | Waste reduction, reuse,<br>recycling and proper<br>disposal of waste | All work sites /<br>during<br>construction | Construction<br>Contractor |     | 1                   |   | Waste Disposal<br>Ordinance<br>ETWB TCW No.<br>19/2005 |
|            |             | <ul> <li>disturbance of stockpiled soil should be minimized;</li> <li>stockpiled soil should be properly covered with tarpaulin especially when heavy rain storms are predicted;</li> <li>stockpiling areas should be enclosed where space is available;</li> <li>stockpiling location should be away from the water bodies; and</li> <li>an independent surface water drainage system</li> </ul> |  |  |                            |     |                     |   |  |

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

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| EIA<br>Ref | EM&A<br>Ref | Recommended Mitigation Measures  | Objectives of the<br>Recommended<br>Measures and Main | Location /                                 | Implementation             | In | plement<br>Stages |   | Relevant  |
|------------|-------------|--|---|--|----------------------------|----|-------------------|---|---|
|            |             | these materials for use  |   | 1 Timing                                   | Agent                      | D  | C                 | 0 | Legislation &   |
|            |             | these materials for use at other construction<br>projects is subject to the approval of the EPD<br>Engineer and/or relevant authorities, such a<br>LandsD, PlanD, etc. Furthermore, unauthorized<br>disposal of C&D materials in particular on private<br>agricultural land is prohibited and may be subject<br>to relevant enforcement and regulating actions. The  | n disposal of waste<br>,<br>s<br>i<br>t               | construction                               |                            |    |                   |   | Guidelines<br>ETWB TCW No.<br>19/2005, 31/2004  |
|            |             | contractor shall refer and strictly follow the trip-<br>ticket system for the disposal of C&D material as<br>stipulated in the ETWB TCW No. 31/2004.   |   |  |                            |    |                   |   |   |
| 5.22       |             | Where the construction processes produce chemical<br>waste, the contractor must register with EPD as a<br>chemical waste producer. Wastes classified as<br>chemical waste are listed in the Waste Disposal<br>(Chemical Waste) (General) Regulation. These<br>wastes are subject to stringent disposal routes. EPD<br>requires information on the particulars of the waste<br>generation processes including the types of waste<br>produced, their location, quantities and generation<br>rates. A nominated contact person must be<br>registered with EPD. An updated list of licensed<br>chemical waste collector can be obtained from<br>EPD. | recycling and proper<br>disposal of chemical          | All work sites /<br>during<br>construction | Construction<br>Contractor |    | 1                 |   | Waste Disposal<br>(Chemical Waste)<br>(General)<br>Regulation, Code<br>of Practice on the<br>Packaging<br>Labelling and<br>Storage of<br>Chemical Waste |
| .23        | 5.1.23      | Storage, handling, transport and disposal of chemical waste should be arranged in accordance with the  |   | All work sites /<br>during                 | Construction<br>Contractor |    | 1                 |   | Waste Disposal<br>(Chemical Waste)  |

|            |             |   | Objectives of the<br>Recommended                      | Location /                                 | Implementation             | Imp | olementat<br>Stages* | ion | Relevant  |
|------------|-------------|---|---|--|----------------------------|-----|----------------------|-----|---|
| EIA<br>Ref | EM&A<br>Ref | Recommended Mitigation Measures   | Measures and Main<br>Concerns to addressed            | Timing                                     | Agent                      | D   | C                    | 0   | Legislation &<br>Guidelines   |
| <u></u>    |             | Code of Practice on the Packaging, Labelling and<br>Storage of Chemical Wastes published by EPD, and<br>should be collected by a licensed chemical waste<br>collector.  | disposal of chemical waste                            | construction                               |                            |     |                      |     | Regulation, Code<br>of Practice on the<br>Packaging<br>Labelling and<br>Storage of<br>Chemical Waste  |
| 6.5.24     | 5.1.24      | Suitable containers should be used for specific<br>types of chemical wastes, containers should be<br>properly labelled (English and Chinese in<br>accordance with instructions prescribed in<br>Schedule 2 of the Regulations), resistance to<br>corrosion, stored safely and closely secure. Stored<br>volume should not be kept more than 450 liters<br>unless the specification has been approved by the<br>EPD. Storage area should be enclosed by three<br>sides by a wall, partition of fence that is at least 2 m<br>height or height of tallest container with adequate<br>ventilation and space. |   | All work sites /<br>during<br>construction | Construction<br>Contractor |     | 1                    |     | Waste Disposal<br>(Chemical Waste)<br>(General)<br>Regulation, Code<br>of Practice on the<br>Packaging<br>Labelling and<br>Storage of<br>Chemical Waste |
| 6.5.25     | 5.1.25      | Hard standing, impermeable surfaces draining via<br>oil interceptors should be provided in works area<br>compounds. Interceptors should be regularly<br>emptied to prevent release of oils and grease into<br>the surface water drainage system after accidental<br>spillages. The interceptor should have a bypass to<br>prevent flushing during periods of heavy rain. Oil<br>and fuel bunkers should be bunded and/or enclosed<br>on three sides to prevent discharge due to<br>accidental spillages or breaches of tanks. Bunding   | recycling and proper<br>disposal of chemical<br>waste | During                                     | Construction<br>Contractor |     | 4                    |     | Waste Disposal<br>(Chemical Waste)<br>(General)<br>Regulation, Code<br>of Practice on the<br>Packaging<br>Labelling and<br>Storage of<br>Chemical Waste |

| EIA<br>Ref | EM&A<br>Ref   | <b>Recommended Mitigation Measures</b>  | Objectives of the<br>Recommended<br>Measures and Main                            | Location /<br>Timing                       | Implementation             |   | plement:<br>Stages* |     | Relevant  |
|------------|---------------|---|--|--|----------------------------|---|---------------------|-----|---|
|            |               | should be of sufficient capacity to accommodate<br>110% of the volume of the largest container or 20%<br>of the total volume of waste, whichever is largest.  |  | g  | Agent                      | D | C                   | 0   | Legislation &<br>Guidelines   |
|            |               | Waste collected from any grease traps should be<br>collected and disposed of by a licensed contractor.  |  |  |                            |   |                     |     |   |
| 6.5.26     | 5.1.26        | Lubricants, waste oils and other chemical wastes<br>are likely to be generated during the maintenance of<br>vehicles and mechanical equipment. Used<br>lubricants should be collected and stored in<br>individual containers which are fully labelled in<br>English and Chinese and stored in a designated<br>secure place. If possible, such waste should be sent<br>to oil recycling companies, and the empty oil drums<br>collected by appropriate companies for reuse or<br>refill. | Waste reduction, reuse,<br>recycling and proper<br>disposal of chemical<br>waste | All work sites /<br>during<br>construction | Construction<br>Contractor |   | 1                   |     | Waste Disposal<br>(Chemical Waste)<br>(General)<br>Regulation, Code<br>of Practice on the<br>Packaging<br>Labelling and<br>Storage of<br>Chemical Waste |
| 5.27       | 1             | be collected by licensed collectors. The licensed<br>collector should regularly take chemical waste to a<br>licensed chemical waste treatment facility (such as<br>the Chemical Waste Treatment Centre in Tsing Yi).<br>A trip ticket system operates to control the<br>novement of chemical wastes.  | recycling and proper   | All work sites /<br>during<br>construction | Construction<br>Contractor | · | 1                   | • . | Waste Disposal<br>(Chemical Waste)<br>(General)<br>Regulation, Code<br>of Practice on the<br>Packaging<br>Labelling and<br>Storage of<br>Chemical Waste |
| 5.28       | 5.1.28 }<br>s | No lubricants, oils, solvents or paint products V<br>hould be allowed to discharge into water courses, re   |  | All work sites /<br>Juring                 | Construction<br>Contractor |   | 1                   |     | Waste Disposal  |

|            |             |  | Objectives of the<br>Recommended                                     | Location /                                 | Implementation             | Im | olementa<br>Stages* | tion | Relevant<br>Legislation &   |
|------------|-------------|--|--|--|----------------------------|----|---------------------|------|---|
| EIA<br>Ref | EM&A<br>Ref | Recommended Mitigation Measures  | Measures and Main<br>Concerns to addressed                           | Timing                                     | Agent                      | D  | C                   | 0    | Guidelines  |
| ï          |             | either by direct discharge, or as contaminants<br>carried in surface water runoff from the<br>construction site.   | disposal of chemical<br>waste  | construction                               |                            |    |                     |      | (General)<br>Regulation, Code<br>of Practice on the<br>Packaging<br>Labelling and<br>Storage of<br>Chemical Waste |
| 6.5.29     | 5.1.29      | Concrete Waste<br>Dry concrete waste (considered as public fill)<br>should be sorted out from the other wastes and<br>recycled for reuse or sorted out for disposal at<br>designated public filling facilities.  | Waste reduction, reuse,<br>recycling and proper<br>disposal of waste | All work sites /<br>during<br>construction | Construction<br>Contractor |    | V                   |      | Waste Disposal<br>Ordinance<br>ETWB TCW No.<br>19/2005, 33/2002   |
| 6.5.30     | 5.1.30      | Wooden Materials<br>All wooden materials used on-site should be kept<br>separate from other wastes to avoid damage and to<br>facilitate reuse. Timber which cannot be reused<br>should be sorted out from other waste and stored<br>separately from all inert waste before being<br>disposed of to landfill. | recycling and proper<br>disposal of waste                            | 1  | Construction<br>Contractor |    |                     |      | Waste Disposal<br>Ordinance<br>ETWB TCW No.<br>19/2005, 33/2002   |
| 6.5.31     | 5.1.31      | Reusable steel or concrete panel shutters, fencing<br>and hoarding and signboard should be used as a<br>preferred alternative to items made of wood, to<br>minimise wastage of wood. Attention should be<br>paid to WBTC No. 19/2001 - Metallic Site<br>Hoardings and Signboards to reduce the amount of     | disposal of waste  |  | Construction<br>Contractor |    | 4                   |      | Waste Disposal<br>Ordinance<br>ETWB TCW No.<br>19/2005, 33/2002   |

| EIA<br>Ref | EM&A<br>Ref | Recommended Mitigation Measures   | Objectives of the<br>Recommended<br>Measures and Main | Location /<br>Timing                       | Implementation             | Im | plement.<br>Stages* | ation | Relevant                         |
|------------|-------------|---|---|--|----------------------------|----|---------------------|-------|----------------------------------|
|            |             | timber used on construction sites. Metallic<br>alternatives to timber are readily available and   | Concerns to addressed                                 | l x ming                                   | Agent                      | D  | C                   | 0     | Legislation &<br>Guidelines      |
|            |             | should be used rather than new timber. Recast<br>concrete units should be adopted wherever feasible<br>to minimize the use of timber formwork.  |   |  |                            |    |                     |       |                                  |
| 5.32       | 5.1.32      | Only waste material need be taken to a landfill. It   | Waste reduction, reuse,                               | All work sites /                           |                            |    |                     |       |                                  |
|            |             | should be separated from recyclable wood and steel<br>materials. As for all waste types these materials<br>should be reused on-site or other approved sites<br>before disposal is considered as an option.  | recycling and proper<br>disposal of waste             | during<br>construction                     | Construction<br>Contractor |    | V                   |       | Waste Disposal<br>Ordinance      |
|            |             | Disposal to landfill should only be considered as a<br>final option. Contractors are responsible for<br>storage of re-useable materials on-site.  |   |  |                            |    |                     |       | ETWB TCW No.<br>19/2005, 33/2002 |
|            |             | Municipal Waste   |   |  |                            |    |                     |       |                                  |
| .33        |             | from other construction and chemical wastes and<br>disposed of at designated landfill A temporary   | recycling and proper                                  | All work sites /<br>during<br>construction | Construction<br>Contractor |    | ~                   |       | Waste Disposal<br>Ordinance      |
|            |             | contractor to facilitate the collection of refuse by icensed contractors. The removal of wasta from the   | - ·   | • • •                                      |                            |    |                     |       | ETWB TCW No.<br>19/2005          |
|            | p<br>p      | site should be arranged on a daily or at least on<br>every second day by the contractor to minimise any<br>potential odour impacts, minimise the presence of<br>pests, vermin and other scavengers and prevent<br>nsightly accumulation of waste. |   |  |                            |    |                     |       | · .<br>1                         |

# Table A5 Implementation Schedule of Ecological Impact Measures

|            |             |  | Objectives of the   | Location /   | Implementation             | Imp | olementa<br>Stages* | tion | Relevant<br>Legislation &                       |
|------------|-------------|--|---|--|----------------------------|-----|---------------------|------|---|
| EĮA<br>Ref | EM&A<br>Ref | Recommended Mitigation Measures  | Recommended<br>Measures and Main<br>Concerns to addressed | Timing   | Agent                      | D   | C                   | 0    | Guidelines                                      |
| Ecology    | - Construct | ion Phase  | • · · · · · · · · · · · · · · · · · · ·                   | · · · · · · · · · · · · · · · · · · ·                |                            |     | 1                   | r    | l   |
| 7.9.3      | 6.5.2       | <i>LMH01</i><br>Given the ecological importance of Lin Ma Hang<br>stream, it is proposed that construction works at<br>LMH01 should be restricted to the dry season<br>period from 1 <sup>st</sup> November $-31^{st}$ March. The small<br>scale of works should allow all construction to be<br>completed within dry season to ensure that the<br>risk of erosion and sedimentation due to heavy<br>rain on the works areas, as well as disturbance<br>impacts to surrounding areas, will be minimised. | impacts during<br>construction at LMH01                   | All works sites at<br>LMH01 / during<br>construction | Construction<br>Contractor |     | ~                   |      | Environmental<br>Impact Assessment<br>Ordinance |
| 7.9.4      | 6.5.3       | In addition, the breaking of existing shotcrete<br>banks at LMH01 should be restricted to hand-held<br>equipment. Concrete should not be used for<br>construction of the gabion banks.   | impacts during  | All works sites at<br>LMH01 / during<br>construction | Construction<br>Contractor |     | 7                   |      | Environmental<br>Impact Assessment<br>Ordinance |
| 7.9.5      | 6.5.4       | Potential disturbance impacts to surrounding<br>habitats and pollution risks (water quality<br>impacts) to the stream should be minimised by<br>adoption of appropriate site managemen<br>procedures, as detailed in ETWB TCW No<br>5/2005; including among others the location o<br>access to the site and storage of materials, and<br>treatment of construction site waste to preven  | construction at LMH01<br>t<br>f<br>f                      | All works sites at<br>LMH01 / during<br>construction | Construction<br>Contractor |     | 1                   |      | Environmental<br>Impact Assessment<br>Ordinance |

| ELA<br>Ref | EM&A<br>Ref   | Recommended Mitigation Measures  | Objectives of the<br>Recommended<br>Measures and Main             | Location /<br>Timing                                 | Implementation             | In | nplement<br>Stages | tation<br>* | Relevant  |
|------------|---------------|--|---|--|----------------------------|----|--------------------|-------------|---|
|            |               | pollution of the stream. These site management<br>measures are listed in the subsequent section.   |   |  | Agent                      | D  | C                  | 0           | Legislation &<br>Guidelines                     |
| 7.9.9<br>i |               | MUP05 (natural stream section)<br><u>Streambed</u><br>One of the main benefits of the proposed stream<br>widening measures is that the existing natural<br>stream bed is left undisturbed. Accordingly, works<br>should be carried out in such a way that as much<br>as possible of the natural stream bed should be left<br>undisturbed and that where disturbance is<br>essential this should be minimised in terms of<br>area, magnitude and duration to minimise<br>potential impacts to stream fauna and to ensure<br>refuges for these species during the period of the<br>works. Avoidance of the stream bed can be<br>achieved by conducting the earthworks to widen<br>the stream from the landward side, by not<br>lowering the widened channel to the same level<br>as, or below, the existing channel, and by leaving<br>the existing stream untouched except during the<br>inal stage, when the newly formed widened<br>tream bed is joined to the existing stream. | Minimize ecological<br>impacts during<br>construction at<br>MUP05 | All works sites at<br>MUP05 / during<br>construction | Construction<br>Contractor |    | 1                  |             | Environmental<br>Impact Assessmer<br>Ordinance  |
| 2.10       | fi<br>p<br>st | nes of varying sizes) to approximate as closely as   | mpacts during   | All works sites at<br>MUP05 / during<br>construction | Construction<br>Contractor |    | √                  |             | Environmental<br>Impact Assessment<br>Ordinance |

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|            |             |  | Objectives of the<br>Recommended                                  | Location /   | Implementation             | Imj | lementa<br>Stages* |   | Relevant<br>Legislation &                       |
|------------|-------------|--|---|--|----------------------------|-----|--------------------|---|---|
| EIA<br>Ref | EM&A<br>Ref | Recommended Mitigation Measures  | Measures and Main<br>Concerns to addressed                        | Timing   | Agent                      | D   | С                  | 0 | Guidelines                                      |
|            |             | deposited naturally.   |   |  |                            |     |                    |   |   |
| 9.11       | 6.5.10      | In order to minimise potential impacts to stream<br>fauna during excavation of the widened "two-<br>stage" channel, this work should be limited to the<br>dry season as far as possible, between 1 <sup>st</sup> October<br>and 31 <sup>st</sup> March. As rainfall is low at this time,<br>erosion is less likely and deposition of sediment<br>downstream of the works should be minimised.<br>This also avoids the time when stream fauna are at<br>the most vulnerable stage in their life cycle (eggs<br>and young larvae). Any essential works outside<br>the dry season should be temporarily isolated from<br>the stream to prevent the risk of pollution or<br>sedimentation affecting the ecological integrity of<br>the stream. | Minimize ecological<br>impacts during<br>construction at<br>MUP05 | All works sites at<br>MUP05 / during<br>construction | Construction<br>Contractor |     | 1                  |   | Environmental<br>Impact Assessment<br>Ordinance |
| 7.9.12     | 6.5.11      | As required to minmize potential water quality<br>impacts (Section 5.6), excavation works at the<br>stream section of MUP05 should be restricted to<br>300m length at any one time. No restriction is<br>considered necessary for the first 300m upstream<br>concrete drains section. Excavation works at<br>MUP04A should be restricted to 100m to cater for<br>potential cumulative impact on MUP05.   | construction at<br>MUP05  | All works sites at<br>MUP05 / during<br>construction | Construction<br>Contractor |     | N .                |   | Environmental<br>Impact Assessmen<br>Ordinance  |
| 1          |             | Appropriate site management procedures during  | Minimize ecological   | All works sites at                                   |                            |     | 1                  |   | Environmental<br>Impact Assessme                |
| 7.9.13     | 6.5.12      | the construction phase should be adopted, as   |   | MUP05 / during                                       | Contractor                 | 1   |                    |   | Impacticocounter                                |
|            |             |  |   |  |                            |     |                    |   |   |

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| EIA<br>Ref               | EM&A<br>Ref | <b>Recommended Mitigation Measures</b>   | Objectives of the<br>Recommended<br>Measures and Main                                  | Location /<br>Timing           | Implementation             | In | nplemen<br>Stages | tation<br>* | Relevant   |
|--------------------------|-------------|--|--|--------------------------------|----------------------------|----|-------------------|-------------|--|
|                          | 1           | recommended in ETWB TCW No. 5/2005, to   | Concerns to addressed  | Thung                          | Agent                      | D  | C                 | 0           | <ul> <li>Legislation &amp;<br/>Guidelines</li> </ul> |
| }                        |             | minimise potential disturbance impacts and<br>pollution risks (water quality impacts) to the<br>stream. This should include the location of access<br>to the site and storage of materials, and treatment<br>of construction site waste to prevent pollution of<br>the stream. These site management measures are<br>listed in the subsequent section. | construction at<br>MUP05   | construction                   |                            |    |                   |             | Ordinance  |
| 7.9.20,<br>Fable<br>7.29 |             | transplanting existing trees to suitable locations   | Mitigate the loss of<br>bankside trees and<br>associated riparian<br>habitats at MUP05 | MUP05 / during<br>construction | Construction<br>Contractor |    |                   |             | Environmental<br>Impact Assessmen<br>Ordinance       |
|                          | -           | Ficus hispida<br>Ficus microcarpa  |  |                                |                            | 2  |                   |             |  |

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|            |             |  | Objectives of the  | Location /  | Implementation  |   | lementat<br>Stages* | ion | Relevant<br>Legislation &                      |
|------------|-------------|--|--|---|---|---|---------------------|-----|--|
| EIA<br>Ref | EM&A<br>Ref | Recommended Mitigation Measures  | Recommended<br>Measures and Main<br>Concerns to addressed  | Timing  | Agent   | D | С                   | 0   | Guidelines                                     |
|            |             | Bambusa eutuldoides  |  |   |   |   |                     |     |  |
| 7.9.21     | 6.5.20      | The proposed landscape compensatory planting of about 740 trees (approximately $1,100 \text{ m}^2$ ) along the MUP channels will serve dual purpose of landscape impact mitigation as well as mitigating the loss of riparian trees.             | Dual purpose of<br>landscape impact<br>mitigation and mitigate<br>the loss of riparian<br>trees at the MUP<br>channels | MUP channels /<br>during<br>construction                          | Construction<br>Contractor  |   | 1                   |     | Environmental<br>Impact Assessmen<br>Ordinance |
| 7.9.22     | 6.5.21      | The Landscape Plan to be submitted prior to  | To ensure the  | All works site /<br>during detailed                               | DSD (or its appointed   | 1 | 1                   |     | Environmental<br>Impact Assessme               |
| fable      | Table 6.6   | commencement of planting or landscaping works  | recommended plant<br>species are taken into  | design and  | Detailed Design   |   |                     | 1   | Ordinance                                      |
| 7.29       | (7.5.11)    | should take into account the recommended plant species.  | account in the<br>Landscape Plan   | construction  | Engineer)   | 1 |                     |     |  |
| (8.11.27   |             | Sporton .  | Landscape Flan   |   |   |   |                     |     |  |
| )          |             |  |  |   | Construction<br>Contractor to<br>implement the<br>approved<br>planting plan |   |                     |     |  |
|            |             |  |  |   |   |   |                     |     |  |
| 7.9.23     | 6.5.22      | The recommended site management measures are<br>generally good site practices and proper wate<br>quality control / waste management measures to<br>be implemented by the contractor for all work<br>near stream courses. These measures include: | to minimize ecological   | All works sites at<br>LMH01 and<br>MUP05 / during<br>construction | Construction<br>Contractor  |   | 4                   |     | Environmental<br>Impact Assessme<br>Ordinance  |
|            |             | <ul> <li>Construction activities should be restricted t<br/>works area that should be clearly demarcated</li> </ul>  | >  |   |   |   |                     |     |  |

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

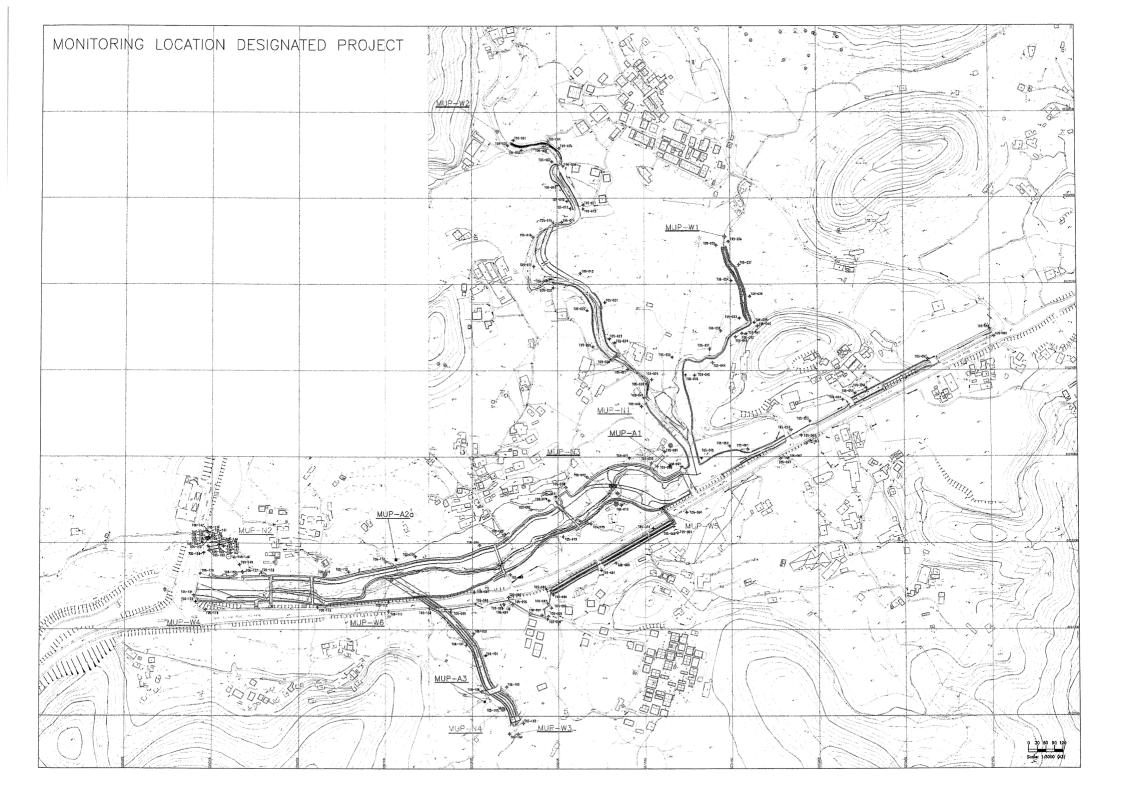
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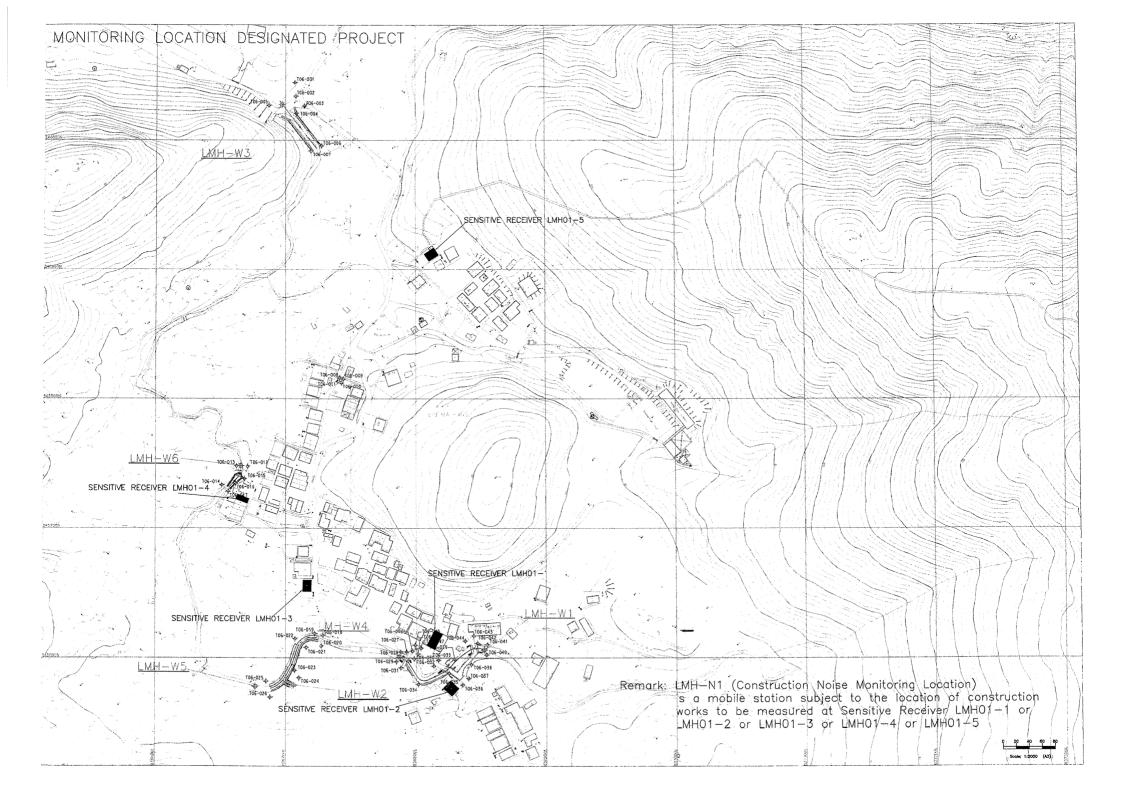
|                     |             |   | Objectives of the<br>Recommended<br>Measures and Main<br>Concerns to addressed | Location /  | Implementation<br>Agent                     | Implementation<br>Stages*                    |   | ion | Relevant<br>Legislation &                      |
|---------------------|-------------|---|--|---|---|--|---|-----|--|
| EIA EM&A<br>Ref Ref | EM&A<br>Ref |   |  | Timing  |   | D  | C | 0   | Guidelines                                     |
|                     |             | the water bodies during rain storms.  |  |   |   |  |   |     |  |
|                     |             | <ul> <li>Construction effluent, site run-off and sewage should be properly collected, treated and disposed.</li> <li>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.</li> </ul> |  |   |   |  |   |     |  |
| 7.9.24              | 6.5.23      | The contractor should provide details of the mitigation measures to be implemented during construction stage as part of their working method statement to the Engineer for approval. This should be reviewed by the Environmental Team Leader.  | construction at<br>LMH01 and MUP05   | All works sites at<br>LMH01 and<br>MUP05 / during<br>construction | Construction<br>Contractor                  |  | 7 |     | Environmental<br>Impact Assessmen<br>Ordinance |
|                     |             |   |  |   |   | <u>    t                                </u> |   |     |  |
| Ecology             | - Operatio  | n Phase   |  | 1   |   | 1  |   |     |  |
| 7.9.6               | 6.5.5       | <i>LMH01</i><br>Very little or no management / maintenance of the<br>completed sections of LMH01 are expected<br>Removal of obstruction should be undertaken only<br>when flooding or safety issues have been<br>identified.  | operation of LMH01   | LMH01 / during<br>operation stage                                 | DSD (or DSD's<br>maintenance<br>contractor) |  |   |     | Environmental<br>Impact Assessme<br>Ordinance  |



## Appendix D

## **Environmental Monitoring Locations**







## Appendix E

## **Certificates of Calibration**

### **Equipment Calibration List**

| Items | Aspect   | Description of Equipment   | Date of<br>Calibration | Date of Next<br>Calibration |
|-------|--|--|------------------------|-----------------------------|
| 1*    |  | TSP Sampler Calibration Spreadsheet for MUP-A1                   | 10 Sep 09<br>10 Dec 09 | 10 Dec 09<br>10 Mar 10      |
| 2*    |  | TSP Sampler Calibration Spreadsheet for MUP-A2                   | 10 Sep 09<br>10 Dec 09 | 10 Dec 09<br>10 Mar 10      |
| 3*    | Air TSP Sampler Calibration Spreadsheet for MUP-A3 |  | 10 Sep 09<br>10 Dec 09 | 10 Dec 09<br>10 Mar 10      |
| 4     |  | TSI DustTrak Model 8520 (Serial No. 21060)                       | 18 Jun 09              | 18 Jun 10                   |
| 5     |  | TSI DustTrak Model 8520 (Serial No. 23080)                       | 18 Jun 09              | 18 Jun 10                   |
| 6     |  | TSI DustTrak Model 8520 (Serial No. 23079)                       | 18 Jun 09              | 18 Jun 10                   |
| 7     |  | Bruel & Kjaer Integrating Sound Level Meter (Serial No. 2285762) | 30 Apr 09              | 30 Apr 10                   |
| 8     | Noise  | Bruel & Kjaer Integrating Sound Level Meter (Serial No. 2285690) | 30 Apr 09              | 30 Apr 10                   |
| 9     |  | Bruel & Kjaer Acoustical Calibrator (Serial No. 2292168)         | 28 Apr 09              | 28 Apr 10                   |
| 10    |  | Bruel & Kjaer Acoustical Calibrator (Serial No. 2326408)         | 28 Apr 09              | 28 Apr 10                   |
| 11    |  | YSI 550A (Serial No. 05F2063AZ)                                  | 17 Oct 09              | 17 Jan 10                   |
| 12    | Water  | Hanna HI98107 (Serial No. S411364)                               | 21 Oct 09              | 21 Jan 10                   |
| 13    |  | Turbidimeter HACH 2100p (Serial No. 08070C031408)                | 27 Oct 09              | 27 Jan 10                   |

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

### TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

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

### TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

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

### TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

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



## Appendix F

### **Details of the Event Action Plan**

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

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

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

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

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

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

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

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

| <b>Event/Action</b> | Plan | for | Construction | Noise |
|---------------------|------|-----|--------------|-------|
|---------------------|------|-----|--------------|-------|

|                       | Action  |  |  |   |  |  |  |  |  |  |
|-----------------------|---|--|--|---|--|--|--|--|--|--|
| EVENT<br>Action Level | ET Leader<br>1. Notify IEC, Contractor and ER<br>2. Carry out investigation and identify source<br>3. Report the results of investigation to IEC,<br>Contractor and ER<br>4. Discuss with the Contractor and formulate remedial<br>measures<br>5. Increase monitoring frequency<br>6. Check compliance to Action/limit Levels after<br>application of mitigation measures   | IEC           IEC           1.         Review the analysed results submitted by the ET Leader           2.         Review the proposed remedial measures by the Contractor and advise the ER & ER accordingly           3.         Review the implementation of remedial measures  | ER<br>1. Confirm receipt of notification of<br>complaint in writing<br>2. Notify Contractor<br>3. Check monitoring data<br>submitted by the ET<br>4. Require Contractor to propose<br>remedial measures for the<br>analysed noise problem<br>5. Ensure remedial measures are<br>properly implemented   | Contractor1.Submit noise mitigation proposals to<br>ER and IEC within three working<br>days2.Liaise with the ER to ensure the<br>effectiveness of the agreed<br>mitigation3.Amend proposal if required4.Implement noise mitigation<br>proposals   |  |  |  |  |  |  |
| Limit Level           | <ol> <li>Notify IEC, Contractor and ER</li> <li>Identify source</li> <li>Repeat measurement to confirm findings</li> <li>Increase monitoring frequency</li> <li>Carry out analysis of Contractor's working<br/>procedures to determine possible mitigation to be<br/>implemented</li> <li>Inform IEC, ER and EPD the causes &amp; actions<br/>taken form the exceedances</li> <li>Assess effectiveness of Contractor's remedial<br/>actions and keep IEC, EPD and ER informed of the<br/>results</li> <li>If exceedance stops, cease additional monitoring</li> </ol> | <ol> <li>Check monitoring data<br/>submitted by ET</li> <li>Discuss amongst ER, ET<br/>Leader and Contractor on the<br/>potential remedial actions</li> <li>Review Contractor's remedial<br/>actions whenever necessary to<br/>assure their effectiveness and<br/>advise the ER &amp; ET accordingly</li> <li>Audit the implementation of<br/>remedial measures</li> </ol> | <ol> <li>Confirm receipt of notification of<br/>exceedance</li> <li>Notify Contractor</li> <li>Check monitoring data<br/>submitted by the ET</li> <li>Require Contractor to propose<br/>remedial measures for the<br/>analysed noise problem</li> <li>Discuss with ET, IEC and<br/>Contractor on proposed<br/>remedial actions to be<br/>implemented</li> <li>Ensure remedial measures are<br/>properly implemented</li> <li>Assess the effectiveness of the<br/>remedial actions and keep the<br/>Contractor informed</li> <li>If exceedance continues,<br/>consider what protion of the<br/>work is responsible and instruct<br/>the Contractor to stop that<br/>portion of work until the<br/>exceedance is abated</li> </ol> | <ol> <li>Take immediate action to avoid<br/>further exceedance</li> <li>Submit proposals for remedial<br/>actions to ER within three working<br/>days of notification</li> <li>Liaise with the ER to ensure the<br/>effectiveness of the agreed<br/>mitigation</li> <li>Amend proposal if required</li> <li>Implement the agreed proposals</li> <li>Resubmit proposals if problem still<br/>not under control</li> <li>Stop the relevant portion of works as<br/>determined by the ER until the<br/>exceedance is abated</li> </ol> |  |  |  |  |  |  |



## Appendix G

## **Monitoring Schedule**

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

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

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

#### Monitoring Day Sunday or Public Holiday

Parameters:

Air Noise Water Location ID

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

Ecology Survey



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

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

| Monitoring Day           |
|--------------------------|
| Sunday or Public Holiday |

Parameters:

Air Noise Water

Ecology Survey

Location ID

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



## Appendix H

Detailed Impact Monitoring Data of Air Quality and Water Quality

### AUES

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

#### Water Quality Monitoring Data for MUP05

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

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

### AUES

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

Water Quality Monitoring Data for MUP05

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

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

Water Quality Monitoring Data for MUP05

Date

9-Dec-09

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

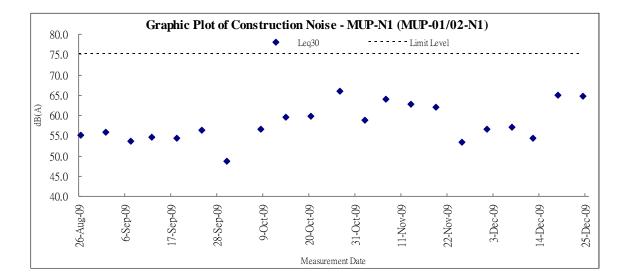
#### DSD CONTRACT NO. DC/2007/08 Drainage Improvements Works in Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang 24- hour TSP Monitoring Data

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

## Appendix I

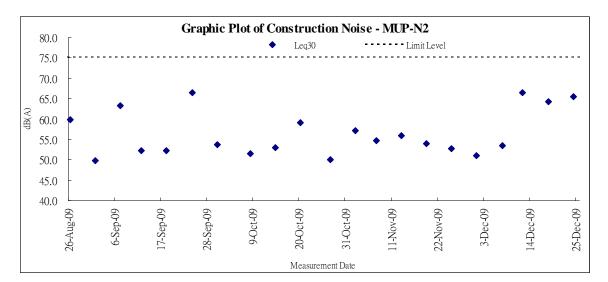
## **Graphic Plot of Monitoring**

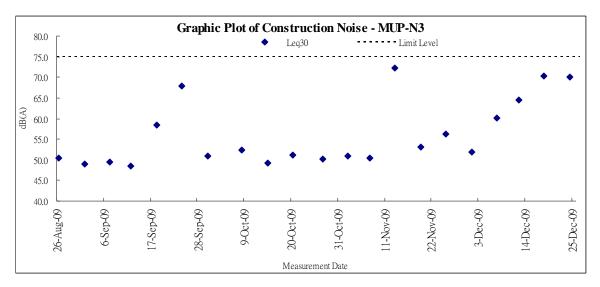
- 1. Construction Noise
- 2. Air Quality
- 3. Water Quality



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

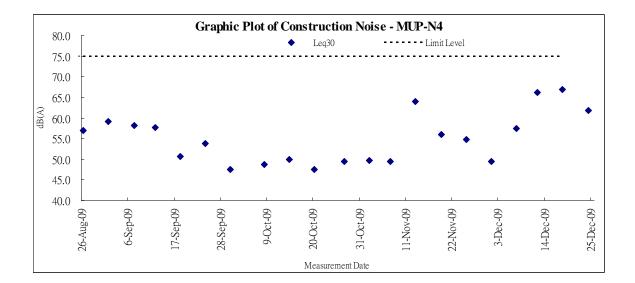
AUES





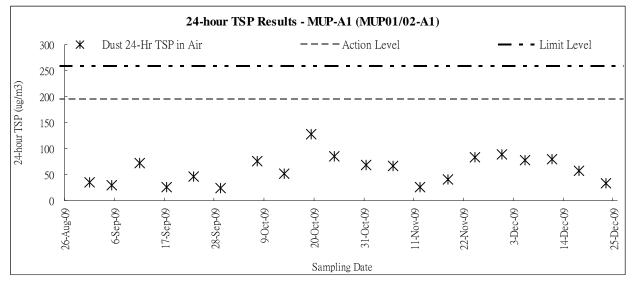
Z:\Jobs\2008\TCS00409 (DC-2007-08)\600\Impact\DP\Monthly Report\10th Monthly- December 2009\R0668v2.doc Action-United Environmental Services and Consulting

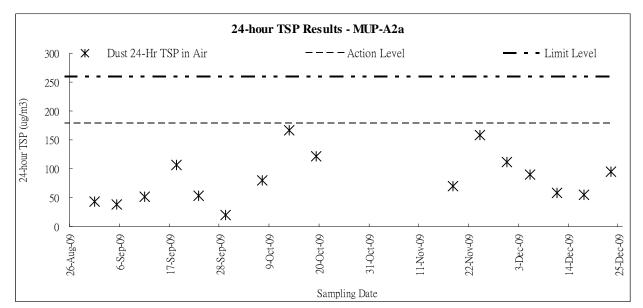


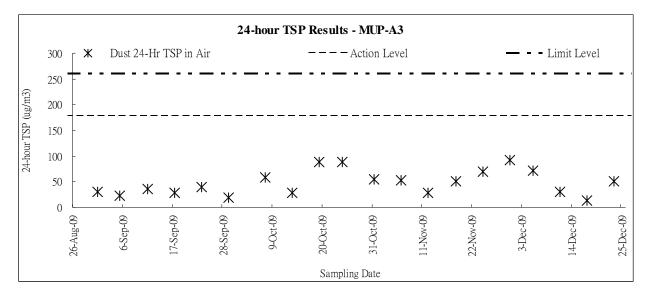




### **Graphic Plot of Monitoring - Air Quality GRAPHIC PLOT – 24-hour TSP**



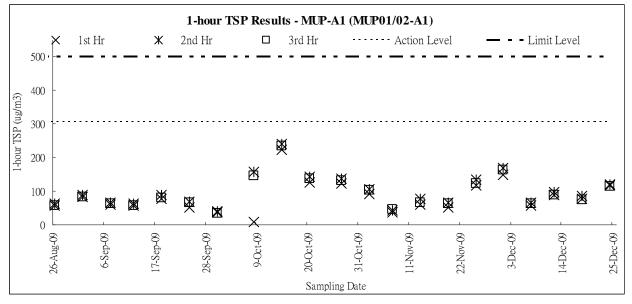


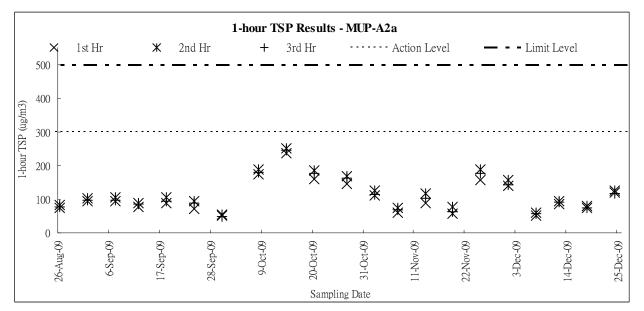


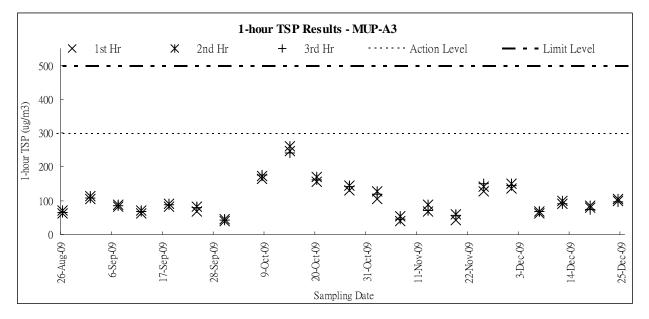
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## **GRAPHIC PLOT – 1-hour TSP**



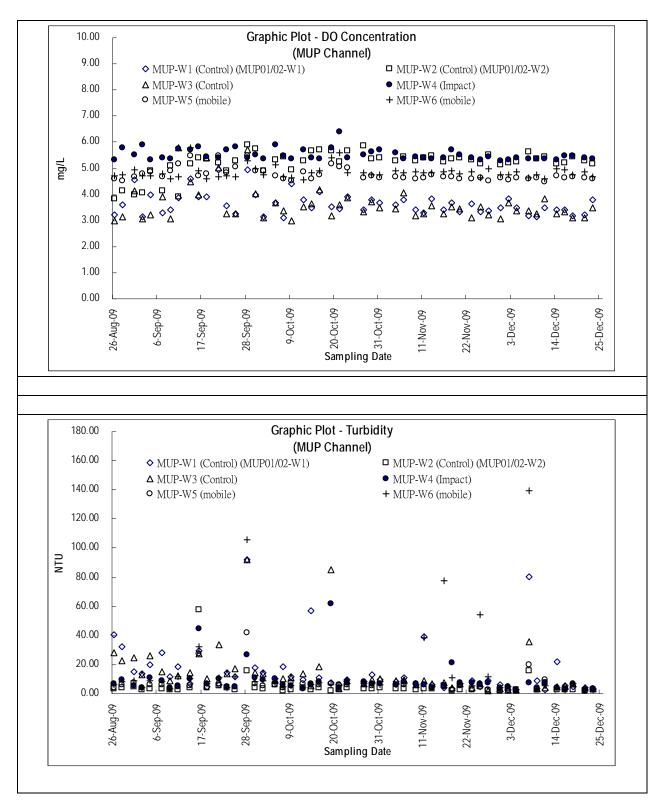


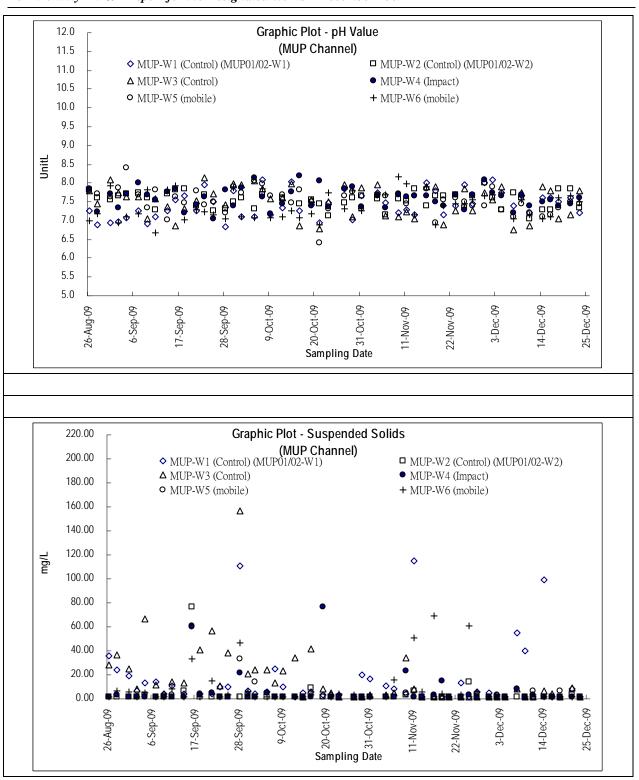


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## **Graphic Plot of Monitoring - Water Quality**





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# Appendix J

## **Meteorological Records**

### Meteorological Data in this Reporting Month

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

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

# missing (less than 24 hourly observations a day)

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# Appendix K

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

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

 $\checkmark$ 

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

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

| 1.07 | Is drainag | e system w | ell maintained? |
|------|------------|------------|-----------------|
|      |            |            |                 |

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

1.11

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

 $\overline{\mathbf{N}}$ 



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



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



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

Remarks :



### Remarks

Follow-Up of Last Site Inspection (24<sup>th</sup> November 2009):



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



Photo 2 Preserved trees are properly fenced.



Photo 3 Stagnant water was eliminated.



Photo 4 larvicide was applied.



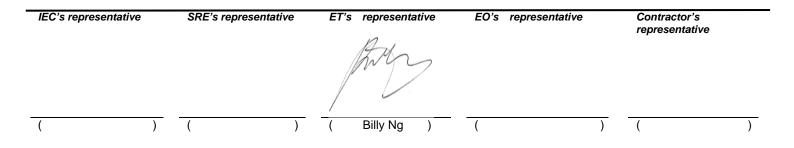
Findings of Site Inspection on 1<sup>st</sup> December 2009:



Photo A

Photo B

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



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

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1.09 Are temporary exposed slopes properly covered?

Are earthworks final surfaces well compacted or protected? 1.10

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

1.13 Are wheel washing facilities well maintained?

1.14 Is runoff from wheel washing facilities avoided?

Are there toilets provided on site? 1.15

1.16 Are toilets properly maintained?

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

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



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



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

#### Remarks :

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



### Remarks

Follow-Up of Last Site Inspection (1<sup>st</sup> December 2009):



Photo 1

Chemical or Oil containers were removed.

Photo 2

### Findings of Site Inspection on 8<sup>th</sup> December 2009:



Photo A

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



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

Photo C

Photo D



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



Photo F

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

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

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

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

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

1.09 Are temporary exposed slopes properly covered?

| 1.10 A | Are earthworks | final | surfaces | well | compacted | or | protected? |
|--------|----------------|-------|----------|------|-----------|----|------------|
|--------|----------------|-------|----------|------|-----------|----|------------|

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

1.14 Is runoff from wheel washing facilities avoided?

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

1.16 Are toilets properly maintained?

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

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



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

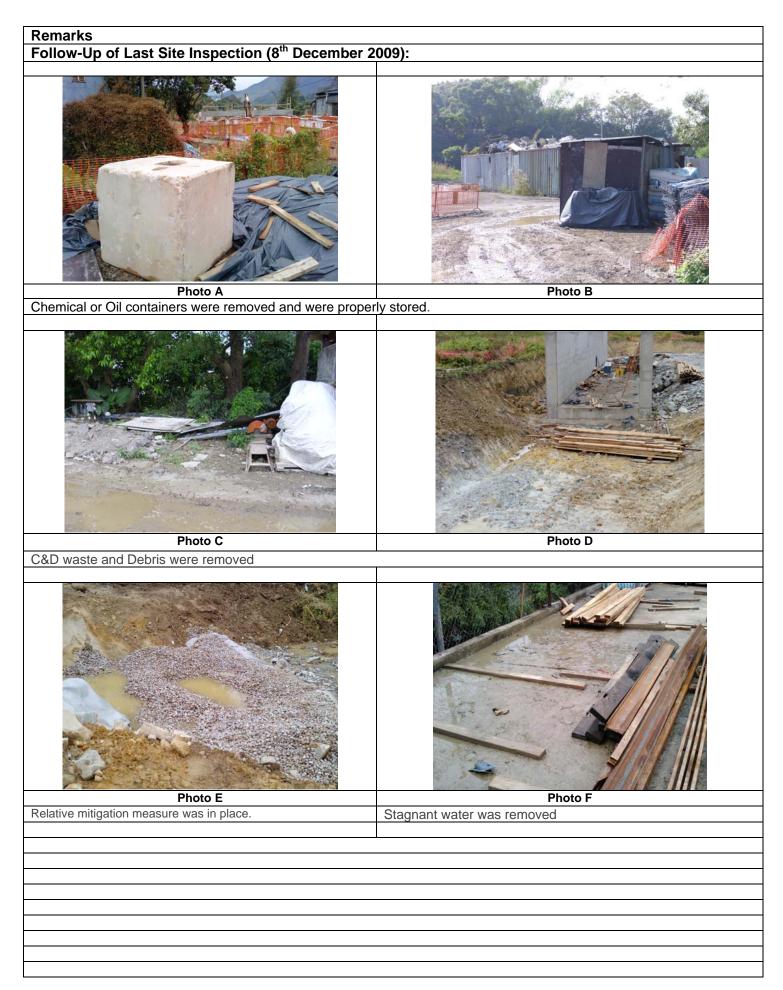


| Note:             | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance;<br>Follow Up: Observations requiring follow-Up actions N/A: Not Applicable | Not<br>Obs.  | Yes          | No | Follow<br>Up | N/A | Photo/<br>Remarks |
|-------------------|---|--------------|--------------|----|--------------|-----|-------------------|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

#### Remarks :

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







Findings of Site Inspection on 15<sup>th</sup> December 2009:

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

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

AUES

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



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



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



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

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

### Findings of Site Inspection on 22<sup>nd</sup> December 2009:



 Photo A
 Photo B

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



Findings of Site Inspection on 22<sup>nd</sup> December 2009:

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

| Project:   | DSD Contract No. DC/2007/08<br>Drainage Improvement Works at Tai Po Tin, Ping Che,<br>Man Uk Pin and Lin Ma Hang   |                                  | Inspected by<br>IEC/IEC's Representative:<br>SRE/ SRE's Representative: |            |               | Checklist No. DC200708-291209<br>-<br>William Tang |                     |  |
|--|--|----------------------------------|---|------------|---------------|--|---------------------|--|
| Inspection   | 1  | E                                | TL/ ET's Repr   | esentativ  | e: <u>T.W</u> | /. Tam   |                     |  |
| Date:  | 29 December 2009   |                                  | O/ EO's Repre   | esentative | e: <u>C.P</u> | . Chan   |                     |  |
| Time:  | 10:00  | -                                | ontractor's<br>epresentative  | :          | <u> </u>      | . Yu   |                     |  |
| PART A:<br>Weather:<br>Temperatu<br>Humidity<br>Wind:<br>Channe<br>TKL02<br>TKL07<br>MUP01/<br>MUP05 | Sunny       Fine       ✓ Cloudy       ✓ Fine         ure:       18.8       °C         High       Moderate       ✓ Low         Strong       Breeze       ✓ Light       0         el       ✓       ✓       ✓ | Rainy<br>Calm<br><b>Area I</b> I | C c   | E          | invironmer    | ntal Permit  | t No. EP-277/2007/A |  |
| PART B:  | SITE AUDIT   |                                  |   |            |               |  |                     |  |
|  | t Obs.: Not Observed; Yes: Compliance; No: Non-Compliance;<br>Iow Up: Observations requiring follow-Up actions N/A: Not Applicable   | No<br>Ob:                        | VAC   | No         | Follow<br>Up  | N/A  | Photo/<br>Remarks   |  |
| Section 1  | Water Quality  |                                  |   |            |               |  |                     |  |
| 1.01 ls a  | an effluent discharge license obtained for the Project?  | $\checkmark$                     | 1   |            |               |  |                     |  |
| 1.02 Is t  | he effluent discharged in accordance with the discharge licence?   | $\checkmark$                     | 1   |            |               |  |                     |  |
| 1.03 Is t  | he discharge of turbid water avoided?  |                                  |   |            |               |  |                     |  |

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

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

| 1.07 | Is drainage system well maintained? |
|------|-------------------------------------|
|      |                                     |

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

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

| 1.13 Are wheel washing facilities well maintained? |
|--|
|--|

1.14 Is runoff from wheel washing facilities avoided?

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

1.16 Are toilets properly maintained?

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

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



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



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

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

#### Findings of Site Inspection on 29<sup>th</sup> December 2009:

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



Photo A

Photo B

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

| IEC's representative | SRE's<br>representative | ET's<br>representative | EO's<br>representative | Contractor's<br>representativ |   |
|----------------------|-------------------------|------------------------|------------------------|-------------------------------|---|
|                      |                         | A                      |                        |                               |   |
| ( )                  | ( )                     | ( T.W. Tam )           | (                      | ) (                           | ) |



# Appendix L

## **Proforma of Ecology Inspection Checklist**

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

| Project:     | DSD Contract No. DC/2007/08<br>Drainage Improvement Works at<br>Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang                       | Inspected by<br>IEC/IEC's Representati<br>RE/RE's Representativ<br>ETL/ ET's Representati | ve:          | list No. () ( ( ( ) ) ( ) ( ) ( ) ( ) ( ) ( ) ( |
|--------------|--|---|--------------|---|
| Date:        | 26/((19]   | EO/EO's Representativ   | e: <u>Cp</u> | Clar  |
| Time:        | [[]  | Contractor's Represen   | tative:      |   |
| PART A:      | GENERAL INFORMATION  |   | Environmen   | tal Permit No.                                  |
| Weather:     | Sunny 🗹 Fine 🗌 Cloudy 🗌 Rainy  | Calm  | EP-277/200   | 7   |
| Temperature  | ν <u>γ</u> οc  |   | ]            |   |
| Humidity:    | High Moderate 🖌 Low  |   |              |   |
| Wind:        | Strong Breeze Light Calm   |   | _            |   |
| Channel      | Area Ir  | nspected  |              |   |
| MUP05        | MURDINE M  | <i>ر</i>  |              |   |
| PART B:      | SITE AUDIT   |   |              |   |
| Note: EM&    | Eollow Up: ()been/atione requiring follow Up actions N/A: Not  |   | low N/A<br>p | Photo/<br>Remarks                               |
| Section 6: E | cology   |   |              |   |
| 1.01 6.5.8   | earthworks to widen the stream have been undertaken from the landward side and existing stream untouched except during the final stage |   |              |   |

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Stream bed

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| 1.04 | 6.5.9  | widened stream bottom floored with natural<br>materials to approximate as closely as possible to the<br>rocky components of a natural stream bottom |
|------|--------|---|
| 1.02 | 6.5.10 | Any essential works outside the dry season have been temporarily isolated from the stream   |
| 1.03 | 6.5.11 | Excavation works have been restricted to 300m   |

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

Excavation works have been restricted to 300m

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

area that should be clearly demarcated

- 1.06 6.5.22 Temporary diversions have been provided to ensure continuous water flow to the downstream section.
- 6.5.22 1.07 The proposed works site inside or in the proximity of natural streams have been temporarily isolated
- 1.08 6.5.22 no disturbance to the stream bed and bank have been found from construction works, equipment or workers for the stream section where the existing natural stream bed and bank will be left untouched
- 1.09 6.5.22 Temporary access track on streambed have been kept to the minimum width and length
- 6.5.22 1.09 Temporary stream crossings are supported on stilts above the stream bed.
- 6.5.22 1.10 Adequate temporary drainage measures including sediment and oil/arease traps have been provided to prevent contaminated site run-off entering the water bodies
- 1.11 6.5.22 Stockpiling of construction materials, spoils and waste have been properly covered and located away from water bodies

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

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#### Remarks

| Muloi - Au                   | mitig action me                                      | asure,                        | inplemented                 |                 |        |
|------------------------------|--|-------------------------------|-----------------------------|-----------------|--------|
| Mueoz - Lionke<br>for        | in progress  | and                           | stream                      | diversion       | dready |
| Mupos - Work<br>to C<br>fank | in progress,<br>iamy out<br>to prevent<br>hotival so | the con<br>regular<br>sedime. | maintenace<br>nt - loac (ed | of the<br>water |        |

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

| Humi<br>Wind<br>Cha | T A:<br>tion<br>T A:<br>ther:<br>erature:<br>idity:<br>annel | °C<br>High Moderate Low<br>Strong Breeze Light 0  | Calm<br>Area Ins | RE/RE's<br>ETL/ ET's<br>EO/EO's<br>Contract | Repres<br>Repres<br>Repres<br>Repre<br>Repres | sentative:<br>entative:<br>presentative:<br>Env | w<br>C f | ental Permit No.                              |
|---------------------|--|---|------------------|---|---|---|----------|---|
| PART                | B:   | SITE AUDIT  |                  |   |   |   |          |   |
| Note:               | EM&A<br>REF:   | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance;<br>Follow Up: Observations requiring follow-Up actions N/A: Not<br>Applicable  | Not<br>Obs.      | Ye <b>s</b>                                 | No  | Follow<br>Up                                    | N/A      | Photo/<br>Remarks                             |
| Sectio              | on 6: Eco  |   |                  |   |   |   |          |   |
| 1.01                | 6.5.8  | earthworks to widen the stream have been<br>undertaken from the landward side and existing<br>stream untouched except during the final stage  |                  | ₿ <b>∕</b>                                  |   |   |          |   |
| 1.04                | 6.5.9  | widened stream bottom floored with natural<br>materials to approximate as closely as possible to the<br>rocky components of a natural stream bottom   | ø                |   |   | D   |          | no work on<br>Stream bottom                   |
| 1. <b>02</b>        | 6.5.10   | Any essential works outside the dry season have<br>been temporarily isolated from the stream  |                  |   |   |   | ซ        |   |
| 1.03                | 6.5.11   | Excavation works have been restricted to 300m length at any one time  |                  |   |   |   |          |   |
| 1.04                | 6.5.13   | native riparian trees which would be impacted<br>during construction works have been transplanted to<br>suitable sites within the project area where possible   |                  |   |   | ъ   |          | ou-going                                      |
| 1.05                | 6.5.22   | Construction activities have been restricted to works<br>area that should be clearly demarcated   |                  |   |   |   |          |   |
| 1.06                | 6.5.22   | Temporary diversions have been provided to ensure continuous water flow to the downstream section.  |                  | ď   |   |   |          | for MJPOl                                     |
| 1.07                | 6.5.22   | The proposed works site inside or in the proximity of<br>natural streams have been temporarily isolated   |                  | ¥   |   |   |          |   |
| 1.08                | 6.5.22   | no disturbance to the stream bed and bank have<br>been found from construction works, equipment or<br>workers for the stream section where the existing<br>natural stream bed and bank will be left untouched |                  | ¢   |   |   | D        |   |
| 1.09                | 6.5.22   | Temporary access track on streambed have been<br>kept to the minimum width and length   |                  |   |   |   | ď        | ho work an<br><u>Streambed</u> .<br>For MURDS |
| 1.09                | 6.5.22   | Temporary stream crossings are supported on stilts above the stream bed.  |                  | <b>₽∕</b>                                   |   |   |          | For MUPOS                                     |
| 1.10                | 6.5.22   | Adequate temporary drainage measures including<br>sediment and oil/grease traps have been provided<br>to prevent contaminated site run-off entering the<br>water bodies                                       |                  |   |   |   |          |   |
| 1.11                | 6.5.22   | Stockpiling of construction materials, spoils and waste have been properly covered and located away from water bodies   |                  | ₫   |   |   |          |   |

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| Note: | EM&A<br>REF: | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance;<br>Follow Up: Observations requiring follow-Up actions N/A: Not<br>Applicable | Not<br>Obs. | Yes | No | Follow<br>Up | N/A | Photo/<br>Remarks |
|-------|--------------|--|-------------|-----|----|--------------|-----|-------------------|
| 1.12  | 6.5.22       | Supervisory staff of the contractor have been<br>assigned to station on site to closely supervise and<br>monitor the construction works    |             | 9   |    |              |     |                   |
| 1.13  | 6.5.22       | workers have bee regularly briefed to avoid<br>disturbing the flora and fauna near the works<br>area                                       |             | 9/  | Ó  |              |     |                   |
| 1.14  | 6.5.22       | Construction effluent, site run-off and sewage have been properly collected, treated and disposed  |             |     | Δ. | J            |     |                   |
| 1.15  | 6.5.22       | details of the mitigation measures to be<br>implemented during construction stage have been<br>submitted to the Engineer for approval      |             | ₪∕  |    |              |     |                   |

#### Remarks

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

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

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

| PART B:              |              | SITE AUDIT  |             |     |    |              |     |                                       |
|----------------------|--------------|---|-------------|-----|----|--------------|-----|---------------------------------------|
| Note:                | EM&A<br>REF: | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance;<br>Follow Up: Observations requiring follow-Up actions N/A: Not<br>Applicable  | Not<br>Obs. | Yes | No | Follow<br>Up | N/A | Photo/<br>Remarks                     |
| Sectio               | on 6: Eco    | ology   |             |     |    |              | ,   |                                       |
| 1.01                 | 6.5.8        | earthworks to widen the stream have been<br>undertaken from the landward side and existing<br>stream untouched except during the final stage  |             | ď   |    |              |     |                                       |
| 1.04                 | 6.5.9        | widened stream bottom floored with natural<br>materials to approximate as closely as possible to the<br>rocky components of a natural stream bottom   | V           |     |    |              |     | no work on<br>stream buttom           |
| 1.02                 | 6.5.10       | Any essential works outside the dry season have<br>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<br>during construction works have been transplanted to<br>suitable sites within the project area where possible   |             | ٥   |    | ø⁄           |     | on-goiry                              |
| 1.05                 | 6.5.22       | Construction activities have been restricted to works area that should be clearly demarcated  |             |     |    |              |     |                                       |
| 1.06                 | 6.5.22       | Temporary diversions have been provided to ensure continuous water flow to the downstream section.  |             | Ł   |    |              |     | for MUPOI                             |
| 1.07                 | 6.5.22       | The proposed works site inside or in the proximity of natural streams have been temporarily isolated  |             | Ь   |    |              |     |                                       |
| 1.08                 | 6.5.22       | no disturbance to the stream bed and bank have<br>been found from construction works, equipment or<br>workers for the stream section where the existing<br>natural stream bed and bank will be left untouched |             | ď   |    |              |     |                                       |
| 1.09                 | 6.5.22       | Temporary access track on streambed have been<br>kept to the minimum width and length   |             |     |    |              | ø   | no work on                            |
| 1.09                 | 6.5.22       | Temporary stream crossings are supported on stilts above the stream bed.  |             | Ø   |    |              |     | no work on<br>streambert<br>Fri MoRos |
| 1.10                 | 6.5.22       | Adequate temporary drainage measures including<br>sediment and oil/grease traps have been provided<br>to prevent contaminated site run-off entering the<br>water bodies                                       |             |     |    |              |     |                                       |
| 1.11<br><sup>M</sup> | 6.5.22       | Stockpiling of construction materials, spoils and waste have been properly covered and located away from water bodies   |             |     |    |              |     |                                       |

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| Note: | EM&A<br>REF:   | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance;<br>Follow Up: Observations requiring follow-Up actions N/A: Not<br>Applicable | Not<br>Obs. | Yes | No | Follow<br>Up | N/A | Photo/<br>Remarks |
|-------|----------------|--|-------------|-----|----|--------------|-----|-------------------|
| 1.12  | 6.5.22         | Supervisory staff of the contractor have been<br>assigned to station on site to closely supervise and<br>monitor the construction works    |             | ď   |    |              |     |                   |
| 1.13  | 6.5.22         | workers have bee regularly briefed to avoid<br>disturbing the flora and fauna near the works<br>area                                       |             | ď   |    | D            |     |                   |
| 1.14  | 6.5. <b>22</b> | Construction effluent, site run-off and sewage have been properly collected, treated and disposed  |             | ø   |    |              |     |                   |
| 1.15  | 6.5.22         | details of the mitigation measures to be<br>implemented during construction stage have been<br>submitted to the Engineer for approval      | D           | ď   |    |              |     |                   |

#### Remarks

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

| IEC's representative                  | RE's representative | ET's representative | EO's representative | Contractor's<br>repr <b>esentative</b> |
|---------------------------------------|---------------------|---------------------|---------------------|--|
| · · · · · · · · · · · · · · · · · · · | ( )                 | (Keith Way)         | 10/12/09)           | ( )                                    |

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

| PART         | В:              | SITE AUDIT  |             |     |                     |              |     |  |
|--------------|-----------------|---|-------------|-----|---------------------|--------------|-----|--|
| Note:        | EM&A<br>REF:    | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance;<br>Follow Up: Observations requiring follow-Up actions N/A: Not<br>Applicable  | Not<br>Obs. | Yes | No                  | Follow<br>Up | N/A | Photo/<br>Remarks                            |
| Sectio       | on 6: Eco       |   |             |     |                     |              |     |  |
| 1.01         | 6.5.8           | earthworks to widen the stream have been<br>undertaken from the landward side and existing<br>stream untouched except during the final stage  |             |     |                     |              |     |  |
| 1.04         | 6.5.9           | widened stream bottom floored with natural<br>materials to approximate as closely as possible to the<br>rocky components of a natural stream bottom   |             |     |                     | ď            |     | hork in<br>progress                          |
| 1.02         | <b>6.5</b> .10  | Any essential works outside the dry season have been temporarily isolated from the stream   |             |     |                     |              | ₽∕  | <u> </u>                                     |
| 1.0 <b>3</b> | 6. <b>5</b> .11 | Excavation works have been restricted to 300m length at any one time  |             | U⁄  |                     |              |     |  |
| 1.04         | <b>6.5.1</b> 3  | native riparian trees which would be impacted<br>during construction works have been transplanted to<br>suitable sites within the project area where possible   |             |     |                     | ₽⁄           |     | ou - goirg                                   |
| 1.05         | 6.5.22          | Construction activities have been restricted to works area that should be clearly demarcated  |             |     |                     |              |     |  |
| 1.06         | 6.5.22          | Temporary diversions have been provided to ensure continuous water flow to the downstream section.  |             |     |                     |              |     | Mulor 102                                    |
| 1.07         | 6.5.22          | The proposed works site inside or in the proximity of natural streams have been temporarily isolated  |             | ₽∕  |                     |              |     | ······································       |
| 1.08         | 6.5.22          | no disturbance to the stream bed and bank have<br>been found from construction works, equipment or<br>workers for the stream section where the existing<br>natural stream bed and bank will be left untouched |             |     |                     |              |     |  |
| 1.09         | 6.5.22          | Temporary access track on streambed have been<br>kept to the minimum width and length   | Ø           |     |                     |              |     | no north an                                  |
| 1.09         | 6.5.22          | Temporary stream crossings are supported on stilts above the stream bed.  |             | D⁄  |                     |              |     | MUP 04                                       |
| 1.10         | 6.5.22          | Adequate temporary drainage measures including<br>sediment and oil/grease traps have been provided<br>to prevent contaminated site run-off entering the<br>water bodies                                       |             |     | ><br>□<br>3         |              |     | <u>.                                    </u> |
| 1.11         | 6.5.22          | Stockpiling of construction materials, spoils and waste have been properly covered and located away from water bodies   |             | 5   | میں<br>اسمینیز<br>ج |              |     |  |
|              |                 |   |             |     |                     |              |     |  |

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

#### Remarks

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| Remarks  |
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| An Channelin Ar of the mitigation heasures were willey                                       |
| found poperty implemented, and although milley   |
| found property my and  |
| Water Was found in MUROS. Et was noted that  |
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| ent repulor  |
| Moreover. It is reminded to carry out cyclor<br>Moreover. It is reminded to carry out cyclor |
| Alle Continuentation tank to   |
| Moreover, it is function tank to   |
| lusure its efficiency,   |
| ensuit eppi and  |
|  |

| IEC's representative | RE's representative | ET's representative | EO's representative | Contractor's<br>representative |
|----------------------|---------------------|---------------------|---------------------|--------------------------------|
| ( )                  | ( )                 | (Keck Way.)         | ( crp. Chem. )      | ( )                            |

| Project:    | DSD Contract No. DC/2007/08<br>Drainage Improvement Works at<br>Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang |          |             | Inspected by<br>IEC/IEC's Represe<br>RE/RE's Represe |                                   | Checklist No. |                          |  |  |  |
|-------------|--|----------|-------------|--|-----------------------------------|---------------|--------------------------|--|--|--|
| Inspection  | 061 - 0  |          |             |  | ETL/ ET's Representative: YW Wong |               |                          |  |  |  |
| Date:       | 24/12/09   |          |             | EO/EO's Represe                                      | ntative:                          | CP (l'én      |                          |  |  |  |
| Time:       | (120   |          |             |  | Contractor's Rep                  | resentativ    | e:                       |  |  |  |
| PART A:     |  | GENE     | RAL INFORMA | TION   |                                   | I             | Environmental Permit No. |  |  |  |
| Weather:    | 📈 Sunny  | Fine     | Cloudy      | Rainy  | Calm                              | $\Box$ .      | EP-277/2007              |  |  |  |
| Temperature | 23   | ⊃° C     | /           |  |                                   |               |                          |  |  |  |
| Humidity:   | High   | Moderate | Low         |  |                                   | <u> </u>      | /A                       |  |  |  |
| Wind:       | Strong   | Breeze   | Light       | Calm   |                                   |               |                          |  |  |  |
| Channel     |  |          |             | Area Ins   | pected                            |               |                          |  |  |  |
| MUP05       | (MUPDICO   | 2        |             | A  | <u>,</u>                          |               |                          |  |  |  |

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| PART         | B:             | SITE AUDIT  |             |              |    |              |     |                    |
|--------------|----------------|---|-------------|--------------|----|--------------|-----|--------------------|
| Note:        | EM&A<br>REF:   | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance;<br>Follow Up: Observations requiring follow-Up actions N/A: Not<br>Applicable  | Not<br>Obs. | Yes          | No | Follow<br>Up | N/A | Photo/<br>Remarks  |
| Sectio       | n 6: Eco       |   |             |              |    |              |     |                    |
| 1.01         | 6.5.8          | earthworks to widen the stream have been<br>undertaken from the landward side and existing<br>stream untouched except during the final stage  |             | ₹            |    |              |     |                    |
| 1.04         | 6.5.9          | widened stream bottom floored with natural<br>materials to approximate as closely as possible to the<br>rocky components of a natural stream bottom   |             |              |    |              |     | prograss for Hules |
| 1.0 <b>2</b> | 6.5.10         | Any essential works outside the dry season have been temporarily isolated from the stream   |             |              |    |              | Ŀ   | <u> </u>           |
| 1.03         | 6.5.1 <b>1</b> | Excavation works have been restricted to 300m length at any one time  |             | $\checkmark$ |    |              |     |                    |
| 1. <b>04</b> | 6.5.13         | native riparian trees which would be impacted<br>during construction works have been transplanted to<br>suitable sites within the project area where possible   |             |              |    | ď            |     | On-going           |
| 1.05         | 6.5.22         | Construction activities have been restricted to works area that should be clearly demarcated  |             | Ø            |    |              |     |                    |
| 1. <b>06</b> | 6.5.22         | Temporary diversions have been provided to ensure continuous water flow to the downstream section.  |             | ď            |    | ۵            |     | for Millor or      |
| 1.07         | 6.5.22         | The proposed works site inside or in the proximity of<br>natural streams have been temporarily isolated   |             | Ľ            |    | ۵            |     |                    |
| 1.08         | 6.5.2 <b>2</b> | no disturbance to the stream bed and bank have<br>been found from construction works, equipment or<br>workers for the stream section where the existing<br>natural stream bed and bank will be left untouched |             | Ø            |    |              |     |                    |
| 1.09         | 6.5.22         | Temporary access track on streambed have been<br>kept to the minimum width and length   | ₽⁄          |              |    |              |     |                    |
| 1.09         | 6.5.22         | Temporary stream crossings are supported on stilts above the stream bed.  |             | ⊡⁄           |    |              |     | Mulos              |
| 1.10         | 6.5.22         | Adequate temporary drainage measures including<br>sediment and oil/grease traps have been provided<br>to prevent contaminated site run-off entering the<br>water bodies                                       |             | đ            |    |              |     |                    |
| 1.1 <b>1</b> | 6.5.22         | Stockpiling of construction materials, spoils and waste have been properly covered and located away from water bodies   |             |              |    |              |     |                    |

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| Note: | EM&A<br>REF: | Not Obs.: Not Observed, Yes: Compliance; No: Non-Compliance;<br>Follow Up: Observations requiring follow-Up actions N/A: Not<br>Applicable | Not<br>Obs. | Yes | No | Follow<br>Up | N/A | Photo/<br>Remarks |
|-------|--------------|--|-------------|-----|----|--------------|-----|-------------------|
| 1.12  | 6.5.22       | Supervisory staff of the contractor have been<br>assigned to station on site to closely supervise and<br>monitor the construction works    |             | Ъ   | ۵  |              |     |                   |
| 1.13  | 6.5.22       | workers have bee regularly briefed to avoid<br>disturbing the flora and fauna near the works<br>area                                       |             | ď   |    |              |     |                   |
| 1.14  | 6.5.22       | Construction effluent, site run-off and sewage have been properly collected, treated and disposed  |             | Ľ   |    |              |     |                   |
| 1.15  | 6.5.22       | details of the mitigation measures to be<br>implemented during construction stage have been<br>submitted to the Engineer for approval      |             | ۲   |    |              |     |                   |

#### Remarks

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

| IEC's representative | RE's representative | ET's representative | EO's r <del>e</del> presentative | Contractor's<br>representative |
|----------------------|---------------------|---------------------|----------------------------------|--------------------------------|
| ( )                  | ()                  | ( at Word !)        | (c-P. Chan )                     | ( )                            |

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# Appendix M

## Monthly Summary Waste Flow Table

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

|           | Actual Quantities of Inert C&D Wastes Generated Monthly |   |                           |                             |                            |                          | Actual Quantities of C&D Wastes Generated Monthly |                               |                       |                |                                |
|-----------|---|---|---------------------------|-----------------------------|----------------------------|--------------------------|---|-------------------------------|-----------------------|----------------|--------------------------------|
| Month     | Total Quantity<br>Generated                             | Hard Rock and<br>Large Broken<br>Concrete | Reused in the<br>Contract | Reused in other<br>Projects | Disposed as<br>Public Fill | Imported Fill            | Metals  | Paper/ cardboard<br>packaging | Plastics (see Note 3) | Chemical Waste | Others, e.g.<br>general refuse |
|           | (in '000m <sup>3</sup> )                                | (in '000m <sup>3</sup> )                  | (in '000m <sup>3</sup> )  | (in '000m <sup>3</sup> )    | (in '000m <sup>3</sup> )   | (in '000m <sup>3</sup> ) | (in '000 kg)                                      | (in '000kg)                   | (in '000kg)           | (in '000kg)    | (in '000m3)                    |
| Jan       | 3.41  | 0   | 0                         | 3.02                        | 0                          | 0.39                     | 0   | 0                             | 0                     | 0              | 0.006                          |
| Feb       | 2.236   | 0   | 0                         | 2.046                       | 0                          | 0.19                     | 0.2   | 0                             | 0                     | 0              | 0.005                          |
| Mar       | 0.95  | 0.3                                       | 0.3                       | 0                           | 0                          | 0.65                     | 0.5   | 0                             | 0                     | 0              | 0                              |
| Apr       | 1.215   | 0   | 0                         | 0                           | 0                          | 1.215                    | 0.5   | 0                             | 0                     | 0              | 0.005                          |
| May       | 5.081   | 0   | 0                         | 3.735                       | 0                          | 1.346                    | 0.1   | 0                             | 0                     | 0              | 0.005                          |
| Jun       | 6.339   | 0   | 0                         | 3.08                        | 0                          | 3.259                    | 0.1   | 0                             | 0                     | 0              | 0                              |
| Sub-total | 19.231  | 0.3                                       | 0.3                       | 11.881                      | 0                          | 7.05                     | 1.4   | 0                             | 0                     | 0              | 0.021                          |
| Jul       | 6.635   | 0   | 0                         | 4.571                       | 0                          | 2.064                    | 1   | 0.04                          | 0                     | 0              | 0.005                          |
| Aug       | 4.752   | 0   | 0                         | 3.179                       | 0                          | 1.573                    | 0.1   | 0                             | 0                     | 0              | 0.016                          |
| Sep       | 9.019   | 0   | 0                         | 7.211                       | 0                          | 1.808                    | 0   | 0                             | 0                     | 0              | 0.018                          |
| Oct       | 12.051  | 0   | 0                         | 9.537                       | 0                          | 2.514                    | 0   | 0                             | 0                     | 0              | 0                              |
| Nov       | 14.905  | 0   | 0                         | 11.209                      | 0                          | 3.696                    | 0.1   | 0                             | 0                     | 0              | 0.011                          |
| Dec       | 9.153   | 0   | 0                         | 8.861                       | 0                          | 0.292                    | 0   | 0                             | 0                     | 0              | 0                              |
| Total     | 75.746  | 0.3                                       | 0.3                       | 56.449                      | 0                          | 18.997                   | 2.6   | 0.04                          | 0                     | 0              | 0.071                          |

|                             | Forecast of Total Quantities of C&D Materials to be Generated from the Contract* |                           |                             |                            |                          |              |                                  |                          |                |                                |
|-----------------------------|--|---------------------------|-----------------------------|----------------------------|--------------------------|--------------|----------------------------------|--------------------------|----------------|--------------------------------|
| Total Quantity<br>Generated | Hard Rock and<br>Large Broken<br>Concrete  | Reused in the<br>Contract | Reused in other<br>Projects | Disposed as<br>Public Fill | Imported Fill            | Metals       | Paper/<br>cardboard<br>packaging | Plastics<br>(see Note 3) | Chemical Waste | Others, e.g.<br>general refuse |
| (in '000m <sup>3</sup> )    | (in '000m <sup>3</sup> )   | (in '000m <sup>3</sup> )  | (in '000m <sup>3</sup> )    | (in '000m <sup>3</sup> )   | (in '000m <sup>3</sup> ) | (in '000 kg) | (in '000 kg)                     | (in '000 kg)             | (in '000 kg)   | (in '000m <sup>3</sup> )       |
| 283.5                       | 35.1   | 47.5                      | 107                         | 32                         | 24                       | 60           | 1                                | 1                        | 1              | 10                             |

Notes: (1) The performance targets are given in PS Clause 25.01F(14).

(2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material

\* (4) The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000 m3. (PS Clause 25.01E(4)(b) refers). [Delete Note (4) and the table above on the forecast, where inapplicable].



# Appendix N

## **Response to Comments**

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



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

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

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