



PROJECT NO.: TCS/00394/12

**CONTRACT NO. DC/2007/06 –  
RIVER IMPROVEMENT WORKS IN UPPER LAM  
TSUEN RIVER, SHE SHAN RIVER AND UPPER TAI PO  
RIVER**

**47<sup>TH</sup> MONTHLY ENVIRONMENTAL MONITORING AND  
AUDIT REPORT FOR UPPER TAI PO RIVER –  
JULY 2012**

PREPARED FOR  
**CHIU HING CONSTRUCTION AND TRANSPORTATION  
COMPANY LIMITED**

Quality Index

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| Ver. | Date           | Description                                    |
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|      |                |  |

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## EXECUTIVE SUMMARY

- ES.01. This is the **forty-seventh (47<sup>th</sup>)** monthly Environmental Monitoring and Audit (EM&A) Report for the river improvement works at Upper Tai Po River under Drainage Services Department (DSD) Contract No. DC/2007/06 entitled “River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River” (hereinafter “the Project”). This report concludes the impact monitoring results and findings for the activities undertaken during the period from **1 to 31 July 2012** (hereinafter “Reporting Period”). Construction of riverbed, gabion mattress, dwarf walls, retaining walls, inclined gabion/no-fines mass concrete walls, stilling basins and ground investigation works were the major site activities being carried out in this Reporting Period.
- ES.02. The Environmental Team (ET) is responsible for the EM&A works required in the EM&A manual. Site inspections were carried out on weekly basis to investigate and audit the equipment and work methodologies with respect to pollution control and environmental mitigation. The weekly inspection records and photos taken were kept.

### ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

- ES.03. Environmental Team had carried out construction noise monitoring on weekly basis and no exceedance was found in this Reporting Period. The noise monitoring results collected in this Reporting Period are presented in **Section 4**.
- ES.04. In this Reporting Period, an ecological impact monitoring (bi-annually) was performed on 5 July 2012. Moreover, weekly ecological inspections were carried out on 2, 9, 16 and 23 July 2012.
- ES.05. Weekly site inspection by the ET, the Contractor, Independent Environmental Checker (IEC) and Engineer’s Representative (ER) were undertaken on 6, 11, 18, 25 and 31 July 2012.
- ES.06. As no piling work conducted, no vibration monitoring was performed in this Reporting Period.
- ES.07. Environmental monitoring activities under the EM&A programme in this Reporting Period are summarized in the following table.

| Issues             | Environmental Monitoring Parameters / Inspection   | Occurrences |
|--------------------|--|-------------|
| Construction Noise | $L_{eq(30min)}$ Daytime by Environmental Pioneers & Solutions Limited  | 11          |
|                    | $L_{eq(30min)}$ Daytime by Action United Environmental Service & Consulting  | 44          |
| Inspection / Audit | Weekly Environmental inspection by the Contractor, ET (Environmental Pioneers & Solutions Limited), ER and IEC       | 2           |
|                    | Weekly Environmental inspection by the Contractor, ET (Action United Environmental Service & Consulting), ER and IEC | 3           |
| Ecological         | Ecological Impact Monitoring   | 1           |
|                    | Weekly inspection by the Ecologist   | 4           |

### BREACH OF ACTION AND LIMIT (A/L) LEVELS

- ES.08. No noise complaint (which is an Action Level exceedance) was received in this Reporting Period. Also, no Limit Level exceedance of noise monitoring was recorded.

### ENVIRONMENTAL COMPLAINT

- ES.09. No written or verbal complaint in relation to environmental matters was recorded in this Reporting Period.

**NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS**

ES.10. No environmental summon or successful prosecution was recorded in this Reporting Period.

**REPORTING CHANGE**

ES.11. Although Action United Environmental Services & Consulting (AUES) has been appointed to replace Environmental Pioneers & Solutions Limited as the Environmental Team of this Contract, no reporting change was made in this Reporting Period.

**FUTURE KEY ISSUES**

ES.12. Construction of riverbed, gabion mattress, dwarf walls, inclined gabion/no-fines mass concrete walls, stilling basin and baffle blocks will be carried out in the upcoming month.

ES.13. During wet season, muddy water and other water quality pollutants via site surface water runoff into the local stream of Tai Po River will be the key issue in the upcoming month. Mitigation measures for water quality should be fully implemented.

ES.14. On the other hand, construction noise will be another key environmental issue. Noise mitigation measures should be implemented in accordance with the EM&A Manual.

ES.15. The Contractor is reminded to provide environmental pollution control measures wherever necessary and keep a good environmental management for site practice.

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## 1.0 INTRODUCTION

### PROJECT BACKGROUND

- 1.01 This is the **forty-seventh (47<sup>th</sup>)** monthly Environmental Monitoring and Audit (EM&A) Report for the river improvement works at Upper Tai Po River under Drainage Services Department Contract No. DC/2007/06 entitled “River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River”.
- 1.02 The site layout plan of Upper Tai Po River is shown in **Appendix A**. Approximately 0.6km of Upper Tai Po River will be improved to enhance the hydraulic performance of the river. The location of the project site at Upper Tai Po River starts from Ta Tit Yan of Yai Mo Shan, flows from southeast to northeast alongside Wilson Trail, turning northward before joining the Lam Tsuen River and then runs towards Tai Po Market. To the east of the river, there are active and abandoned cultivated lands. Village settlements are mainly located on the west and northeast side of the river bank, where the San Uk Ka and Lai Chi Shan establishment also lie. The construction of the proposed improvement works for Upper Tai Po River has been commenced on 15 September 2008 and anticipated to complete in December 2012. The improvement works comprise the following:
- Re-profiling and realignment of the channel;
  - Inclusion of gabions and retaining wall for bank protection whilst providing a natural channel bed; and
  - Re-provisioning of footbridges and footpaths along the channel.
- 1.03 Since 12 July 2012, Action United Environmental Services & Consulting (AUES) has been appointed by Chiu Hing Construction and Transportation Company Limited (hereinafter “the Contractor”) as the Environmental Team replacing Environmental Pioneers & Solutions Limited to implement the EM&A programme.
- 1.04 This report presents the results of the environmental monitoring conducted at Upper Tai Po River in **July 2012**, which included weekly site inspections to verify the implementation of the mitigation measures as recommended in the Environmental Permit EP-223/2005/A, EM&A Manual, the Particular Specifications of the Contract and the Contractor’s Environmental Management Plan (EMP).

### REPORT STRUCTURE

- 1.05 The Monthly Environmental Monitoring and Audit (EM&A) Report is structured into the following sections:-

|                   |  |
|-------------------|--|
| <b>Section 1</b>  | <b>Introduction</b>  |
| <b>Section 2</b>  | <b>Construction Progress and Submission</b>                |
| <b>Section 3</b>  | <b>EM&amp;A Program Requirement for Upper Tai Po River</b> |
| <b>Section 4</b>  | <b>Noise monitoring Results</b>                            |
| <b>Section 5</b>  | <b>Vibration monitoring Results</b>                        |
| <b>Section 6</b>  | <b>Ecology monitoring Results</b>                          |
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| <b>Section 12</b> | <b>Conclusions and Recommendations</b>                     |

## 2.0 CONSTRUCTION PROGRESS AND SUBMISSION

### CONSTRUCTION PROGRESS

2.01 The proposed construction sequences are shown in the following:

- Site clearance and preparation works
- Construction of maintenance access which involves construction of retaining walls
- River channel construction and excavation, involving excavation works, construction of retaining walls and gabion walls
- Construction of additional boulder trap and additional stilling basins with baffle blocks
- Provision of riverbed treatment
- Re-provisioning of footbridges
- Construction of footpaths
- Landscaping works

2.02 The major construction activities undertaken at Upper Tai Po River in this report period are listed below:-

- Construction of Riverbed
- Construction of Gabion Mattress
- Construction of Dwarf Walls
- Construction of Retaining Walls
- Construction of Inclined Gabion/No-fines Mass Concrete Walls
- Construction of Stilling Basin
- Ground Investigation Works

2.03 The master and three month rolling construction programs are enclosed in *Appendix B*.

### SUMMARY OF ENVIRONMENTAL SUBMISSIONS

2.04 Summary of the relevant permits, licences, and/or notifications on environmental protection for this Contract in this Reporting Period is presented in *Table 2-1*.

**Table 2-1 Status of Environmental Licenses and Permits**

| Description  | License / Permit No. | Date of Issue | Date of Expiry | Remarks                     |
|--|----------------------|---------------|----------------|-----------------------------|
| Environmental Permit                               | EP-223/2005          | 31 Aug 2005   | N/A            | Superseded by EP-223/2005/A |
| Amended Environmental Permit                       | EP-223/2005/A        | 18 Nov 2008   | N/A            | Issued                      |
| Construction Noise Permit                          | NA                   | N/A           | N/A            | N/A                         |
| Effluent Discharge License                         | 3678                 | 14 Mar 2008   | 31 Mar 2013    | Issued                      |
| Registration as a Chemical Waste Producer          | 5213-724-C3251-03    | 19 Dec 2007   | Not applicable | Issued                      |
| Billing Account for Disposal of Construction Waste | 7006101              | N/A           | N/A            | N/A                         |



### 3.0 EM&A PROGRAM REQUIREMENT FOR UPPER TAI PO RIVER

3.01 The EM&A requirements set out in the Environmental Permit EP-223/2005/A (hereinafter ‘the EP’), and the associated EM&A Manual, are presented in the following sub-sections.

#### MONITORING PARAMETERS

3.02 According to the EM&A Manual, the monitoring requirements under this Contract are listed in **Table 3-1**

**Table 3-1 Summary of Monitoring Parameters**

| Environmental Aspect | Parameters   |
|----------------------|--|
| Construction Noise   | <ul style="list-style-type: none"> <li>A-weighted equivalent continuous sound pressure level (30min) (hereinafter ‘<math>L_{eq(30min)}</math>’) during the normal working hours; and</li> <li>A-weighted equivalent continuous sound pressure level (5min) (hereinafter ‘<math>L_{eq(5min)}</math>’) for construction work during the restricted hours.</li> </ul> |
| *Ecology             | Inspection and auditing the proper implementation of mitigation measures stipulated in EIA report and EM&A Manual  |

Remarks: \*Monitoring as carried out by the Ecologist appointed by the Contractor

#### MONITORING LOCATIONS

3.03 Monitoring locations have been proposed in EM&A Manual. Graphic plot is shown in **Appendix C** and summarized in **Table 3-2**.

**Table 3-2 Designated Monitoring Locations of the EM&A Programme**

| Aspect             | Location ID  | Address                                     |
|--------------------|--|---|
| Construction Noise | UTP1   | 54B, Sheung Wun Yiu                         |
|                    | UTP2   | Village House in Lai Chi Shan               |
|                    | UTP3   | Village House near Upper Tai Po River       |
|                    | UTP4   | Village House near Upper Tai Po River       |
|                    | UTP5   | Village House near Upper Tai Po River       |
|                    | UTP6   | Village House near Upper Tai Po River       |
|                    | UTP7   | Village House near Upper Tai Po River       |
|                    | UTP8   | Village House near Upper Tai Po River       |
|                    | UTP9   | 49A, Pun Shan Chau                          |
|                    | UTP10  | Village House near the proposed access road |
|                    | UTP11  | 49G, San Uk Ka                              |
| Ecology            | As within and adjacent to Upper Tai Po River of construction works areas |   |

#### MONITORING FREQUENCY

3.04 The monitoring frequency and duration as specified in EM&A Manual is summarized below.

##### Construction Noise

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

If construction work is undertaken at restricted hour, the frequency of construction noise monitoring will comply with the requirements stipulated in the related Construction Noise Permit issued by EPD

Duration: Throughout the construction period when major construction activities are undertaken

##### Ecology

Frequency: Weekly site inspection and bi-annual monitoring

Duration: Throughout the construction period when major construction activities are undertaken

**MONITORING EQUIPMENT**

**Noise Monitoring**

- 3.05 Sound level meter in compliance with the *International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1)* specifications shall be used for noise monitoring. The sound level meter shall be checked with an acoustic calibrator. The wind speed shall be checked with a portable wind speed meter, which capable to measure wind speed in m/s.

**Table 3-3 Monitoring Equipment Used in EM&A Program**

| Equipment                     | Model                                  |
|-------------------------------|--|
| <i>Construction Noise</i>     |  |
| Integrating Sound Level Meter | Bruel & Kjaer Type 2238 and Rion NL-31 |
| Calibrator                    | Bruel & Kjaer Type 4231                |
| Portable Wind Speed Indicator | Testo Anemometer                       |

**MONITORING METHODOLOGY**

**Noise Monitoring**

- 3.06 Noise measurements are taken in terms of the A-weighted equivalent sound pressure level ( $L_{eq}$ ) measured in decibels (dB). Supplementary statistical results ( $L_{10}$  and  $L_{90}$ ) are also obtained for reference.
- 3.07 Sound level meter as listed in **Table 3-3** complies with the *International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1)* specifications, as recommended in Technical Memorandum (TM) issued under the *Noise Control Ordinance (NCO)*.
- 3.08 During the monitoring, all noise measurements are performed with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level ( $L_{eq}$ ).  $Leq_{(30min)}$  in six consecutive  $Leq_{(5min)}$  measurements is used as the monitoring parameter for the time period between 0700-1900 hours on weekdays; and also  $Leq_{(15min)}$  in three consecutive  $Leq_{(5min)}$  measurements is used as monitoring parameter for other time periods (e.g. during restricted hours), if necessary.
- 3.09 During the course of measurement, the sound level meter is mounted on a tripod with a height of 1.2m above ground and placed at the assessment point and oriented such that the microphone is pointed to the site with the microphone facing perpendicular to the line of sight. The windshield is fitted for all measurements. The assessment point is normally set as free-field situation for the measurement.
- 3.10 Prior to noise measurement, the accuracy of the sound level meter is checked by an acoustic calibrator which generated a known sound pressure level at a known frequency. The checking is performed before and after the noise measurement.

**DATA MANAGEMENT AND DATA QA/QC CONTROL**

- 3.11 The impact monitoring data are handled by the ET's systematic data recording and management, which complies with in-house Quality Management System. Standard Field Data Sheets (FDS) are used in the impact monitoring program.
- 3.12 The monitoring data recorded in the noise meter are downloaded directly from the equipment at the end of each monitoring day. The downloaded monitoring data are input into a computerized database properly maintained by the ET.

**OTHERS MONITORING IMPLEMENTATION FOR THE CONTRACT**

**Vibration**

- 3.13 Vibration monitoring will be carried out when piling works take place in Upper Tai Po River.

**DETERMINATION OF ACTION/LIMIT (A/L) LEVELS**

3.14 The established performance criteria for construction noise, namely Action and Limit levels are used for the Project is listed in **Table 3-4**.

**Table 3-4 Action and Limit Levels for Construction Noise**

| Location  | Time Period  | Action Level                                       | Limit Level      |
|---|--|--|------------------|
| UTP1, UTP2,<br>UTP3, UTP4,<br>UTP5, UTP6,<br>UTP7, UTP8,<br>UTP9, UTP10,<br>UTP11 | Daytime<br>0700 – 1900 hrs on normal weekdays                                      | When one<br>documented<br>complaint is<br>received | 75* dB(A)        |
|   | 1900 – 2300 on all days and 0700 – 2300<br>on general holidays (including Sundays) |  | 60/65/70 dB(A)** |
|   | 2300 – 0700 on all days  |  | 45/50/55 dB(A)** |

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

\*\* To be selected based on the Area Sensitivity Rating of A/B/C, and the conditions of the applicable CNP(s) must be followed

**EQUIPMENT CALIBRATION**

3.15 The sound level meter and calibrator are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme in yearly basis. Valid calibration certificates of the monitoring equipment used for the impact monitoring program in this Reporting Period are attached in **Appendix D**.

**METEOROLOGICAL INFORMATION**

3.16 The meteorological information during the construction phase is obtained from Tai Po and Shatin Stations of the Hong Kong Observatory (HKO). The meteorological data during the impact monitoring days are summarized in **Appendix G**

#### 4.0 NOISE MONITORING RESULTS

4.01 The monitoring schedule had been issued to relevant parties before each Reporting Period which is presented in *Appendix F*. The works undertaken during the Reporting Period is illustrated in *Appendix B*. The monitoring results are presented in the following sub-sections.

##### RESULT SUMMARY

4.02 In this Reporting Period, the noise monitoring results at the designated locations are presented in *Tables 4-1 to 4-11* and the graphical plot is shown in *Appendix H*.

**Table 4-1 Construction Noise Monitoring Results at UTP1**

| Date                        | Start Time                                      | L <sub>eq5min</sub> |      |      |      |      |      | L <sub>eq30min</sub> | Sound Level Meter to use |
|-----------------------------|---|---------------------|------|------|------|------|------|----------------------|--------------------------|
|                             |   | 1st                 | 2nd  | 3rd  | 4th  | 5th  | 6th  |                      |                          |
| (*)6-Jul-12                 | 13:21   |                     |      |      |      |      |      | 68                   | Unknown                  |
| 13-Jul-12                   | 16:10   | 68.1                | 69.2 | 69.0 | 67.9 | 67.5 | 68.2 | 68                   | EQ006                    |
| 19-Jul-12                   | 15:15   | 65.8                | 63.6 | 65.6 | 63.2 | 62.8 | 62.7 | 64                   | EQ006                    |
| 25-Jul-12                   | Noise monitoring was cancelled due to typhoon 3 |                     |      |      |      |      |      |                      | --                       |
| 27-Jul-12                   | 16:30   | 64.3                | 66.5 | 69.3 | 66.7 | 67.5 | 65.5 | 67                   | EQ006                    |
| 31-Jul-12                   | 11:30   | 67.3                | 63.3 | 68.4 | 68.3 | 65.5 | 69.9 | 68                   | EQ006                    |
| <b>Limit Level in dB(A)</b> |   |                     |      |      |      |      |      | <b>75</b>            |                          |

**Remarks:** The monitoring is undertaken under façade situation. No façade correction is made according to acoustical principles and EPD guidelines.

(\*) The noise monitoring was conducted by the former ET and they provided the measured L<sub>eq30min</sub> only

**Table 4-2 Construction Noise Monitoring Results at UTP2**

| Date                        | Start Time                                      | L <sub>eq5min</sub> |      |      |      |      |      | L <sub>eq30min</sub> | Sound Level Meter to use |
|-----------------------------|---|---------------------|------|------|------|------|------|----------------------|--------------------------|
|                             |   | 1st                 | 2nd  | 3rd  | 4th  | 5th  | 6th  |                      |                          |
| (*)6-Jul-12                 | 12:49   |                     |      |      |      |      |      | 63                   | Unknown                  |
| 13-Jul-12                   | 16:30   | 66.0                | 57.6 | 60.8 | 63.0 | 60.2 | 62.6 | 63                   | EQ067                    |
| 19-Jul-12                   | 16:00   | 61.0                | 55.6 | 54.6 | 57.3 | 63.0 | 68.8 | 63                   | EQ067                    |
| 25-Jul-12                   | Noise monitoring was cancelled due to typhoon 3 |                     |      |      |      |      |      |                      | --                       |
| 27-Jul-12                   | 16:31   | 66.7                | 68.6 | 63.9 | 63.6 | 64.9 | 66.8 | 66                   | EQ065                    |
| 31-Jul-12                   | 11:25   | 67.4                | 64.2 | 63.9 | 58.8 | 62.0 | 63.4 | 64                   | EQ067                    |
| <b>Limit Level in dB(A)</b> |   |                     |      |      |      |      |      | <b>75</b>            |                          |

**Remarks:** The monitoring is undertaken under façade situation. No façade correction is made according to acoustical principles and EPD guidelines.

(\*) The noise monitoring was conducted by the former ET and they provided the measured L<sub>eq30min</sub> only

**Table 4-3 Construction Noise Monitoring Results at UTP3**

| Date                        | Start Time                                      | L <sub>eq5min</sub> |      |      |      |      |      | L <sub>eq30min</sub> | Sound Level Meter to use |
|-----------------------------|---|---------------------|------|------|------|------|------|----------------------|--------------------------|
|                             |   | 1st                 | 2nd  | 3rd  | 4th  | 5th  | 6th  |                      |                          |
| (*)6-Jul-12                 | 13:53   |                     |      |      |      |      |      | 66                   | Unknown                  |
| 13-Jul-12                   | 15:42   | 60.1                | 62.8 | 58.3 | 58.4 | 58.6 | 60.5 | 60                   | EQ010                    |
| 19-Jul-12                   | 15:35   | 60.0                | 62.8 | 58.1 | 58.6 | 60.9 | 58.3 | 60                   | EQ010                    |
| 25-Jul-12                   | Noise monitoring was cancelled due to typhoon 3 |                     |      |      |      |      |      |                      | --                       |
| 27-Jul-12                   | 16:32   | 64.4                | 64.5 | 66.4 | 67.0 | 66.1 | 67.9 | 66                   | EQ010                    |
| 31-Jul-12                   | 11:05   | 61.2                | 61.5 | 58.2 | 58.2 | 58.0 | 58.2 | 60                   | EQ010                    |
| <b>Limit Level in dB(A)</b> |   |                     |      |      |      |      |      | <b>75</b>            |                          |

**Remarks:** The monitoring is undertaken under façade situation. No façade correction is made according to acoustical principles and EPD guidelines.

(\*) The noise monitoring was conducted by the former ET and they provided the measured L<sub>eq30min</sub> only

**Table 4-4 Construction Noise Monitoring Results at UTP4**

| Date        | Start Time | L <sub>eq5min</sub> |      |      |      |      |      | L <sub>eq30min</sub> | Sound Level Meter to use |
|-------------|------------|---------------------|------|------|------|------|------|----------------------|--------------------------|
|             |            | 1st                 | 2nd  | 3rd  | 4th  | 5th  | 6th  |                      |                          |
| (*)6-Jul-12 | 14:28      |                     |      |      |      |      |      | 67                   | Unknown                  |
| 13-Jul-12   | 15:30      | 69.4                | 69.2 | 67.5 | 63.4 | 55.7 | 57.7 | 66                   | EQ067                    |
| 19-Jul-12   | 15:20      | 64.9                | 64.9 | 60.5 | 62.3 | 65.4 | 66.4 | 65                   | EQ067                    |

| Date                        | Start Time                                      | L <sub>eq5min</sub> |      |      |      |      |      | L <sub>eq30min</sub> | Sound Level Meter to use |
|-----------------------------|---|---------------------|------|------|------|------|------|----------------------|--------------------------|
|                             |   | 1st                 | 2nd  | 3rd  | 4th  | 5th  | 6th  |                      |                          |
| 25-Jul-12                   | Noise monitoring was cancelled due to typhoon 3 |                     |      |      |      |      |      |                      | --                       |
| 27-Jul-12                   | 15:52   | 64.2                | 66.1 | 67.4 | 66.7 | 68.2 | 69.1 | 67                   | EQ010                    |
| 31-Jul-12                   | 10:46   | 67.8                | 59.4 | 66.7 | 62.0 | 52.7 | 54.9 | 64                   | EQ067                    |
| <b>Limit Level in dB(A)</b> |   |                     |      |      |      |      |      | <b>75</b>            |                          |

Remarks: The monitoring is undertaken under façade situation. No façade correction is made according to acoustical principles and EPD guidelines.

(\*) The noise monitoring was conducted by the former ET and they provided the measured L<sub>eq30min</sub> only

**Table 4-5 Construction Noise Monitoring Results at UTP5**

| Date                        | Start Time                                      | L <sub>eq5min</sub> |      |      |      |      |      | L <sub>eq30min</sub> | Sound Level Meter to use |
|-----------------------------|---|---------------------|------|------|------|------|------|----------------------|--------------------------|
|                             |   | 1st                 | 2nd  | 3rd  | 4th  | 5th  | 6th  |                      |                          |
| (*)6-Jul-12                 | 14:58   |                     |      |      |      |      |      | 63                   | Unknown                  |
| 13-Jul-12                   | 15:30   | 64.6                | 62.9 | 61.5 | 60.9 | 54.9 | 51.9 | 61                   | EQ006                    |
| 19-Jul-12                   | 15:20   | 59.2                | 58.5 | 58.6 | 56.9 | 58.7 | 59.0 | 59                   | EQ006                    |
| 25-Jul-12                   | Noise monitoring was cancelled due to typhoon 3 |                     |      |      |      |      |      |                      | --                       |
| 27-Jul-12                   | 15:50   | 59.1                | 57.7 | 57.0 | 57.1 | 57.5 | 57.4 | 58                   | EQ006                    |
| 31-Jul-12                   | 10:55   | 68.0                | 61.3 | 62.2 | 65.3 | 61.0 | 61.2 | 64                   | EQ006                    |
| <b>Limit Level in dB(A)</b> |   |                     |      |      |      |      |      | <b>75</b>            |                          |

Remarks: The monitoring is undertaken under façade situation. No façade correction is made according to acoustical principles and EPD guidelines.

(\*) The noise monitoring was conducted by the former ET and they provided the measured L<sub>eq30min</sub> only

**Table 4-6 Construction Noise Monitoring Results at UTP6**

| Date                        | Start Time                                      | L <sub>eq5min</sub> |      |      |      |      |      | L <sub>eq30min</sub> | Sound Level Meter to use |
|-----------------------------|---|---------------------|------|------|------|------|------|----------------------|--------------------------|
|                             |   | 1st                 | 2nd  | 3rd  | 4th  | 5th  | 6th  |                      |                          |
| (*)6-Jul-12                 | 11:20   |                     |      |      |      |      |      | 56                   | Unknown                  |
| 13-Jul-12                   | 15:05   | 61.1                | 58.0 | 60.4 | 60.6 | 59.1 | 59.9 | 60                   | EQ010                    |
| 19-Jul-12                   | 14:46   | 60.6                | 58.5 | 57.7 | 58.5 | 58.3 | 56.8 | 59                   | EQ010                    |
| 25-Jul-12                   | Noise monitoring was cancelled due to typhoon 3 |                     |      |      |      |      |      |                      | --                       |
| 27-Jul-12                   | 15:48   | 58.8                | 61.0 | 59.5 | 62.4 | 61.2 | 62.2 | 61                   | EQ065                    |
| 31-Jul-12                   | 10:29   | 55.8                | 56.4 | 55.0 | 55.3 | 54.5 | 54.1 | 55                   | EQ010                    |
| <b>Limit Level in dB(A)</b> |   |                     |      |      |      |      |      | <b>75</b>            |                          |

Remarks: The monitoring is undertaken under façade situation. No façade correction is made according to acoustical principles and EPD guidelines.

(\*) The noise monitoring was conducted by the former ET and they provided the measured L<sub>eq30min</sub> only

**Table 4-7 Construction Noise Monitoring Results at UTP7**

| Date                        | Start Time                                      | L <sub>eq5min</sub> |      |      |      |      |      | L <sub>eq30min</sub> | Sound Level Meter to use |
|-----------------------------|---|---------------------|------|------|------|------|------|----------------------|--------------------------|
|                             |   | 1st                 | 2nd  | 3rd  | 4th  | 5th  | 6th  |                      |                          |
| (*)6-Jul-12                 | 10:49   |                     |      |      |      |      |      | 68                   | Unknown                  |
| 13-Jul-12                   | 14:55   | 67.5                | 63.4 | 57.1 | 57.3 | 56.1 | 55.4 | 62                   | EQ067                    |
| 19-Jul-12                   | 14:40   | 66.3                | 60.1 | 56.2 | 55.3 | 56.0 | 58.2 | 61                   | EQ067                    |
| 25-Jul-12                   | Noise monitoring was cancelled due to typhoon 3 |                     |      |      |      |      |      |                      | --                       |
| 27-Jul-12                   | 15:20   | 59.5                | 57.5 | 57.4 | 56.7 | 57.7 | 60.5 | 58                   | EQ010                    |
| 31-Jul-12                   | 10:13   | 56.6                | 57.5 | 61.2 | 56.5 | 57.0 | 53.9 | 58                   | EQ067                    |
| <b>Limit Level in dB(A)</b> |   |                     |      |      |      |      |      | <b>75</b>            |                          |

Remarks: The monitoring is undertaken under façade situation. No façade correction is made according to acoustical principles and EPD guidelines.

(\*) The noise monitoring was conducted by the former ET and they provided the measured L<sub>eq30min</sub> only

**Table 4-8 Construction Noise Monitoring Results at UTP8**

| Date        | Start Time | L <sub>eq5min</sub> |      |      |      |      |      | L <sub>eq30min</sub> | Sound Level Meter to use |
|-------------|------------|---------------------|------|------|------|------|------|----------------------|--------------------------|
|             |            | 1st                 | 2nd  | 3rd  | 4th  | 5th  | 6th  |                      |                          |
| (*)6-Jul-12 | 10:14      |                     |      |      |      |      |      | 71                   | Unknown                  |
| 13-Jul-12   | 14:55      | 59.4                | 60.8 | 63.1 | 60.8 | 60.2 | 61.4 | 61                   | EQ006                    |
| 19-Jul-12   | 14:40      | 60.3                | 60.7 | 56.7 | 57.3 | 56.8 | 64.7 | 61                   | EQ006                    |

| Date                        | Start Time | L <sub>eq5min</sub>                             |      |      |      |      |      | L <sub>eq30min</sub> | Sound Level Meter to use |
|-----------------------------|------------|---|------|------|------|------|------|----------------------|--------------------------|
|                             |            | 1st   | 2nd  | 3rd  | 4th  | 5th  | 6th  |                      |                          |
| 25-Jul-12                   |            | Noise monitoring was cancelled due to typhoon 3 |      |      |      |      |      |                      | --                       |
| 27-Jul-12                   | 15:01      | 60.3  | 60.3 | 60.2 | 59.8 | 62.2 | 61.9 | 61                   | EQ065                    |
| 31-Jul-12                   | 10:20      | 72.4  | 73.9 | 71.4 | 71.2 | 71.0 | 73.0 | 72                   | EQ006                    |
| <b>Limit Level in dB(A)</b> |            |   |      |      |      |      |      | <b>75</b>            |                          |

**Remarks:** The monitoring is undertaken under façade situation. No façade correction is made according to acoustical principles and EPD guidelines.

(\*) The noise monitoring was conducted by the former ET and they provided the measured L<sub>eq30min</sub> only

**Table 4-9 Construction Noise Monitoring Results at UTP9**

| Date                        | Start Time | L <sub>eq5min</sub>                             |      |      |      |      |      | L <sub>eq30min</sub> | Sound Level Meter to use |
|-----------------------------|------------|---|------|------|------|------|------|----------------------|--------------------------|
|                             |            | 1st   | 2nd  | 3rd  | 4th  | 5th  | 6th  |                      |                          |
| (*)6-Jul-12                 | 09:43      |   |      |      |      |      |      | 71                   | Unknown                  |
| 13-Jul-12                   | 14:33      | 59.4  | 60.8 | 63.1 | 60.8 | 60.2 | 61.4 | 61                   | EQ010                    |
| 19-Jul-12                   | 14:13      | 60.3  | 60.7 | 56.7 | 57.3 | 56.8 | 64.7 | 61                   | EQ010                    |
| 25-Jul-12                   |            | Noise monitoring was cancelled due to typhoon 3 |      |      |      |      |      |                      | --                       |
| 27-Jul-12                   | 14:45      | 60.3  | 60.3 | 60.2 | 59.8 | 62.2 | 61.9 | 61                   | EQ010                    |
| 31-Jul-12                   | 09:57      | 72.4  | 73.9 | 71.4 | 71.2 | 71.0 | 73.0 | 72                   | EQ010                    |
| <b>Limit Level in dB(A)</b> |            |   |      |      |      |      |      | <b>75</b>            |                          |

**Remarks:** The monitoring is undertaken under façade situation. No façade correction is made according to acoustical principles and EPD guidelines.

(\*) The noise monitoring was conducted by the former ET and they provided the measured L<sub>eq30min</sub> only

**Table 4-10 Construction Noise Monitoring Results at UTP10**

| Date                        | Start Time | L <sub>eq5min</sub>                             |      |      |      |      |      | L <sub>eq30min</sub> | Sound Level Meter to use |
|-----------------------------|------------|---|------|------|------|------|------|----------------------|--------------------------|
|                             |            | 1st   | 2nd  | 3rd  | 4th  | 5th  | 6th  |                      |                          |
| (*)6-Jul-12                 | 09:03      |   |      |      |      |      |      | 60                   | Unknown                  |
| 13-Jul-12                   | 14:15      | 58.4  | 65.8 | 55.2 | 67.8 | 67.2 | 65.6 | 65                   | EQ006                    |
| 19-Jul-12                   | 14:05      | 52.4  | 60.6 | 64.1 | 63.7 | 57.3 | 52.9 | 61                   | EQ006                    |
| 25-Jul-12                   |            | Noise monitoring was cancelled due to typhoon 3 |      |      |      |      |      |                      | --                       |
| 27-Jul-12                   | 14:40      | 47.6  | 54.2 | 48.4 | 47.0 | 47.3 | 46.6 | 50                   | EQ006                    |
| 31-Jul-12                   | 09:45      | 58.3  | 46.7 | 52.4 | 45.5 | 51.5 | 49.5 | 53                   | EQ006                    |
| <b>Limit Level in dB(A)</b> |            |   |      |      |      |      |      | <b>75</b>            |                          |

**Remarks:** The monitoring is undertaken under façade situation. No façade correction is made according to acoustical principles and EPD guidelines.

(\*) The noise monitoring was conducted by the former ET and they provided the measured L<sub>eq30min</sub> only

**Table 4-11 Construction Noise Monitoring Results at UTP11**

| Date                        | Start Time | L <sub>eq5min</sub>                             |      |      |      |      |      | L <sub>eq30min</sub> | Corrected L <sub>eq30min</sub> | Sound Level Meter to use |
|-----------------------------|------------|---|------|------|------|------|------|----------------------|--------------------------------|--------------------------|
|                             |            | 1st   | 2nd  | 3rd  | 4th  | 5th  | 6th  |                      |                                |                          |
| (*)6-Jul-12                 | 08:32      |   |      |      |      |      |      | 60                   | 63                             | Unknown                  |
| 13-Jul-12                   | 14:20      | 55.3  | 48.0 | 48.9 | 49.4 | 44.7 | 45.1 | 50                   | 53                             | EQ067                    |
| 19-Jul-12                   | 14:05      | 60.8  | 48.1 | 52.6 | 53.2 | 53.8 | 52.6 | 55                   | 58                             | EQ067                    |
| 25-Jul-12                   |            | Noise monitoring was cancelled due to typhoon 3 |      |      |      |      |      |                      |                                | --                       |
| 27-Jul-12                   | 15:10      | 48.4  | 49.1 | 51.9 | 51.3 | 50.8 | 49.7 | 50                   | 53                             | EQ006                    |
| 31-Jul-12                   | 09:50      | 49.1  | 58.7 | 50.4 | 47.4 | 48.2 | 49.2 | 53                   | 56                             | EQ067                    |
| <b>Limit Level in dB(A)</b> |            |   |      |      |      |      |      | <b>75</b>            |                                |                          |

**Remarks:** The monitoring is undertaken under free field situation. A façade correction of +3 dB(A) has been added according to acoustical principles and EPD guidelines

(\*) The noise monitoring was conducted by the former ET and they provided the measured L<sub>eq30min</sub> only

4.03 A free field noise monitoring is performed only at UTP11, therefore, a façade correction +3 dB(A) is added in accordance with the acoustical principles and EPD guidelines.

4.04 Noise monitoring was cancelled on 25 July 2012 due to typhoon 3 and the monitoring was postponed to 27 July 2012.

- 4.05 No noise complaint (which is an Action Level exceedance) was received in this Reporting Period. Furthermore, no noise monitoring exceedance was recorded. No Notice of Exceedance (NOE) was issued to notify EPD, IEC, the Contractor and the ER.
- 4.06 Although all noise measurement results were below 75dB(A), the Contractor is reminded to strictly implement noise mitigation measures as recommended in the EM&A Manual to avoid noise Limit Level exceedance.

## 5.0 VIBRATION MONITORING RESULTS

- 5.01 There was no vibration monitoring carried out in this Reporting Period. Vibration monitoring will be carried out when piling works take place in Upper Tai Po River.

## 6.0 ECOLOGY MONITORING RESULTS

- 6.01 Weekly ecological inspections by the Ecologist Dr. Mark Shea were carried out on 2, 9, 16 and 23 July 2012. Details of findings are summarized in *Table 6-1*.

**Table 6-1 Summary results of ecological site inspection findings**

| Date        | Observations                          | Advice from Ecologist        | Action Taken                      | Closing Date |
|-------------|---------------------------------------|------------------------------|-----------------------------------|--------------|
| 2 Jul 2012  | No major findings for this inspection | No advice is required        | No action is required to be taken | N/A          |
| 9 Jul 2012  | No major findings for this inspection | <b>Advice from Ecologist</b> | No action is required to be taken | N/A          |
| 16 Jul 2012 | No major findings for this inspection | <b>Advice from Ecologist</b> | No action is required to be taken | N/A          |
| 23 Jul 2012 | No major findings for this inspection | <b>Advice from Ecologist</b> | No action is required to be taken | N/A          |

- 6.02 Furthermore, the bi-annual ecological impact monitoring was undertaken on 5 July 2012. As the monitoring report prepared by the Ecologist Dr. Mark Shea is under verification process, no ecology monitoring report is attached in this Reporting Period. The detail ecology monitoring report will be submitted in the coming month after verification by the IEC and the ER. The next bi-annual ecological monitoring has been arranged to be carried out in January 2013.

## 7.0 SITE INSPECTION

### REGULAR SITE INSPECTION AND AUDITING

- 7.01 Weekly environmental site inspection was carried out by the Contractor, ET, IEC and RE on **5, 11, 18, 25 and 31 July 2012**. Also, DSD's representatives attended the site inspection on **31 July 2012**. In this Reporting Period, **10** observations were recorded but no non-compliance was identified.
- 7.02 Observations for the site inspection and monthly audit within this Reporting Period are summarized in *Table 7-1*.

**Table 7-1 Site Inspection of Observations – Findings and Deficiencies**

| Date         | Findings / Deficiencies  | Follow-Up Status  |
|--------------|--|---|
| 5 July 2012  | <ul style="list-style-type: none"> <li>Contractor was urged to provide water spraying facility in dry or wind conditions to minimize the dust impact to the nearest sensitive receivers during UTPR rock breaking.</li> <li>The bucket of an idling excavator was observed stagnant water. Contractor was reminded to remove the stagnant water to avoid mosquito breeding.</li> <li>Oil drums without drip trays were observed at ch.50 and ch.400 of UTPR. To avoid land contamination, the Contractor was reminded to provide drip tray to prevent any leakage.</li> </ul>  | <ul style="list-style-type: none"> <li>Corrective action of water spraying provided during rock breaking was immediately taken by the Contractor.</li> <li>Corrective action of stagnant water removal was immediately taken by the Contractor.</li> <li>Oil drums were removed before site inspection on 11 July 2012. The issue was closed</li> </ul>   |
| 11 July 2012 | <ul style="list-style-type: none"> <li>Oil leakage from a broken excavator and oil containers without drip tray were observed at ch.0 of UTPR. Contractor was urged to remove the contaminated soil and provide drip tray for temporary storage of oil containers.</li> <li>The tree protective fence was observed to be damaged for the retained trees at ch.400 of UTPR. Contractor was advised to repair the tree fence and maintain proper tree protection zone to protect the retained trees within the site.</li> <li>The haul road along was very dry and fugitive dust was generated. Contractor was advised to provide more frequent water spraying for dust suppression under dry or wind conditions.</li> </ul> | <ul style="list-style-type: none"> <li>The broken excavator and the contaminated soil were removed from the site. The oil containers located at ch.0 was removed and stored at temporary storage area with a drip tray.</li> <li>Although the tree protective fence was repaired during site inspection on 18 July 2012, the Contractor was reminded to regularly check and repair.</li> <li>During sunny days or fine days, the Contractor has increased water spraying frequency to prevent dust emission.</li> </ul> |
| 18 July 2012 | <ul style="list-style-type: none"> <li>General Refuse disposed at ground surface observed on work areas. The Contractor was reminded to maintain housekeeping for whole Project site;</li> </ul>   | Housekeeping was immediately undertaken by the Contractor.  |
| 25 July 2012 | <ul style="list-style-type: none"> <li>Plastic bottles disposed on site are also observed. The Contractor was reminded to maintain housekeeping for whole Project site;</li> </ul>   | Housekeeping was immediately taken by the Contractor.   |
| 31 July 2012 | <ul style="list-style-type: none"> <li>Construction waste and inert waste were disposed at working area Upper Tai Po River. The Contractor was reminded to remove it.</li> </ul>   | Construction waste and inert waste were removed before site inspection on 8 August 2012.  |

7.03 Some deficiencies observed during previous site inspections are still outstanding. The status of rectification is presented in *Table 7-2*.

**Table 7-2 Rectification Status of Previous Site Inspection Deficiencies**

| Inspection Date | Findings / Deficiencies  | Status                |
|-----------------|--|-----------------------|
| 6 Oct 11        | Noise barriers were not yet erected by Contractor along UTPR. Contractor was urged to install noise barriers to minimize the noise impact arisen from construction activities. | Ongoing               |
| 9 May 12        | The mitigation measures for the rock breaking at ch.0 of   | The rock breaking was |



| Inspection Date | Findings / Deficiencies   | Status   |
|-----------------|---|--|
|                 | UTPR were insufficient. Contractor was seriously advised to wrap the breaker tip with sound insulating material and provide water spraying facility to minimize the noise and dust impact to the nearest sensitive receivers          | ceased in July 2012. The issue was resolved.   |
| 23 May 12       | Oil drums were observed to be without secondary containment at ch.50 and ch.400. Contractor was reminded to provide drip tray for storing chemical and oil containers to avoid land contamination as if leakage.                      | Oil drums were removed before site inspection 12 July 2012. The issue was resolved.                      |
| 20 Jun 12       | Stagnant water was observed at ch.0. Contractor was advised to remove the stagnant water immediately to avoid mosquito breeding.  | Corrective actions were taken before 12 July 2012. The issue was resolved                                |
| 20 Jun 12       | The river water was flowing across the haul road at ch.100 and polluted by soil washing and operation of construction vehicles. Contractor was urged to provide channel to diverge the water for preventing pollution of river water. | The haul road at ch.100 was re-constructed to minimize pollution of river water. The issue was resolved. |

7.04 Implementation status of environmental protection and mitigation measures are shown in *Table 10-1* of this report.

**8.0 WASTE MANAGEMENT**

8.01 Waste management is carried out by an on-site Environmental Officer (EO) or an Environmental Supervisor (ES) from time to time.

**RECORDS OF WASTE QUANTITIES**

8.02 All types of waste arising from the construction work are classified into the following:

- Construction & Demolition (C&D) Material;
- Chemical Waste; and
- General Refuse

8.03 The quantities of waste for disposal in this reporting month are summarized in *Table 8-1* and *8-2* and the Monthly Summary Waste Flow Table is shown in *Appendix K*. Whenever possible, materials are reused on-site as far as practicable.

**Table 8-1 Summary of Quantities of Inert C&D Materials**

| Type of Waste   | Quantity |
|---|----------|
| C&D Materials (Inert) (in '000m <sup>3</sup> )            | 0.128    |
| Reused in the Contract (Inert) (in '000m <sup>3</sup> )   | 0.128    |
| Reused in other Projects (Inert) (in '000m <sup>3</sup> ) | 0        |
| Disposal as Public Fill (Inert) (in '000m <sup>3</sup> )  | 0        |

**Table 8-2 Summary of Quantities of C&D Wastes**

| Type of Waste                         | Quantity | Disposal Method    |
|---------------------------------------|----------|--------------------|
| Metal (in '000kg)                     | 0.040    | Licensed Collector |
| Paper / Cardboard Packing (in '000kg) | 0.045    | Licensed Collector |
| Plastic (in '000kg)                   | 0.025    | Licensed Collector |
| Chemical Wastes (in '000kg)           | 0.000    | --                 |
| General Refuses ('000m <sup>3</sup> ) | 0.050    | Licensed Collector |

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

## 9.0 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

### ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

9.01 No environmental complaint, summon and prosecution was received in this Reporting Period. The statistical summary of environmental complaint, summon and prosecution, is presented in *Tables 9-1, 9-2 and 9-3*.

**Table 9-1 Statistical Summary of Environmental Complaints**

| Complaint Nature     | Environmental Complaint Statistics |                          |           |
|----------------------|------------------------------------|--------------------------|-----------|
|                      | Cumulative<br>(Sep 2008 –Jun 2012) | Frequency<br>(July 2012) | Total     |
| Air/Dust             | 7                                  | 0                        | 7         |
| Noise                | 5                                  | 0                        | 5         |
| Water                | 11                                 | 0                        | 11        |
| Housekeeping Hygiene | 1                                  | 0                        | 1         |
| Chemical Waste       | 0                                  | 0                        | 0         |
| <b>Overall</b>       | <b>24</b>                          | <b>0</b>                 | <b>24</b> |

**Table 9-2 Statistical Summary of Environmental Summons**

| Complaint Nature     | Environmental Summons Statistics   |                          |          |
|----------------------|------------------------------------|--------------------------|----------|
|                      | Cumulative<br>(Sep 2008 –Jun 2012) | Frequency<br>(July 2012) | Total    |
| Air/Dust             | 0                                  | 0                        | 0        |
| Noise                | 0                                  | 0                        | 0        |
| Water                | 0                                  | 0                        | 0        |
| Housekeeping Hygiene | 0                                  | 0                        | 0        |
| Chemical Waste       | 0                                  | 0                        | 0        |
| <b>Overall</b>       | <b>0</b>                           | <b>0</b>                 | <b>0</b> |

**Table 9-3 Statistical Summary of Environmental Prosecution**

| Complaint Nature     | Environmental Prosecution Statistics |                          |          |
|----------------------|--------------------------------------|--------------------------|----------|
|                      | Cumulative<br>(Sep 2008 –Jun 2012)   | Frequency<br>(July 2012) | Total    |
| Air/Dust             | 0                                    | 0                        | 0        |
| Noise                | 0                                    | 0                        | 0        |
| Water                | 0                                    | 0                        | 0        |
| Housekeeping Hygiene | 0                                    | 0                        | 0        |
| Chemical Waste       | 0                                    | 0                        | 0        |
| <b>Overall</b>       | <b>0</b>                             | <b>0</b>                 | <b>0</b> |

## 10.0 IMPLEMENTATION STATUS OF MITIGATION MEASURES

10.01 The environmental mitigation measures recommended in EM&A Manual cover the issues of dust, noise and waste and they are summarized as follows:

### Noise Mitigation Measures

- (a) No percussive piling shall be carried out
- (b) Only well-maintained plant should be operated on-site; and plant shall be serviced regularly during the construction program;
- (c) Silencers or mufflers on construction equipment should be utilized and shall be properly maintained during the construction program;
- (d) Mobile plant, if any, should be sited as far from Noise Sensitive Receivers (NSRs) as possible;
- (e) Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;
- (f) Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs;
- (g) Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities;
- (h) Use of quieter plants to carry out the construction tasks proposed for the Project;
- (i) Use 2.0m high temporary noise barriers as screened the noisy PME's to carry out the river implementation work.
- (j) Low Impact Method, such as using PME's smaller in size

### Dust Mitigation Measures

10.02 Implementation of mitigation measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices include but not limited to the following:

- (a) Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved road, with complete coverage, particularly during dry weather;
- (b) Use of frequent watering for particularly dusty static construction areas and areas close to ASRs;
- (c) Tarpaulin covering of all dusty vehicle loads transported to, from and between site location;
- (d) Establishment and use of vehicle wheel and body washing facilities at the exit points of the site;
- (e) Routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs;
- (f) Stockpiled excavated materials should be covered with tarpaulin.

### Local Stream Water Quality Mitigation Measures

- (a) Excavation works within the Tai Po River within the Project shall be carried out in stages and excavation area for each stage shall be limited to section of half width of the channel and less than 100m long at any one time in order to maintain water flow within the river during construction stage;
- (b) Land-based plant shall be employed and site run-off shall be directed towards regularly cleaned and maintained silt traps and oil / grease separators to minimize leakage and loss of sediments during excavation;
- (c) Large boulders removed from the Tai Po River within the Project during excavation shall be re-instated upon completion of works A section of 150m long natural riverbank on the western side of the river channel (Ch0 –Ch150) shall be retained;
- (d) The excavation area shall be enclosed with bunds or barriers and dewatered prior to excavation to minimize the impacts upon the downstream of the Tai Po River;
- (e) Provide silt trap and oil interceptor to remove the oil, lubricants, grease, silt, grit and debris from the wastewater before pumped to the public storm water drainage system;
- (f) During rainstorms, exposed slope/soil surfaces shall be covered by a tarpaulin or other

means. Other measures that need to be implemented before, during, and after rainstorms as summarized in ProPECC PN 1/94 shall be followed

- (g) Provide site toilet facilities;

### **Waste Mitigation Measures**

- (a) The Contractor shall observe and comply with the Waste Disposal Ordinance (WDO) and its subsidiary regulations.
- (b) The Contractor shall submit to the Engineer for approval a Waste Management Plan with appropriate mitigation measures including the allocation of an area for waste segregation and shall ensure that the day-to-day site operations comply with the approved waste management plan.
- (c) The Contractor shall minimize the generation of waste from his work. Avoidance and minimization of waste generation can be achieved through changing or improving design and practices, careful planning and good site management.
- (d) The reuse and recycling of waste shall be practised as far as possible. The recycling materials shall include paper/cardboard, timber and metal etc.
- (e) The Contractor shall ensure that Construction and Demolition (C&D) materials are sorted into public fill (inert portion) and C&D waste (non-inert portion). The public fill which comprises soil, rock, concrete, brick, cement plaster/mortar, inert building debris, aggregates and asphalt shall be reused in earth filling, reclamation or site formation works. The C&D waste which comprises metal, timber, paper, glass, junk and general garbage shall be reused or recycled where possible and, as the last resort, disposal of at landfills.
- (f) The Contractor shall record the amount of wastes generated, recycled and disposed of (including the disposal sites). The Contractor shall use a trip ticket system for the disposal of C&D materials to any designated public filling facility and/or landfill.
- (g) In order to avoid dust or odour impacts, any vehicles leaving a works area carrying construction waste or public fill shall have their load covered.
- (h) To avoid the excessive use of wood, reusable steel shutters shall be used as a preferred alternative to formwork and falsework where possible.
- (i) The Contractor shall observe and comply with the Waste Disposal (Chemical Waste) (General) Regulation. The Contractor shall apply for registration as chemical waste producer under the Waste Disposal (Chemical Waste) (General) Regulation when chemical waste is produced. All chemical waste shall be properly stored, labeled, packaged and collected in accordance with the Regulation.

### **Vibration**

- (a) Percussive piling is to be replaced by bore-hole piling to minimize vibration impacts to the two identified declared monuments;
- (b) Carrying out of vibration monitoring to ensure that vibration associated with the construction phase do not exceed the threshold limit otherwise contractor have to review the work method and construction activities have to be slow down or rescheduled to reduce the impacts;
- (c) Close monitoring and measurement on the cracks of the external wall of Fan Sin Temple during construction works will be carried out. Any changes on the cracks will be recorded for the contractor to slow down the construction activities accordingly; and to review the work methods and equipment immediately

### **Ecology**

- (a) Large boulders will be returned to the riverbed following the excavation works;
- (b) Construction works from Ch. 0.0m – Ch. 150m would be along one side of the river only;
- (c) Approximately 150m of the existing natural riverbank on the western side of the river would be retained;
- (d) Excavation works within the river channel should be restricted to an enclosed dewater section of the river, and would be limited to sections 50-100m long at any one time;

- (e) Flows to the area downstream shall be maintained at all times during the construction phase;
- (f) Capture survey shall be conducted within the Tai Po River before commencement of works. The captured target species shall be relocated to areas of the watercourse upstream of the watercourse upstream of the Tai Po River;
- (g) Temporary noise barriers should be constructed to control noise impacts to habitats and associated wildlife within and adjacent to the proposed works area;
- (h) Excavation works shall be carried out by land based plant within enclosed dry section of river channel;
- (i) Compensatory planting of trees and other vegetation along the banks of the newly improved drainage channel should be provided to compensate for the loss of riparian vegetation; and
- (j) Operation phase activities in the improved drainage channel would be limited to periodic channel maintenance such as de-silting.

10.03 Based on the site environmental situation, the Contractor has been implemented the required environmental mitigation measures according to the Updated Environmental Monitoring and Audit Manual. In this reporting period, environmental mitigation measures had implemented by the Contractor are summarized in *Table 10-1*.

**Table 10-1 Environmental Mitigation Measures**

| Issues                        | Environmental Mitigation Measures   |
|-------------------------------|---|
| Water Quality                 | <ul style="list-style-type: none"> <li>• Wastewater should be appropriately treated by treatment facilities;</li> <li>• Drainage channels should be provided to convey run-off into the treatment facilities; and</li> <li>• Drainage systems should be regularly and adequately maintained.</li> </ul>   |
| Air Quality                   | <ul style="list-style-type: none"> <li>• Increase watering frequency to reduce dust emissions from all exposed site surface, particularly during dry weather;</li> <li>• Frequent watering for particularly dusty construction areas and areas close to air sensitive receivers;</li> <li>• Cover all excavated or stockpile of dusty material by impervious sheeting or sprayed with water to maintain the entire surface wet;</li> <li>• Public roads around the site entrance/exit should be kept clean and free from dust; and</li> <li>• Tarpaulin covering of any dusty materials on a vehicle leaving the site.</li> </ul>                         |
| Noise                         | <ul style="list-style-type: none"> <li>• Reduce construction machines as used within the site;</li> <li>• Use of quiet plant and working methods;</li> <li>• Scheduling of construction works nearby the NSR; and</li> <li>• Alternative use of plant items within one worksite, where practicable.</li> </ul>  |
| Waste and Chemical Management | <ul style="list-style-type: none"> <li>• Excavated material should be reused on site as far as possible to minimize off-site disposal. Scrap metals or abandoned equipment should be recycled if possible;</li> <li>• Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner;</li> <li>• The Contractor should adopt a trip ticket system for the disposal of C&amp;D materials to any designed public filling facility and/or landfill; and</li> <li>• Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.</li> </ul> |
| General                       | <ul style="list-style-type: none"> <li>• The site should be generally kept tidy and clean.</li> </ul>   |

## 11.0 IMPACT FORECAST

### CONSTRUCTION ACTIVITIES FOR THE FORTH-COMING MONTH

11.01 Construction activities planned to be carried out next month at Upper Tai Po River are listed below:-

- Construction of Riverbed
- Construction of Gabion Mattress
- Construction of Dwarf Walls
- Construction of Inclined Gabion/No-fines Mass Concrete Walls
- Construction of Stilling Basin
- Construction of Baffle Blocks

### KEY ISSUES FOR THE COMING MONTH

11.02 According to construction activities to be carried out in coming months, key issues to be considered include:

- Implementation of dust suppression measures should be conducted at all times;
- Ensure dust suppression measures should be implemented properly;
- Disposal of empty engine oil containers should be undertaken within site area;
- Sediment catch-pits and silt removal facilities should be regularly maintained;
- Management of chemical wastes should be followed;
- Discharge of site effluent to the nearby local stream or storm drainage, stockpiling or disposal of materials, and any dredging or construction area at this area should be prohibited;
- Follow-up of improvement on general waste management issues should be conducted; and
- Implementation of construction noise preventative control measures should be undertaken.

## 12.0 CONCLUSIONS AND RECOMMENTATIONS

### CONCLUSIONS

- 12.01 This is the **forty-seventh (47<sup>th</sup>)** monthly EM&A report for the Project presenting the monitoring results and inspection findings for the reporting month from **1 to 31 July 2012**.
- 12.02 No noise complaint (which is an Action Level exceedance) was received in this Reporting Period. Furthermore, no noise Limit Level exceedance was recorded. No NOE was issued to notify EPD, IEC, the Contractor and RE.
- 12.03 As no piling work conducted, no vibration monitoring was performed in this Reporting Period.
- 12.04 The bi-annual ecological impact monitoring was undertaken on **5 July 2012**. Moreover, four weekly ecological site inspections were performed on **2, 9, 16 and 23 July 2012**. According to inspection findings, no advice and action was recommended by the Ecologist.
- 12.05 No documented complaints, notification of summon or successful prosecution was received in the reporting month.
- 12.06 Weekly environmental site inspection by the Contractor, ET, IEC and Engineer's Representative was undertaken on **5, 11, 18, 25 and 31 July 2012**. In this Reporting Period, **10** observations were recorded but no non-compliance was identified during the site inspection.

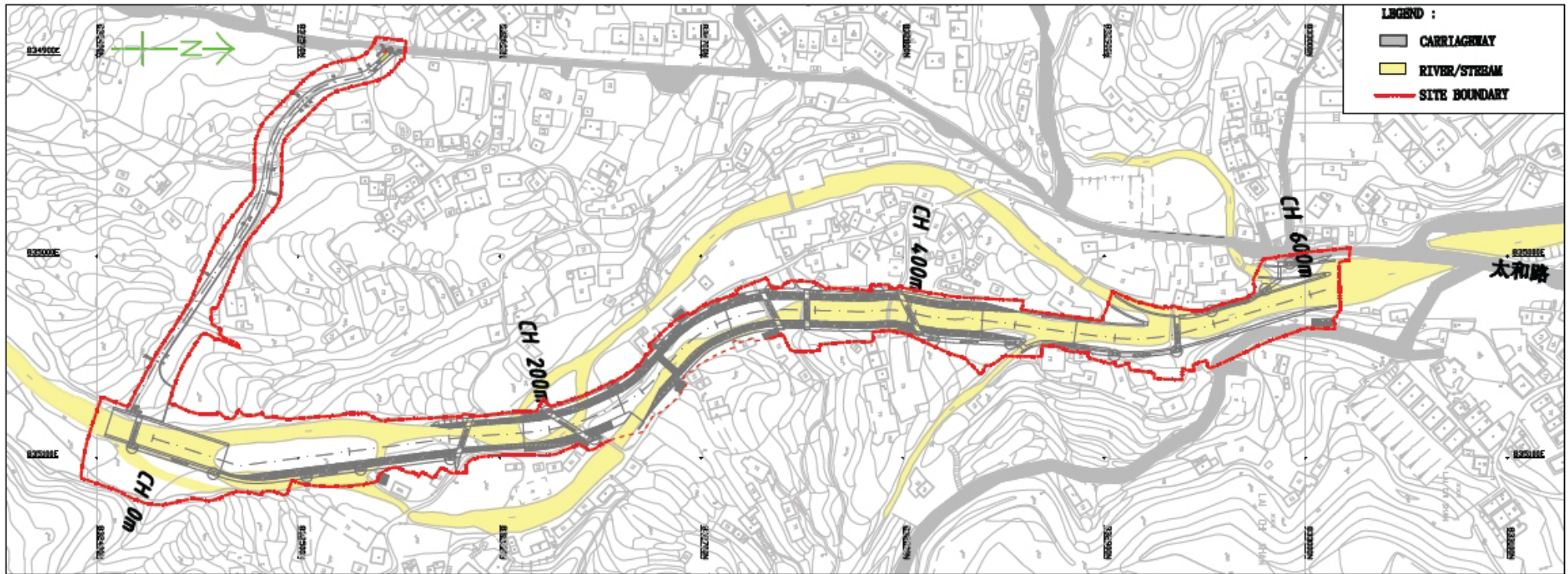
### RECOMMENDATIONS

- 12.07 During wet season, muddy water and other water quality pollutants via site surface water runoff into the local stream Tai Po River is a key issue in the coming month and water quality mitigation measures shall be fully implemented.
- 12.08 On the other hand, construction noise is another key environmental issue during construction phase. Noise mitigation measures are reminded to be implemented in accordance with EM&A Manual stipulation. Dust mitigation measures to avoid fugitive dust emissions from loose soil surface or haul road are also reminded.
- 12.09 To control the site performance on waste management, Chiu Hing Construction and Transportation Company Limited shall ensure that all solid and liquid waste management works are fully in compliance with the relevant license/permit requirements, such as the effluent discharge licence and the chemical waste producer registration. Chiu Hing Construction and Transportation Company Limited is also reminded to implement the recommended environmental mitigation measures according to EM&A Manual.



## **Appendix A**

### **Site Layout Plan of the Upper Tai Po River**



Upper Tai Po River

## **Appendix B**

### **Master and Three Months Rolling Construction Programs**

| 識別碼 | 任務名稱  | 工期      | 開始時間       | 完成時間       | 2010年             |    | 2011年 |    | 2012年 |    | 2013年 |    |  |  |  |
|-----|---|---------|------------|------------|-------------------|----|-------|----|-------|----|-------|----|--|--|--|
|     |   |         |            |            | H2                | H1 | H2    | H1 | H2    | H1 | H2    | H1 |  |  |  |
| 1   | Programme of Upper Tai Po River                                   | 750 工作日 | 5/1/2010   | 19/11/2012 | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 2   | Wet Season of 2010  | 214 工作日 | 5/1/2010   | 31/10/2010 | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 3   | Wet Season of 2011  | 149 工作日 | 8/3/2011   | 30/9/2011  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 4   | Works Suspended Due to Villager's Rally                           | 42 工作日  | 21/10/2010 | 18/12/2010 | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 5   | Ch 230-350  | 446 工作日 | 28/1/2011  | 12/10/2012 | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 6   | Gabion Wall (Ch 230-275 RHS) TG1/TG1A (Completed)                 | 40 工作日  | 28/1/2011  | 24/3/2011  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 10  | Retaining Wall (Ch 275-330 RHS) TR1 (replaced by AD1) (Completed) | 154 工作日 | 17/3/2011  | 18/10/2011 | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 17  | Drainage & Footpath (CH 275-330 RHS)                              | 21 工作日  | 6/8/2012   | 3/9/2012   | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 18  | Construction of drainage & footpath                               | 21 工作日  | 6/8/2012   | 3/9/2012   | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 19  | Inclined Gabion Wall (Ch 290-327 LHS)                             | 109 工作日 | 3/1/2012   | 1/6/2012   | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 20  | Remove Concrete Blocks and shotcrete (Completed)                  | 30 工作日  | 3/1/2012   | 13/2/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 21  | Concreting (Completed)  | 50 工作日  | 6/2/2012   | 13/4/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 22  | No-fine   | 60 工作日  | 5/3/2012   | 25/5/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 23  | Gabion  | 5 工作日   | 28/5/2012  | 1/6/2012   | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 24  | Maintenance Staircase (Ch 315 LHS) (Completed)                    | 4 工作日   | 22/5/2012  | 25/5/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 26  | Drainage & Footpath (Ch 270-330 LHS)                              | 30 工作日  | 6/6/2011   | 15/7/2011  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 27  | Construction of drainage & footpath                               | 30 工作日  | 6/6/2011   | 15/7/2011  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 28  |   |         |            |            | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 29  | Temp Utility and Pedestrian Diversion at Ch230 (Completed)        | 192 工作日 | 21/7/2011  | 13/4/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 32  |   |         |            |            | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 33  | Demolition of Interim Footbridge at Ch230 (Completed)             | 17 工作日  | 3/10/2011  | 25/10/2011 | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 36  |   |         |            |            | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 37  | Inclined Gabion Wall (Ch 218-240 LHS)                             | 129 工作日 | 3/1/2012   | 29/6/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 38  | Remove Shotcrete & concrete block (Completed)                     | 30 工作日  | 3/1/2012   | 13/2/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 39  | Concreting  | 25 工作日  | 14/5/2012  | 15/6/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 40  | No-fine   | 3 工作日   | 22/6/2012  | 26/6/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 41  | Gabion  | 3 工作日   | 27/6/2012  | 29/6/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 42  | Maintenance Staircase (Ch 242 LHS)                                | 4 工作日   | 18/6/2012  | 21/6/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 43  | Formwork and concreting   | 4 工作日   | 18/6/2012  | 21/6/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 44  | Inclined Gabion Wall (Ch 240-272 LHS)                             | 129 工作日 | 3/1/2012   | 29/6/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 45  | Remove Concrete Blocks and shotcrete (Completed)                  | 30 工作日  | 3/1/2012   | 13/2/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 46  | Concreting (Completed)  | 30 工作日  | 12/3/2012  | 20/4/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 47  | No-fine   | 3 工作日   | 22/6/2012  | 26/6/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 48  | Gabion  | 3 工作日   | 27/6/2012  | 29/6/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 49  | Inclined RC Wall and Step 2A (Ch 272-290 LHS)                     | 51 工作日  | 9/4/2012   | 18/6/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 50  | Concreting (Base)   | 10 工作日  | 9/4/2012   | 20/4/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 51  | Concreting (Ramp)   | 7 工作日   | 11/5/2012  | 21/5/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 52  | Concreting (Slab)   | 5 工作日   | 22/5/2012  | 28/5/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 53  | Concreting (Wall Stem and Step 2A with stilling basin)            | 15 工作日  | 29/5/2012  | 18/6/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 54  | Drainage & Footpath (Ch 230-270 LHS)                              | 20 工作日  | 16/7/2012  | 10/8/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 55  | Construction of drainage & footpath                               | 20 工作日  | 16/7/2012  | 10/8/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 56  | Step 2(Ch 236)  | 10 工作日  | 19/6/2012  | 2/7/2012   | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |
| 57  | Stilling Basin  | 5 工作日   | 19/6/2012  | 25/6/2012  | [Gantt chart bar] |    |       |    |       |    |       |    |  |  |  |

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專案: Master Programme TPR 11 May  
日期: 22/5/2012

任務 進度 摘要 外部任務 期限  
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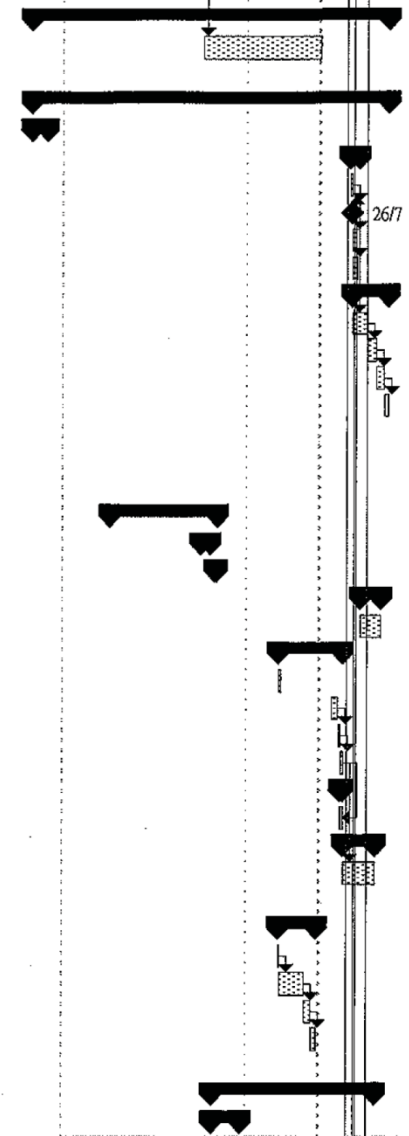
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| 識別碼 | 任務名稱  | 工期      | 開始時間       | 完成時間       | 2010年 |    | 2011年 |    | 2012年 |    | 2013年 |    |
|-----|---|---------|------------|------------|-------|----|-------|----|-------|----|-------|----|
|     |   |         |            |            | H2    | H1 | H2    | H1 | H2    | H1 | H2    | H1 |
| 58  | Ramp and Slab                                     | 5 工作日   | 26/6/2012  | 2/7/2012   |       |    |       |    |       |    |       |    |
| 59  | Cascade (Ch 275) (Completed)                      | 21 工作日  | 28/6/2012  | 26/7/2012  |       |    |       |    |       |    |       |    |
| 62  | Lighting at CH 250-320                            | 45 工作日  | 13/8/2012  | 12/10/2012 |       |    |       |    |       |    |       |    |
| 63  | Construction of Drawpits / Ductings               | 21 工作日  | 13/8/2012  | 10/9/2012  |       |    |       |    |       |    |       |    |
| 64  | Public lighting Installation (CE2318)             | 12 工作日  | 11/9/2012  | 26/9/2012  |       |    |       |    |       |    |       |    |
| 65  | Public lighting Installation (CE2317)             | 12 工作日  | 11/9/2012  | 26/9/2012  |       |    |       |    |       |    |       |    |
| 66  | T&C   | 6 工作日   | 27/9/2012  | 4/10/2012  |       |    |       |    |       |    |       |    |
| 67  | Removal of existing lighting (VA1311-Z1)          | 6 工作日   | 5/10/2012  | 12/10/2012 |       |    |       |    |       |    |       |    |
| 68  |   |         |            |            |       |    |       |    |       |    |       |    |
| 69  | Footbridge TB04 (Ch 330)                          | 181 工作日 | 12/10/2011 | 20/6/2012  |       |    |       |    |       |    |       |    |
| 70  | Construction of Abutment A (LHS) (Completed)      | 22 工作日  | 7/12/2011  | 5/1/2012   |       |    |       |    |       |    |       |    |
| 78  | Construction of Abutment B (RHS) (Completed)      | 24 工作日  | 12/10/2011 | 14/11/2011 |       |    |       |    |       |    |       |    |
| 87  | Construction of decking (steel deck) (Completed)  | 16 工作日  | 11/5/2012  | 1/6/2012   |       |    |       |    |       |    |       |    |
| 91  | Demolition of Bridge TB-A (Completed)             | 17 工作日  | 17/5/2012  | 8/6/2012   |       |    |       |    |       |    |       |    |
| 94  | Lighting at Footbridge TB04                       | 11 工作日  | 6/6/2012   | 20/6/2012  |       |    |       |    |       |    |       |    |
| 95  | Construction of Drawpits / Ductings               | 7 工作日   | 6/6/2012   | 14/6/2012  |       |    |       |    |       |    |       |    |
| 96  | Public lighting Installation (CE2315)             | 3 工作日   | 15/6/2012  | 19/6/2012  |       |    |       |    |       |    |       |    |
| 97  | Public lighting Installation (CE2316)             | 3 工作日   | 15/6/2012  | 19/6/2012  |       |    |       |    |       |    |       |    |
| 98  | T&C   | 1 工作日   | 20/6/2012  | 20/6/2012  |       |    |       |    |       |    |       |    |
| 99  | Construction of Gabion Wall at TB-A (Completed)   | 5 工作日   | 11/6/2012  | 15/6/2012  |       |    |       |    |       |    |       |    |
| 103 |   |         |            |            |       |    |       |    |       |    |       |    |
| 104 | Footbridge TB05 (ch 350)                          | 353 工作日 | 10/3/2011  | 16/7/2012  |       |    |       |    |       |    |       |    |
| 105 | Construction of Abutment A (LHS) (Completed)      | 20 工作日  | 22/5/2012  | 18/6/2012  |       |    |       |    |       |    |       |    |
| 113 | Construction of Abutment B (RHS) (Completed)      | 19 工作日  | 10/3/2011  | 5/4/2011   |       |    |       |    |       |    |       |    |
| 121 | Construction of decking (Completed)               | 37 工作日  | 11/5/2012  | 2/7/2012   |       |    |       |    |       |    |       |    |
| 126 | Demolition of Bridge TB-B (Completed)             | 17 工作日  | 17/5/2012  | 8/6/2012   |       |    |       |    |       |    |       |    |
| 129 | Lighting at Footbridge TB05                       | 10 工作日  | 3/7/2012   | 16/7/2012  |       |    |       |    |       |    |       |    |
| 130 | Construction of Drawpits / Ductings               | 6 工作日   | 3/7/2012   | 10/7/2012  |       |    |       |    |       |    |       |    |
| 131 | Public lighting Installation (CE2313)             | 3 工作日   | 11/7/2012  | 13/7/2012  |       |    |       |    |       |    |       |    |
| 132 | Public lighting Installation (CE2314)             | 3 工作日   | 11/7/2012  | 13/7/2012  |       |    |       |    |       |    |       |    |
| 133 | T&C   | 1 工作日   | 16/7/2012  | 16/7/2012  |       |    |       |    |       |    |       |    |
| 134 | Construction of Gabion Wall at TB-B (Completed)   | 5 工作日   | 11/6/2012  | 15/6/2012  |       |    |       |    |       |    |       |    |
| 138 |   |         |            |            |       |    |       |    |       |    |       |    |
| 139 |   |         |            |            |       |    |       |    |       |    |       |    |
| 140 | Inclined Gabion Wall (Ch 327-448 LHS) (Completed) | 13 工作日  | 11/5/2012  | 29/5/2012  |       |    |       |    |       |    |       |    |
| 145 | Drainage & Footpath (Ch 330-400 LHS)              | 30 工作日  | 18/7/2011  | 26/8/2011  |       |    |       |    |       |    |       |    |
| 146 | Construction of drainage & footpath               | 30 工作日  | 18/7/2011  | 26/8/2011  |       |    |       |    |       |    |       |    |
| 147 | Gabion Wall (Ch 330-345 RHS) TG2 (Completed)      | 16 工作日  | 15/11/2011 | 6/12/2011  |       |    |       |    |       |    |       |    |
| 151 | Drainage & Footpath (Ch 400-450 LHS)              | 20 工作日  | 29/8/2011  | 23/9/2011  |       |    |       |    |       |    |       |    |
| 152 | Construction of drainage & footpath               | 20 工作日  | 29/8/2011  | 23/9/2011  |       |    |       |    |       |    |       |    |
| 153 |   |         |            |            |       |    |       |    |       |    |       |    |
| 154 | Step 3 (Ch327)                                    | 12 工作日  | 14/5/2012  | 29/5/2012  |       |    |       |    |       |    |       |    |
| 155 | Stilling Basin                                    | 7 工作日   | 14/5/2012  | 22/5/2012  |       |    |       |    |       |    |       |    |

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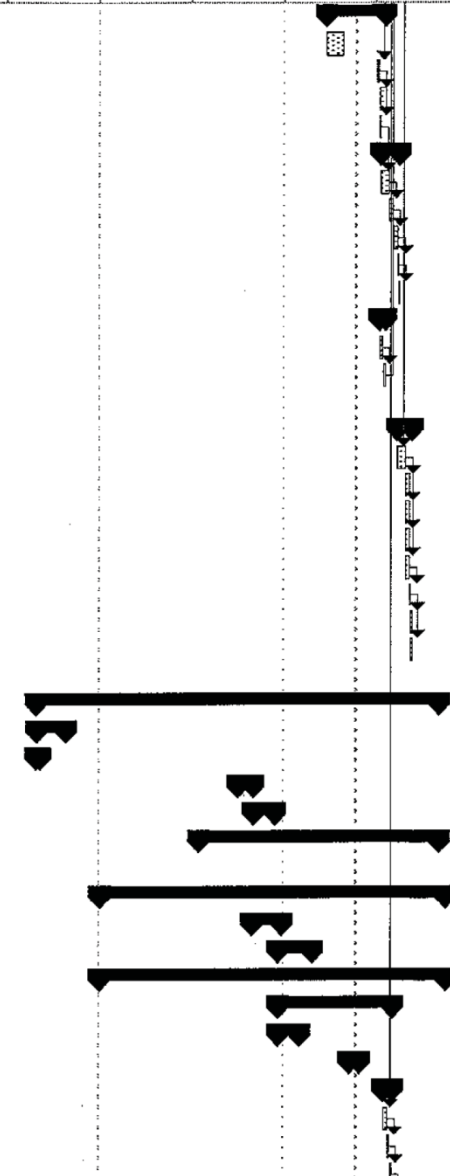
| 識別碼 | 任務名稱                                     | 工期      | 開始時間       | 完成時間       | 2010年 |    | 2011年 |    | 2012年 |    | 2013年 |
|-----|--|---------|------------|------------|-------|----|-------|----|-------|----|-------|
|     |  |         |            |            | H2    | H1 | H2    | H1 | H2    | H1 | H2    |
| 156 | Ramp and Slab                            | 5 工作日   | 23/5/2012  | 29/5/2012  |       |    |       |    |       |    |       |
| 157 |  |         |            |            |       |    |       |    |       |    |       |
| 158 | Ch 45-100                                | 505 工作日 | 1/11/2010  | 5/10/2012  |       |    |       |    |       |    |       |
| 159 | Additional Boulder Trap                  | 166 工作日 | 7/10/2011  | 25/5/2012  |       |    |       |    |       |    |       |
| 160 |  |         |            |            |       |    |       |    |       |    |       |
| 161 | Footbridge TB02 (Ch 150)                 | 505 工作日 | 1/11/2010  | 5/10/2012  |       |    |       |    |       |    |       |
| 162 | Construction of Abutment A (LHS)         | 23 工作日  | 1/11/2010  | 1/12/2010  |       |    |       |    |       |    |       |
| 170 | Construction of decking                  | 14 工作日  | 23/7/2012  | 9/8/2012   |       |    |       |    |       |    |       |
| 171 | Erection of steel deck+ conc deck        | 4 工作日   | 23/7/2012  | 26/7/2012  |       |    |       |    |       |    |       |
| 172 | XXConcreting                             | 0 工作日   | 26/7/2012  | 26/7/2012  |       |    |       |    |       |    |       |
| 173 | Deck finishing                           | 10 工作日  | 27/7/2012  | 9/8/2012   |       |    |       |    |       |    |       |
| 174 | Railing installation                     | 7 工作日   | 27/7/2012  | 6/8/2012   |       |    |       |    |       |    |       |
| 175 | Lighting at Footbridge TB02              | 51 工作日  | 27/7/2012  | 5/10/2012  |       |    |       |    |       |    |       |
| 176 | Construction of Drawpits / Ductings      | 21 工作日  | 27/7/2012  | 24/8/2012  |       |    |       |    |       |    |       |
| 177 | Public lighting Installation (CE2308)    | 12 工作日  | 27/8/2012  | 11/9/2012  |       |    |       |    |       |    |       |
| 178 | Public lighting Installation (CE2309)    | 12 工作日  | 12/9/2012  | 27/9/2012  |       |    |       |    |       |    |       |
| 179 | Removal of existing lighting (VA2642-A1) | 6 工作日   | 28/9/2012  | 5/10/2012  |       |    |       |    |       |    |       |
| 180 |  |         |            |            |       |    |       |    |       |    |       |
| 181 |  |         |            |            |       |    |       |    |       |    |       |
| 182 |  |         |            |            |       |    |       |    |       |    |       |
| 183 | Gabion Wall (Ch 150-178 LHS) TG3A        | 154 工作日 | 5/4/2011   | 4/11/2011  |       |    |       |    |       |    |       |
| 187 | Gabion Wall (Ch 178-230 LHS) TG5A/TG2    | 15 工作日  | 3/10/2011  | 21/10/2011 |       |    |       |    |       |    |       |
| 190 | Maintenance Staircase (Ch 178 LHS)       | 4 工作日   | 31/10/2011 | 3/11/2011  |       |    |       |    |       |    |       |
| 192 | Drainage & Footpath (Ch 150-Ch230 LHS)   | 30 工作日  | 13/8/2012  | 21/9/2012  |       |    |       |    |       |    |       |
| 193 | Drainage & Footpath                      | 30 工作日  | 13/8/2012  | 21/9/2012  |       |    |       |    |       |    |       |
| 194 | Inclined Gabion Wal (Ch 110-130 RHS)     | 91 工作日  | 5/3/2012   | 9/7/2012   |       |    |       |    |       |    |       |
| 195 | Remove shotcrete (Completed)             | 5 工作日   | 5/3/2012   | 9/3/2012   |       |    |       |    |       |    |       |
| 196 | Concreting                               | 10 工作日  | 18/6/2012  | 29/6/2012  |       |    |       |    |       |    |       |
| 197 | No-fine                                  | 3 工作日   | 2/7/2012   | 4/7/2012   |       |    |       |    |       |    |       |
| 198 | Gabion                                   | 3 工作日   | 5/7/2012   | 9/7/2012   |       |    |       |    |       |    |       |
| 199 | Maintenance Staircase (Ch 130 RHS)       | 4 工作日   | 4/7/2012   | 9/7/2012   |       |    |       |    |       |    |       |
| 200 | Formwork and concreting                  | 4 工作日   | 4/7/2012   | 9/7/2012   |       |    |       |    |       |    |       |
| 201 | Drainage & Footpath (Ch 0-150 RHS)       | 45 工作日  | 10/7/2012  | 10/9/2012  |       |    |       |    |       |    |       |
| 202 | Construction of drainage & footpath      | 45 工作日  | 10/7/2012  | 10/9/2012  |       |    |       |    |       |    |       |
| 203 |  |         |            |            |       |    |       |    |       |    |       |
| 204 | Inclined Gabion Wall (Ch 130-220 RHS)    | 55 工作日  | 5/3/2012   | 18/5/2012  |       |    |       |    |       |    |       |
| 205 | Remove Shotcrete (Completed)             | 2 工作日   | 5/3/2012   | 6/3/2012   |       |    |       |    |       |    |       |
| 206 | Concreting (Completed)                   | 35 工作日  | 7/3/2012   | 24/4/2012  |       |    |       |    |       |    |       |
| 207 | No-fine (Completed)                      | 10 工作日  | 25/4/2012  | 8/5/2012   |       |    |       |    |       |    |       |
| 208 | Gabion                                   | 8 工作日   | 9/5/2012   | 18/5/2012  |       |    |       |    |       |    |       |
| 209 |  |         |            |            |       |    |       |    |       |    |       |
| 210 | Footbridge TB03 (Ch 200)                 | 229 工作日 | 26/10/2011 | 10/9/2012  |       |    |       |    |       |    |       |
| 211 | Construction of Abutment B (RHS)         | 41 工作日  | 26/10/2011 | 21/12/2011 |       |    |       |    |       |    |       |



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| 識別碼 | 任務名稱  | 工期      | 開始時間       | 完成時間       | 2010年 |    | 2011年 |    | 2012年 |    | 2013年 |
|-----|---|---------|------------|------------|-------|----|-------|----|-------|----|-------|
|     |   |         |            |            | H2    | H1 | H2    | H1 | H2    | H1 | H2    |
| 219 | Construction of Decking (TB03)                    | 85 工作日  | 26/3/2012  | 20/7/2012  |       |    |       |    |       |    |       |
| 220 | Modification of LHS table top                     | 25 工作日  | 26/3/2012  | 27/4/2012  |       |    |       |    |       |    |       |
| 221 | Erection of steel deck+ conc deck                 | 4 工作日   | 3/7/2012   | 6/7/2012   |       |    |       |    |       |    |       |
| 222 | Deck finishing                                    | 10 工作日  | 9/7/2012   | 20/7/2012  |       |    |       |    |       |    |       |
| 223 | Railing installation                              | 2 工作日   | 9/7/2012   | 10/7/2012  |       |    |       |    |       |    |       |
| 224 | Lighting at Footbridge TB03                       | 27 工作日  | 11/7/2012  | 16/8/2012  |       |    |       |    |       |    |       |
| 225 | Construction of Drawpits / Ductings               | 12 工作日  | 11/7/2012  | 26/7/2012  |       |    |       |    |       |    |       |
| 226 | Public lighting Installation (CE2321)             | 6 工作日   | 27/7/2012  | 3/8/2012   |       |    |       |    |       |    |       |
| 227 | Public lighting Installation (CE2322)             | 6 工作日   | 6/8/2012   | 13/8/2012  |       |    |       |    |       |    |       |
| 228 | T&C   | 1 工作日   | 14/8/2012  | 14/8/2012  |       |    |       |    |       |    |       |
| 229 | Removal of existing lighting (VA1309-Z1)          | 2 工作日   | 15/8/2012  | 16/8/2012  |       |    |       |    |       |    |       |
| 230 | Step 1 (Ch 178)                                   | 10 工作日  | 9/7/2012   | 20/7/2012  |       |    |       |    |       |    |       |
| 231 | Stilling Basin                                    | 5 工作日   | 9/7/2012   | 13/7/2012  |       |    |       |    |       |    |       |
| 232 | Ramp and Slab                                     | 5 工作日   | 16/7/2012  | 20/7/2012  |       |    |       |    |       |    |       |
| 233 |   |         |            |            |       |    |       |    |       |    |       |
| 234 | Lighting CH 175-250                               | 21 工作日  | 13/8/2012  | 10/9/2012  |       |    |       |    |       |    |       |
| 235 | Construction of Drawpits / Ductings               | 12 工作日  | 13/8/2012  | 28/8/2012  |       |    |       |    |       |    |       |
| 236 | Public lighting Installation (CE2319)             | 6 工作日   | 29/8/2012  | 5/9/2012   |       |    |       |    |       |    |       |
| 237 | Public lighting Installation (CE2320)             | 6 工作日   | 29/8/2012  | 5/9/2012   |       |    |       |    |       |    |       |
| 238 | Public lighting Installation (CE2323)             | 6 工作日   | 29/8/2012  | 5/9/2012   |       |    |       |    |       |    |       |
| 239 | Public lighting Installation (CE2324)             | 6 工作日   | 29/8/2012  | 5/9/2012   |       |    |       |    |       |    |       |
| 240 | T&C   | 1 工作日   | 6/9/2012   | 6/9/2012   |       |    |       |    |       |    |       |
| 241 | Removal of existing lighting (VE2641-A1)          | 2 工作日   | 7/9/2012   | 10/9/2012  |       |    |       |    |       |    |       |
| 242 | Removal of existing lighting (VA1310-A1)          | 2 工作日   | 7/9/2012   | 10/9/2012  |       |    |       |    |       |    |       |
| 243 |   |         |            |            |       |    |       |    |       |    |       |
| 244 | Ch -23-45 (Completed)                             | 570 工作日 | 30/8/2010  | 2/11/2012  |       |    |       |    |       |    |       |
| 245 | Retaining Wall at Access D (Boulder Trap)         | 41 工作日  | 1/9/2010   | 27/10/2010 |       |    |       |    |       |    |       |
| 265 | Filling Work at Boulder Trap (RHS of downstream)  | 6 工作日   | 30/8/2010  | 6/9/2010   |       |    |       |    |       |    |       |
| 267 | Dwarf Wall (Ch 60-75) RHS                         | 23 工作日  | 3/10/2011  | 2/11/2011  |       |    |       |    |       |    |       |
| 276 | Box Culvert 03 (Ch 45) (Completed)                | 31 工作日  | 3/11/2011  | 15/12/2011 |       |    |       |    |       |    |       |
| 287 | Retaining Wall at Access D (Boulder Trap)         | 340 工作日 | 18/7/2011  | 2/11/2012  |       |    |       |    |       |    |       |
| 319 |   |         |            |            |       |    |       |    |       |    |       |
| 320 | Ch 350-450  | 489 工作日 | 3/1/2011   | 15/11/2012 |       |    |       |    |       |    |       |
| 321 | Gabion Wall (Ch 350-400 LHS) TR1 (AD) (Completed) | 43 工作日  | 31/10/2011 | 28/12/2011 |       |    |       |    |       |    |       |
| 326 | Gabion Wall (Ch 400-450 LHS) TR1 (AD) (Completed) | 48 工作日  | 22/12/2011 | 27/2/2012  |       |    |       |    |       |    |       |
| 331 | TB06  | 489 工作日 | 3/1/2011   | 15/11/2012 |       |    |       |    |       |    |       |
| 332 | Footbridge TB06 (Ch 400)                          | 162 工作日 | 22/12/2011 | 3/8/2012   |       |    |       |    |       |    |       |
| 333 | Construction of Abutment A (LHS)                  | 30 工作日  | 22/12/2011 | 1/2/2012   |       |    |       |    |       |    |       |
| 342 | Construction of decking                           | 14 工作日  | 11/5/2012  | 30/5/2012  |       |    |       |    |       |    |       |
| 347 | Lighting at Footbridge TB06                       | 14 工作日  | 17/7/2012  | 3/8/2012   |       |    |       |    |       |    |       |
| 348 | Construction of Drawpits / Ductings               | 6 工作日   | 17/7/2012  | 24/7/2012  |       |    |       |    |       |    |       |
| 349 | Public lighting Installation (CE2311)             | 3 工作日   | 25/7/2012  | 27/7/2012  |       |    |       |    |       |    |       |
| 350 | Public lighting Installation (CE2310)             | 3 工作日   | 30/7/2012  | 1/8/2012   |       |    |       |    |       |    |       |



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| 識別碼 | 任務名稱  | 工期      | 開始時間       | 完成時間       | 2010年 |    | 2011年 |    | 2012年 |    | 2013年 |
|-----|---|---------|------------|------------|-------|----|-------|----|-------|----|-------|
|     |   |         |            |            | H2    | H1 | H2    | H1 | H2    | H1 | H2    |
| 351 | T&C   | 2 工作日   | 2/8/2012   | 3/8/2012   |       |    |       |    |       |    |       |
| 352 | Demolition of Bridge TB-C                                     | 4 工作日   | 31/5/2012  | 5/6/2012   |       |    |       |    |       |    |       |
| 355 | Consturction of Gabion Wall at TB-C                           | 35 工作日  | 6/6/2012   | 24/7/2012  |       |    |       |    |       |    |       |
| 359 |   |         |            |            |       |    |       |    |       |    |       |
| 360 | Gabion Wall (Ch 400-450 RHS) TR1 (replaced by AD1)            | 30 工作日  | 3/1/2011   | 11/2/2011  |       |    |       |    |       |    |       |
| 364 | Step 4  | 20 工作日  | 11/5/2012  | 7/6/2012   |       |    |       |    |       |    |       |
| 365 | Basin   | 5 工作日   | 11/5/2012  | 17/5/2012  |       |    |       |    |       |    |       |
| 366 | Ramp and Slab   | 5 工作日   | 18/5/2012  | 24/5/2012  |       |    |       |    |       |    |       |
| 367 | Step 5  | 10 工作日  | 25/5/2012  | 7/6/2012   |       |    |       |    |       |    |       |
| 368 | Basin   | 5 工作日   | 25/5/2012  | 31/5/2012  |       |    |       |    |       |    |       |
| 369 | Ramp and Slab   | 5 工作日   | 1/6/2012   | 7/6/2012   |       |    |       |    |       |    |       |
| 370 |   |         |            |            |       |    |       |    |       |    |       |
| 371 | Box Culvert TB01 (Ch 450) (Completed)                         | 40 工作日  | 10/3/2011  | 4/5/2011   |       |    |       |    |       |    |       |
| 381 |   |         |            |            |       |    |       |    |       |    |       |
| 382 | Drainage & Footpath (Ch330-450) RHS                           | 30 工作日  | 4/9/2012   | 15/10/2012 |       |    |       |    |       |    |       |
| 383 | Drainage & Footpath   | 30 工作日  | 4/9/2012   | 15/10/2012 |       |    |       |    |       |    |       |
| 384 |   |         |            |            |       |    |       |    |       |    |       |
| 385 | Lighting at CH 350-380  | 23 工作日  | 16/10/2012 | 15/11/2012 |       |    |       |    |       |    |       |
| 386 | Construction of Drawpits / Ductings                           | 14 工作日  | 16/10/2012 | 2/11/2012  |       |    |       |    |       |    |       |
| 387 | Public lighting Installation (CE2312)                         | 7 工作日   | 5/11/2012  | 13/11/2012 |       |    |       |    |       |    |       |
| 388 | T&C   | 2 工作日   | 14/11/2012 | 15/11/2012 |       |    |       |    |       |    |       |
| 389 |   |         |            |            |       |    |       |    |       |    |       |
| 390 | Ch 450-525  | 424 工作日 | 16/3/2011  | 29/10/2012 |       |    |       |    |       |    |       |
| 391 | Retaining Wall (ch 450-500) TR2 (RHS)                         | 48 工作日  | 3/10/2011  | 7/12/2011  |       |    |       |    |       |    |       |
| 434 | Retaining Wall (ch 450-500) TR2 (LHS)                         | 54 工作日  | 29/11/2011 | 10/2/2012  |       |    |       |    |       |    |       |
| 483 |   |         |            |            |       |    |       |    |       |    |       |
| 484 | Drainage & Footpath (Ch 450-490 RHS)                          | 20 工作日  | 15/6/2012  | 12/7/2012  |       |    |       |    |       |    |       |
| 485 | Construction of drainage & footpath and wall stem 2nd portion | 20 工作日  | 15/6/2012  | 12/7/2012  |       |    |       |    |       |    |       |
| 486 | Retaining Wall (Ch 500-530) TR3 (RHS)                         | 338 工作日 | 16/3/2011  | 29/6/2012  |       |    |       |    |       |    |       |
| 487 | Base Slab Construction Bay 1 (RHS)                            | 28 工作日  | 16/3/2011  | 22/4/2011  |       |    |       |    |       |    |       |
| 492 | Wall Stem Construction Bay 1 (RHS)                            | 10 工作日  | 25/4/2011  | 6/5/2011   |       |    |       |    |       |    |       |
| 497 | Base Slab Construction Bay 1 (RHS)                            | 10 工作日  | 4/6/2012   | 15/6/2012  |       |    |       |    |       |    |       |
| 498 | Excavation and Formation                                      | 5 工作日   | 4/6/2012   | 8/6/2012   |       |    |       |    |       |    |       |
| 499 | Formwork and rebar fixing                                     | 3 工作日   | 11/6/2012  | 13/6/2012  |       |    |       |    |       |    |       |
| 500 | Concreting  | 1 工作日   | 14/6/2012  | 14/6/2012  |       |    |       |    |       |    |       |
| 501 | Stripping off formwork  | 1 工作日   | 15/6/2012  | 15/6/2012  |       |    |       |    |       |    |       |
| 502 | Wall Stem Construction Bay 2 (RHS)                            | 10 工作日  | 18/6/2012  | 29/6/2012  |       |    |       |    |       |    |       |
| 507 |   |         |            |            |       |    |       |    |       |    |       |
| 508 | Cascades (Ch 500 LHS)   | 28 工作日  | 3/10/2011  | 9/11/2011  |       |    |       |    |       |    |       |
| 514 |   |         |            |            |       |    |       |    |       |    |       |
| 515 | Retaining Wall (Ch 500-530) TR3 (LHS)                         | 54 工作日  | 9/11/2011  | 23/1/2012  |       |    |       |    |       |    |       |
| 538 |   |         |            |            |       |    |       |    |       |    |       |
| 539 | Drainage & Footpath (Ch 490-525 RHS)                          | 10 工作日  | 16/10/2012 | 29/10/2012 |       |    |       |    |       |    |       |

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任務  
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摘要  
專案摘要報告



外部任務  
外部里程碑

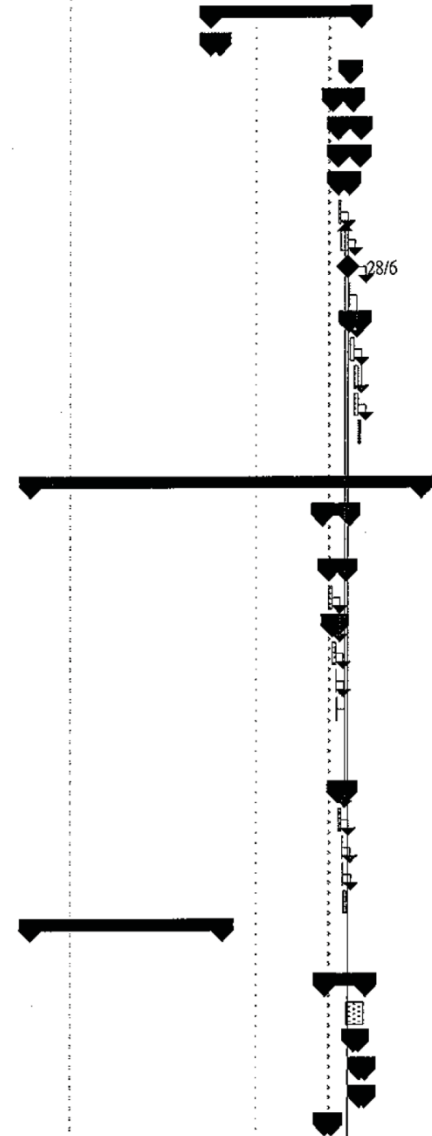


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| 識別碼 | 任務名稱  | 工期      | 開始時間       | 完成時間       | 2010年 |    | 2011年 |    | 2012年 |    | 2013年 |
|-----|---|---------|------------|------------|-------|----|-------|----|-------|----|-------|
|     |   |         |            |            | H2    | H1 | H2    | H1 | H2    | H1 | H2    |
| 540 | Construction of drainage & footpath             | 10 工作日  | 16/10/2012 | 29/10/2012 |       |    |       |    |       |    |       |
| 541 |   |         |            |            |       |    |       |    |       |    |       |
| 542 | Footbridge TB07 (Ch 525)                        | 213 工作日 | 3/10/2011  | 25/7/2012  |       |    |       |    |       |    |       |
| 543 | Temporary Pedestrian Division                   | 14 工作日  | 3/10/2011  | 20/10/2011 |       |    |       |    |       |    |       |
| 545 | Demolition of existing Footbridge TB-D (Ch 525) | 3 工作日   | 3/7/2012   | 5/7/2012   |       |    |       |    |       |    |       |
| 547 | Construction of Abutment A                      | 28 工作日  | 31/5/2012  | 9/7/2012   |       |    |       |    |       |    |       |
| 556 | Construction of Abutment B                      | 33 工作日  | 11/6/2012  | 25/7/2012  |       |    |       |    |       |    |       |
| 565 | Footbridge TB07 (Ch 525)                        | 31 工作日  | 11/6/2012  | 23/7/2012  |       |    |       |    |       |    |       |
| 566 | Construction of decking                         | 16 工作日  | 11/6/2012  | 2/7/2012   |       |    |       |    |       |    |       |
| 567 | Erection of steel deck+ conc deck               | 4 工作日   | 11/6/2012  | 14/6/2012  |       |    |       |    |       |    |       |
| 568 | Deck finishing                                  | 10 工作日  | 15/6/2012  | 28/6/2012  |       |    |       |    |       |    |       |
| 569 | NA  | 0 工作日   | 28/6/2012  | 28/6/2012  |       |    |       |    |       |    |       |
| 570 | Railing installation                            | 2 工作日   | 29/6/2012  | 2/7/2012   |       |    |       |    |       |    |       |
| 571 | Footbridge TB07 Lighting                        | 15 工作日  | 3/7/2012   | 23/7/2012  |       |    |       |    |       |    |       |
| 572 | Construction of Drawpits / Ducting              | 7 工作日   | 3/7/2012   | 11/7/2012  |       |    |       |    |       |    |       |
| 573 | Public lighting installation (CE2328)           | 6 工作日   | 12/7/2012  | 19/7/2012  |       |    |       |    |       |    |       |
| 574 | Public lighting installation (CE2329)           | 6 工作日   | 12/7/2012  | 19/7/2012  |       |    |       |    |       |    |       |
| 575 | T&C   | 2 工作日   | 20/7/2012  | 23/7/2012  |       |    |       |    |       |    |       |
| 576 |   |         |            |            |       |    |       |    |       |    |       |
| 577 | Ch 525-615                                      | 547 工作日 | 15/10/2010 | 19/11/2012 |       |    |       |    |       |    |       |
| 578 | Retaining Wall (Ch 535-546) TR4 (LHS)           | 37 工作日  | 11/5/2012  | 2/7/2012   |       |    |       |    |       |    |       |
| 598 |   |         |            |            |       |    |       |    |       |    |       |
| 599 | Retaining Wall (Ch 535-546) TR4 (RHS)           | 25 工作日  | 23/5/2012  | 26/6/2012  |       |    |       |    |       |    |       |
| 600 | Excavation and Formation                        | 5 工作日   | 23/5/2012  | 29/5/2012  |       |    |       |    |       |    |       |
| 601 | Base Slab Construction Bay 1+2 (RHS)            | 8 工作日   | 30/5/2012  | 8/6/2012   |       |    |       |    |       |    |       |
| 602 | Formwork and rebar fixing (with DWF)            | 5 工作日   | 30/5/2012  | 5/6/2012   |       |    |       |    |       |    |       |
| 603 | Concreting                                      | 1 工作日   | 6/6/2012   | 6/6/2012   |       |    |       |    |       |    |       |
| 604 | Stripping off formwork                          | 2 工作日   | 7/6/2012   | 8/6/2012   |       |    |       |    |       |    |       |
| 605 | Wall Stem Construction Bay 1 (RHS) del          | 0 工作日   | 8/6/2012   | 8/6/2012   |       |    |       |    |       |    |       |
| 610 | Base Slab Construction Bay 2 (RHS) del          | 0 工作日   | 8/6/2012   | 8/6/2012   |       |    |       |    |       |    |       |
| 614 | Wall Stem Construction Bay 1+2 (RHS)            | 12 工作日  | 11/6/2012  | 26/6/2012  |       |    |       |    |       |    |       |
| 615 | Formwork and rebar fixing                       | 5 工作日   | 11/6/2012  | 15/6/2012  |       |    |       |    |       |    |       |
| 616 | Concreting                                      | 1 工作日   | 18/6/2012  | 18/6/2012  |       |    |       |    |       |    |       |
| 617 | Stripping off formwork                          | 2 工作日   | 19/6/2012  | 20/6/2012  |       |    |       |    |       |    |       |
| 618 | Backfill  | 4 工作日   | 21/6/2012  | 26/6/2012  |       |    |       |    |       |    |       |
| 619 | Retaining Wall TR5 Ch (546-596 RHS) TR5 (AD)    | 269 工作日 | 15/10/2010 | 26/10/2011 |       |    |       |    |       |    |       |
| 627 |   |         |            |            |       |    |       |    |       |    |       |
| 628 | Retaining Wall TR5A CH546-585 LHS               | 58 工作日  | 16/5/2012  | 3/8/2012   |       |    |       |    |       |    |       |
| 629 | River diversion, Excavation and Formation       | 24 工作日  | 27/6/2012  | 30/7/2012  |       |    |       |    |       |    |       |
| 630 | Base Slab Construction TR5A Bay 1 LHS           | 8 工作日   | 11/7/2012  | 20/7/2012  |       |    |       |    |       |    |       |
| 634 | Wall Stem Construction TR5A Bay 1 LHS           | 9 工作日   | 23/7/2012  | 2/8/2012   |       |    |       |    |       |    |       |
| 639 | Base Slab Construction TR5A Bay 2 LHS           | 8 工作日   | 23/7/2012  | 1/8/2012   |       |    |       |    |       |    |       |
| 643 | Wall Stem Construction TR5A Bay 2 LHS           | 9 工作日   | 16/5/2012  | 28/5/2012  |       |    |       |    |       |    |       |



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| 識別碼 | 任務名稱   | 工期     | 開始時間      | 完成時間       | 2010年 |    |    | 2011年 |    | 2012年 |    | 2013年 |
|-----|--|--------|-----------|------------|-------|----|----|-------|----|-------|----|-------|
|     |  |        |           |            | H2    | H1 | H2 | H1    | H2 | H1    | H2 | H1    |
| 644 | Formwork and rebar fixing                      | 4 工作日  | 16/5/2012 | 21/5/2012  |       |    |    |       |    |       |    |       |
| 645 | Concreting                                     | 1 工作日  | 22/5/2012 | 22/5/2012  |       |    |    |       |    |       |    |       |
| 646 | Stripping off formwork                         | 1 工作日  | 23/5/2012 | 23/5/2012  |       |    |    |       |    |       |    |       |
| 647 | Backfill                                       | 3 工作日  | 24/5/2012 | 28/5/2012  |       |    |    |       |    |       |    |       |
| 648 | Base Slab Construction TR5A Bay 3 LHS          | 8 工作日  | 11/7/2012 | 20/7/2012  |       |    |    |       |    |       |    |       |
| 652 | Wall Stem Construction TR5A Bay 3 LHS          | 10 工作日 | 23/7/2012 | 3/8/2012   |       |    |    |       |    |       |    |       |
| 657 |  |        |           |            |       |    |    |       |    |       |    |       |
| 658 | Box Culvert TB02 (ch 580)                      | 39 工作日 | 24/1/2012 | 16/3/2012  |       |    |    |       |    |       |    |       |
| 668 |  |        |           |            |       |    |    |       |    |       |    |       |
| 669 | Retaining Wall TR5A & TR6 CH585-595 LHS        | 50 工作日 | 7/2/2012  | 16/4/2012  |       |    |    |       |    |       |    |       |
| 670 | River/Haul Road Diverison (to TR3 and TR5 RHS) | 3 工作日  | 7/2/2012  | 9/2/2012   |       |    |    |       |    |       |    |       |
| 671 | Excavation and Blinding                        | 14 工作日 | 10/2/2012 | 29/2/2012  |       |    |    |       |    |       |    |       |
| 672 | Base Slab Construction TR6 Bay 1 LHS           | 10 工作日 | 1/3/2012  | 14/3/2012  |       |    |    |       |    |       |    |       |
| 676 | Wall Stem Construction TR6 Bay 1 LHS           | 10 工作日 | 15/3/2012 | 28/3/2012  |       |    |    |       |    |       |    |       |
| 681 | Base Slab Construction TR5A Bay 4 LHS          | 8 工作日  | 14/3/2012 | 23/3/2012  |       |    |    |       |    |       |    |       |
| 685 | Wall Stem Construction TR5A Bay 4 LHS          | 10 工作日 | 26/3/2012 | 6/4/2012   |       |    |    |       |    |       |    |       |
| 690 | Base Slab Construction TR5A Bay 5 LHS          | 8 工作日  | 22/3/2012 | 2/4/2012   |       |    |    |       |    |       |    |       |
| 694 | Wall Stem Construction TR5A Bay 5 LHS          | 10 工作日 | 3/4/2012  | 16/4/2012  |       |    |    |       |    |       |    |       |
| 699 |  |        |           |            |       |    |    |       |    |       |    |       |
| 700 | Retaining Wall (ch 595-615) TR3 (Bay 3)        | 36 工作日 | 3/10/2011 | 21/11/2011 |       |    |    |       |    |       |    |       |
| 715 | Concrete Slab (Ch546 - Ch596) LHS              | 27 工作日 | 15/6/2012 | 23/7/2012  |       |    |    |       |    |       |    |       |
| 716 | Bay 1  | 11 工作日 | 15/6/2012 | 29/6/2012  |       |    |    |       |    |       |    |       |
| 717 | Excavation/Blinding                            | 3 工作日  | 15/6/2012 | 19/6/2012  |       |    |    |       |    |       |    |       |
| 718 | Formwork and rebar fixing for DWF              | 4 工作日  | 20/6/2012 | 25/6/2012  |       |    |    |       |    |       |    |       |
| 719 | Concreting of DWF                              | 1 工作日  | 26/6/2012 | 26/6/2012  |       |    |    |       |    |       |    |       |
| 720 | Formwork and rebar fixing for slab             | 4 工作日  | 22/6/2012 | 27/6/2012  |       |    |    |       |    |       |    |       |
| 721 | Concreting of slab                             | 1 工作日  | 28/6/2012 | 28/6/2012  |       |    |    |       |    |       |    |       |
| 722 | Stripping off formwork                         | 1 工作日  | 29/6/2012 | 29/6/2012  |       |    |    |       |    |       |    |       |
| 723 | Bay 2  | 12 工作日 | 20/6/2012 | 5/7/2012   |       |    |    |       |    |       |    |       |
| 724 | Excavation/Blinding                            | 2 工作日  | 20/6/2012 | 21/6/2012  |       |    |    |       |    |       |    |       |
| 725 | Formwork and rebar fixing for DWF              | 4 工作日  | 26/6/2012 | 29/6/2012  |       |    |    |       |    |       |    |       |
| 726 | Concreting of DWF                              | 1 工作日  | 2/7/2012  | 2/7/2012   |       |    |    |       |    |       |    |       |
| 727 | Formwork and rebar fixing for slab             | 4 工作日  | 28/6/2012 | 3/7/2012   |       |    |    |       |    |       |    |       |
| 728 | Concreting of slab                             | 1 工作日  | 4/7/2012  | 4/7/2012   |       |    |    |       |    |       |    |       |
| 729 | Stripping off formwork                         | 1 工作日  | 5/7/2012  | 5/7/2012   |       |    |    |       |    |       |    |       |
| 730 | Bay 3  | 14 工作日 | 22/6/2012 | 11/7/2012  |       |    |    |       |    |       |    |       |
| 731 | Excavation/Blinding                            | 2 工作日  | 22/6/2012 | 25/6/2012  |       |    |    |       |    |       |    |       |
| 732 | Formwork and rebar fixing for DWF              | 4 工作日  | 29/6/2012 | 4/7/2012   |       |    |    |       |    |       |    |       |
| 733 | Concreting of DWF                              | 1 工作日  | 5/7/2012  | 5/7/2012   |       |    |    |       |    |       |    |       |
| 734 | Formwork and rebar fixing for slab             | 4 工作日  | 4/7/2012  | 9/7/2012   |       |    |    |       |    |       |    |       |
| 735 | Concreting of slab                             | 1 工作日  | 10/7/2012 | 10/7/2012  |       |    |    |       |    |       |    |       |
| 736 | Stripping off formwork                         | 1 工作日  | 11/7/2012 | 11/7/2012  |       |    |    |       |    |       |    |       |
| 737 | Bay 4  | 16 工作日 | 26/6/2012 | 17/7/2012  |       |    |    |       |    |       |    |       |

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| 識別碼 | 任務名稱  | 工期     | 開始時間       | 完成時間       | 2010年 |    |    | 2011年 |    | 2012年 |    | 2013年 |
|-----|---|--------|------------|------------|-------|----|----|-------|----|-------|----|-------|
|     |   |        |            |            | H2    | H1 | H2 | H1    | H2 | H1    | H2 | H1    |
| 738 | Excavation/Blinding                         | 2 工作日  | 26/6/2012  | 27/6/2012  |       |    |    |       |    |       |    |       |
| 739 | Formwork and rebar fixing for DWF           | 4 工作日  | 5/7/2012   | 10/7/2012  |       |    |    |       |    |       |    |       |
| 740 | Concreting of DWF                           | 1 工作日  | 11/7/2012  | 11/7/2012  |       |    |    |       |    |       |    |       |
| 741 | Formwork and rebar fixing for slab          | 4 工作日  | 10/7/2012  | 13/7/2012  |       |    |    |       |    |       |    |       |
| 742 | Concreting of slab                          | 1 工作日  | 16/7/2012  | 16/7/2012  |       |    |    |       |    |       |    |       |
| 743 | Stripping off formwork                      | 1 工作日  | 17/7/2012  | 17/7/2012  |       |    |    |       |    |       |    |       |
| 744 | Bay 5                                       | 18 工作日 | 28/6/2012  | 23/7/2012  |       |    |    |       |    |       |    |       |
| 751 |   |        |            |            |       |    |    |       |    |       |    |       |
| 752 | Drainage and Footpath (Ch525-615 LHS & RHS) | 15 工作日 | 16/10/2012 | 5/11/2012  |       |    |    |       |    |       |    |       |
| 753 | Construction of footpath & drainage works   | 15 工作日 | 16/10/2012 | 5/11/2012  |       |    |    |       |    |       |    |       |
| 754 | Lighting at CH 550-610                      | 10 工作日 | 6/11/2012  | 19/11/2012 |       |    |    |       |    |       |    |       |
| 755 | Construction of Drawpits / Ducting          | 6 工作日  | 6/11/2012  | 13/11/2012 |       |    |    |       |    |       |    |       |
| 756 | Public lighting Installation (CE2325)       | 2 工作日  | 14/11/2012 | 15/11/2012 |       |    |    |       |    |       |    |       |
| 757 | Public lighting Installation (CE2326)       | 2 工作日  | 14/11/2012 | 15/11/2012 |       |    |    |       |    |       |    |       |
| 758 | Public lighting Installation (CE2327)       | 2 工作日  | 14/11/2012 | 15/11/2012 |       |    |    |       |    |       |    |       |
| 759 | T&C   | 1 工作日  | 16/11/2012 | 16/11/2012 |       |    |    |       |    |       |    |       |
| 760 | Removal of existing lighting (CE1600-B2)    | 1 工作日  | 19/11/2012 | 19/11/2012 |       |    |    |       |    |       |    |       |

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任務  
分割



進度



摘要



外部任務



期限



里程碑



里程碑



專案摘要報告

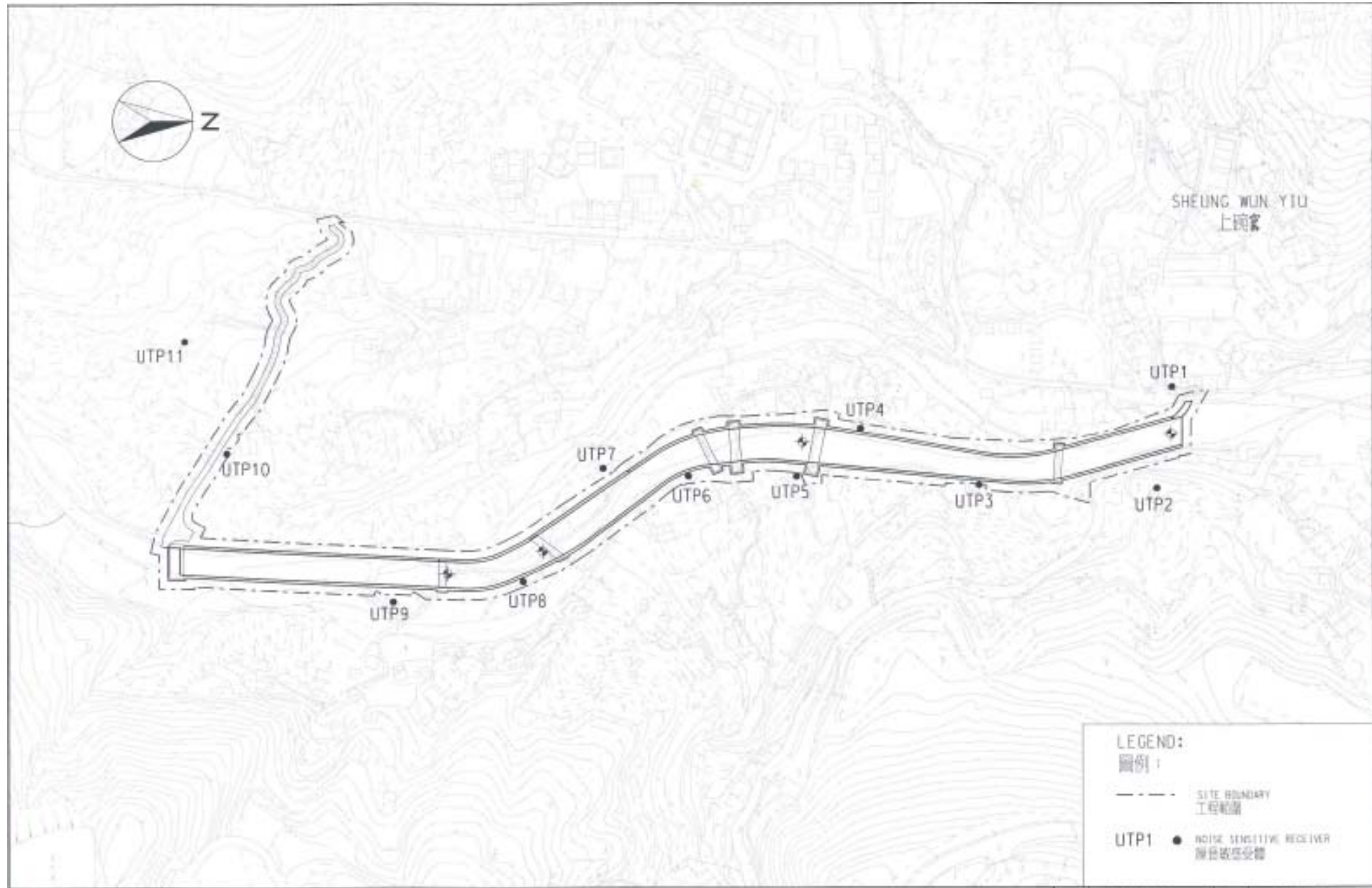


外部里程碑



## **Appendix C**

### **Environmental Monitoring Locations**



## **Appendix D**

### **Calibration certificates of the monitoring equipment**

**Equipment Calibration List**

| Items | Aspect | Description of Equipment  | Date of Calibration | Date of Next Calibration |
|-------|--------|---|---------------------|--------------------------|
| 1     | Noise  | Bruel & Kjaer Integrating Sound Level Meter<br>(Serial No. 2285762)<br>AUES Equipment ID: EQ006 | 7 May 2012          | 7 May 2013               |
| 2     |        | Bruel & Kjaer Integrating Sound Level Meter<br>(Serial No. 2285721)<br>AUES Equipment ID: EQ010 | 20 April 2012       | 20 April 2013            |
| 3     |        | Bruel & Kjaer Integrating Sound Level Meter<br>(Serial No. 2337676)<br>AUES Equipment ID: EQ065 | 18 May 2012         | 18 May 2013              |
| 4     |        | Rion NL-31 Sound Level Meter<br>(Serial No. 00410221)<br>AUES Equipment ID: EQ067               | 8 May 2012          | 8 May 2013               |
| 5     |        | Bruel & Kjaer Acoustical Calibrator<br>(Serial No. 2326408)                                     | 7 May 2012          | 7 May 2013               |

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



# Certificate of Calibration 校正證書

Certificate No. : C122713  
證書編號

**ITEM TESTED / 送檢項目** ( Job No. / 序引編號 : IC12-0960 )

Description / 儀器名稱 : Integrating Sound Level Meter (EQ006)  
Manufacturer / 製造商 : Bruel & Kjaer  
Model No. / 型號 : 2238  
Serial No. / 編號 : 2285762  
Supplied By / 委託者 : Action-United Environmental Services and Consulting  
Unit A, 20/F., Gold King Industrial Building,  
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

**TEST CONDITIONS / 測試條件**

Temperature / 溫度 : (23 ± 2)°C  
Line Voltage / 電壓 : ---  
Relative Humidity / 相對濕度 : (55 ± 20)%

**TEST SPECIFICATIONS / 測試規範**

Calibration check

**DATE OF TEST / 測試日期** : 7 May 2012

**TEST RESULTS / 測試結果**

The results apply to the particular unit-under-test only.  
All results are within manufacturer's specification.  
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Precision Measurement Ltd., UK
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By :   
測試 : L K Yeung

Certified By :   
核證 : K C Lee

Date of Issue : 8 May 2012  
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。



# Certificate of Calibration

## 校正證書

Certificate No. : C122713  
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration using the B & K Acoustic Calibrator 4231, S/N : 2326408 was performed before the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

| Equipment ID | Description                         | Certificate No. |
|--------------|-------------------------------------|-----------------|
| CL280        | 40 MHz Arbitrary Waveform Generator | C120016         |
| CL281        | Multifunction Acoustic Calibrator   | DC110233        |

- Test procedure : MA101N.

- Results :

### 6.1 Sound Pressure Level

#### 6.1.1 Reference Sound Pressure Level

| UUT Setting |                  |                     |                | Applied Value |             | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |                             |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 1           | 94.1             | ± 0.7                       |

#### 6.1.2 Linearity

| UUT Setting |                  |                     |                | Applied Value |             | UUT Reading (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 1           | 94.1 (Ref.)      |
|             |                  |                     |                | 104.00        |             | 104.1            |
|             |                  |                     |                | 114.00        |             | 114.1            |

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

### 6.2 Time Weighting

#### 6.2.1 Continuous Signal

| UUT Setting |                  |                     |                | Applied Value |             | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |                             |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 1           | 94.1             | Ref.                        |
|             | L <sub>ASP</sub> |                     | S              |               |             | 94.1             | ± 0.1                       |
|             | L <sub>AIP</sub> |                     | I              |               |             | 94.2             | ± 0.1                       |

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室所書面批准。

# Certificate of Calibration

## 校正證書

Certificate No. : C122713  
證書編號

### 6.2.2 Tone Burst Signal (2 kHz)

| UUT Setting |                    |                     |                | Applied Value |                | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|--------------------|---------------------|----------------|---------------|----------------|------------------|-----------------------------|
| Range (dB)  | Parameter          | Frequency Weighting | Time Weighting | Level (dB)    | Burst Duration |                  |                             |
| 30 - 110    | L <sub>AFP</sub>   | A                   | F              | 106.0         | Continuous     | 106.0            | Ref.                        |
|             | L <sub>AFMax</sub> |                     |                |               | 200 ms         | 105.0            | -1.0 ± 1.0                  |
|             | L <sub>ASP</sub>   | S                   | Continuous     |               | 106.0          | Ref.             |                             |
|             | L <sub>ASMax</sub> |                     | 500 ms         |               | 102.0          | -4.1 ± 1.0       |                             |

### 6.3 Frequency Weighting

#### 6.3.1 A-Weighting

| UUT Setting |                  |                     |                | Applied Value |          | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|----------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq.    |                  |                             |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 31.5 Hz  | 55.2             | -39.4 ± 1.5                 |
|             |                  |                     |                |               | 63 Hz    | 68.0             | -26.2 ± 1.5                 |
|             |                  |                     |                |               | 125 Hz   | 77.9             | -16.1 ± 1.0                 |
|             |                  |                     |                |               | 250 Hz   | 85.4             | -8.6 ± 1.0                  |
|             |                  |                     |                |               | 500 Hz   | 90.8             | -3.2 ± 1.0                  |
|             |                  |                     |                |               | 1 kHz    | 94.1             | Ref.                        |
|             |                  |                     |                |               | 2 kHz    | 95.3             | +1.2 ± 1.0                  |
|             |                  |                     |                |               | 4 kHz    | 95.1             | +1.0 ± 1.0                  |
|             |                  |                     |                |               | 8 kHz    | 93.0             | -1.1 (+1.5 ; -3.0)          |
|             |                  |                     |                |               | 12.5 kHz | 89.9             | -4.3 (+3.0 ; -6.0)          |

#### 6.3.2 C-Weighting

| UUT Setting |                  |                     |                | Applied Value |          | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|----------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq.    |                  |                             |
| 50 - 130    | L <sub>CFP</sub> | C                   | F              | 94.00         | 31.5 Hz  | 91.5             | -3.0 ± 1.5                  |
|             |                  |                     |                |               | 63 Hz    | 93.4             | -0.8 ± 1.5                  |
|             |                  |                     |                |               | 125 Hz   | 93.9             | -0.2 ± 1.0                  |
|             |                  |                     |                |               | 250 Hz   | 94.1             | 0.0 ± 1.0                   |
|             |                  |                     |                |               | 500 Hz   | 94.1             | 0.0 ± 1.0                   |
|             |                  |                     |                |               | 1 kHz    | 94.1             | Ref.                        |
|             |                  |                     |                |               | 2 kHz    | 93.9             | -0.2 ± 1.0                  |
|             |                  |                     |                |               | 4 kHz    | 93.3             | -0.8 ± 1.0                  |
|             |                  |                     |                |               | 8 kHz    | 91.0             | -3.0 (+1.5 ; -3.0)          |
|             |                  |                     |                |               | 12.5 kHz | 87.9             | -6.2 (+3.0 ; -6.0)          |

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Sun Creation Engineering Limited – Calibration & Testing Laboratory

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輝創工程有限公司 – 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

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# Certificate of Calibration

## 校正證書

Certificate No. : C122713

證書編號

### 6.4 Time Averaging

| UUT Setting |                  |                     |                  | Applied Value   |                     |                   |                  |                       | UUT Reading (dB) | IEC 60804 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|------------------|-----------------|---------------------|-------------------|------------------|-----------------------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Integrating Time | Frequency (kHz) | Burst Duration (ms) | Burst Duty Factor | Burst Level (dB) | Equivalent Level (dB) |                  |                             |
| 30 - 110    | L <sub>Aeq</sub> | A                   | 10 sec.          | 4               | 1                   | 1/10              | 110.0            | 100                   | 100.0            | ± 0.5                       |
|             |                  |                     | 60 sec.          |                 |                     |                   |                  | 90                    | 90.0             | ± 0.5                       |
|             |                  |                     | 5 min.           |                 |                     |                   |                  | 80                    | 79.4             | ± 1.0                       |
|             |                  |                     |                  |                 |                     |                   |                  | 70                    | 69.3             | ± 1.0                       |

Remarks : - Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

|                        |                    |   |
|------------------------|--------------------|---|
| 94 dB                  | : 31.5 Hz - 125 Hz | : ± 0.40 dB                                     |
|                        | 250 Hz - 500 Hz    | : ± 0.30 dB                                     |
|                        | 1 kHz              | : ± 0.20 dB                                     |
|                        | 2 kHz              | : ± 0.40 dB                                     |
|                        | 4 kHz              | : ± 0.50 dB                                     |
|                        | 8 kHz              | : ± 0.70 dB                                     |
|                        | 12.5 kHz           | : ± 1.20 dB                                     |
| 104 dB                 | : 1 kHz            | : ± 0.10 dB (Ref. 94 dB)                        |
| 114 dB                 | : 1 kHz            | : ± 0.10 dB (Ref. 94 dB)                        |
| Burst equivalent level |                    | : ± 0.2 dB (Ref. 110 dB continuous sound level) |

- The uncertainties are for a confidence probability of not less than 95 %.

#### Note :

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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# Certificate of Calibration

## 校正證書

Certificate No. : C122427  
證書編號

**ITEM TESTED / 送檢項目** (Job No. / 序引編號 : IC12-0960)

Description / 儀器名稱 : Integrating Sound Level Meter (EQ010)  
Manufacturer / 製造商 : Bruel & Kjaer  
Model No. / 型號 : 2238  
Serial No. / 編號 : 2285721  
Supplied By / 委託者 : Action-United Environmental Services and Consulting  
Unit A, 20/F., Gold King Industrial Building,  
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

**TEST CONDITIONS / 測試條件**

Temperature / 溫度 :  $(23 \pm 2)^{\circ}\text{C}$       Relative Humidity / 相對濕度 :  $(55 \pm 20)\%$   
Line Voltage / 電壓 : ---

**TEST SPECIFICATIONS / 測試規範**

Calibration check

**DATE OF TEST / 測試日期** : 20 April 2012

**TEST RESULTS / 測試結果**

The results apply to the particular unit-under-test only.  
All results are within manufacturer's specification.  
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Precision Measurement Ltd., UK
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By :   
測試 : L K Yeung

Certified By :   
核證 : K C Lee

Date of Issue : 23 April 2012  
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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# Certificate of Calibration

## 校正證書

Certificate No. : C122427

證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration using the B & K Acoustic Calibrator 4231, S/N : 2713428 was performed before the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

| Equipment ID | Description                         | Certificate No. |
|--------------|-------------------------------------|-----------------|
| CL280        | 40 MHz Arbitrary Waveform Generator | C120016         |
| CL281        | Multifunction Acoustic Calibrator   | DC110233        |

- Test procedure : MA101N.

- Results :

### 6.1 Sound Pressure Level

#### 6.1.1 Reference Sound Pressure Level

| UUT Setting |                  |                     |                | Applied Value |             | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |                             |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 1           | 94.0             | ± 0.7                       |

#### 6.1.2 Linearity

| UUT Setting |                  |                     |                | Applied Value |             | UUT Reading (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 1           | 94.0 (Ref.)      |
|             |                  |                     |                | 104.00        |             | 104.0            |
|             |                  |                     |                | 114.00        |             | 114.0            |

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

### 6.2 Time Weighting

#### 6.2.1 Continuous Signal

| UUT Setting |                  |                     |                | Applied Value |             | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |                             |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 1           | 94.0             | Ref.                        |
|             | L <sub>ASP</sub> |                     | S              |               |             | 94.0             | ± 0.1                       |
|             | L <sub>AIP</sub> |                     | I              |               |             | 94.1             | ± 0.1                       |

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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# Certificate of Calibration

## 校正證書

Certificate No. : C122427  
證書編號

### 6.2.2 Tone Burst Signal (2 kHz)

| UUT Setting |                    |                     |                | Applied Value |                | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|--------------------|---------------------|----------------|---------------|----------------|------------------|-----------------------------|
| Range (dB)  | Parameter          | Frequency Weighting | Time Weighting | Level (dB)    | Burst Duration |                  |                             |
| 30 - 110    | L <sub>AFP</sub>   | A                   | F              | 106.0         | Continuous     | 106.0            | Ref.                        |
|             | L <sub>AFMax</sub> |                     |                |               | 200 ms         | 105.0            | -1.0 ± 1.0                  |
|             | L <sub>ASP</sub>   | S                   | Continuous     |               | 106.0          | Ref.             |                             |
|             | L <sub>ASMax</sub> |                     | 500 ms         |               | 101.9          | -4.1 ± 1.0       |                             |

### 6.3 Frequency Weighting

#### 6.3.1 A-Weighting

| UUT Setting |                  |                     |                | Applied Value |           | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|-----------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq.     |                  |                             |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 31.5 Hz   | 54.6             | -39.4 ± 1.5                 |
|             |                  |                     |                |               | 63 Hz     | 67.8             | -26.2 ± 1.5                 |
|             |                  |                     |                |               | 125 Hz    | 77.8             | -16.1 ± 1.0                 |
|             |                  |                     |                |               | 250 Hz    | 85.3             | -8.6 ± 1.0                  |
|             |                  |                     |                |               | 500 Hz    | 90.7             | -3.2 ± 1.0                  |
|             |                  |                     |                |               | 1 kHz     | 94.0             | Ref.                        |
|             |                  |                     |                |               | 2 kHz     | 95.2             | +1.2 ± 1.0                  |
|             |                  |                     |                |               | 4 kHz     | 95.0             | +1.0 ± 1.0                  |
|             |                  |                     |                |               | 8 kHz     | 92.9             | -1.1 (+1.5 ; -3.0)          |
|             |                  |                     |                |               | -12.5 kHz | 89.7             | -4.3 (+3.0 ; -6.0)          |

#### 6.3.2 C-Weighting

| UUT Setting |                  |                     |                | Applied Value |          | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|----------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq.    |                  |                             |
| 50 - 130    | L <sub>CFP</sub> | C                   | F              | 94.00         | 31.5 Hz  | 91.1             | -3.0 ± 1.5                  |
|             |                  |                     |                |               | 63 Hz    | 93.3             | -0.8 ± 1.5                  |
|             |                  |                     |                |               | 125 Hz   | 93.8             | -0.2 ± 1.0                  |
|             |                  |                     |                |               | 250 Hz   | 94.0             | 0.0 ± 1.0                   |
|             |                  |                     |                |               | 500 Hz   | 94.0             | 0.0 ± 1.0                   |
|             |                  |                     |                |               | 1 kHz    | 94.0             | Ref.                        |
|             |                  |                     |                |               | 2 kHz    | 93.8             | -0.2 ± 1.0                  |
|             |                  |                     |                |               | 4 kHz    | 93.2             | -0.8 ± 1.0                  |
|             |                  |                     |                |               | 8 kHz    | 90.9             | -3.0 (+1.5 ; -3.0)          |
|             |                  |                     |                |               | 12.5 kHz | 87.8             | -6.2 (+3.0 ; -6.0)          |

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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# Certificate of Calibration

## 校正證書

Certificate No. : C122427  
證書編號

### 6.4 Time Averaging

| UUT Setting |                  |                     |                  | Applied Value   |                     |                   |                  |                       | UUT          | IEC 60804         |
|-------------|------------------|---------------------|------------------|-----------------|---------------------|-------------------|------------------|-----------------------|--------------|-------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Integrating Time | Frequency (kHz) | Burst Duration (ms) | Burst Duty Factor | Burst Level (dB) | Equivalent Level (dB) | Reading (dB) | Type 1 Spec. (dB) |
| 30 - 110    | L <sub>Aeq</sub> | A                   | 10 sec.          | 4               | 1                   | 1/10              | 110.0            | 100                   | 99.9         | ± 0.5             |
|             |                  |                     | 60 sec.          |                 |                     | 1/10 <sup>2</sup> |                  | 90                    | 89.6         | ± 0.5             |
|             |                  |                     | 5 min.           |                 |                     | 1/10 <sup>3</sup> |                  | 80                    | 79.8         | ± 1.0             |
|             |                  |                     |                  |                 |                     | 1/10 <sup>4</sup> |                  | 70                    | 69.8         | ± 1.0             |

Remarks : - Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

|                          |   |
|--------------------------|---|
| 94 dB : 31.5 Hz - 125 Hz | : ± 0.40 dB                                     |
| 250 Hz - 500 Hz          | : ± 0.30 dB                                     |
| 1 kHz                    | : ± 0.20 dB                                     |
| 2 kHz                    | : ± 0.40 dB                                     |
| 4 kHz                    | : ± 0.50 dB                                     |
| 8 kHz                    | : ± 0.70 dB                                     |
| 12.5 kHz                 | : ± 1.20 dB                                     |
| 104 dB : 1 kHz           | : ± 0.10 dB (Ref. 94 dB)                        |
| 114 dB : 1 kHz           | : ± 0.10 dB (Ref. 94 dB)                        |
| Burst equivalent level   | : ± 0.2 dB (Ref. 110 dB continuous sound level) |

- The uncertainties are for a confidence probability of not less than 95 %.

Note :

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.



# Certificate of Calibration 校正證書

Certificate No. : C123007  
證書編號

## ITEM TESTED / 送檢項目 ( Job No. / 序引編號 : IC12-0960 )

Description / 儀器名稱 : Integrating Sound Level Meter (EQ065)  
Manufacturer / 製造商 : Bruel & Kjaer  
Model No. / 型號 : 2238  
Serial No. / 編號 : 2337676  
Supplied By / 委託者 : Action-United Environmental Services and Consulting  
Unit A, 20/F., Gold King Industrial Building,  
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

## TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C  
Line Voltage / 電壓 : ---  
Relative Humidity / 相對濕度 : (55 ± 20)%

## TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 18 May 2012

## TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.  
All results are within manufacturer's specification.  
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Precision Measurement Ltd., UK
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By  
測試

:   
K C Lee

Certified By  
核證

:   
C C Cheung

Date of Issue  
簽發日期

: 22 May 2012

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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# Certificate of Calibration

## 校正證書

Certificate No. : C123007

證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

| <u>Equipment ID</u> | <u>Description</u>                  | <u>Certificate No.</u> |
|---------------------|-------------------------------------|------------------------|
| CL280               | 40 MHz Arbitrary Waveform Generator | C120016                |
| CL281               | Multifunction Acoustic Calibrator   | DC110233               |

5. Test procedure : MA101N.

6. Results :

- 6.1 Sound Pressure Level

- 6.1.1 Reference Sound Pressure Level

- 6.1.1.1 Before Self-calibration

| UUT Setting |                  |                     |                | Applied Value |             | UUT Reading (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 1           | 94.3             |

- 6.1.1.2 After Self-calibration

| UUT Setting |                  |                     |                | Applied Value |             | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |                             |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 1           | 94.1             | ± 0.7                       |

- 6.1.2 Linearity

| UUT Setting |                  |                     |                | Applied Value |             | UUT Reading (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 1           | 94.1 (Ref.)      |
|             |                  |                     |                | 104.00        |             | 104.1            |
|             |                  |                     |                | 114.00        |             | 114.1            |

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

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# Certificate of Calibration

## 校正證書

Certificate No. : C123007

證書編號

### 6.2 Time Weighting

#### 6.2.1 Continuous Signal

| UUT Setting |                  |                     |                | Applied Value |             | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |                             |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 1           | 94.1             | Ref.                        |
|             | L <sub>ASP</sub> |                     | S              |               |             | 94.1             | ± 0.1                       |
|             | L <sub>AIP</sub> |                     | I              |               |             | 94.1             | ± 0.1                       |

#### 6.2.2 Tone Burst Signal (2 kHz)

| UUT Setting |                    |                     |                | Applied Value |                | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|--------------------|---------------------|----------------|---------------|----------------|------------------|-----------------------------|
| Range (dB)  | Parameter          | Frequency Weighting | Time Weighting | Level (dB)    | Burst Duration |                  |                             |
| 30 - 110    | L <sub>AFP</sub>   | A                   | F              | 106.0         | Continuous     | 106.0            | Ref.                        |
|             | L <sub>AFMax</sub> |                     |                |               | 200 ms         | 105.1            | -1.0 ± 1.0                  |
|             | L <sub>ASP</sub>   | S                   | Continuous     |               | 106.0          | Ref.             |                             |
|             | L <sub>ASMax</sub> |                     | 500 ms         |               | 102.0          | -4.1 ± 1.0       |                             |

### 6.3 Frequency Weighting

#### 6.3.1 A-Weighting

| UUT Setting |                  |                     |                | Applied Value |          | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|----------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq.    |                  |                             |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 31.5 Hz  | 55.0             | -39.4 ± 1.5                 |
|             |                  |                     |                |               | 63 Hz    | 68.0             | -26.2 ± 1.5                 |
|             |                  |                     |                |               | 125 Hz   | 78.0             | -16.1 ± 1.0                 |
|             |                  |                     |                |               | 250 Hz   | 85.4             | -8.6 ± 1.0                  |
|             |                  |                     |                |               | 500 Hz   | 90.8             | -3.2 ± 1.0                  |
|             |                  |                     |                |               | 1 kHz    | 94.1             | Ref.                        |
|             |                  |                     |                |               | 2 kHz    | 95.3             | +1.2 ± 1.0                  |
|             |                  |                     |                |               | 4 kHz    | 95.1             | +1.0 ± 1.0                  |
|             |                  |                     |                |               | 8 kHz    | 93.0             | -1.1 (+1.5 ; -3.0)          |
|             |                  |                     |                |               | 12.5 kHz | 89.9             | -4.3 (+3.0 ; -6.0)          |

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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# Certificate of Calibration

## 校正證書

Certificate No. : C123007  
證書編號

### 6.3.2 C-Weighting

| UUT Setting |                  |                     |                | Applied Value |          | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|----------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq.    |                  |                             |
| 50 - 130    | L <sub>CFP</sub> | C                   | F              | 94.00         | 31.5 Hz  | 91.3             | -3.0 ± 1.5                  |
|             |                  |                     |                |               | 63 Hz    | 93.3             | -0.8 ± 1.5                  |
|             |                  |                     |                |               | 125 Hz   | 93.9             | -0.2 ± 1.0                  |
|             |                  |                     |                |               | 250 Hz   | 94.0             | 0.0 ± 1.0                   |
|             |                  |                     |                |               | 500 Hz   | 94.1             | 0.0 ± 1.0                   |
|             |                  |                     |                |               | 1 kHz    | 94.1             | Ref.                        |
|             |                  |                     |                |               | 2 kHz    | 93.9             | -0.2 ± 1.0                  |
|             |                  |                     |                |               | 4 kHz    | 93.2             | -0.8 ± 1.0                  |
|             |                  |                     |                |               | 8 kHz    | 91.1             | -3.0 (+1.5 ; -3.0)          |
|             |                  |                     |                |               | 12.5 kHz | 88.0             | -6.2 (+3.0 ; -6.0)          |

### 6.4 Time Averaging

| UUT Setting |                  |                     |                  | Applied Value   |                     |                   |                  |                       | UUT Reading (dB) | IEC 60804 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|------------------|-----------------|---------------------|-------------------|------------------|-----------------------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Integrating Time | Frequency (kHz) | Burst Duration (ms) | Burst Duty Factor | Burst Level (dB) | Equivalent Level (dB) |                  |                             |
| 30 - 110    | L <sub>Aeq</sub> | A                   | 10 sec.          | 4               | 1                   | 1/10              | 110.0            | 100                   | 99.9             | ± 0.5                       |
|             |                  |                     | 60 sec.          |                 |                     |                   |                  | 90                    | 89.7             | ± 0.5                       |
|             |                  |                     | 5 min.           |                 |                     |                   |                  | 80                    | 79.7             | ± 1.0                       |
|             |                  |                     |                  |                 |                     |                   |                  | 70                    | 69.7             | ± 1.0                       |

Remarks : - Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

|        |                        |   |
|--------|------------------------|---|
| 94 dB  | 31.5 Hz - 125 Hz       | : ± 0.35 dB                                     |
|        | 250 Hz - 500 Hz        | : ± 0.30 dB                                     |
|        | 1 kHz                  | : ± 0.20 dB                                     |
|        | 2 kHz - 4 kHz          | : ± 0.35 dB                                     |
|        | 8 kHz                  | : ± 0.45 dB                                     |
|        | 12.5 kHz               | : ± 0.70 dB                                     |
| 104 dB | 1 kHz                  | : ± 0.10 dB (Ref. 94 dB)                        |
| 114 dB | 1 kHz                  | : ± 0.10 dB (Ref. 94 dB)                        |
|        | Burst equivalent level | : ± 0.2 dB (Ref. 110 dB continuous sound level) |

- The uncertainties are for a confidence probability of not less than 95 %.

#### Note :

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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# Certificate of Calibration 校正證書

Certificate No. : C122715  
證書編號

**ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC12-0960)**

Description / 儀器名稱 : Sound Level Meter (EQ067)  
Manufacturer / 製造商 : Rion  
Model No. / 型號 : NL-31  
Serial No. / 編號 : 00410221  
Supplied By / 委託者 : Action-United Environmental Services and Consulting  
Unit A, 20/F., Gold King Industrial Building,  
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

**TEST CONDITIONS / 測試條件**

Temperature / 溫度 : (23 ± 2)°C  
Line Voltage / 電壓 : ---  
Relative Humidity / 相對濕度 : (55 ± 20)%

**TEST SPECIFICATIONS / 測試規範**

Calibration check

**DATE OF TEST / 測試日期** : 8 May 2012

**TEST RESULTS / 測試結果**

The results apply to the particular unit-under-test only.  
All results are within manufacturer's specification.  
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Precision Measurement Ltd., UK
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By :   
測試 : L K Yeung

Certified By :   
核證 : K C Lee

Date of Issue : 9 May 2012  
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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# Certificate of Calibration

## 校正證書

Certificate No. : C122715  
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration was performed before the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

| Equipment ID | Description                         | Certificate No. |
|--------------|-------------------------------------|-----------------|
| CL280        | 40 MHz Arbitrary Waveform Generator | C120016         |
| CL281        | Multifunction Acoustic Calibrator   | DC110233        |

- Test procedure : MA101N.

- Results :

### 6.1 Sound Pressure Level

#### 6.1.1 Reference Sound Pressure Level

| UUT Setting |                |                     |                | Applied Value |             | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|----------------|---------------------|----------------|---------------|-------------|------------------|-----------------------------|
| Range (dB)  | Mode           | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |                             |
| 30 - 120    | L <sub>A</sub> | A                   | Fast           | 94.00         | 1           | 93.9             | ± 0.7                       |

#### 6.1.2 Linearity

| UUT Setting |                |                     |                | Applied Value |             | UUT Reading (dB) |
|-------------|----------------|---------------------|----------------|---------------|-------------|------------------|
| Range (dB)  | Mode           | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |
| 30 - 120    | L <sub>A</sub> | A                   | Fast           | 94.00         | 1           | 93.9 (Ref.)      |
|             |                |                     |                | 104.00        |             | 103.9            |
|             |                |                     |                | 114.00        |             | 113.9            |

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

### 6.2 Time Weighting

#### 6.2.1 Continuous Signal

| UUT Setting |                |                     |                | Applied Value |             | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|----------------|---------------------|----------------|---------------|-------------|------------------|-----------------------------|
| Range (dB)  | Mode           | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |                             |
| 30 - 120    | L <sub>A</sub> | A                   | Fast           | 94.00         | 1           | 93.9             | Ref.                        |
|             |                |                     | Slow           |               |             | 93.9             | ± 0.1                       |

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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# Certificate of Calibration

## 校正證書

Certificate No. : C122715  
證書編號

### 6.2.2 Tone Burst Signal (2 kHz)

| UUT Setting |                               |                     |                | Applied Value |                | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|-------------------------------|---------------------|----------------|---------------|----------------|------------------|-----------------------------|
| Range (dB)  | Mode                          | Frequency Weighting | Time Weighting | Level (dB)    | Burst Duration |                  |                             |
| 20 -110     | L <sub>A</sub>                | A                   | Fast           | 106.00        | Continuous     | 106.0            | Ref.                        |
|             | L <sub>A</sub> <sup>max</sup> |                     |                |               | 200 ms         | 105.1            | -1.0 ± 1.0                  |
|             | L <sub>A</sub>                | Slow                | Continuous     |               | 106.0          | Ref.             |                             |
|             | L <sub>A</sub> <sup>max</sup> |                     | 500 ms         |               | 102.0          | -4.1 ± 1.0       |                             |

### 6.3 Frequency Weighting

#### 6.3.1 A-Weighting

| UUT Setting |                |                     |                | Applied Value |          | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|----------------|---------------------|----------------|---------------|----------|------------------|-----------------------------|
| Range (dB)  | Mode           | Frequency Weighting | Time Weighting | Level (dB)    | Freq.    |                  |                             |
| 30 - 120    | L <sub>A</sub> | A                   | Fast           | 94.00         | 31.5 Hz  | 54.2             | -39.4 ± 1.5                 |
|             |                |                     |                |               | 63 Hz    | 67.7             | -26.2 ± 1.5                 |
|             |                |                     |                |               | 125 Hz   | 77.7             | -16.1 ± 1.0                 |
|             |                |                     |                |               | 250 Hz   | 85.2             | -8.6 ± 1.0                  |
|             |                |                     |                |               | 500 Hz   | 90.6             | -3.2 ± 1.0                  |
|             |                |                     |                |               | 1 kHz    | 93.9             | Ref.                        |
|             |                |                     |                |               | 2 kHz    | 95.2             | +1.2 ± 1.0                  |
|             |                |                     |                |               | 4 kHz    | 95.0             | +1.0 ± 1.0                  |
|             |                |                     |                |               | 8 kHz    | 92.8             | -1.1 (+1.5 ; -3.0)          |
|             |                |                     |                |               | 12.5 kHz | 89.9             | -4.3 (+3.0 ; -6.0)          |

#### 6.3.2 C-Weighting

| UUT Setting |                |                     |                | Applied Value |          | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|----------------|---------------------|----------------|---------------|----------|------------------|-----------------------------|
| Range (dB)  | Mode           | Frequency Weighting | Time Weighting | Level (dB)    | Freq.    |                  |                             |
| 30 - 120    | L <sub>C</sub> | C                   | Fast           | 94.00         | 31.5 Hz  | 90.8             | -3.0 ± 1.5                  |
|             |                |                     |                |               | 63 Hz    | 93.0             | -0.8 ± 1.5                  |
|             |                |                     |                |               | 125 Hz   | 93.7             | -0.2 ± 1.0                  |
|             |                |                     |                |               | 250 Hz   | 93.9             | 0.0 ± 1.0                   |
|             |                |                     |                |               | 500 Hz   | 93.9             | 0.0 ± 1.0                   |
|             |                |                     |                |               | 1 kHz    | 93.9             | Ref.                        |
|             |                |                     |                |               | 2 kHz    | 93.8             | -0.2 ± 1.0                  |
|             |                |                     |                |               | 4 kHz    | 93.2             | -0.8 ± 1.0                  |
|             |                |                     |                |               | 8 kHz    | 91.0             | -3.0 (+1.5 ; -3.0)          |
|             |                |                     |                |               | 12.5 kHz | 88.1             | -6.2 (+3.0 ; -6.0)          |

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# Certificate of Calibration

## 校正證書

Certificate No. : C122715  
證書編號

### 6.4 Time Averaging

| UUT Setting |                  |                     |                  | Applied Value |                     |                   |                  |                       | UUT          | IEC 60804         |
|-------------|------------------|---------------------|------------------|---------------|---------------------|-------------------|------------------|-----------------------|--------------|-------------------|
| Range (dB)  | Mode             | Frequency Weighting | Integrating Time | Freq. (kHz)   | Burst Duration (ms) | Burst Duty Factor | Burst Level (dB) | Equivalent Level (dB) | Reading (dB) | Type 1 Spec. (dB) |
| 20 - 110    | L <sub>Aeq</sub> | A                   | 10 sec.          | 4             | 1                   | 1/10              | 110              | 100                   | 100.0        | ± 0.5             |
|             |                  |                     |                  |               |                     |                   |                  | 90                    | 90.0         | ± 0.5             |
|             |                  |                     | 60 sec.          |               |                     |                   |                  | 80                    | 80.0         | ± 1.0             |
|             |                  |                     | 5 min.           |               |                     |                   |                  | 70                    | 70.0         | ± 1.0             |

Remarks : - Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value : 94 dB : 31.5 Hz - 125 Hz: ± 0.35 dB  
250 Hz - 500 Hz : ± 0.30 dB  
1 kHz : ± 0.20 dB  
2 kHz - 4 kHz : ± 0.35 dB  
8 kHz : ± 0.45 dB  
12.5 kHz : ± 0.70 dB  
104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)  
114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)  
Burst equivalent level : ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

#### Note :

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.



# Certificate of Calibration 校正證書

Certificate No. : C122712  
證書編號

**ITEM TESTED / 送檢項目** ( Job No. / 序引編號 : IC12-0960 )

Description / 儀器名稱 : Acoustical Calibrator (EQ081)  
Manufacturer / 製造商 : Bruel & Kjaer  
Model No. / 型號 : 4231  
Serial No. / 編號 : 2326408  
Supplied By / 委託者 : Action-United Environmental Services and Consulting  
Unit A, 20/F., Gold King Industrial Building,  
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

**TEST CONDITIONS / 測試條件**

Temperature / 溫度 :  $(23 \pm 2)^{\circ}\text{C}$   
Line Voltage / 電壓 : ---

Relative Humidity / 相對濕度 :  $(55 \pm 20)\%$

**TEST SPECIFICATIONS / 測試規範**

Calibration check

**DATE OF TEST / 測試日期** : 7 May 2012


**TEST RESULTS / 測試結果**

The results apply to the particular unit-under-test only.  
All results are within manufacturer's specification.  
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By  
測試

  
L K Yeung

Certified By  
核證

  
K C Lee

Date of Issue  
簽發日期

8 May 2012

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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# Certificate of Calibration

## 校正證書

Certificate No. : C122712  
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

| <u>Equipment ID</u> | <u>Description</u>                | <u>Certificate No.</u> |
|---------------------|-----------------------------------|------------------------|
| CL130               | Universal Counter                 | C113350                |
| CL281               | Multifunction Acoustic Calibrator | DC110233               |
| TST150A             | Measuring Amplifier               | C120886                |

- Test procedure : MA100N.

- Results :

### 5.1 Sound Level Accuracy

| UUT<br>Nominal Value | Measured Value<br>(dB) | Mfr's Spec.<br>(dB) | Uncertainty of Measured Value<br>(dB) |
|----------------------|------------------------|---------------------|---------------------------------------|
| 94 dB, 1 kHz         | 94.0                   | ± 0.2               | ± 0.2                                 |
| 114 dB, 1 kHz        | 114.0                  |                     |                                       |

### 5.2 Frequency Accuracy

| UUT Nominal Value<br>(kHz) | Measured Value<br>(kHz) | Mfr's<br>Spec. | Uncertainty of Measured Value<br>(Hz) |
|----------------------------|-------------------------|----------------|---------------------------------------|
| 1                          | 1.000 0                 | 1 kHz ± 0.1 %  | ± 0.1                                 |

Remark : The uncertainties are for a confidence probability of not less than 95 %.

#### Note :

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

## **Appendix E**

### **Event and Action Plan**

## Event Action Plan for Construction Noise

| EVENT        | ACTION  |   |   |  |
|--------------|---|---|---|--|
|              | ET Leader   | IEC   | ER  | Contractor   |
| Action Level | <ol style="list-style-type: none"> <li>1. Notify IEC and Contractor</li> <li>2. Carry out investigation.</li> <li>3. Report the results of investigation to the IEC, ER and Contractor.</li> <li>4. Discuss with the Contractor and formulate remedial measures</li> <li>5. Increase monitoring frequency to check mitigation effectiveness.</li> </ol>   | <ol style="list-style-type: none"> <li>1. Review the analyzed results submitted by the ET.</li> <li>2. Review the proposed remedial measures by the Contractor and advise the ER accordingly</li> <li>3. Supervise the implementation of remedial measures</li> </ol>   | <ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing</li> <li>2. Notify Contractor</li> <li>3. Require Contractor to propose remedial measures for the analyzed noise problem</li> <li>4. Check remedial measures are properly implemented.</li> </ol>   | <ol style="list-style-type: none"> <li>1. Submit noise mitigation proposals to IEC</li> <li>2. Implement noise mitigation proposals</li> </ol>   |
| Limit Level  | <ol style="list-style-type: none"> <li>1. Notify IEC, ER, EPD and Contractor</li> <li>2. Identify source.</li> <li>3. Repeat measurements to confirm findings</li> <li>4. Increase monitoring frequency.</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented</li> <li>6. Inform IEC, ER and EPD the causes and actions taken for the exceedances</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol> | <ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET, and Contractor on the potential remedial actions</li> <li>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly</li> <li>3. Supervise the implementation of remedial measures</li> </ol> | <ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing</li> <li>2. Notify Contractor</li> <li>3. Require Contractor to propose remedial measures for the analyzed noise problem</li> <li>4. Check remedial measures properly implemented.</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated</li> </ol> | <ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance</li> <li>2. Submit proposals for remedial actions to IEC within 3 working days of notification</li> <li>3. Implement the agreed proposals</li> <li>4. Resubmit proposals if problem still not under control</li> <li>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated</li> </ol> |

## Event Action Plan for Ecology

| Event                                 | Action  |  |  |   |
|---------------------------------------|---|--|--|---|
|                                       | ET  | ER   | IEC  | Contractor  |
| <b>Non-conformity on one occasion</b> | <ol style="list-style-type: none"> <li>1. Identify Source</li> <li>2. Inform the IEC and the ER;</li> <li>3. Discuss remedial actions with the IEC, the ER and the Contractor</li> <li>4. Monitor remedial actions until rectification has been completed</li> </ol>  | <ol style="list-style-type: none"> <li>1. Check report</li> <li>2. Check the Contractor's working method</li> <li>3. Discuss with the ET and the Contractor on possible remedial measures,</li> <li>4. Advise the Contractor on effectiveness of proposed remedial measures</li> <li>5. Check implementation of remedial measures</li> </ol> | <ol style="list-style-type: none"> <li>1. Ensure Remedial measures are properly implemented</li> </ol> | <ol style="list-style-type: none"> <li>1. Amend working methods</li> <li>2. Rectify damage and undertake any necessary replacement</li> </ol> |
| <b>Repeated Non conformity</b>        | <ol style="list-style-type: none"> <li>1. Identify Source</li> <li>2. Inform the IEC and the ER</li> <li>3. Increase monitoring frequency</li> <li>4. Discuss remedial actions with the IEC, the ER and the Contractor</li> <li>5. Monitor remedial actions until rectification has been completed.</li> <li>6. If exceedance stops, cease additional monitoring</li> </ol> | <ol style="list-style-type: none"> <li>1. Check the Contractor's working method</li> <li>2. Discuss with the ET and the Contractor on possible remedial measures</li> <li>3. Advise the Contractor on effectiveness of proposed remedial measures</li> <li>4. Check implementation of remedial measures</li> </ol>                           | <ol style="list-style-type: none"> <li>1. Ensure Remedial measures are properly implemented</li> </ol> | <ol style="list-style-type: none"> <li>1. Amend working methods</li> <li>2. Rectify damage and undertake any necessary replacement</li> </ol> |

**Appendix F**

**Monitoring Schedule in Reporting Period  
and the Coming Month**

Monitoring / Inspection Schedule during the Reporting Period – July 2012

| Date |            | Monitoring       |         |           | Site Inspection |         | SSEMC |
|------|------------|------------------|---------|-----------|-----------------|---------|-------|
|      |            | Noise            | Ecology | Vibration | Weekly          | Ecology |       |
| Sun  | 1-July-12  |                  |         |           |                 |         |       |
| Mon  | 2-July-12  |                  |         |           |                 |         |       |
| Tue  | 3-July-12  |                  |         |           |                 |         |       |
| Wed  | 4-July-12  |                  |         |           |                 |         |       |
| Thu  | 5-July-12  |                  |         |           |                 |         |       |
| Fri  | 6-July-12  |                  |         |           |                 |         |       |
| Sat  | 7-July-12  |                  |         |           |                 |         |       |
| Sun  | 8-July-12  |                  |         |           |                 |         |       |
| Mon  | 9-July-12  |                  |         |           |                 |         |       |
| Tue  | 10-July-12 |                  |         |           |                 |         |       |
| Wed  | 11-July-12 |                  |         |           |                 |         |       |
| Thu  | 12-July-12 |                  |         |           |                 |         |       |
| Fri  | 13-July-12 |                  |         |           |                 |         |       |
| Sat  | 14-July-12 |                  |         |           |                 |         |       |
| Sun  | 15-July-12 |                  |         |           |                 |         |       |
| Mon  | 16-July-12 |                  |         |           |                 |         |       |
| Tue  | 17-July-12 |                  |         |           |                 |         |       |
| Wed  | 18-July-12 |                  |         |           |                 |         |       |
| Thu  | 19-July-12 |                  |         |           |                 |         |       |
| Fri  | 20-July-12 |                  |         |           |                 |         |       |
| Sat  | 21-July-12 |                  |         |           |                 |         |       |
| Sun  | 22-July-12 |                  |         |           |                 |         |       |
| Mon  | 23-July-12 |                  |         |           |                 |         |       |
| Tue  | 24-July-12 |                  |         |           |                 |         |       |
| Wed  | 25-July-12 | <i>Cancelled</i> |         |           |                 |         |       |
| Thu  | 26-July-12 |                  |         |           |                 |         |       |
| Fri  | 27-July-12 |                  |         |           |                 |         |       |
| Sat  | 28-July-12 |                  |         |           |                 |         |       |
| Sun  | 29-July-12 |                  |         |           |                 |         |       |
| Mon  | 30-July-12 |                  |         |           |                 |         |       |
| Tue  | 31-July-12 |                  |         |           |                 |         |       |

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

Predicted Monitoring Schedule for the coming month – August 2012

| Date |           | Monitoring |         |           | Site Inspection |         | SSEMC |
|------|-----------|------------|---------|-----------|-----------------|---------|-------|
|      |           | Noise      | Ecology | Vibration | General         | Ecology |       |
| Wed  | 1-Aug-12  |            |         |           |                 |         |       |
| Thu  | 2-Aug-12  |            |         |           |                 |         |       |
| Fri  | 3-Aug-12  |            |         |           |                 |         |       |
| Sat  | 4-Aug-12  |            |         |           |                 |         |       |
| Sun  | 5-Aug-12  |            |         |           |                 |         |       |
| Mon  | 6-Aug-12  |            |         |           |                 |         |       |
| Tue  | 7-Aug-12  |            |         |           |                 |         |       |
| Wed  | 8-Aug-12  |            |         |           |                 |         |       |
| Thu  | 9-Aug-12  |            |         |           |                 |         |       |
| Fri  | 10-Aug-12 |            |         |           |                 |         |       |
| Sat  | 11-Aug-12 |            |         |           |                 |         |       |
| Sun  | 12-Aug-12 |            |         |           |                 |         |       |
| Mon  | 13-Aug-12 |            |         |           |                 |         |       |
| Tue  | 14-Aug-12 |            |         |           |                 |         |       |
| Wed  | 15-Aug-12 |            |         |           |                 |         |       |
| Thu  | 16-Aug-12 |            |         |           |                 |         |       |
| Fri  | 17-Aug-12 |            |         |           |                 |         |       |
| Sat  | 18-Aug-12 |            |         |           |                 |         |       |
| Sun  | 19-Aug-12 |            |         |           |                 |         |       |
| Mon  | 20-Aug-12 |            |         |           |                 |         |       |
| Tue  | 21-Aug-12 |            |         |           |                 |         |       |
| Wed  | 22-Aug-12 |            |         |           |                 |         |       |
| Thu  | 23-Aug-12 |            |         |           |                 |         |       |
| Fri  | 24-Aug-12 |            |         |           |                 |         |       |
| Sat  | 25-Aug-12 |            |         |           |                 |         |       |
| Sun  | 26-Aug-12 |            |         |           |                 |         |       |
| Mon  | 27-Aug-12 |            |         |           |                 |         |       |
| Tue  | 28-Aug-12 |            |         |           |                 |         |       |
| Wed  | 29-Aug-12 |            |         |           |                 |         |       |
| Thu  | 30-Aug-12 |            |         |           |                 |         |       |
| Fri  | 31-Aug-12 |            |         |           |                 |         |       |

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

## **Appendix G**

### **Meteorological Data of Reporting Period**



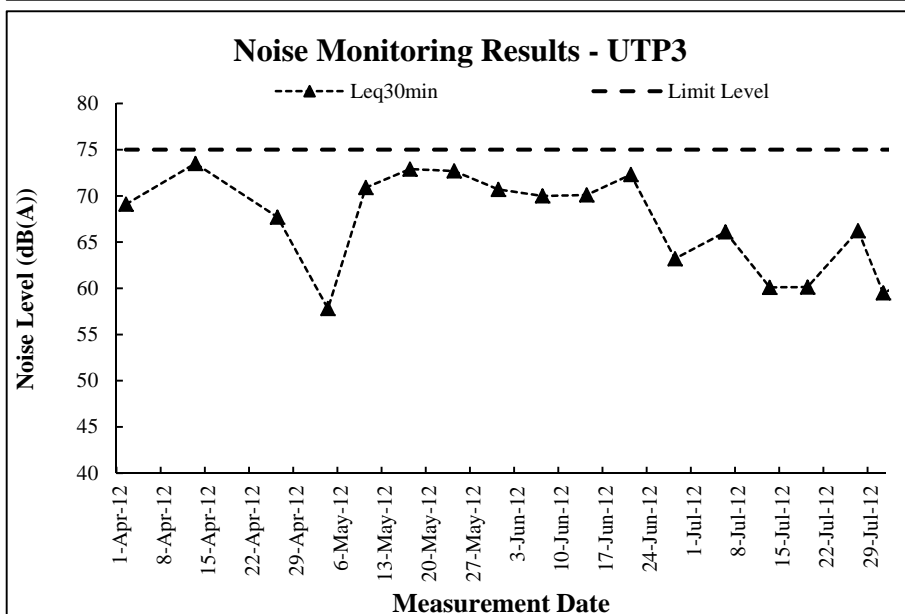
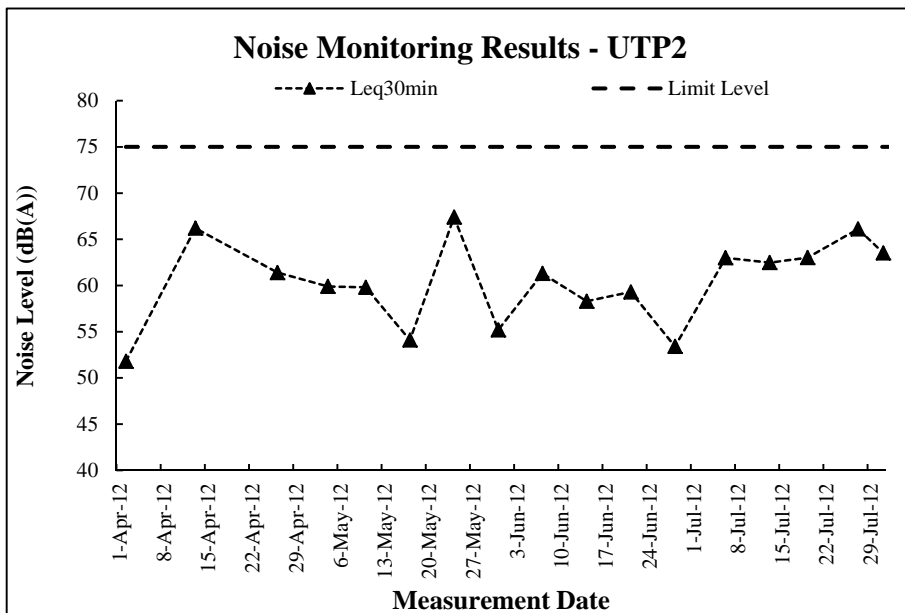
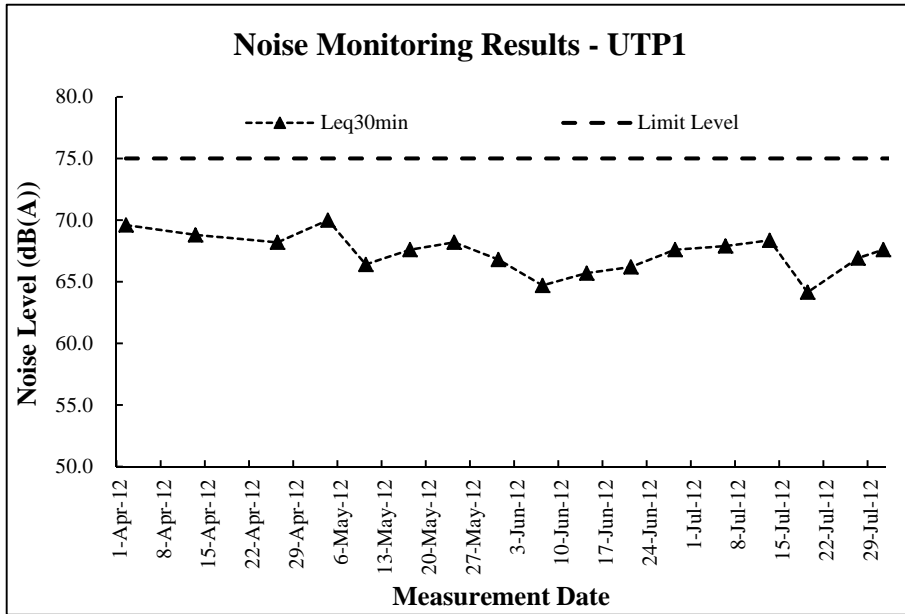
Meteorological Data in Reporting Period

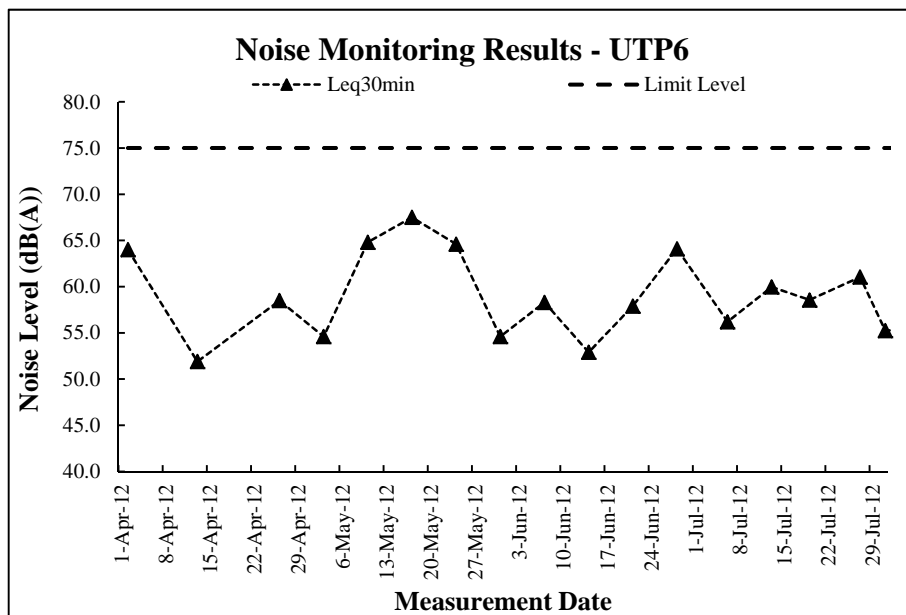
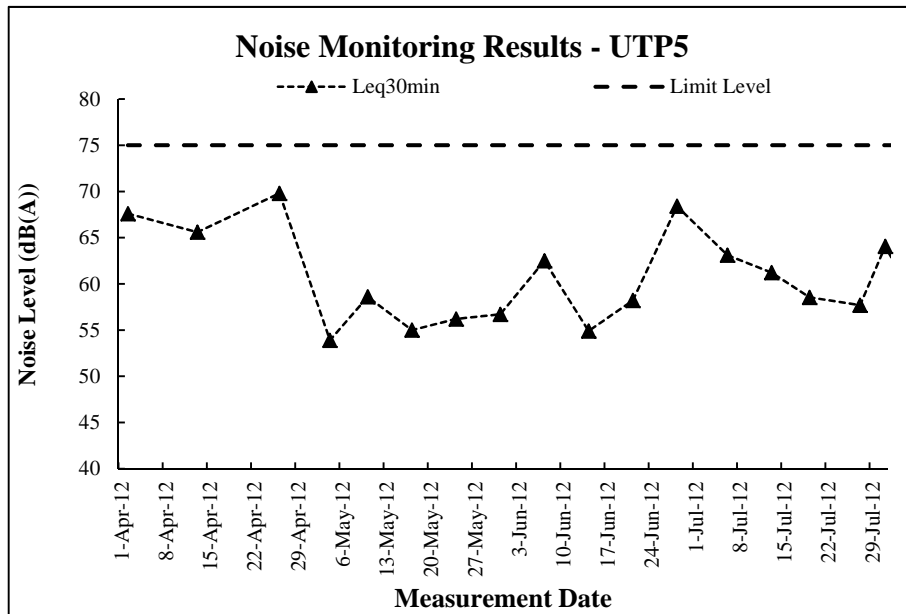
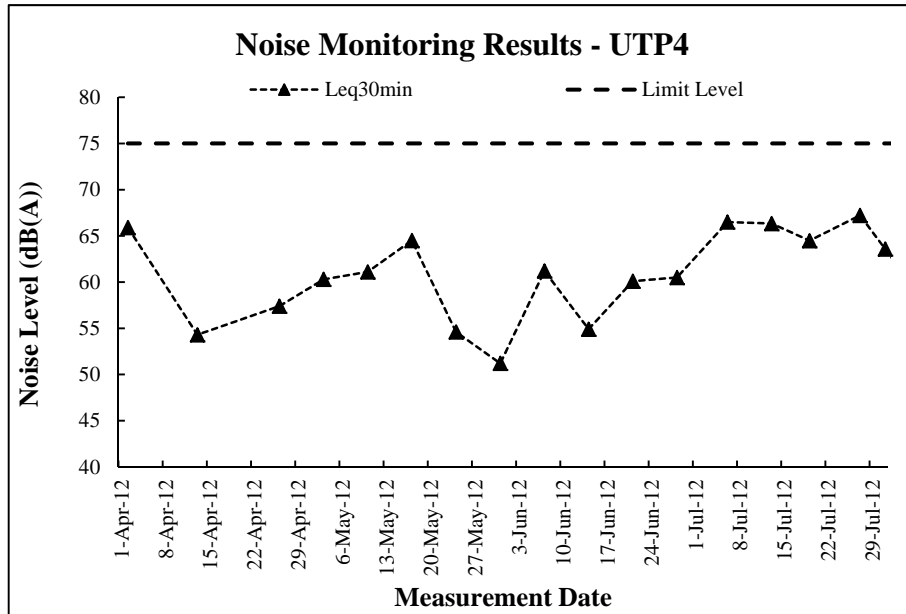
| Date      |     | Weather  | Total Rainfall (mm) | Tai Po Station      |                            | Shatin Station    |                |
|-----------|-----|--|---------------------|---------------------|----------------------------|-------------------|----------------|
|           |     |  |                     | Mean Air Temp. (°C) | Mean Relative Humidity (%) | Wind Speed (km/h) | Wind Direction |
| 1-Jul-12  | Sun | HOLIDAY  |                     |                     |                            |                   |                |
| 2-Jul-12  | Mon | HOLIDAY  |                     |                     |                            |                   |                |
| 3-Jul-12  | Tue | Moderate southwesterly winds.                                      | 0.0                 | 29.0                | 75.5                       | 7.7               | E/SE           |
| 4-Jul-12  | Wed | Mainly fine.   | 0.0                 | 28.8                | 76.7                       | 8.4               | E/SE           |
| 5-Jul-12  | Thu | Very hot in the afternoon.   | 22                  | 27.2                | 85.0                       | 7.6               | E/SE           |
| 6-Jul-12  | Fri | Moderate south to southwesterly winds.                             | 0.8                 | 28.0                | 83.0                       | 9.1               | E/SE           |
| 7-Jul-12  | Sat | Very hot during the day  | 2.7                 | 28.6                | 81.7                       | 11                | S/SE           |
| 8-Jul-12  | Sun | Mainly fine.   | 0.4                 | 28.7                | 80.5                       | 12.1              | S/SE           |
| 9-Jul-12  | Mon | Mainly fine and very hot   | Trace               | 29.8                | 72.0                       | 9                 | SW             |
| 10-Jul-12 | Tue | Fine and very hot apart from one or two isolated showers at first. | Trace               | 30.0                | 73.7                       | 10.5              | S/SW           |
| 11-Jul-12 | Wed | Very hot in the afternoon.   | Trace               | 29.8                | 75.0                       | 16.1              | S/SW           |
| 12-Jul-12 | Thu | Mainly cloudy with a few showers.                                  | 1.3                 | 29.7                | 72.5                       | 13.9              | S/SW           |
| 13-Jul-12 | Fri | Hot with sunny intervals   | 9.0                 | 28.7                | 82.2                       | 12.2              | S/SW           |
| 14-Jul-12 | Sat | Moderate southwesterly winds, fresh offshore.                      | 7.0                 | 28.9                | 80.0                       | 15                | S/SW           |
| 15-Jul-12 | Sun | Mainly fine and very hot.  | 2.1                 | 30.7                | 70.5                       | 17.6              | SW             |
| 16-Jul-12 | Mon | Mainly fine and very hot.  | 18.1                | 29.8                | 76.7                       | 15.1              | S/SW           |
| 17-Jul-12 | Tue | Moderate south to southwesterly winds.                             | 1.0                 | 29.3                | 80.5                       | 13.2              | SW             |
| 18-Jul-12 | Wed | Sunny periods in the afternoon.                                    | 34.3                | 27.9                | 85.7                       | 10.3              | SW             |
| 19-Jul-12 | Thu | Mainly cloudy with a few showers.                                  | Trace               | 29.4                | 80.5                       | 8.2               | S/SW           |
| 20-Jul-12 | Fri | Mainly fine and very hot.  | 4.2                 | 29.7                | 76.0                       | 7.2               | S/SW           |
| 21-Jul-12 | Sat | The Strong Wind Signal, No. 1                                      | 2.2                 | 30.2                | 85.2                       | 8.4               | N/NE           |
| 22-Jul-12 | Sun | The Strong Wind Signal, No. 1                                      | 1.0                 | 28.1                | 82.2                       | 13.1              | N/NE           |
| 23-Jul-12 | Mon | The Strong Wind Signal, No. 3                                      | 112                 | 26.6                | 85.0                       | 20.5              | N/NE           |
| 24-Jul-12 | Tue | The Strong Wind Signal, No. 3                                      | 99.5                | 26.2                | 91.7                       | 29.7              | SE             |
| 25-Jul-12 | Wed | Heavy showers and squally thunderstorms.                           | 82.3                | 25.3                | 92.0                       | 15                | S/SE           |
| 26-Jul-12 | Thu | Cloudy with scattered showers and a few squally thunderstorms.     | 28.1                | 24.6                | 96.5                       | 6.4               | N/NE           |
| 27-Jul-12 | Fri | Light winds.   | 25.7                | 25.4                | 95.0                       | 7.2               | N/NE           |
| 28-Jul-12 | Sat | Light winds.   | Trace               | 26.7                | 85.7                       | 8                 | N/NE           |
| 29-Jul-12 | Sun | Isolated showers in the afternoon                                  | 0.0                 | 27.9                | 76.5                       | 10.9              | S/SW           |
| 30-Jul-12 | Mon | fine and very hot.   | 0.0                 | 29.4                | 69.0                       | 8.2               | S/SW           |
| 31-Jul-12 | Tue | Amber Rainstorm Warning Signal                                     | 9.5                 | 28.9                | 72.5                       | 11.9              | S/SW           |

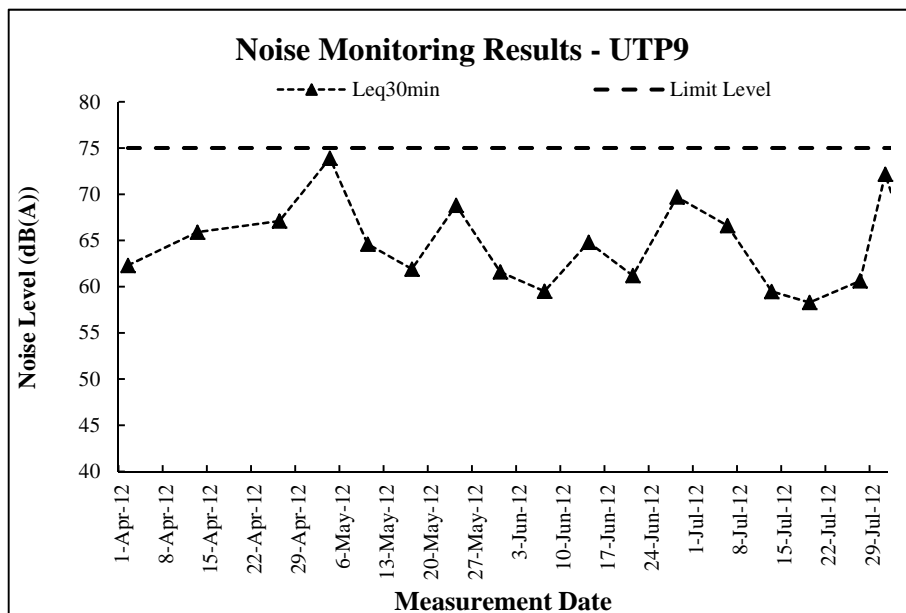
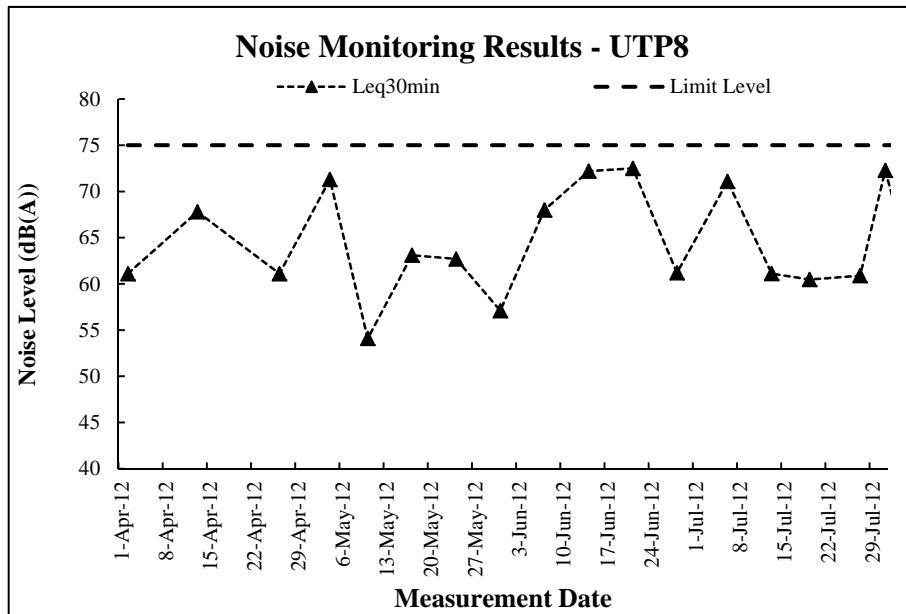
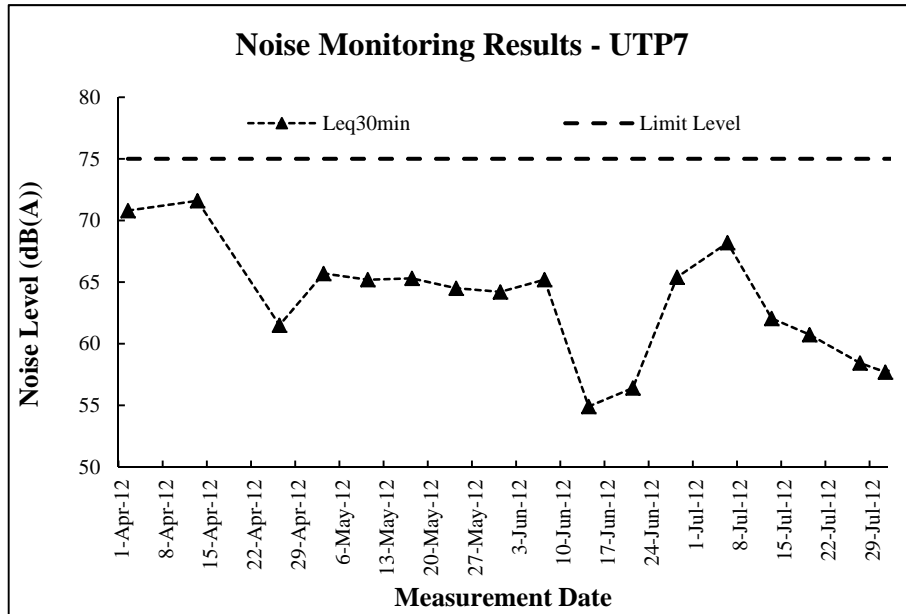
\* The record was downloaded from The Hong Kong Observatory Weather Stations

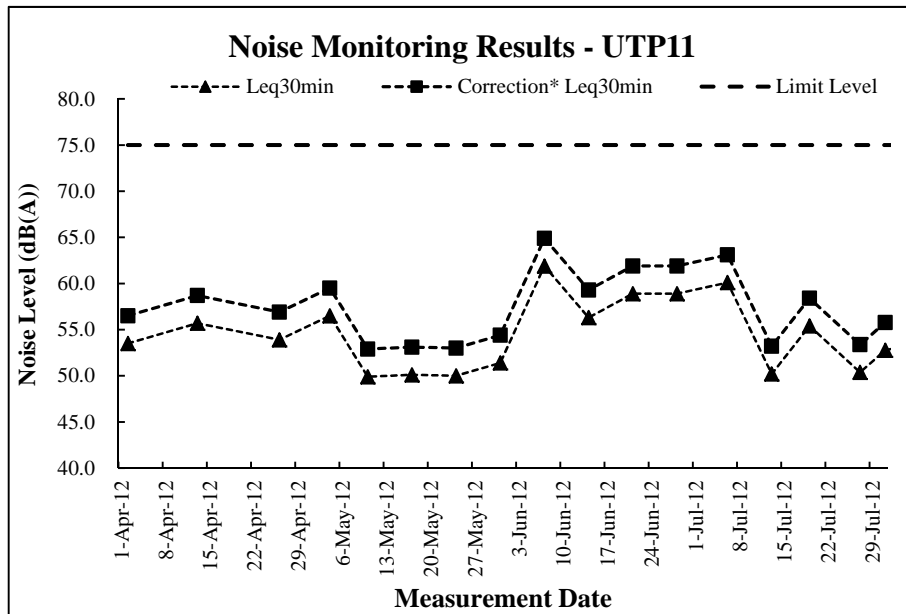
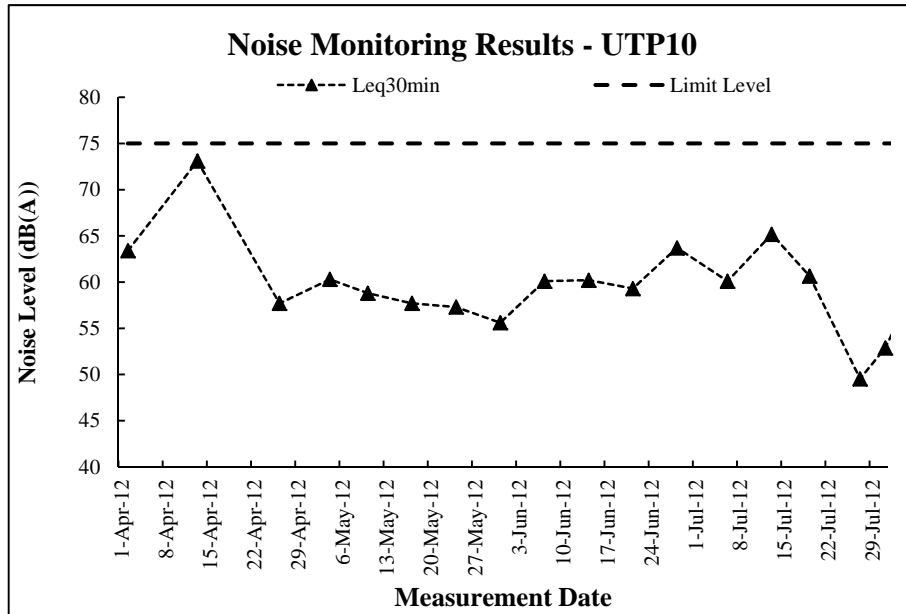
## **Appendix H**

### **Graphical Plots of Noise Monitoring**









## **Appendix I**

### **Monthly Summary Waste Flow Table**

**Monthly Summary Waste Flow Table**

Name of Department: DSD

Contract No.: DC/2007/06

**Monthly Summary Waste Flow Table of Upper Tai Po River for 2012**

| Month        | Actual Quantities of Inert C&D Materials Generated Monthly |   |   |   |  |   | Actual Quantities of C&D Wastes Generated Monthly |  |   |                                 |  |
|--------------|--|---|---|---|--|---|---|--|---|---------------------------------|--|
|              | Total Quantity Generated<br>(in '000m <sup>3</sup> )       | Hard Rock and<br>Large Broken<br>Concrete<br>(in '000m <sup>3</sup> ) | Reused in the<br>Contract<br>(in '000m <sup>3</sup> ) | Reused in other<br>Projects<br>(in '000m <sup>3</sup> ) | Disposed as<br>Public Fill<br>(in '000m <sup>3</sup> ) | Imported Fill<br>(in '000m <sup>3</sup> ) | Metals<br>(in '000kg)                             | Paper/ cardboard<br>packaging<br>(in '000kg) | Plastics<br>(see Note 3)<br>(in '000kg) | Chemical Waste**<br>(in '000kg) | Others, e.g.<br>general refuse<br>(in '000m <sup>3</sup> ) |
| Jan          | 1.920  | 0.490   | 0.490   | 1.430   | 0.000  | 0.000                                     | 0.050   | 0.040  | 0.020                                   | 0.002                           | 0.030  |
| Feb          | 2.110  | 1.970   | 2.000   | 0.110   | 0.000  | 0.000                                     | 0.030   | 0.020  | 0.015                                   | 0.001                           | 0.020  |
| Mar          | 1.401  | 0.107   | 0.281   | 1.120   | 0.000  | 0.000                                     | 0.040   | 0.045  | 0.020                                   | 0.000                           | 0.030  |
| Apr          | 0.710  | 0.280   | 0.280   | 0.295   | 0.135  | 0.000                                     | 0.035   | 0.040  | 0.015                                   | 0.000                           | 0.030  |
| May          | 0.162  | 0.160   | 0.162   | 0.000   | 0.000  | 0.000                                     | 0.040   | 0.035  | 0.020                                   | 0.000                           | 0.035  |
| June         | 0.000  | 0.000   | 0.000   | 0.000   | 0.000  | 0.000                                     | 0.035   | 0.040  | 0.025                                   | 0.000                           | 0.030  |
| July         | 0.128  | 0.128   | 0.128   | 0.000   | 0.000  | 0.000                                     | 0.040   | 0.045  | 0.025                                   | 0.000                           | 0.050  |
| Aug          |  |   |   |   |  |   |   |  |   |                                 |  |
| Sept         |  |   |   |   |  |   |   |  |   |                                 |  |
| Oct          |  |   |   |   |  |   |   |  |   |                                 |  |
| Nov          |  |   |   |   |  |   |   |  |   |                                 |  |
| Dec          |  |   |   |   |  |   |   |  |   |                                 |  |
| <b>Total</b> | <b>6.341</b>   | <b>3.135</b>  | <b>3.341</b>  | <b>2.955</b>  | <b>0.135</b>   | <b>0.000</b>                              | <b>0.270</b>                                      | <b>0.265</b>                                 | <b>0.140</b>                            | <b>0.003</b>                    | <b>0.225</b>   |

\*For all the three rivers in the Contract