

Maeda - CREC - SELI Joint Venture



# Contract No. DC/2007/12 – Design and Construction of Tsuen Wan Drainage Tunnel

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Monthly EM&A Report

(April 2008)

May 2008

Report no: EB000364R0041

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Report no: EB000364R0041


Date: May 2008

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## Executive Summary

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Drainage Services Department (DSD) has awarded the contract for the Design and Construction of Tsuen Wan Drainage Tunnel (hereafter referred to as the “Project”) to Maeda-CREC-SELI Joint Venture (MCSJV). MCSJV has appointed Hyder Consulting Limited (HCL) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) works in accordance with the Environmental Monitoring and Audit Manual (EM&A Manual) and Environmental Permit (EP) (Permit No. FEP-088/2008). The notified date of commencement work is January 2008. This Monthly EM&A Report summarises the EM&A works undertaken during the period of April 2008.

According to the EM&A Manual, there are four designated air quality monitoring locations, five designated noise monitoring locations and four water quality monitoring locations during the construction phase: (i) Sik Sik Yuen Ho Fung College (ASR 1, NSR 1 and Intake I-1); (ii) Hong Hoi Chee Hong Temple (ASR 3, NSR 3 and Intake I-2); (iii) Squatters (NSR 6 and Intake I-3); (iv) Beach Tower (Long Beach Gardens) (ASR 8, NSR 8 and Outfall O-1); and (v) Greenview Terrace (Block 1) (ASR 9, NSR 9 and Outfall O-1).

During non-restricted hours, major construction activities undertaken by the Contractor at TWDT were site clearance and hoarding erection. No construction activities were undertaken during restricted hours.

No Action/ Limit Levels exceedance of 1-hr TSP and noise monitoring was recorded in the reporting month.

No water quality monitoring has been carried out during the reporting month. The monitoring is anticipated to commence in the following month.

In the reporting month, no C&D material was disposed of to public fill at Tuen Mun. A total of 10.485m<sup>3</sup> C&D waste were disposed of to NENT Landfill. A total of 160kg of paper/cardboard were recycled and no chemical waste was disposed of in the reporting month. In addition, no metals were generated.

Taking account of the accumulated amount of waste generated since January 2008, no C&D material was disposed of to public fill at Tuen Mun. A total of 18.82m<sup>3</sup> C&D waste were disposed of to NENT Landfill. A total of 510kg of paper/cardboard were recycled and no chemical waste was disposed of. In addition, no metals were generated.

Bi-weekly site inspections and monthly site audit were carried out by ET and Independent Environmental Checker (IEC), respectively, to ensure proper implementation of environmental mitigation measures specified in the EM&A Manual and compliance with environmental legislation. In this reporting month, two biweekly site inspections by ET were conducted. All observations, which were recorded on the inspection checklists were passed to the Contractor together with the ET’s recommendations. No non-compliance was received in the reporting month.

No environmental complaints were received during the reporting month.

No summons and prosecution were received in this reporting month.

The major construction works for the upcoming three months is:

- site clearance;
- hoarding & fencing erection;
- trees survey & transplanting;
- slope stabilization;
- site office formation; and
- pre-construction survey.

# 1 INTRODUCTION

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The Drainage Services Department (DSD) proposes to construct a tunnel of an internal diameter of 6.5m and length 5.13km, with the purpose to alleviate the flooding risk in Tsuen Wan and Kwai Chung.

This project is a Designated Project under Schedule 2 Part I Category Q, of the Environmental Impact Assessment Ordinance (EIAO) as part of the proposed Tsuen Wan Drainage Tunnel (TWDT) passes underneath the existing Tai Mo Shan Country Park. An Environmental Impact Assessment (EIA) Study has therefore been undertaken to provide information on the nature and extent of environmental impacts arising from the construction and operation of the proposed designed project and related activities taking place concurrently. From the EIA the recommendations for monitoring contained herein, are made.

The Maeda - CREC - SELI Joint Venture (MCSJV) was awarded by DSD with the Contract – Design and Construction of Tsuen Wan Drainage Tunnel.

Hyder was commissioned by the MCSJV as the ET to implement an EM&A program in accordance with the EM&A Manual. The proposed tunnel section flows from the junction of Shing Mun Road and Wo Yi Hop Road and discharges to south of Yau Kom Tau underneath Castle Peak Road as shown in Appendix A.

The construction works of the Project commenced on January 2008. This is the first monthly EM&A report summarising the impact monitoring results and audit findings of the EM&A program during the reporting month in April 2008.

# 2 PROJECT INFORMATION

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## 2.1 Project Organization and Management Structure

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

## 2.2 Construction Progress

This report marks the first month of the civil works contract. It is anticipated that the overall project programme from the detail design to completion of all civil works shall take approximately 54 months. The construction programme is presented in Appendix C.

The major construction activities undertaken in the reporting month include:

- site clearance; and
- hoarding erection.

As confirmed by the Contractor, there were no construction activities undertaken at TWDT during the restricted hours.

## 2.3 Mitigation Measures

The environmental mitigation measures implemented and their status are given in Appendix D.

## 2.4 Status of License and Permit

A summary of relevant permits, licences, and notifications on environmental protection for the Project is given in Appendix E.

# 3 SUMMARY OF EM&A REQUIREMENT

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## 3.1 Air Quality

### 3.1.1 Air Quality Parameters

1-hour Total Suspended Particulates (TSP) levels are measured at the designated air monitoring locations in accordance with the EM&A Manual. Monitoring under typical weather conditions (with no adverse weather such as typhoon signal or rain storm warning) is undertaken at each monitoring location every six days. Information such as date of monitoring, duration, weather condition, equipment used and monitoring results are recorded on the field data sheet developed for the Project. The monitoring results are presented in Section 4.

### 3.1.2 Monitoring Methodology

1-hour TSP monitoring is carried out three times every six days using HVASs and follows the standard sampling method as set out in High Volume Method for Total Suspended Particulates, Part 50 Chapter 1 Appendix B, Title 40 of the Code of Federal Regulations of the USEPA.

After sampling, the filter paper loaded with dust is kept in a clean and tightly sealed plastic bag. The filter paper is then re-conditioned in a dessicator for 24 hours before obtaining the weight under laboratory conditions.

The average concentration of the suspended particulates is calculated based on the following information obtained from monitoring:

- Flow rate
- Weight of the filter paper before and after sampling
- Sampling period indicated by the elapsed-time meter



All samples should be kept in good condition (i.e. stored in sealed plastic bags, with brief description of the monitoring dates and locations) for a period of 6 months before disposal. Sample analysis will be carried out by ALS Technichem (HK) Pty Limited (HOKLAS Registration Number 066).

### 3.1.3 Monitoring Equipment and Calibration

High Volume Air Samplers (HVASs) used for 1-hour TSP monitoring comply with the USEPA specifications in Appendix B Part 5 - Reference Method for the Determination of Suspended Particulate matter in the Atmosphere (High-Volume Method) of the Code of Federal Regulation dated June 1, 1991.

All HVASs are calibrated before commencement of monitoring using standard orifice 5-points calibration method with orifice calibrator to determine the actual flow rate of each HVAS. This shall be used for the calculation of the TSP level. Calibration Kit Model - TE5025A is used for calibration of the HVAS. Recalibration of the HVAS shall be carried out after motor maintenance, at least once every six months, which is about the expected life of carbon brush. The air quality monitoring equipment used during the reporting month is shown in Table 3-1 below. The calibration certificates are included in Appendix F.

| Equipment Type | Model    | Serial Number | Calibration Orifice Number | Location |
|----------------|----------|---------------|----------------------------|----------|
| HVAS           | BM2000HX | 4994          | 517N                       | ASR 1    |
| HVAS           | BM2000HX | 5875          | 517N                       | ASR 3    |
| HVAS           | TE5005X  | 0390          | 517N                       | ASR 8    |
| HVAS           | TE5005X  | 0646          | 517N                       | ASR 9    |

**Table 3-1 Air Quality Monitoring Equipment**

### 3.1.4 Monitoring Location

Four designated dust monitoring locations were identified in the contract specific EM&A manual and they are listed in Table 3-2 below and shown in Appendix G.

| Monitoring Station ID | Name of Premises                 | Floor Level |
|-----------------------|----------------------------------|-------------|
| ASR1                  | Sik Sik Yuen Ho Fung College     | G/F         |
| ASR3                  | Hong Hoi Chee Hong Temple        | Podium      |
| ASR8                  | Beach Tower (Long Beach Gardens) | G/F         |
| ASR9                  | Greenview Terrace (Block 1)      | G/F         |

**Table 3-2 Dust Monitoring Locations**

### 3.1.5 Action and Limit Levels

The Action and Limit Levels for the 1-hour TSP monitoring is shown in Table 3-3. In case exceedances of Action and/or Limit levels for air quality occur, Event Contingency Plans (ECPs) would be implemented. The ECPs for Action and Limit levels exceedances are shown in Table 3-4.

| Station | 1-hr TSP Level in $\mu\text{g}/\text{m}^3$ |             |
|---------|--|-------------|
|         | Action Level                               | Limit Level |
| ASR 1   | 307  | 500         |
| ASR 3   | 327  | 500         |
| ASR 8   | 344  | 500         |
| ASR 9   | 329  | 500         |

**Table 3-3 Action & Limit Levels for Air Quality**

| EVENT  | ACTION   |  |   |  |
|--|--|--|---|--|
|  | ET   | IEC  | SOR   | CONTRACTOR   |
| <b>ACTION LEVEL</b>                            |  |  |   |  |
| Exceedance for one sample                      | <ul style="list-style-type: none"> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform IEC and SOR;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to daily.</li> </ul>           | <ul style="list-style-type: none"> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method.</li> </ul>   | <ul style="list-style-type: none"> <li>Notify Contractor.</li> </ul>  | <ul style="list-style-type: none"> <li>Rectify any unacceptable practice;</li> <li>Amend working methods if appropriate.</li> </ul>  |
| Exceedance for two or more consecutive samples | <ul style="list-style-type: none"> <li>Identify source;</li> <li>Inform IEC and SOR;</li> <li>Advise SOR on the effectiveness of the proposed remedial measures;</li> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> </ul> | <ul style="list-style-type: none"> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and Contractor on possible remedial measures;</li> <li>Advise the ET on the effectiveness of the proposed remedial measures;</li> </ul> | <ul style="list-style-type: none"> <li>Confirm receipt of notification of exceedance in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented.</li> </ul> | <ul style="list-style-type: none"> <li>Submit proposals for remedial to SOR within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Amend proposal if appropriate.</li> </ul> |

| EVENT  | ACTION  |   |   |  |
|--|---|---|---|--|
|  | ET  | IEC   | SOR   | CONTRACTOR   |
|  | <ul style="list-style-type: none"> <li>Discuss with IEC and Contractor on remedial actions required;</li> <li>If exceedance continues, arrange meeting with IEC and SOR;</li> <li>If exceedance stops, cease additional monitoring.</li> </ul>  | <ul style="list-style-type: none"> <li>Supervise Implementation of remedial measures.</li> </ul>  |   |  |
| <b>LIMIT LEVEL</b>                             |   |   |   |  |
| Exceedance for one sample                      | <ul style="list-style-type: none"> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform IEC, SOR, Contractor and EPD;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to daily;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and SOR informed of the results.</li> </ul> | <ul style="list-style-type: none"> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and Contractor on possible remedial measures;</li> <li>Advise SOR on the effectiveness of the proposed remedial measures;</li> <li>Supervise implementation of remedial measures.</li> </ul> | <ul style="list-style-type: none"> <li>Confirm receipt of notification of exceedance in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented.</li> </ul>   | <ul style="list-style-type: none"> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Amend proposal if appropriate.</li> </ul>                         |
| Exceedance for two or more consecutive samples | <ul style="list-style-type: none"> <li>Notify IEC, SOR, Contractor and EPD;</li> <li>Identify source;</li> <li>Repeat measurement to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Carry out analysis of Contractor's working procedures to determine possible</li> </ul>   | <ul style="list-style-type: none"> <li>Discuss amongst SOR, ET, and Contractor on the potential remedial actions;</li> <li>Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise SOR accordingly;</li> <li>Supervise the</li> </ul>  | <ul style="list-style-type: none"> <li>Confirm receipt of notification of exceedance in writing;</li> <li>Notify Contractor;</li> <li>In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>Ensure remedial</li> </ul> | <ul style="list-style-type: none"> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Resubmit proposals if problem still not under control;</li> </ul> |

| EVENT | ACTION  |                                      |  |   |
|-------|---|--------------------------------------|--|---|
|       | ET  | IEC                                  | SOR  | CONTRACTOR  |
|       | mitigation to be implemented;<br><ul style="list-style-type: none"> <li>• Arrange meeting with IEC and SOR to discuss the remedial actions to be taken;</li> <li>• Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and SOR informed of the results;</li> <li>• If exceedance stops, cease additional monitoring.</li> </ul> | implementation of remedial measures. | measures properly implemented;<br><ul style="list-style-type: none"> <li>• 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> </ul> | <ul style="list-style-type: none"> <li>• Stop the relevant portion of works as determined by SOR until the exceedance is abated.</li> </ul> |

Table 3-4 Event/Action Plan for Air Quality

## 3.2 Noise

### 3.2.1 Noise Parameters

The construction noise level is measured in terms of equivalent A-weighted sound pressure level ( $L_{eq}$ ) measured in decibels (dB(A)). Monitoring of  $L_{eq(30\text{ min})}$  is carried out at the noise monitoring locations on a weekly basis during normal construction working hours (0700-1900 hours from Monday to Saturday except public holidays). For all other time periods (i.e. restricted hours),  $L_{eq(5\text{ min})}$  would be employed for comparison with the Noise Control Ordinance (NCO) criteria if necessary.

The two statistical sound levels  $L_{10}$  and  $L_{90}$ ; the level exceeded for 10 and 90 percent of the time respectively, are also recorded during monitoring. Major noise sources observed, both on-site and off-site, are recorded on the field data sheet. All measurements are recorded to the nearest 0.1 dB(A) and presented in round numbers in this report. Results are presented in Section 4.

### 3.2.2 Monitoring Methodology

Sound level meters, which comply with the International Electrotechnical Commission Publication 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications as referred to the Technical Memorandum (TM) issued under the Noise Control Ordinance, are used. Noise levels for the A-weighted levels  $L_{eq(30\text{min})}$ ,  $L_{10}$  and  $L_{90}$  are measured throughout the impact monitoring. Average, by sound power, of six consecutive 5 minutes readings is used to provide  $L_{eq(30\text{ min})}$  for non-restricted hours (07:00-19:00 hours from Monday to Saturday except public holidays). A facade correction of 3dB(A) is applied to measurements that are carried out under free field conditions.

During the impact monitoring, parameters such as dates, weather condition, equipment used, measurement results and major noise sources are recorded on the field data record sheet. Monitoring would not be carried out in the presence of fog, rain or strong wind with a steady speed exceeding 5 m/s. In relation to the monitored noise levels, other noise sources such as road traffic may make a significant contribution to the overall noise environment. Therefore, noise monitoring activities would take into account such influencing factors, which were not present during the baseline monitoring period.

### 3.2.3 Monitoring Equipment and Calibration

Bruel & Kjaer (B&K) Precision Integrating Sound Level Meters of Type 2238 in compliance with the International Electrotechnical Commission Publication 651: 1979 (Type 1) and 804: 1985 (Type 1) Specifications, stated in the Technical Memorandum (TM) issued under the NCO, is used for noise monitoring.

Prior to and following each noise measurement, the accuracy of the sound level meter is checked using an acoustic calibrator (B&K Type 4231(S/N 1770806) generating a known sound pressure level at a known frequency. Measurements are considered as valid only if the calibration levels from before and after the noise measurement agrees to within 1.0 dB(A). The sound level meters and the calibrators shall be calibrated annually to ensure they perform to the same level of accuracy as stated in the manufacturers specifications. Table 3-5 details the noise monitoring equipment used during the reporting month. The calibration certificates are included in Appendix F.

| Equipment Type         | Manufacturer  | Type Number | Serial Number | Location                        |
|------------------------|---------------|-------------|---------------|---------------------------------|
| Sound Level Meter      | Bruel & Kjaer | 2238        | 2285726       | NSR1, NSR3, NSR6, NSR8 and NSR9 |
| Sound Level Calibrator | Bruel & Kjaer | 4231        | 1770806       | NSR1, NSR3, NSR6, NSR8 and NSR9 |

**Table 3-5 Noise Monitoring Equipment**

### 3.2.4 Monitoring Location

Five designated noise monitoring locations were identified in the contract specific EM&A manual and they are listed in Table 3-6 below and shown in Appendix G.

| Monitoring Station ID | Name of Premises                 | Floor Level |
|-----------------------|----------------------------------|-------------|
| NSR1                  | Sik Sik Yuen Ho Fung College     | G/F         |
| NSR3                  | Hong Hoi Chee Hong Temple        | Podium      |
| NSR6                  | Squatters                        | G/F         |
| NSR8                  | Beach Tower (Long Beach Gardens) | G/F         |
| NSR9                  | Greenview Terrace (Block 1)      | G/F         |

**Table 3-6 Noise Monitoring Locations**

### 3.2.5 Construction Groundborne Noise

Prediction of construction groundborne noise indicates the criteria will be achieved at most NSRs except exceedances are predicted at Hong Hoi Chee Hong Temple (NSR3) and Squatters (NSR6). It is recommended to restrict the TBM operation in non-restricted period (i.e. 0700 - 1900) at these NSRs. In order to ensure proper control of groundborne noise is executed by the contractor, a monitoring requirement is recommended at the Hong Hoi Chee Hong Temple at Intake 2 and Squatters at Intake 3 for compliance checking. According to the monitoring schedule, TBM operation would be carried out for about 3 months in the vicinity of Hong Hoi Chee Hong Temple at Intake 2 and Squatters at Intake 3. If groundborne noise criterion is exceeded, the monitoring shall continue daily until acceptance has been restored against the criterion. Otherwise the monitoring can be discontinued.

The criterion include TM for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites (TM-Places) under the NCO stipulates that noise transmitted primarily through the structural elements of building, or buildings, shall be 10 dB(A) less than the relevant ANLs. Daytime groundborne construction noise criterion of 60 dB(A) therefore applies with reference to TM-EIAO 70 dB(A) criterion for schools and taking account of the minus 10 dB(A) requirement under the NCO TM-Places. Following the same principle for groundborne noise criteria, groundborne construction noise levels inside domestic premises relying on open window for ventilation will be limited to 65 dB(A), with reference to the daytime airborne noise criterion of 75 dB(A) in accordance with TM-EIAO.

### 3.2.6 Action and Limit Levels

The Action and Limit levels for construction noise are defined in Table 3-7. If non-compliance of the criteria occurs, actions in accordance with the Action Plan in Table 3-8 would be carried out.

| Time Period  | Action                                    | Limit     |
|--|---|-----------|
| 0700 – 1900 hrs on normal weekdays                                 | When one documented complaint is received | 75 dB(A)* |
| 0700 – 2300 hrs on holidays; and 1900 – 2300 hrs on all other days |   | 70 dB(A)  |
| 2300 – 0700 hrs of next day  |   | 55 dB(A)  |

\* For educational establishments the limit level shall be 70dB(A) and reduced to 65dB(A) during examination periods between 0700-1900 hrs on normal weekdays.

**Table 3-7 Action & Limit Levels for Noise**

| Event               | Action  |  |   |   |
|---------------------|---|--|---|---|
|                     | ET Leader   | IEC  | SOR   | Contractor  |
| <b>Action Level</b> | <ol style="list-style-type: none"> <li>1. Notify IEC and the Contractor.</li> <li>2. Carry out investigation.</li> <li>3. Report the results of investigation to IEC and the Contractor.</li> <li>4. Discuss with the Contractor and formulate remedial measures.</li> <li>5. Increase monitoring frequency to check mitigation measures.</li> </ol>  | <ol style="list-style-type: none"> <li>1. Review with analysed results submitted by ET.</li> <li>2. Review the proposed remedial measures by the Contractor and advise SOR accordingly.</li> <li>3. Supervise the implement of remedial measures.</li> </ol>   | <ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing.</li> <li>2. Notify the Contractor.</li> <li>3. Require the Contractor to propose remedial measures for the analysed noise problem.</li> <li>4. Ensure 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>  |
| <b>Limit Level</b>  | <ol style="list-style-type: none"> <li>1. Identify the source.</li> <li>2. Notify IEC, SOR, EPD and the Contractor.</li> <li>3. Repeat measurement 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, SOR, and EPD the causes &amp; actions taken for the exceedances.</li> <li>7. Assess effectiveness of the Contractor's remedial actions and keep IEC, EPD and SOR 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 SOR, ET Leader and the Contractor on the potential remedial actions.</li> <li>2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise SOR 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 exceedance in writing.</li> <li>2. Notify the Contractor.</li> <li>3. Require the Contractor to propose remedial measures for the analysed noise problem.</li> <li>4. Ensure remedial measures are properly implemented.</li> <li>5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity 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 activity of works as determined by the SOR until the exceedance is abated.</li> </ol> |

**Table 3-8 Event/Action Plan for Noise**

## 3.3 Water Quality

As there is no dredging or reclamation required for the project, the water quality impact would be insignificant with the protection measures recommended in Section 5.6 of the EIA report. However in view of the sensitive nature of the rivers/streams and bathing beaches in the Study Area, it is suggested that a programme of monitoring should be established to confirm the mitigation measures are protecting these water bodies.

### 3.3.1 Water Quality Parameters

Monitoring for Dissolved Oxygen (DO), temperature, turbidity, pH and suspended solids (SS) shall be undertaken at designated monitoring locations. It should be noted that DO, temperature, turbidity and pH should be measured in-situ whereas SS is assayed in a laboratory.

In association with the water quality parameters, other relevant data shall also be measured, such as monitoring location/position, time, weather conditions, and any special phenomena and description of work underway at the construction site etc.

### 3.3.2 Monitoring Methodology

In accordance with the EM&A Manual, the water quality monitoring for all specified parameters shall be measured at all designated monitoring locations including control points at an interval of 3 days per week. DO, temperature, turbidity, pH and SS shall be undertaken at designated monitoring locations.

It should be noted that water samples for all monitoring parameters shall be collected, stored, preserved and analysis according to Standard Methods, APHA 17 ed. and/or methods agreed by the Director of Environmental Protection.

Each sample shall be analysed in accordance with the APHA Standard Methods for the Examination of Water and Wastewater, 18th edition, or an equivalent method approved by the EPD. If an in-house or non-standard method is proposed, details of the method verification may require to be submitted to the EPD. In any circumstance, the sample testing shall comply with a comprehensive quality assurance and quality control programme. The laboratory should be prepared to demonstrate the quality programmes to the EPD when requested.

### 3.3.3 Monitoring Equipment and Calibration

All the water samples collected should be transferred to clearly labelled and pre-cleaned sample containers with necessary preservatives immediately after collection. The sample containers should be provided by HOKLAS accredited laboratory. Sufficient quantity of samples should be collected for all laboratory analyses. Following sampling, samples should be stored in a cool box at temperature of between 0 and 4 °C, and transported to the laboratory within the sample retention time as advised by the laboratory under proper chain-of-custody system. Table 3-9 shows the equipment list for water quality monitoring.



| Equipment              | Manufacturer & Model | Qty. |
|------------------------|----------------------|------|
| PH Meter               | Mettler-Toledo       | 1    |
| DO / Temperature Meter | YSI 85               | 1    |
| Turbidimeter           | Hach2100P            | 1    |

**Table 3-9 Equipment List for Water Quality Monitoring**

All pH meters, DO meters and turbidimeters shall be checked and calibrated prior to use. DO meters and turbidimeters shall be calibrated by a laboratory accredited under HOKLAS or any other international accreditation scheme, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring. Responses of sensors and electrodes shall be checked with certified standard solutions before each use. Wet bulb calibrations for all DO meters shall be carried out before measurement at each monitoring location. For the on site calibration of field equipment, BS 127:1993, "Guide to field and on-site test methods for the analysis of waters" should be observed. The calibration certificates shall be attached in the next monthly report.

### 3.3.4 Monitoring Location

There are four designated monitoring locations identified in the EM&A Manual for water quality monitoring. While the construction of the outfall does not require dredging or reclamation, monitoring of water quality is only required during which the rip rap is placed. Control station for each monitoring location and monitoring locations are summarised in Table 3-10.

| Monitoring Station ID | Name of Premises                         |
|-----------------------|--|
| I-1                   | Intake I-1                               |
| I-1-C                 | Control of Intake I-1                    |
| I-2                   | Intake I-2                               |
| I-2-C                 | Control of Intake I-2                    |
| I-3                   | Intake I-3                               |
| I-3-C                 | Control of Intake I-3                    |
| O-1 (FT)              | Outfall 1 During Flood Tide              |
| O-1 (ET)              | Outfall 1 During Ebb Tide                |
| O-1-C (FT)            | Control of Outfall O-1 During Flood Tide |
| O-1-C (ET)            | Control of Outfall O-1 During Ebb Tide   |

**Table 3-10 Water Quality Monitoring Locations**

Note that there are two control stations for Outfall O-1, one for sampling during flood tide and one for sampling during ebb tide. Only one of those control stations for Outfall O-1 shall be sampled during each sampling. Control station to be sampled will be determined base on the tidal information provided by the Hong Kong Observatory.

### 3.3.5 Action and Limit Levels

The Action and Limit levels for water quality monitoring parameters are defined in Table 3-11. In case of any exceedance, appropriate action will be undertaken in accordance with the Event and Action Plan as described in Table 3-12.

| Parameters                                 | Action   | Limit  |
|--|--|--|
| DO in mg/l<br>(Surface, Middle & Bottom)   | <u>Surface &amp; Middle</u><br>5%-ile of baseline data for surface and middle layer.<br><br><u>Bottom</u><br>5%-ile of baseline data for bottom layer. | <u>Surface &amp; Middle</u><br>4mg/l except 5mg/l for FCZ or 1%-ile of baseline data for surface and middle layer<br><br><u>Bottom</u><br>2mg/l or 1%-ile of baseline data for bottom layer                                      |
| SS in mg/l<br>(depth-averaged)             | 95%-ile of baseline data or 120% of upstream control station's SS at the same tide of the same day   | 99%-ile of baseline or 130% of upstream control station's SS at the same tide of the same day and specific sensitive receiver water quality requirements (e.g. required suspended solids levels for concerned sea water intakes) |
| Turbidity (Tby) in NTU<br>(depth-averaged) | 95%-ile of baseline data or 120% of upstream control station's Tby at the same tide of the same day  | 99%-ile of baseline or 130% of upstream control station's Tby at the same tide of the same day   |

Notes:

- For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
- For SS and Tby, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
- All the figures given in the table are used for reference only and the EPD may amend the figures whenever it is considered as necessary.

**Table 3-11 Action/Limit Levels for Water Quality**

| Event   | ET Leader  | IEC   | SOR   | Contractor   |
|---|--|---|---|--|
| Action Level being exceeded by one sampling day                       | <ol style="list-style-type: none"> <li>Repeat in-situ measurement to confirm finding;</li> <li>Identify source(s) of impact;</li> <li>Inform IEC and Contractor;</li> <li>Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>Discuss mitigation measures with IEC and Contractor; and</li> <li>Repeat measurement on next day of exceedance.</li> </ol>  | <ol style="list-style-type: none"> <li>Discuss with ET and Contractor on the mitigation measures;</li> <li>Review proposals on mitigation measures submitted by Contractor and advise the SOR accordingly; and</li> <li>Assess the effectiveness of the implemented mitigation measures.</li> </ol> | <ol style="list-style-type: none"> <li>Discuss with IEC on the proposed mitigation measures; and</li> <li>Make agreement on the mitigation measures to be implemented.</li> </ol>   | <ol style="list-style-type: none"> <li>Inform the SOR and confirm notification of the non-compliance in writing;</li> <li>Rectify unacceptable practice;</li> <li>Check all plant and equipment;</li> <li>Consider changes of working methods;</li> <li>Discuss with ET and IEC and propose mitigation measures to IEC and SOR; and</li> <li>Implement the agreed mitigation measures.</li> </ol>                            |
| Action Level being exceeded by more than one consecutive sampling day | <ol style="list-style-type: none"> <li>Repeat in-situ measurement to confirm finding;</li> <li>Identify source(s) of impact;</li> <li>Inform IEC and Contractor;</li> <li>Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>Discuss mitigation measures with IEC and Contractor;</li> <li>Ensure mitigation measures are implemented;</li> <li>Prepare to increase the monitoring frequency to daily; and</li> <li>Repeat measurement on next day of exceedance.</li> </ol> | <ol style="list-style-type: none"> <li>Discuss with ET and Contractor on the mitigation measures;</li> <li>Review proposals on mitigation measures submitted by Contractor and advise the SOR accordingly; and</li> <li>Assess the effectiveness of the implemented mitigation measures.</li> </ol> | <ol style="list-style-type: none"> <li>Discuss with IEC on the proposed mitigation measures;</li> <li>Make agreement on the mitigation measures to be implemented; and</li> <li>Assess the effectiveness of the implemented mitigation measures.</li> </ol> | <ol style="list-style-type: none"> <li>Inform the Engineer and confirm notification of the non-compliance in writing;</li> <li>Rectify unacceptable practice;</li> <li>Check all plant and equipment;</li> <li>Consider changes of working methods;</li> <li>Discuss with ET and IEC and propose mitigation measures to IEC and SOR within 3 working days; and</li> <li>Implement the agreed mitigation measures.</li> </ol> |

| Event  | ET Leader   | IEC  | SOR   | Contractor  |
|--|---|--|---|---|
| Limit Level being exceeded by one sampling day                       | <ol style="list-style-type: none"> <li>1. Repeat in-situ measurement to confirm finding;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform IEC, Contractor and EPD;</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Discuss mitigation measures with IEC, SOR and Contractor;</li> <li>6. Ensure mitigation measures are implemented; and</li> <li>7. Increase the monitoring frequency to daily until no exceedance of Limit level.</li> </ol>                          | <ol style="list-style-type: none"> <li>1. Discuss with ET and Contractor on the mitigation measures;</li> <li>2. Review proposals on mitigation measures submitted by Contractor and advise the SOR accordingly; and</li> <li>3. Assess the effectiveness of the implemented mitigation measures.</li> </ol> | <ol style="list-style-type: none"> <li>1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; and</li> <li>2. Request Contractor to critically review the working methods;</li> <li>3. Make agreement on the mitigation measures to be implemented; and</li> <li>4. Assess the effectiveness of the implemented mitigation measures.</li> </ol>  | <ol style="list-style-type: none"> <li>1. Inform the Engineer and confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment;</li> <li>4. Consider changes of working methods;</li> <li>5. Discuss with ET and IEC and SOR and propose mitigation measures to IEC and SOR within 3 working days; and</li> <li>6. Implement the agreed mitigation measures.</li> </ol>  |
| Limit Level being exceeded by more than one consecutive sampling day | <ol style="list-style-type: none"> <li>1. Repeat in-situ measurement to confirm finding;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform IEC, Contractor and EPD;</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Discuss mitigation measures with IEC, SOR and Contractor;</li> <li>6. Ensure mitigation measures are implemented; and</li> <li>7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.</li> </ol> | <ol style="list-style-type: none"> <li>1. Discuss with ET and Contractor on the mitigation measures;</li> <li>2. Review proposals on mitigation measures submitted by Contractor and advise the SOR accordingly; and</li> <li>3. Assess the effectiveness of the implemented mitigation measures.</li> </ol> | <ol style="list-style-type: none"> <li>1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; and</li> <li>2. Request Contractor to critically review the working methods;</li> <li>3. Make agreement on the mitigation measures to be implemented;</li> <li>4. Assess the effectiveness of the implemented mitigation measures; and</li> <li>5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit Level.</li> </ol> | <ol style="list-style-type: none"> <li>1. Inform the SOR and confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment;</li> <li>4. Consider changes of working methods;</li> <li>5. Discuss with ET and IEC and SOR and propose mitigation measures to IEC and SOR within 3 working days;</li> <li>6. Implement the agreed mitigation measures; and</li> <li>7. As directed by the Engineer, to slow down or to stop all or part of the marine work or construction activities.</li> </ol> |

**Table 3-12 Event/Action Plan for Water Quality**

## 4 MONITORING RESULT

### 4.1 Air Quality

The air quality monitoring schedule of the reporting period is given in Appendix H.

#### 4.1.1 1-hr TSP Monitoring

Results of 1-hours TSP level are shown in Table 4-1. All measurements are recorded to the nearest  $0.1\mu\text{g}/\text{m}^3$  and presented in round numbers in this report. Detailed results, including weather condition, and graphical presentations are included in Appendix I.

| Station | Monitoring Date | Monitoring Result ( $\mu\text{g}/\text{m}^3$ ) | Action/Limit Levels ( $\mu\text{g}/\text{m}^3$ ) |
|---------|-----------------|--|--|
| ASR 1   | 08-Apr-08       | 97   | 307/500  |
|         |                 | 78   |  |
|         |                 | 75   |  |
|         | 14-Apr-08       | 92   |  |
|         |                 | 72   |  |
|         |                 | 69   |  |
|         | 19-Apr-08       | 108  |  |
|         |                 | 99   |  |
|         |                 | 60   |  |
|         | 25-Apr-08       | 207  |  |
|         |                 | 154  |  |
|         |                 | 167  |  |
| ASR 3   | 08-Apr-08       | 93   | 327/500  |
|         |                 | 86   |  |
|         |                 | 67   |  |
|         | 14-Apr-08       | 23   |  |
|         |                 | 42   |  |
|         |                 | 57   |  |
|         | 19-Apr-08       | 196  |  |
|         |                 | 63   |  |
|         |                 | 18   |  |
|         | 25-Apr-08       | 60   |  |
|         |                 | 144  |  |
|         |                 | 149  |  |
| ASR 8   | 08-Apr-08       | 62   | 344/500  |
|         |                 | 68   |  |
|         |                 | 92   |  |
|         | 14-Apr-08       | 49   |  |
|         |                 | 58   |  |
|         |                 | 88   |  |
|         | 19-Apr-08       | 161  |  |
|         |                 |  |  |
|         |                 | 85   |  |

| Station | Monitoring Date | Monitoring Result ( $\mu\text{g}/\text{m}^3$ ) | Action/Limit Levels ( $\mu\text{g}/\text{m}^3$ ) |
|---------|-----------------|--|--|
|         | 25-Apr-08       | 218  | 329/500  |
|         |                 | 272  |  |
|         |                 | 196  |  |
|         |                 | 174  |  |
| ASR 9   | 08-Apr-08       | 56   |  |
|         |                 | 54   |  |
|         |                 | 37   |  |
|         | 14-Apr-08       | 37   |  |
|         |                 | 60   |  |
|         |                 | 54   |  |
|         | 19-Apr-08       | -  |  |
|         |                 | -  |  |
|         |                 | -  |  |
|         | 25-Apr-08       | 200  |  |
|         |                 | 122  |  |
|         |                 | 112  |  |

**Table 4-1 1-hr TSP Monitoring Results**

It should be noted that the 1-hr TSP monitoring result recorded at ASR 9 on 19 April 2008 was voided (typhoon signal no.3).

No exceedances of 1-hr TSP Action / Limit Level were recorded during the reporting month.

## 4.2 Construction Noise

The noise monitoring schedule for the reporting period is given in Appendix H. Results of measured noise level, in terms of  $L_{eq(30min)}$ , during the construction are shown in Table 4-2. Detailed results, including the weather conditions, and the graphical presentation of the results is presented in Appendix I.

No noise complaint was received during the reporting month.

No exceedances of Action/Limit Level were recorded for scheduled noise monitoring at NSR 1, NSR 3, NSR 6, NSR 8 and NSR 9 during the reporting month.

| Station | Monitoring Date | L <sub>eq</sub> (30 min) dB(A) | Limit Levels dB(A) | L <sub>10</sub> dB(A) | L <sub>90</sub> dB(A) |
|---------|-----------------|--------------------------------|--------------------|-----------------------|-----------------------|
| NSR 1   | 8-Apr-08        | 64                             | 70                 | 67                    | 58                    |
|         | 14-Apr-08       | 64                             |                    | 66                    | 61                    |
|         | 25-Apr-08       | 64                             | 65                 | 66                    | 60                    |
| NSR 3   | 8-Apr-08        | 61                             | 75                 | 63                    | 58                    |
|         | 14-Apr-08       | 60                             |                    | 63                    | 57                    |
|         | 25-Apr-08       | 67                             |                    | 68                    | 65                    |
| NSR 6   | 8-Apr-08        | 61                             |                    | 63                    | 58                    |
|         | 14-Apr-08       | 60                             |                    | 62                    | 58                    |
|         | 25-Apr-08       | 61                             |                    | 64                    | 58                    |
| NSR 8   | 8-Apr-08        | 65                             |                    | 66                    | 63                    |
|         | 14-Apr-08       | 61                             |                    | 64                    | 58                    |
|         | 25-Apr-08       | 69                             |                    | 71                    | 67                    |
| NSR 9   | 8-Apr-08        | 67                             | 69                 | 65                    |                       |
|         | 14-Apr-08       | 65                             | 67                 | 62                    |                       |
|         | 25-Apr-08       | 69                             | 71                 | 66                    |                       |

Table 4-2 Construction Noise Monitoring Results

### 4.3 Water Quality Monitoring

As the baseline water quality monitoring has been rescheduled from 7 April to 5 May 2008, no water quality monitoring has been carried during the reporting month. The monitoring is anticipated to commence in the following month.

### 4.4 Summary of Exceedances

Table 4-3 summarises the exceedance results recorded in April 2008.

| Environmental Monitoring | Total No. of Measurement | Action Level Exceedance | % of Action Level Exceedance | Limit Level Exceedance | % of Limit Level Exceedance |
|--------------------------|--------------------------|-------------------------|------------------------------|------------------------|-----------------------------|
| 1-hour TSP               | 45                       | 0                       | 0                            | 0                      | 0                           |
| Noise                    | 15                       | 0                       | 0                            | 0                      | 0                           |
| Water                    | N.A                      | N.A                     | N.A                          | N.A                    | N.A                         |

Note: Exceedances that are considered not related to the construction activities are not included in the Table.

Table 4-3 Summary of Exceedances

## 5 WASTE MANAGEMENT

---

The accumulated status of waste management is summarized in Table 5-1 below.

| Status of waste management  | Quantity |
|---|----------|
| Inert C&D Material Generated to Public Fill at Tuen Mun (m <sup>3</sup> ) | -        |
| Metals Generated (Kg)   | -        |
| C&D Waste Disposed of to NENT Landfill (m <sup>3</sup> )                  | 18.82    |
| Chemical Waste (kg)   | -        |
| Paper / Cardboard Packaging (Kg)  | 510      |

Table 5-1 Waste Generated Since January 2008

## 6 NON-COMPLIANCE AND DEFICIENCY

---

### 6.1 Site Audit by ET

ET carried out two bi-weekly site inspections in the reporting month. All observations together with the appropriate recommended mitigation measures where necessary were recorded in the audit checklists that were passed to the Contractor. Major environmental deficiencies observed during site inspection/audits and recommendation, which were made by the ET, are summarised in Table 6-1 below. No non-compliance was observed.



| Inspection Date | Observation   | Recommendation  | Status  |
|-----------------|---|---|---|
| 3 April 2008    | <ol style="list-style-type: none"> <li>1. Water was found inside water disposal containers.</li> <li>2. Water was found on some unused furniture.</li> <li>3. Several containers were not properly covered.</li> <li>4. Effluent from washing basin was not properly discharged.</li> <li>5. Vehicle wheel washing at location portion-1 was not effective.</li> <li>6. Water was observed in drip tray at location portion-1.</li> <li>7. Containers at location portion-1 were not properly covered.</li> <li>8. Standing water was found in location portion-1.</li> <li>9. Oil strain was observed near generator at location portion-1.</li> </ol> | <ol style="list-style-type: none"> <li>1. The Contractor was reminded to cover the water disposal containers properly.</li> <li>2. The Contractor was required to store the unused furniture properly.</li> <li>3. The Contractor was required to cover the containers properly / remove the containers.</li> <li>4. The Contractor was required to discharge effluent from washing basin to storm drain.</li> <li>5. The Contractor was required to provide more effective vehicle wheel washing measures.</li> <li>6. The Contractor was required to remove the drip tray water.</li> <li>7. The Contractor was required to cover the containers at location portion-1 properly.</li> <li>8. The Contractor was required to remove the standing water immediately.</li> <li>9. The Contractor was required to remove the oil strain.</li> </ol> | <ol style="list-style-type: none"> <li>1. During site inspection on 18 April 2008, waste disposal containers had been properly covered. (Closed)</li> <li>2. During site inspection on 18 April 2008, unused furniture had been stored properly. (Closed)</li> <li>3. During site inspection on 18 April 2008, containers had been removed (Closed).</li> <li>4. During site inspection on 18 April 2008, effluent from washing basin had been discharged to storm drain (Closed).</li> <li>5. During site inspection on 18 April 2008, more effective vehicle wheel washing measures was observed (Closed).</li> <li>6. During site inspection on 18 April 2008, the drip tray water in location portion-1 had been removed (Closed).</li> <li>7. During site inspection on 18 April 2008, the containers at location portion-1 had been properly covered (Closed).</li> <li>8. During site inspection on 18 April 2008, standing water in location portion-1 had been cleared up (Closed).</li> <li>9. During site inspection on 18 April 2008, oil strain near generator had been removed (Closed).</li> </ol> |
| 18 April 2008   | <ol style="list-style-type: none"> <li>1. Stagnant water was observed in U-channel at location H-I.</li> <li>2. General refuse was found in outfall.</li> <li>3. Dust was generated at location portion-1.</li> </ol>   | <ol style="list-style-type: none"> <li>1. The Contractor was required to remove the stagnant water.</li> <li>2. The Contractor was required to clear the general refuse.</li> <li>3. The Contractor was reminded to provide water spraying more frequently.</li> </ol>  | <ol style="list-style-type: none"> <li>1. The outstanding observation would be followed up in next month inspection. (Outstanding)</li> </ol>   |

**Table 6-1 Site Inspection by ET**

## 7 COMPLAINT

No complaints were received during the reporting month. The cumulative statistics of environmental complaints are shown in Table 7-1.

| Complaints Received in the Reporting Month | Cumulative Number of Complaints |
|--|---------------------------------|
| 0  | 0                               |

Table 7-1 Cumulative Statistic of Environmental Complaint

## 8 SUMMARY OF NOTIFICATION OF SUMMONS, SUCCESSFUL PROSECUTIONS AND CORRECTIVE ACTIONS

No summons was received during the reporting month.

Cumulative statistics of Notification of Summon, Successful Prosecutions and Convictions are shown in Table 8-1.

| Notification of Summons |            | Successful Prosecution |            |
|-------------------------|------------|------------------------|------------|
| Apr 08                  | Cumulative | Apr 08                 | Cumulative |
| 0                       | 0          | 0                      | 0          |

Table 8-1 Cumulative Statistics of notification of summons and successful prosecutions

## 9 FUTURE KEY ISSUE

The forecast of construction works for the upcoming three months is:

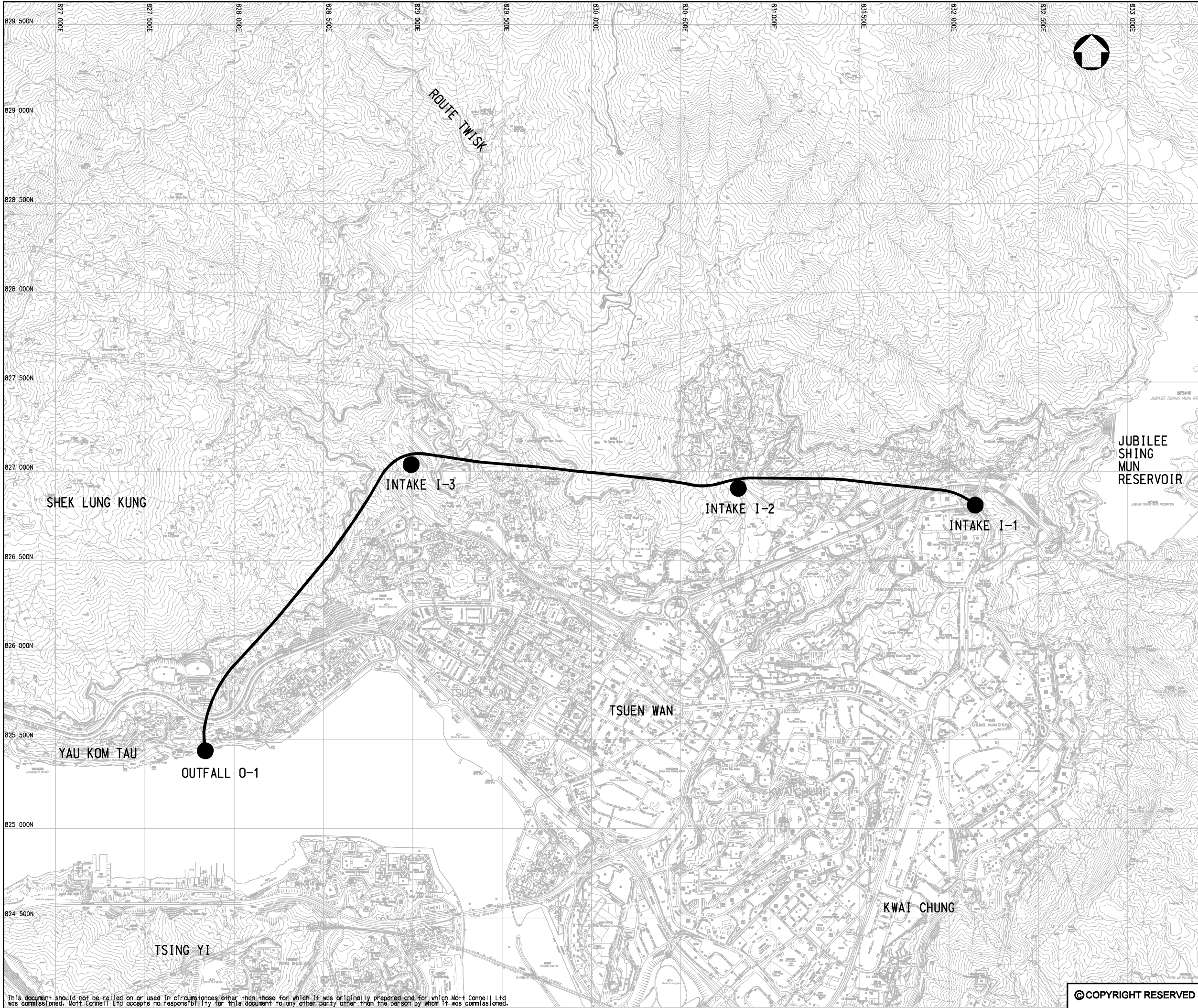
- site clearance;
- hoarding & fencing erection;
- trees survey & transplanting;
- slope stabilization;
- site office formation; and
- pre-construction survey.

The EM&A schedule for the next three months is presented in Appendix H. The monitoring events will be the same as this month and can be referred to the methodology for air quality, noise and water quality in Section 3 of this report.

# Appendix A

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Site Map and Works Area



**Key Plan:**

**Notes:**

1. CO-ORDINATES REFER TO HONG KONG METRIC GRID (1980).
2. ALL LEVELS ARE IN METRES ABOVE PRINCIPAL DATUM (P.D.).
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.

**Key to symbols**

**LEGENDS :**

- TUNNEL ALIGNMENT
- INTAKE/OUTFALL STRUCTURES

| Rev | Date   | Drawn | Description      | Ch'kd    | App'd     |
|-----|--------|-------|------------------|----------|-----------|
| B1  | MAR 05 | EL    | FOR EMA&A MANUAL | <i>M</i> | <i>EL</i> |

Client

The Government of the Hong Kong  
Special Administrative Region  
Drainage Services Department

Consulting Engineers  
**Mott Connell Ltd.**  
in Association with  
MVA Hong Kong Ltd EDAW Earth Asia Ltd Environmental Resources  
WL/Delft Hydraulics Ltd Chesterton Petty Ltd Management

Project  
**Drainage Improvement in  
Tsuen Wan and Kwai Chung -  
Tsuen Wan Drainage Tunnel -  
Investigation**

Title  
**TUNNEL ALIGNMENT  
AND SURROUNDING AREA**

|             |   |           |          |     |           |
|-------------|---|-----------|----------|-----|-----------|
| Designed    | CF  | <i>CF</i> | Eng.Chk. | MT  | <i>M</i>  |
| Drawn       | HL  | HL        | Approved | TMC | <i>HL</i> |
| Dwg.Chk.    | KN  | <i>KN</i> | Scale    |     |           |
| Project     | 204417  |           |          |     | Status    |
| CAD file    | J:\204417\DRAWING\FIGURE EMA&A MANUAL\FIGURE1.1.dgn |           |          |     |           |
| Drawing No. | FIGURE 1.1  |           |          |     | Rev 01    |

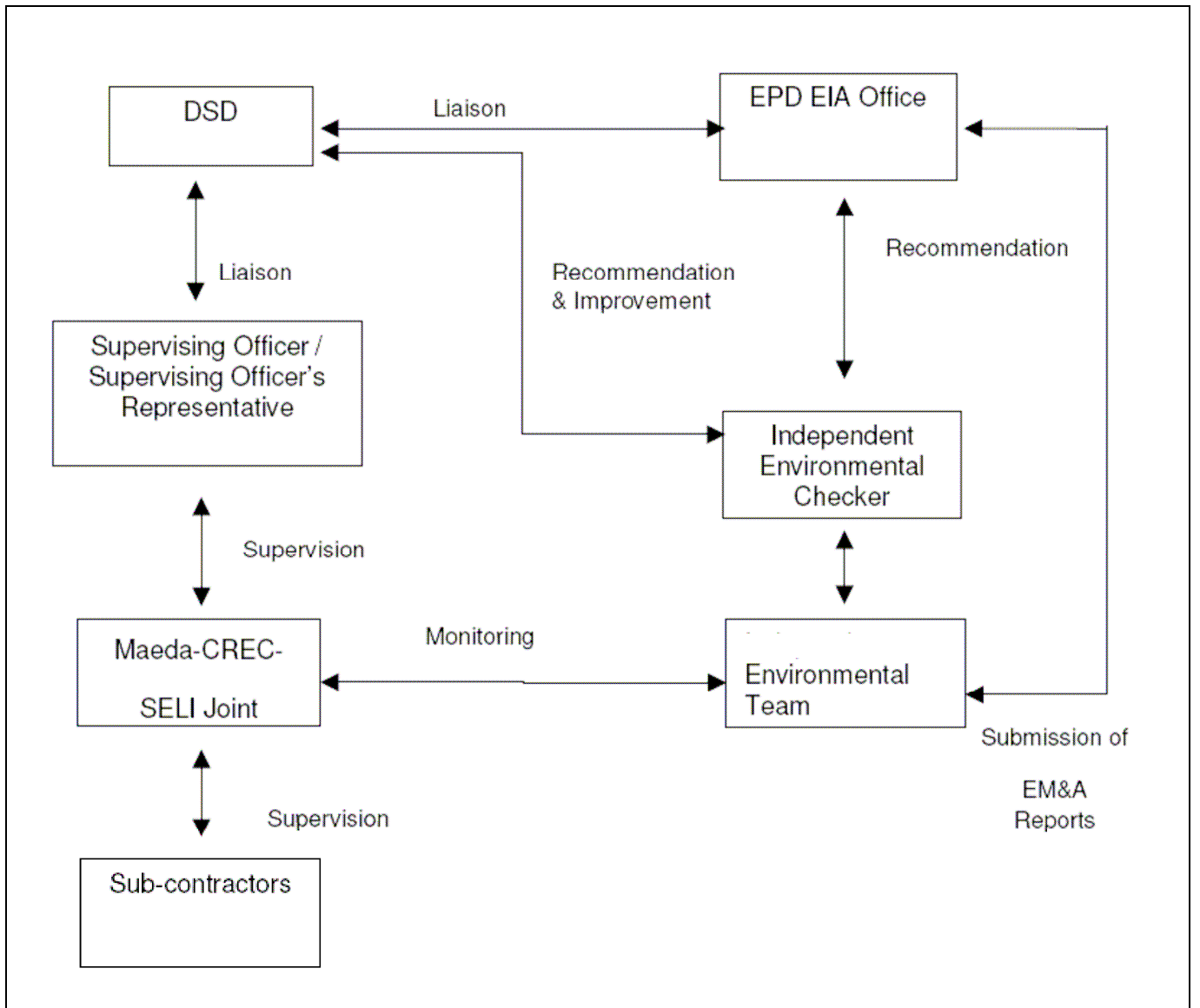
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# Appendix B

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## Organization Chart



# Appendix C

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Construction Programme

**Preliminaries**

| ID         | Activity Description                 | Start    | Finish   | Duration | Early Start | Early Finish | Total Float |
|------------|--------------------------------------|----------|----------|----------|-------------|--------------|-------------|
| 01R0000002 | Tender Issue Date                    | 26JUN07A |          | 2        |             |              |             |
| 01R0000004 | Tender Closing Date                  | 05OCT07A |          | 2        |             |              |             |
| 01R0000006 | Letter of Acceptance Issued Date     | 14DEC07  |          | 2        |             |              |             |
| 01R0000008 | Contract Commencement Date           | 28DEC07  |          | 2        |             |              |             |
| 01R0000010 | Completion of Section 1 of the Works |          | 27JUL11* | 2        |             |              |             |
| 01R0000012 | Completion of Section 2 of the Works |          | 27JUL11* | 2        |             |              |             |
| 01R0000014 | Completion of Section 3 of the Works |          | 27JUL11* | 2        |             |              |             |
| 01R0000016 | Completion of Section 4 of the Works |          | 27JUL11* | 2        |             |              |             |
| 01R0000018 | Completion of Section 5 of the Works |          | 27JUL11* | 2        |             |              |             |
| 01R0000020 | Completion of Section 6 of the Works |          | 27JUL11* | 2        |             |              |             |
| 01R0000022 | Completion of Section 7 of the Works |          | 26JUL12* | 2        |             |              |             |

| ID         | Activity Description                  | Start    | Finish   | Duration | Early Start | Early Finish | Total Float |
|------------|---------------------------------------|----------|----------|----------|-------------|--------------|-------------|
| 01R00A0102 | Possession Portion A - 90d of DOC     | 26MAR08  |          | 2        |             |              |             |
| 01R00A0104 | Handover of Portion A                 |          | 13MAY11  | 2        |             |              |             |
| 01R00B0102 | Possession of Portion B - 90d of DOC  | 26MAR08  |          | 2        |             |              |             |
| 01R00B0104 | Handover of Portion B                 |          | 16JUL11  | 2        |             |              |             |
| 01R00C0102 | Possession of Portion C - 90d of DOC  | 26MAR08  |          | 2        |             |              |             |
| 01R00C0104 | Handover of Portion C                 |          | 05MAY11  | 2        |             |              |             |
| 01R00D0102 | Possession of Portion D on DOC        | 28DEC07  |          | 2        |             |              |             |
| 01R00D0104 | Handover of Portion D                 |          | 17JUN11  | 2        |             |              |             |
| 01R00E0102 | Possession of Portion E - 650d of DOC | 07OCT09  |          | 2        |             |              |             |
| 01R00E0104 | Handover of Portion E                 |          | 17JUN11  | 2        |             |              |             |
| 01R00F0102 | Possession of Portion F on DOC        | 28DEC07  |          | 2        |             |              |             |
| 01R00F0104 | Handover of Portion F                 |          | 28JAN11  | 2        |             |              |             |
| 01R00G0102 | Possession of Portion G - 700d of DOC | 26NOV09  |          | 2        |             |              |             |
| 01R00G0104 | Handover of Portion G                 |          | 02JUN11  | 2        |             |              |             |
| 01R00I0102 | Possession of Portion I on DOC        | 28DEC07  |          | 2        |             |              |             |
| 01R00I0104 | Handover of Portion I                 |          | 27JUL11  | 2        |             |              |             |
| 01R00J0102 | Possession of Portion J               | 01DEC08* |          | 2        |             |              |             |
| 01R00J0104 | Handover of Portion J                 |          | 12JUN09* | 2        |             |              |             |
| 01R0H10102 | Possession of Portion H1 on DOC       | 28DEC07  |          | 2        |             |              |             |

1308 days from DOC including DOC  
 1308 days from DOC including DOC  
 1308 days from DOC including DOC  
 1308 days from DOC including DOC  
 1308 days from DOC including DOC  
 1308 days from DOC including DOC  
 1673 days from DOC including DOC

14 days after LOA  
 The exact date to be agreed with WSD  
 WSD Tunnel Shutdown ER 4.2.10 (f) allows 50 days from the date of

Sheet 1 of 42  
 Maeda-CREC-SELLI JV  
 CONTRACT NO. DC/2007/12  
 Design and Construction of Tsuen Wan Drainage Tunnel  
 Draft Works Programme

Start Date: 29JUN07  
 Finish Date: 24SEP12  
 Data Date: 14DEC07  
 Run Date: 13FEB08 17:51

Legend:  
 Early Bar  
 Progress Bar  
 Critical Activity

TWD1  
 Draft Works Programme  
 Revision 1  
 Date: 13FEB08  
 Checked: Approved

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| ID  | Activity Description                             | Orig Dur | Early Start | Early Finish | Cal ID | Total Float |
|---|--|----------|-------------|--------------|--------|-------------|
| 01R0H10104                                      | Handover of Portion H1                           | 0        |             | 24SEP12      | 2      | 0           |
| 01R0H20102                                      | Possession of Portion H2 - 300d of DOC           | 0        | 22OCT08     |              | 2      | 0           |
| 01R0H20104                                      | Handover of Portion H2                           | 0        |             | 24SEP12      | 2      | 0           |
| <b>SECTION WORKS TOP COMPLETION</b>             |  |          |             |              |        |             |
| 01R1000202                                      | S1-Works in Portions A to F except works in S2-7 | 1,308    | 28DEC07     | 27JUL11      | 2      | 0           |
| 01R1000204                                      | S1-Maintenance Period (365 days)                 | 365      | 28JUL11     | 26JUL12      | 2      | 0           |
| 01R20A0206                                      | S2-Slope Stabilization works within Portion A    | 1,218    | 26MAR08     | 26JUL11      | 2      | 0           |
| 01R20A0208                                      | S2-Maintenance Period (365 days)                 | 365      | 27JUL11     | 25JUL12      | 2      | 0           |
| 01R30B0210                                      | S3-Slope Stabilization works within Portion B    | 1,218    | 26MAR08     | 26JUL11      | 2      | 0           |
| 01R30B0212                                      | S3-Maintenance Period (365 days)                 | 365      | 27JUL11     | 25JUL12      | 2      | 0           |
| 01R40C0214                                      | S4-Slope Stabilization works within Portion C    | 1,218    | 26MAR08     | 26JUL11      | 2      | 0           |
| 01R40C0216                                      | S4-Maintenance Period (365 days)                 | 365      | 27JUL11     | 25JUL12      | 2      | 0           |
| 01R50D0218                                      | S5-Slope Stabilization works within Portion D    | 1,308    | 28DEC07     | 27JUL11      | 2      | 0           |
| 01R50D0220                                      | S5-Maintenance Period (365 days)                 | 365      | 28JUL11     | 26JUL12      | 2      | 0           |
| 01R60G0222                                      | S6-Works within Portion G                        | 608      | 26NOV09     | 26JUL11      | 2      | 0           |
| 01R60G0224                                      | S6-Maintenance Period (365 days)                 | 365      | 27JUL11     | 25JUL12      | 2      | 0           |
| 01R7000226                                      | S7-Landscape softworks & establishment works     | 1,673    | 28DEC07     | 26JUL12      | 2      | 0           |
| 01R7000228                                      | S7-Maintenance Period (30 days)                  | 30       | 27JUL12     | 25AUG12      | 2      | 0           |
| <b>AGILITIES FOR THE SO AS PER 12.3.1</b>       |  |          |             |              |        |             |
| 01R0000302                                      | Provide temporary accommodation                  | 7        | 28DEC07     | 03JAN08      | 2      | 1           |
| 01R0000304                                      | Design the SO's principle office                 | 30       | 28DEC07     | 26JAN08      | 2      | 1           |
| 01R0000305                                      | Erect Hoarding/Signboard/Gate/Fencing            | 35       | 28JAN08     | 11MAR08      | 1      | 0           |
| 01R0000306                                      | Erect SO's principle office in Portion H1/H2     | 60       | 28JAN08     | 14APR08      | 1      | 0           |
| 01R0000308                                      | Provide secondary offices, directed by SO        | 64       | 14MAR08     | 16MAY08      | 2      | 0           |
| 01R0000310                                      | Provide transport for the SO as per App. ER,M    | 90       | 28DEC07     | 26MAR08      | 2      | 0           |
| 01R0000311                                      | Provide survey equipments as per App. ER,M       | 30       | 28DEC07     | 26JAN08      | 2      | 0           |
| 01R0000314                                      | Maintain & Service the Principle Office          | 1,594    | 15APR08     | 25AUG12      | 2      | 0           |
| 01R0000316                                      | Maintain & Service the Secondary Office          | 1,585    | 24APR08     | 25AUG12      | 2      | 0           |
| 01R0000318                                      | Maintain & Service the transportation            | 1,688    | 12JAN08     | 25AUG12      | 2      | 0           |
| 01R0000319                                      | Maintain & Service the survey equipments         | 1,673    | 27JAN08     | 25AUG12      | 2      | 0           |
| 01R0000320                                      | Demolish & removal of Principle Office           | 30       | 26AUG12     | 24SEP12      | 2      | 0           |
| <b>CONTRACTOR'S ACCOMMODATION AS PER 12.3.1</b> |  |          |             |              |        |             |
| 01R0001402                                      | Design Contractor's main office                  | 30       | 28DEC07     | 26JAN08      | 2      | 1           |
| 01R0001404                                      | Erect Contractor's main office in Portion H1/H2  | 60       | 28JAN08     | 14APR08      | 1      | 0           |
| 01R0001406                                      | Maintain & Service the Contractor's office       | 1,594    | 15APR08     | 25AUG12      | 2      | 0           |
| 01R0001408                                      | Demolish & removal of Contractor's main office   | 30       | 26AUG12     | 24SEP12      | 2      | 0           |

| Activity Description  | Orig. Dur. | Early Start | Early Finish | Cal. ID | Total Float |
|---|------------|-------------|--------------|---------|-------------|
| 01R0000502 Prepare/Submit draft Works Programme             | 7          | 14DEC07     | 20DEC07      | 2       | 0           |
| 01R0000504 SO's review/comment on draft Works Programme     | 14         | 21DEC07     | 03JAN08      | 2       | 0           |
| 01R0000506 Prepare/Submit 1st 3-Month Rolling Programme     | 14         | 14DEC07     | 27DEC07      | 2       | 7           |
| 01R0000508 Submit Detailed Works Programme                  | 7          | 04JAN08     | 10JAN08      | 2       | 0           |
| 01R0000510 SO's Approval of Works Programme                 | 7          | 11JAN08     | 17JAN08      | 2       | 0           |
| 01R0000512 Monthly Update for all Programme                 | 1,682      | 18JAN08     | 25AUG12      | 2       | 0           |
| 01R0000514 Contractor's Monthly Progress Report             | 1,678      | 22JAN08     | 25AUG12      | 2       | 0           |
| <b>Safety Plan (per SCC3)</b>                               |            |             |              |         |             |
| 01R0000602 Submit draft Safety Plan                         | 14         | 14DEC07     | 27DEC07      | 2       | 0           |
| 01R0000604 Hold an ad hoc meeting with RE on Safety Plan    | 7          | 28DEC07     | 03JAN08      | 2       | 7           |
| 01R0000606 Submit 6 copies of the Safety Plan               | 35         | 14DEC07     | 17JAN08      | 2       | 0           |
| 01R0000608 Submit updated safety organization chart monthly | 1,682      | 18JAN08     | 25AUG12      | 2       | 0           |
| 17R0000602 Fulfill all relevant safety obligation           | 1,703      | 28DEC07     | 25AUG12      | 2       | 0           |
| <b>Contractors All-inurances</b>                            |            |             |              |         |             |
| 01R0000704 Submit documents for all insurances are effected | 21         | 14DEC07     | 03JAN08      | 2       | 0           |
| <b>Quality System (per SCC9)</b>                            |            |             |              |         |             |
| 01R0000802 Appoint a Quality Manager                        | 14         | 28DEC07     | 10JAN08      | 2       | 0           |
| 01R0000804 Submit proposed Quality System for SO's consent  | 28         | 14DEC07     | 10JAN08      | 2       | 0           |
| 01R0000806 Submit QSSP for approval of the SO               | 28         | 28DEC07     | 24JAN08      | 2       | 0           |
| 01R0000808 Maintain & update Quality System                 | 1,675      | 25JAN08     | 25AUG12      | 2       | 0           |
| <b>EM/Environmental</b>                                     |            |             |              |         |             |
| 01R0000902 Nominate Environmental Officer                   | 14         | 14DEC07     | 27DEC07      | 2       | 0           |
| 01R0000903 Establish a billing account for disposal         | 21         | 14DEC07     | 03JAN08      | 2       | 0           |
| 01R0000904 Submit draft EMP                                 | 21         | 14DEC07     | 03JAN08      | 2       | 0           |
| 01R0000906 Revise draft EMP within 7 days of SO's notice    | 14         | 04JAN08     | 17JAN08      | 2       | 0           |
| 01R0000908 Submit final version of EMP                      | 45         | 14DEC07     | 27JAN08      | 2       | 0           |
| 01R0000910 Review/update/submit EMP monthly                 | 1,642      | 28JAN08     | 26JUL12      | 2       | 0           |
| 01R0000912 Employ IET                                       | 21         | 14DEC07     | 03JAN08      | 2       | 0           |
| 01R0000914 Submit Baseline Monitoring Plan                  | 21         | 28DEC07     | 17JAN08      | 2       | 0           |
| 01R0000915 Seek for EPD's Agreement on WQML & schedule      | 21         | 18JAN08     | 07FEB08      | 2       | 0           |
| 01R0000916 Carry out baseline monitoring                    | 37         | 31JAN08     | 07MAR08      | 2       | 0           |
| 01R0000918 Prepare/submit reports for baseline monitoring   | 20         | 27FEB08     | 17MAR08      | 2       | 0           |
| 01R0000920 Impact monitoring & reporting                    | 1,592      | 18MAR08     | 26JUL12      | 2       | 0           |
| 17R0000902 Fulfill all relevant environmental obligation    | 1,673      | 28DEC07     | 26JUL12      | 2       | 0           |

to be  
within 14 days of LOA  
within 7 days from the submission of DSP  
within 35 days of LOA  
as per SCC9, SCC10 & SCC45  
as per SCC 74 within 14 days of DOC  
within 28 days of LDA  
within 28 days of DOC  
as per ER B.1 Clause 174A1(2)  
per Notes to Tenderer (AA)  
SCC69, within 21 days of LOA  
as per SCC69  
as per SCC69, within 45 days of LOA  
to the approval of the SO  
for approval of the SO & EPD  
for approval of the SO

| ID   | Activity Description                             | Orig Dur | Early Start | Early Finish | Cal ID | Total Float |
|--|--|----------|-------------|--------------|--------|-------------|
| 01R0001002   | Nominate IUIMS co-ordinator                      | 7        | 14DEC07     | 20DEC07      | 2      | 0           |
| 01R0001004   | SO approve IUIMS co-ordinator                    | 14       | 21DEC07     | 03JAN08      | 2      | 21          |
| 01R0001006   | Submit brand name of UGS detection equipment     | 7        | 28DEC07     | 03JAN08      | 2      | 22          |
| 01R0001008   | Utilities detection & report to the SO           | 21       | 04JAN08     | 24JAN08      | 2      | 22          |
| 01R0001010   | Liaison with IUs prior to apply XP               | 21       | 04JAN08     | 24JAN08      | 2      | 21          |
| 01R0001012   | Application of XP through the SO/DSD             | 7        | 25JAN08     | 31JAN08      | 2      | 22          |
| 01R0001014   | Process XP Application by HYD & others           | 20       | 01FEB08     | 20FEB08      | 2      | 22          |
| 01R0001016   | Issue of XP                                      | 0        | 20FEB08     | 20FEB08      | 2      | 22          |
| <b>Pre-construction condition survey</b>           |  |          |             |              |        |             |
| 01R0001102   | Appoint a Qualified Structural Engineer          | 30       | 28DEC07     | 26JAN08      | 2      | 4           |
| 01R0001104   | Submit nos. & extent of the affected EBS         | 30       | 28DEC07     | 26JAN08      | 2      | 4           |
| 01R0001106   | Carry out pre-construction condition survey      | 72       | 28JAN08     | 28APR08      | 1      | 3           |
| 01R0001108   | Prepare/submit reports for pre-construction C.S. | 72       | 05FEB08     | 07MAY08      | 1      | 3           |
| <b>Drain</b>                                       |  |          |             |              |        |             |
| 01R0001202   | Appoint Traffic Consultant/Traffic Engineer      | 14       | 14DEC07     | 27DEC07      | 2      | 7           |
| 01R0001204   | Eng's Approval of Traffic Consultant             | 7        | 28DEC07     | 03JAN08      | 2      | 7           |
| 01R0001206   | Prepare/submit TTA Schemes (ingress & egress)    | 14       | 04JAN08     | 17JAN08      | 2      | 7           |
| 01R0001216   | Obtain endorsement of TTA schemes from TMLG      | 21       | 18JAN08     | 07FEB08      | 2      | 7           |
| 01R0001234   | Approval of TTA schemes by the Authorities       | 28       | 08FEB08     | 06MAR08      | 2      | 7           |
| <b>Management of Sub-contractors as per SCC-24</b> |  |          |             |              |        |             |
| 01R0001302   | Submit a Sub-contractor Management Plan          | 30       | 14DEC07     | 12JAN08      | 2      | 0           |
| 01R0001304   | Submit Quarterly the Updated SMP                 | 1,597    | 12APR08     | 25AUG12      | 2      | 0           |
| <b>Tree</b>  |  |          |             |              |        |             |
| 01R0001502   | Appoint Landscape Specialist Contractor          | 14       | 14DEC07     | 27DEC07      | 2      | 83          |
| 01R0001504   | SO's Approval of Landscape Contractor            | 7        | 28DEC07     | 03JAN08      | 2      | 83          |
| 01R0001506   | Nominate competent person to oversee tree works  | 45       | 14DEC07     | 27JAN08      | 2      | 59          |
| 01R0001510   | Obtain Tree Removal Permit by Others             | 90       | 28DEC07     | 26MAR08      | 2      | 0           |
| 01R0001512   | Remove / Transplant Trees start                  | 0        | 27MAR08     |              | 2      | 0           |
| <b>Survey</b>                                      |  |          |             |              |        |             |
| 01R0001602   | Appoint Surveyors                                | 14       | 28DEC07     | 10JAN08      | 2      | 17          |
| 01R0001604   | SO's Approval of Surveyor                        | 7        | 11JAN08     | 17JAN08      | 2      | 17          |
| 01R0001608   | Initial Survey                                   | 28       | 18JAN08     | 22FEB08      | 1      | 14          |
| 01R0001610   | Maintain & carry out survey works                | 1,000    | 23FEB08     | 11JUL11      | 1      | 14          |

as per SCC83; within 7 days of LOA/Internet Interface Utility Management System  
 as per ER.B1 1.59; within 7 days of DOC  
 ER.B1 1.18A3(1); not less than 17 working days  
 as per ER. B1 1.61;  
 as per ER. B1 1.61; within 30 days of DOC  
 DDA Submission  
 HYD & Police ER.B1 1.15 (9) refers  
 within 30 days of LOA  
 ER.B1 26.02A; within 45 days of LOA  
 ER 1.5.3 (2); within 3 mths from DOC  
 ER 1.5.3(2) within 3 months from DOC

| ID         | Activity Description                        | DU    | Early Start | Early Finish | Call Total |
|------------|---|-------|-------------|--------------|------------|
| 01R0001802 | Submit Smart Card Sys for SO's Approval     | 7     | 28DEC07     | 03JAN08      | 2          |
| 01R0001804 | Install & start Operating Smart-Card System | 60    | 28DEC07     | 25FEB08      | 2          |
| 01R0001806 | Operate & Maintain Smart-Card System        | 1,643 | 28FEB08     | 25AUG12      | 2          |

| ID         | Activity Description                               | DU  | Early Start | Early Finish | Call Total |
|------------|--|-----|-------------|--------------|------------|
| 01R0001902 | Procurement of G.I./Grouting Sub-contractor        | 60  | 14DEC07     | 11FEB08      | 2          |
| 01R0001904 | Procurement of Spoil Disposal Sub-contractor       | 60  | 14DEC07     | 11FEB08      | 2          |
| 01R0001906 | Procurement of Earthwork Sub-contractor            | 60  | 14DEC07     | 11FEB08      | 2          |
| 01R0001908 | Procurement of Concrete Supplier                   | 45  | 14DEC07     | 27JAN08      | 2          |
| 01R0001910 | Procurement of Re-bar Supplier                     | 90  | 14DEC07     | 12MAR08      | 2          |
| 01R0001912 | Procurement of Soil Nailing Sub-contractor         | 60  | 28DEC07     | 25FEB08      | 2          |
| 01R0001914 | Procurement of Piling Sub-contractor               | 90  | 14DEC07     | 12MAR08      | 2          |
| 01R0001916 | Procurement of Pre-cast Lining Sub-contractor      | 80  | 14DEC07     | 02MAR08      | 2          |
| 01R0001918 | Procurement of R.C. Works Sub-contractor           | 90  | 14DEC07     | 12MAR08      | 2          |
| 01R0001920 | Procurement of Drainage works Sub-contractor       | 90  | 14DEC07     | 12MAR08      | 2          |
| 01R0001922 | Procurement of Steelworks Sub-contractor           | 90  | 14DEC07     | 08APR08      | 1          |
| 01R0001924 | Procurement of Comm. Syst. Sub-contractor          | 45  | 17MAY08     | 30JUN08      | 2          |
| 01R0001925 | Procurement of Flow Monit. Syst. Sub-contractor    | 45  | 17MAY08     | 30JUN08      | 2          |
| 01R0001926 | Procurement of Pipe Jacking Sub-contractor         | 45  | 09OCT08     | 22NOV08      | 2          |
| 01R0001928 | Submit Contractor's Management Team                | 0   | 0           | 10JAN08      | 2          |
| 01R0001930 | Submit Photographer for Monthly Progress Photo     | 0   | 27JAN08     |              | 2          |
| 01R0001932 | Install Project Signboards at Portions A, B, C & D | 120 | 28DEC07     | 25APR08      | 2          |
| 01R0001934 | Develop/implement TDMS                             | 60  | 22JUN08     | 20AUG08      | 2          |
| 01R0001936 | Procurement & delivery of Communication System     | 180 | 03JAN09     | 01JUL09      | 2          |
| 01R0001938 | Procurement/delivery of Flow Monitoring Devices    | 120 | 30OCT08     | 26FEB09      | 2          |
| 01R0001940 | Prepare/submit Operation & Maintenance Manual      | 90  | 02AUG11     | 30OCT11      | 2          |
| 01R0001942 | Prepare/submit As-built Drawings                   | 90  | 28JUL11     | 25OCT11      | 2          |
| 01R0001944 | Produce 2 documentary video for tunnel             | 30  | 28JUL11     | 26AUG11      | 2          |

| ID         | Activity Description               | DU  | Early Start | Early Finish | Call Total |
|------------|------------------------------------|-----|-------------|--------------|------------|
| 01R0002202 | Prepare/submit preliminary CRA     | 366 | 14DEC07     | 13DEC08      | 2          |
| 01R0002204 | SO's acceptance of preliminary CRA | 420 | 08MAR08     | 01MAY09      | 2          |
| 01R0002206 | Prepare/submit detailed CRA        | 418 | 20APR08     | 11JUN09      | 2          |
| 01R0002208 | SO's acceptance of detailed CRA    | 455 | 28JUN08     | 25SEP09      | 2          |

| ID         | Activity Description                            | DU | Early Start | Early Finish | Call Total |
|------------|---|----|-------------|--------------|------------|
| 01R0002302 | Prepare/submit a physical model as per ER 4.4.8 | 90 | 14DEC07     | 12MAR08      | 2          |
| 01R0002304 | Prepare/submit a 3-D animation model            | 90 | 14DEC07     | 12MAR08      | 2          |

As per ER.B30 30.06(2)

Including temporary works

Per SCC 74

Per ER10.7

Representation of the TDMS to the SO & DSD before 3 months of the Tunnel excavation

As per ER4.4.11

As per ER4.4.12

ER 4.4.13

AIP submission

DDA submission

the acceptance of the SO

the acceptance of the SO as per ER's Note 4.4.9

| ID         | Activity Description                    | Orig. Dur. | Early Start | Early Finish | Chg. ID | Total Float |
|------------|---|------------|-------------|--------------|---------|-------------|
| 01R0002402 | Propose the design of web page          | 30         | 28DEC07     | 26JAN08      | 2       | 0           |
| 01R0002404 | Produce the web page for approval of SO | 30         | 27JAN08     | 25FEB08      | 2       | 0           |
| 01R0002406 | SO's approval of web page               | 30         | 26FEB08     | 26MAR08      | 2       | 0           |
| 01R0002408 | Submit updated web pages monthly        | 1,613      | 27MAR08     | 25AUG12      | 2       | 0           |

**Schedule Milestones to NOBI Centre No. 16**

|            |   |   |  |         |   |       |   |
|------------|---|---|--|---------|---|-------|---|
| 01R0002501 | 1R 1; On provision of SO's Accommodation        | 0 |  | 14APR08 | 2 | 1,624 |   |
| 01R0002502 | 1R 2; On providing documents of effected CWI    | 0 |  | 03JAN08 | 2 | 1,726 | ◆ accommodation for occupation as per App. ER.M                                   |
| 01R0002503 | 1R 3; On providing documents of effected TPI    | 0 |  | 03JAN08 | 2 | 1,726 | ◆ care of the works insurance has been effected                                   |
| 01R0002504 | 1R 4; On P-providing documents of effected PII  | 0 |  | 03JAN08 | 2 | 1,726 | ◆ 3rd party insurance has been effected   |
| 01R0002505 | 1R 5; On delivery of all Land Transport for SO  | 0 |  | 26MAR08 | 2 | 1,643 | ◆ P. I. insurance has been effected.  |
| 01R0002506 | 1R 6; On install. of computer facilities for SO | 0 |  | 14APR08 | 2 | 1,624 | ◆ land transport delivered for use of the SO                                      |
| 01R0002507 | 1R 7; On accept. of detailed CRA incl. PCS      | 0 |  | 25SEP09 | 2 | 1,095 | ◆ computer facilities for use of the SO   |
| 01R0002508 | 1R 8; On acceptance of Physical Model by the SO | 0 |  | 12MAR08 | 2 | 1,657 | ◆ detailed CRA incl. pre-condition survey   |
| 01R0002509 | 1R 9; On acceptance of 3-D Animation Model      | 0 |  | 12MAR08 | 2 | 1,657 | ◆ physical model completed as per ER 4.4.8  |
| 01R0002510 | 1R 10; On satisf. operation of CCTV for 3 mth   | 0 |  | 31JUL08 | 2 | 1,516 | ◆ 3-D animation model completed as per ER 4.4.9                                   |
| 01R0002511 | 1R 11; On acceptance of O&MM                    | 0 |  | 30OCT11 | 2 | 330   | ◆ for 3mths of the remote CCTV intalled in Portions A, B, C & D as per ER 4.4.10; |
| 01R0002512 | 1R 12; On acceptance of as-built drwgs.         | 0 |  | 25OCT11 | 2 | 335   | ◆ O&MM completed as per ER 4.4.11   |
| 01R0002513 | 1R 13; On acceptance of T. R/Video/Brouchure    | 0 |  | 26AUG11 | 2 | 395   | ◆ built drwgs. completed as per ER 4.4.12   |
| 01R0002514 | 1R 14; On complete all wks for 3 mth frm DOC    | 0 |  | 27MAR08 | 2 | 1,582 | ◆ tunnel report & vedeo & brocher submitted as per ER 4.4.13                      |
| 01R0002515 | 1R 15; On complete all wks for 6 mth frm DOC    | 0 |  | 26JUN08 | 2 | 1,491 | ◆ of all obligations by this C.S. 3-mths frm DOC                                  |
| 01R0002516 | 1R 16; On complete all wks for 9 mth frm DOC    | 0 |  | 25SEP08 | 2 | 1,400 | ◆ of all obligations by this CS 6 mths frm DOC                                    |
| 01R0002517 | 1R 17; On complete all wks for 12 mth frm DOC   | 0 |  | 26DEC08 | 2 | 1,308 | ◆ of all obligations by this CS 9 mths frm DOC                                    |
| 01R0002518 | 1R 18; On complete all wks for 15 mth frm DOC   | 0 |  | 27MAR09 | 2 | 1,217 | ◆ of all obligations by this CS 12 mths frm DOC                                   |
| 01R0002519 | 1R 19; On complete all wks for 18 mth frm DOC   | 0 |  | 26JUN09 | 2 | 1,126 | ◆ of all obligations by this CS 15 mths frm DOC                                   |
| 01R0002520 | 1R 20; On complete all wks for 21 mth frm DOC   | 0 |  | 25SEP09 | 2 | 1,035 | ◆ of all obligations by this CS 18 mths frm DOC                                   |
| 01R0002521 | 1R 21; On complete all wks for 24 mth frm DOC   | 0 |  | 26DEC09 | 2 | 943   | ◆ of all obligations by this CS 21 mths frm DOC                                   |
| 01R0002522 | 1R 22; On complete all wks for 27 mth frm DOC   | 0 |  | 27MAR10 | 2 | 852   | ◆ of all obligations by this CS 24 mths frm DOC                                   |
| 01R0002523 | 1R 23; On complete all wks for 30 mth frm DOC   | 0 |  | 26JUN10 | 2 | 761   | ◆ of all obligations by this CS 27 mths frm DOC                                   |
| 01R0002524 | 1R 24; On complete all wks for 33 mth frm DOC   | 0 |  | 25SEP10 | 2 | 670   | ◆ of all obligations by this CS 30 mths frm DOC                                   |
| 01R0002525 | 1R 25; On complete all wks for 36 mth frm DOC   | 0 |  | 26DEC10 | 2 | 578   | ◆ of all obligations by this CS 33 mths frm DOC                                   |
| 01R0002526 | 1R 26; On complete all wks for 39 mth frm DOC   | 0 |  | 27MAR11 | 2 | 487   | ◆ of all obligations by this CS 36 mths frm DOC                                   |
| 01R0002527 | 1R 27; On complete all wks for 42 mth frm DOC   | 0 |  | 26JUN11 | 2 | 396   | ◆ of all obligations by this CS 39 mths frm DOC                                   |
| 01R0002528 | 1R 28; On complete all wks for 45 mth frm DOC   | 0 |  | 25SEP11 | 2 | 305   | ◆ of all obligations by this CS 42 mths frm DOC                                   |
| 01R0002529 | 1R 29; On issuance of completion certificates   | 0 |  | 13AUG11 | 2 | 408   | ◆ of all obligations by this CS 45 mths frm DOC                                   |
| 01R0002530 | 1R 30; On complete all wks for 3 mth frm CMP    | 0 |  | 26OCT11 | 2 | 334   | ◆ of completion except Section 7  |
| 01R0002531 | 1R 31; On complete all wks for 6 mth frm CMP    | 0 |  | 25JAN12 | 2 | 243   | ◆ of all obligations 3 mths frm DOM excl. Sec. 7                                  |
| 01R0002532 | 1R 32; On complete all wks for 9 mth frm CMP    | 0 |  | 25APR12 | 2 | 152   | ◆ of all obligations 6 mths frm DOM excl. Sec. 7                                  |
| 01R0002533 | 1R 33; On issuance of maintenance certificate   | 0 |  | 25AUG12 | 2 | 30    | ◆ of all obligations 9 mths frm DOM excl. Sec. 7                                  |

**Schedule of Milestones for Cost Centre No. 16R**

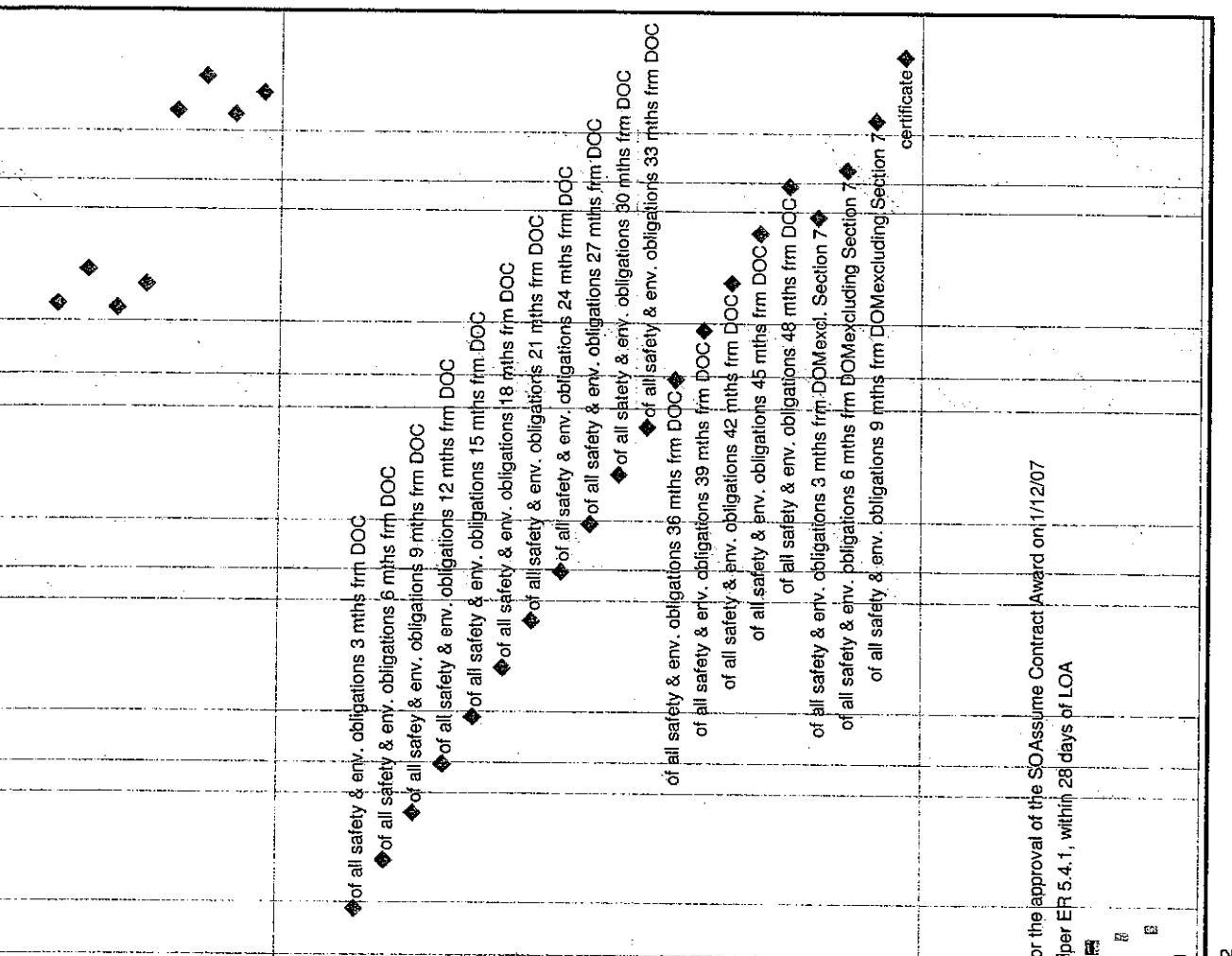
| ID         | Activity Description                             | Early Start | Early Finish | Cal | Total | Cal | ID | Float |
|------------|--|-------------|--------------|-----|-------|-----|----|-------|
| 16R7003001 | 16R 1; On completion of landscape wks; Portion A | 0           | 13MAY11      | 2   | 500   |     |    |       |
| 16R7003002 | 16R 2; On completion of landscape wks; Portion B | 0           | 16JUL11      | 2   | 436   |     |    |       |
| 16R7003003 | 16R 3; On completion of landscape wks; Portion C | 0           | 05MAY11      | 2   | 508   |     |    |       |
| 16R7003004 | 16R 4; On completion of landscape wks; Portion D | 0           | 17JUN11      | 2   | 465   |     |    |       |
| 16R7003005 | 16R 5; On completion of establish wks; Portion A | 0           | 12MAY12      | 2   | 135   |     |    |       |
| 16R7003006 | 16R 6; On completion of establish wks; Portion B | 0           | 15JUL12      | 2   | 71    |     |    |       |
| 16R7003007 | 16R 7; On completion of establish wks; Portion C | 0           | 04MAY12      | 2   | 143   |     |    |       |
| 16R7003008 | 16R 8; On completion of establish wks; Portion D | 0           | 16JUN12      | 2   | 100   |     |    |       |

**Schedule of Milestones for Cost Centre No. 17R**

| ID         | Activity Description                            | Early Start | Early Finish | Cal | Total | Cal | ID | Float |
|------------|---|-------------|--------------|-----|-------|-----|----|-------|
| 17R0003101 | 17R 1; On complet of all wks for 3 mth frm DOC  | 0           | 27MAR08      | 2   | 1,642 |     |    |       |
| 17R0003102 | 17R 2; On complet of all wks for 6 mth frm DOC  | 0           | 26JUN08      | 2   | 1,551 |     |    |       |
| 17R0003103 | 17R 3; On complet of all wks for 9 mth frm DOC  | 0           | 26SEP08      | 2   | 1,459 |     |    |       |
| 17R0003104 | 17R 4; On complet of all wks for 12 mth frm DOC | 0           | 26DEC08      | 2   | 1,368 |     |    |       |
| 17R0003105 | 17R 5; On complet of all wks for 15 mth frm DOC | 0           | 27MAR09      | 2   | 1,277 |     |    |       |
| 17R0003106 | 17R 6; On complet of all wks for 18 mth frm DOC | 0           | 27JUN09      | 2   | 1,185 |     |    |       |
| 17R0003107 | 17R 7; On complet of all wks for 21 mth frm DOC | 0           | 26SEP09      | 2   | 1,094 |     |    |       |
| 17R0003108 | 17R 8; On complet of all wks for 24 mth frm DOC | 0           | 26DEC09      | 2   | 1,003 |     |    |       |
| 17R0003109 | 17R 9; On complet of all wks for 27 mth frm DOC | 0           | 28MAR10      | 2   | 911   |     |    |       |
| 17R0003110 | 17R 10; On complet all wks for 30 mth frm DOC   | 0           | 27JUN10      | 2   | 820   |     |    |       |
| 17R0003111 | 17R 11; On complet all wks for 33 mth frm DOC   | 0           | 26SEP10      | 2   | 729   |     |    |       |
| 17R0003112 | 17R 12; On complet all wks for 36 mth frm DOC   | 0           | 26DEC10      | 2   | 638   |     |    |       |
| 17R0003113 | 17R 13; On complet all wks for 39 mth frm DOC   | 0           | 28MAR11      | 2   | 546   |     |    |       |
| 17R0003114 | 17R 14; On complet all wks for 42 mth frm DOC   | 0           | 27JUN11      | 2   | 455   |     |    |       |
| 17R0003115 | 17R 15; On complet all wks for 45 mth frm DOC   | 0           | 26SEP11      | 2   | 364   |     |    |       |
| 17R0003116 | 17R 16; On complet all wks for 48 mth frm DOC   | 0           | 26DEC11      | 2   | 273   |     |    |       |
| 17R0003117 | 17R 17; On complet of all wks for 3 mth frm CMP | 0           | 26OCT11      | 2   | 334   |     |    |       |
| 17R0003118 | 17R 18; On complet of all wks for 6 mth frm CMP | 0           | 25JAN12      | 2   | 243   |     |    |       |
| 17R0003119 | 17R 19; On complet of all wks for 9 mth frm CMP | 0           | 26APR12      | 2   | 151   |     |    |       |
| 17R0003120 | 17R 20; On issuance of maintenance certificate  | 0           | 25AUG12      | 2   | 30    |     |    |       |

**Design/Design Check for Permanent Works**

| ID         | Activity Description                       | Early Start | Early Finish | Cal     | Total | Cal | ID | Float |
|------------|--|-------------|--------------|---------|-------|-----|----|-------|
| 02L10D0102 | Employ Independent Designer                | 7           | 14DEC07      | 20DEC07 | 2     | 2   |    |       |
| 02L10D0104 | Prepare & submit Project Design Plan (PDP) | 28          | 14DEC07      | 10JAN08 | 2     | 2   |    |       |
| 02L10D0106 | SO's review & comment on PDP               | 28          | 11JAN08      | 07FEB08 | 2     | 2   |    |       |
| 02L10D0108 | Provide further information of (PDP)       | 14          | 08FEB08      | 21FEB08 | 2     | 17  |    |       |
| 02L10D0110 | SO approves PDP                            | 14          | 22FEB08      | 06MAR08 | 2     | 17  |    |       |
| 02L10D0112 | Employ Independent Design Checker          | 14          | 28DEC07      | 10JAN08 | 2     | 1   |    |       |



for the approval of the SO Assume Contract Award on 1/12/07  
 per ER 5.4.1, within 28 days of LOA

| ID  | Activity Description                             | Orig Dur | Early Start | Early Finish | Cal ID | Total Float |
|---|--|----------|-------------|--------------|--------|-------------|
| 02L1DD00114   | Approval of Design Checker by the SO             | 28       | 11JAN08     | 07FEB08      | 2      | 1           |
| <b>Design Packages for Work Submittal</b>                   |  |          |             |              |        |             |
| <b>Temp. Access Rd Design at P. D; +14mPD to +69mPD</b>     |  |          |             |              |        |             |
| 02L1DD0102  | Design preparation by the Designer               | 14       | 17JAN08     | 30JAN08      | 2      | 2           |
| 02L1DD0104  | Design certification by the Design Checker       | 14       | 01FEB08     | 14FEB08      | 2      | 1           |
| 02L1DD0106  | Design submission for the SO's approval          | 1        | 15FEB08     | 15FEB08      | 1      | 1           |
| 02L1DD0108  | Design review by the SO                          | 28       | 16FEB08     | 14MAR08      | 2      | 2           |
| 02L1DD0110  | Obtain design approval from the SO               | 0        |             | 14MAR08      | 2      | 2           |
| <b>Boulder Assessment &amp; Design for Stabili. Measure</b> |  |          |             |              |        |             |
| 02L1DD0302  | Design preparation for the AIP submission        | 15       | 31JAN08     | 14FEB08      | 2      | 3           |
| 02L1DD0304  | Design (AIP) certification by the Design Checker | 14       | 15FEB08     | 28FEB08      | 2      | 19          |
| 02L1DD0306  | Design (AIP) submission for the SO's approval    | 1        | 29FEB08     | 29FEB08      | 1      | 16          |
| 02L1DD0308  | Design (AIP) review by the SO                    | 14       | 01MAR08     | 14MAR08      | 2      | 19          |
| 02L1DD0310  | Obtain design (AIP) approval from the SO         | 0        |             | 14MAR08      | 2      | 19          |
| 02L1DD0312  | AIP submission for rel. authorities' approval    | 1        | 15MAR08     | 15MAR08      | 1      | 13          |
| 02L1DD0314  | Design (AIP) review by the rel. authorities      | 28       | 16MAR08     | 12APR08      | 2      | 20          |
| 02L1DD0316  | Obtain rel. authorities' approval for AIP        | 1        | 14APR08     | 14APR08      | 1      | 16          |
| 02L1DD0318  | Obtain SO's consent for design (AIP)             | 0        |             | 15APR08      | 2      | 20          |
| 02L1DD0320  | Design preparation for the DDA submission        | 30       | 24MAR08     | 22APR08      | 2      | 20          |
| 02L1DD0322  | Design (DDA) certification by the Design Checker | 14       | 23APR08     | 06MAY08      | 2      | 20          |
| 02L1DD0324  | Design (DDA) submission for the SO's approval    | 1        | 07MAY08     | 07MAY08      | 1      | 16          |
| 02L1DD0326  | Design (DDA) review by the SO                    | 14       | 08MAY08     | 21MAY08      | 2      | 20          |
| 02L1DD0328  | Obtain design (DDA) approval from the SO         | 0        |             | 21MAY08      | 2      | 20          |
| 02L1DD0330  | DDA submission for rel. authorities' approval    | 1        | 22MAY08     | 22MAY08      | 1      | 16          |
| 02L1DD0332  | Design (DDA) review by the rel. authorities      | 28       | 23MAY08     | 19JUN08      | 2      | 20          |
| 02L1DD0334  | Obtain rel. authorities' approval for DDA        | 1        | 20JUN08     | 20JUN08      | 1      | 16          |
| 02L1DD0336  | Obtain SO's consent for design (DDA)             | 0        |             | 21JUN08      | 2      | 20          |
| <b>Site Formation Design; +69mPD to +40mPD</b>              |  |          |             |              |        |             |
| 02L1DD0402  | Design preparation for the AIP submission        | 14       | 17JAN08     | 30JAN08      | 2      | 2           |
| 02L1DD0404  | Design (AIP) certification by the Design Checker | 14       | 27JAN08     | 09FEB08      | 2      | 2           |
| 02L1DD0406  | Design (AIP) submission for the SO's approval    | 1        | 11FEB08     | 11FEB08      | 1      | 1           |
| 02L1DD0408  | Design (AIP) review by the SO                    | 14       | 12FEB08     | 25FEB08      | 2      | 1           |
| 02L1DD0410  | Obtain design (AIP) approval from the SO         | 0        |             | 25FEB08      | 2      | 1           |
| 02L1DD0412  | AIP submission for rel. authorities' approval    | 1        | 26FEB08     | 26FEB08      | 1      | 1           |
| 02L1DD0414  | Design (AIP) review by the rel. authorities      | 12       | 27FEB08     | 09MAR08      | 2      | 1           |
| 02L1DD0416  | Obtain rel. authorities' approval for AIP        | 1        | 10MAR08     | 10MAR08      | 1      | 1           |
| 02L1DD0418  | Obtain SO's consent for design (AIP)             | 0        |             | 11MAR08      | 2      | 1           |
| 02L1DD0420  | Design preparation for the DDA submission        | 14       | 05MAR08     | 18MAR08      | 2      | 1           |
| 02L1DD0422  | Design (DDA) certification by the Design Checker | 14       | 12MAR08     | 25MAR08      | 2      | 1           |
| 02L1DD0424  | Design (DDA) submission for the SO's approval    | 1        | 26MAR08     | 26MAR08      | 1      | 1           |
| 02L1DD0426  | Design (DDA) review by the SO                    | 14       | 27MAR08     | 09APR08      | 2      | 1           |
| 02L1DD0428  | Obtain design (DDA) approval from the SO         | 0        |             | 09APR08      | 2      | 1           |

| ID   | Activity Description                             | Orig Dur | Early Start | Early Finish | Cal ID | Total Float |
|--|--|----------|-------------|--------------|--------|-------------|
| 02L1DD0430                                     | DDA submission for rel. authorities' approval    | 1        | 10APR08     | 10APR08      | 1      | 1           |
| 02L1DD0432                                     | Design (DDA) review by the rel. authorities      | 12       | 11APR08     | 22APR08      | 2      | 1           |
| 02L1DD0434                                     | Obtain rel. authorities' approval for DDA        | 1        | 23APR08     | 23APR08      | 1      | 1           |
| 02L1DD0436                                     | Obtain SO's consent for design (DDA)             | 0        |             | 24APR08      | 2      | 1           |
| <b>Site Formation Design; +40mPD to +24mPD</b> |  |          |             |              |        |             |
| 02L1DD0502                                     | Design preparation for the AIP submission        | 14       | 15FEB08     | 28FEB08      | 2      | 3           |
| 02L1DD0504                                     | Design (AIP) certification by the Design Checker | 14       | 29FEB08     | 13MAR08      | 2      | 3           |
| 02L1DD0506                                     | Design (AIP) submission for the SO's approval    | 1        | 14MAR08     | 14MAR08      | 1      | 2           |
| 02L1DD0508                                     | Design (AIP) review by the SO                    | 14       | 15MAR08     | 28MAR08      | 2      | 3           |
| 02L1DD0510                                     | Obtain design (AIP) approval from the SO         | 0        |             | 28MAR08      | 2      | 3           |
| 02L1DD0512                                     | AIP submission for rel. authorities' approval    | 1        | 29MAR08     | 29MAR08      | 1      | 2           |
| 02L1DD0514                                     | Design (AIP) review by the rel. authorities      | 21       | 30MAR08     | 19APR08      | 2      | 3           |
| 02L1DD0516                                     | Obtain rel. authorities' approval for AIP        | 1        | 21APR08     | 21APR08      | 1      | 2           |
| 02L1DD0518                                     | Obtain SO's consent for design (AIP)             | 0        |             | 22APR08      | 2      | 2           |
| 02L1DD0520                                     | Design preparation for the DDA submission        | 14       | 16APR08     | 29APR08      | 2      | 2           |
| 02L1DD0522                                     | Design (DDA) certification by the Design Checker | 14       | 30APR08     | 13MAY08      | 2      | 2           |
| 02L1DD0524                                     | Design (DDA) submission for the SO's approval    | 1        | 14MAY08     | 14MAY08      | 1      | 2           |
| 02L1DD0526                                     | Design (DDA) review by the SO                    | 14       | 15MAY08     | 28MAY08      | 2      | 2           |
| 02L1DD0528                                     | Obtain design (DDA) approval from the SO         | 0        |             | 28MAY08      | 2      | 2           |
| 02L1DD0530                                     | DDA submission for rel. authorities' approval    | 1        | 29MAY08     | 29MAY08      | 1      | 2           |
| 02L1DD0532                                     | Design (DDA) review by the rel. authorities      | 21       | 30MAY08     | 19JUN08      | 2      | 3           |
| 02L1DD0534                                     | Obtain rel. authorities' approval for DDA        | 1        | 20JUN08     | 20JUN08      | 1      | 2           |
| 02L1DD0536                                     | Obtain SO's consent for design (DDA)             | 0        |             | 21JUN08      | 2      | 3           |
| <b>Site Formation Design; +24mPD to 14mPD</b>  |  |          |             |              |        |             |
| 02L1DD0602                                     | Design preparation for the AIP submission        | 14       | 29FEB08     | 13MAR08      | 2      | 25          |
| 02L1DD0604                                     | Design (AIP) certification by the Design Checker | 14       | 14MAR08     | 27MAR08      | 2      | 25          |
| 02L1DD0606                                     | Design (AIP) submission for the SO's approval    | 1        | 28MAR08     | 28MAR08      | 1      | 20          |
| 02L1DD0608                                     | Design (AIP) review by the SO                    | 14       | 29MAR08     | 11APR08      | 2      | 25          |
| 02L1DD0610                                     | Obtain design (AIP) approval from the SO         | 0        |             | 11APR08      | 2      | 25          |
| 02L1DD0612                                     | AIP submission for rel. authorities' approval    | 1        | 12APR08     | 12APR08      | 1      | 20          |
| 02L1DD0614                                     | Design (AIP) review by the rel. authorities      | 28       | 13APR08     | 10MAY08      | 2      | 25          |
| 02L1DD0616                                     | Obtain rel. authorities' approval for AIP        | 1        | 13MAY08     | 13MAY08      | 1      | 20          |
| 02L1DD0618                                     | Obtain SO's consent for design (AIP)             | 0        |             | 14MAY08      | 2      | 23          |
| 02L1DD0620                                     | Design preparation for the DDA submission        | 14       | 08MAY08     | 21MAY08      | 2      | 23          |
| 02L1DD0622                                     | Design (DDA) certification by the Design Checker | 14       | 22MAY08     | 04JUN08      | 2      | 23          |
| 02L1DD0624                                     | Design (DDA) submission for the SO's approval    | 1        | 05JUN08     | 05JUN08      | 1      | 19          |
| 02L1DD0626                                     | Design (DDA) review by the SO                    | 14       | 06JUN08     | 19JUN08      | 2      | 24          |
| 02L1DD0628                                     | Obtain design (DDA) approval from the SO         | 0        |             | 19JUN08      | 2      | 24          |
| 02L1DD0630                                     | DDA submission for rel. authorities' approval    | 1        | 20JUN08     | 20JUN08      | 1      | 19          |
| 02L1DD0632                                     | Design (DDA) review by the rel. authorities      | 28       | 21JUN08     | 18JUL08      | 2      | 24          |
| 02L1DD0634                                     | Obtain rel. authorities' approval for DDA        | 1        | 19JUL08     | 19JUL08      | 1      | 20          |
| 02L1DD0636                                     | Obtain SO's consent for design (DDA)             | 0        |             | 21JUL08      | 2      | 23          |



**TBM Launching Chamber Design**

|            |  |    |         |         |   |    |
|------------|--|----|---------|---------|---|----|
| 02L1DD0702 | Design preparation for the AIP submission        | 15 | 14MAR08 | 28MAR08 | 2 | 36 |
| 02L1DD0704 | Design (AIP) certification by the Design Checker | 15 | 29MAR08 | 12APR08 | 2 | 36 |
| 02L1DD0706 | Design (AIP) submission for the SO's approval    | 1  | 14APR08 | 14APR08 | 1 | 28 |
| 02L1DD0708 | Design (AIP) review by the SO                    | 30 | 15APR08 | 14MAY08 | 2 | 35 |
| 02L1DD0710 | Obtain design (AIP) approval from the SO         | 0  |         | 14MAY08 | 2 | 35 |
| 02L1DD0712 | AIP submission for rel. authorities' approval    | 1  | 15MAY08 | 15MAY08 | 1 | 29 |
| 02L1DD0714 | Design (AIP) review by the rel. authorities      | 28 | 16MAY08 | 12JUN08 | 2 | 35 |
| 02L1DD0716 | Obtain rel. authorities's approval for AIP       | 1  | 13JUN08 | 13JUN08 | 1 | 29 |
| 02L1DD0718 | Obtain SO's consent for design (AIP)             | 0  |         | 14JUN08 | 2 | 35 |
| 02L1DD0720 | Design preparation for the DDA submission        | 30 | 23MAY08 | 21JUN08 | 2 | 35 |
| 02L1DD0722 | Design (DDA) certification by the Design Checker | 15 | 22JUN08 | 06JUL08 | 2 | 35 |
| 02L1DD0724 | Design (DDA) submission for the SO's approval    | 1  | 07JUL08 | 07JUL08 | 1 | 30 |
| 02L1DD0726 | Design (DDA) review by the SO                    | 30 | 08JUL08 | 06AUG08 | 2 | 35 |
| 02L1DD0728 | Obtain design (DDA) approval from the SO         | 0  |         | 06AUG08 | 2 | 35 |
| 02L1DD0730 | DDA submission for rel. authorities' approval    | 1  | 07AUG08 | 07AUG08 | 1 | 30 |
| 02L1DD0732 | Design (DDA) review by the rel. authorities      | 28 | 08AUG08 | 04SEP08 | 2 | 35 |
| 02L1DD0734 | Obtain rel. authorities's approval for DDA       | 1  | 05SEP08 | 05SEP08 | 1 | 27 |
| 02L1DD0736 | Obtain SO's consent for design (DDA)             | 0  |         | 06SEP08 | 2 | 36 |

**Hopper Foundation Design**

|            |  |    |         |         |   |    |
|------------|--|----|---------|---------|---|----|
| 02L1DD0802 | Design preparation by the Designer         | 15 | 28MAY08 | 11JUN08 | 2 | 47 |
| 02L1DD0804 | Design certification by the Design Checker | 15 | 12JUN08 | 26JUN08 | 2 | 77 |
| 02L1DD0806 | Design submission for the SO's approval    | 1  | 27JUN08 | 27JUN08 | 1 | 65 |
| 02L1DD0808 | Design review by the SO                    | 30 | 28JUN08 | 27JUL08 | 2 | 77 |
| 02L1DD0810 | Obtain design approval from the SO         | 0  |         | 27JUL08 | 2 | 77 |

**Steel Platform & Hopper Design**

|            |  |    |         |         |   |    |
|------------|--|----|---------|---------|---|----|
| 02L1DD0902 | Design preparation by the Designer         | 30 | 12JUN08 | 11JUL08 | 2 | 47 |
| 02L1DD0904 | Design certification by the Design Checker | 15 | 12JUL08 | 26JUL08 | 2 | 47 |
| 02L1DD0906 | Design submission for the SO's approval    | 1  | 28JUL08 | 28JUL08 | 1 | 40 |
| 02L1DD0908 | Design review by the SO                    | 30 | 29JUL08 | 27AUG08 | 2 | 46 |
| 02L1DD0910 | Obtain design approval from the SO         | 0  |         | 27AUG08 | 2 | 46 |

**Overhead Gantry Support & Noise Enclosure Design**

|            |  |    |         |         |   |    |
|------------|--|----|---------|---------|---|----|
| 02L1DD1002 | Design preparation by the Designer               | 30 | 28APR08 | 27MAY08 | 2 | 47 |
| 02L1DD1004 | Design certification by the Design Checker       | 15 | 28MAY08 | 11JUN08 | 2 | 60 |
| 02L1DD1006 | Design submission for the SO's approval          | 1  | 12JUN08 | 12JUN08 | 1 | 50 |
| 02L1DD1008 | Design review by the SO                          | 30 | 13JUN08 | 12JUL08 | 2 | 60 |
| 02L1DD1010 | Obtain design approval from the SO               | 0  |         | 12JUL08 | 2 | 60 |
| 02L1DD1012 | Design submission for rel. authorities' approval | 1  | 14JUL08 | 14JUL08 | 1 | 51 |
| 02L1DD1014 | Design review by the rel. authorities            | 28 | 15JUL08 | 11AUG08 | 2 | 59 |
| 02L1DD1016 | Obtain design approval from rel. authorities'    | 1  | 12AUG08 | 12AUG08 | 1 | 48 |
| 02L1DD1018 | Obtain SO's consent for design                   | 0  |         | 13AUG08 | 2 | 60 |

| ID         | Activity Description                             | Ord Dur | Early Start | Early Finish | Cal ID | Total Float |
|------------|--|---------|-------------|--------------|--------|-------------|
| 02L1DD1102 | Design preparation for the AIP submission        | 30      | 29MAR08     | 27APR08      | 2      | 47          |
| 02L1DD1104 | Design (AIP) certification by the Design Checker | 21      | 28APR08     | 18MAY08      | 2      | 130         |
| 02L1DD1106 | Design (AIP) submission for the SO's approval    | 1       | 19MAY08     | 19MAY08      | 1      | 109         |
| 02L1DD1108 | Design (AIP) review by the SO                    | 60      | 20MAY08     | 18JUL08      | 2      | 130         |
| 02L1DD1110 | Obtain design (AIP) approval from the SO         | 0       |             | 18JUL08      | 2      | 130         |
| 02L1DD1112 | AIP submission for rel. authorities' approval    | 1       | 19JUL08     | 19JUL08      | 1      | 108         |
| 02L1DD1114 | Design (AIP) review by the rel. authorities      | 21      | 20JUL08     | 09AUG08      | 2      | 130         |
| 02L1DD1116 | Obtain rel. authorities' approval for AIP        | 1       | 11AUG08     | 11AUG08      | 1      | 108         |
| 02L1DD1118 | Obtain SO's consent for design (AIP)             | 0       |             | 12AUG08      | 2      | 129         |
| 02L1DD1120 | Design preparation for the DDA submission        | 30      | 21JUL08     | 19AUG08      | 2      | 129         |
| 02L1DD1122 | Design (DDA) certification by the Design Checker | 28      | 20AUG08     | 16SEP08      | 2      | 129         |
| 02L1DD1124 | Design (DDA) submission for the SO's approval    | 1       | 17SEP08     | 17SEP08      | 1      | 106         |
| 02L1DD1126 | Design (DDA) review by the SO                    | 60      | 18SEP08     | 16NOV08      | 2      | 130         |
| 02L1DD1128 | Obtain design (DDA) approval from the SO         | 0       |             | 16NOV08      | 2      | 130         |
| 02L1DD1130 | DDA submission for rel. authorities' approval    | 1       | 17NOV08     | 17NOV08      | 1      | 106         |
| 02L1DD1132 | Design (DDA) review by the rel. authorities      | 28      | 18NOV08     | 15DEC08      | 2      | 130         |
| 02L1DD1134 | Obtain rel. authorities' approval for DDA        | 1       | 16DEC08     | 16DEC08      | 1      | 102         |
| 02L1DD1136 | Obtain SO's consent for design (DDA)             | 0       |             | 17DEC08      | 2      | 131         |

| ID         | Activity Description                             | Ord Dur | Early Start | Early Finish | Cal ID | Total Float |
|------------|--|---------|-------------|--------------|--------|-------------|
| 02L1DD1202 | Design preparation for the AIP submission        | 30      | 12JUL08     | 10AUG08      | 2      | 262         |
| 02L1DD1204 | Design (AIP) certification by the Design Checker | 30      | 11AUG08     | 09SEP08      | 2      | 262         |
| 02L1DD1206 | Design (AIP) submission for the SO's approval    | 1       | 10SEP08     | 10SEP08      | 1      | 209         |
| 02L1DD1208 | Design (AIP) review by the SO                    | 60      | 11SEP08     | 09NOV08      | 2      | 263         |
| 02L1DD1210 | Obtain design (AIP) approval from the SO         | 0       |             | 09NOV08      | 2      | 263         |
| 02L1DD1212 | AIP submission for rel. authorities' approval    | 1       | 10NOV08     | 10NOV08      | 1      | 212         |
| 02L1DD1214 | Design (AIP) review by the rel. authorities      | 28      | 11NOV08     | 08DEC08      | 2      | 263         |
| 02L1DD1216 | Obtain rel. authorities' approval for AIP        | 1       | 09DEC08     | 09DEC08      | 1      | 212         |
| 02L1DD1218 | Obtain SO's consent for design (AIP)             | 0       |             | 10DEC08      | 2      | 264         |
| 02L1DD1220 | Design preparation for the DDA submission        | 30      | 18NOV08     | 17DEC08      | 2      | 264         |
| 02L1DD1222 | Design (DDA) certification by the Design Checker | 30      | 18DEC08     | 16JAN09      | 2      | 264         |
| 02L1DD1224 | Design (DDA) submission for the SO's approval    | 1       | 17JAN09     | 17JAN09      | 1      | 213         |
| 02L1DD1226 | Design (DDA) review by the SO                    | 60      | 18JAN09     | 18MAR09      | 2      | 264         |
| 02L1DD1228 | Obtain design (DDA) approval from the SO         | 0       |             | 18MAR09      | 2      | 264         |
| 02L1DD1230 | DDA submission for rel. authorities' approval    | 1       | 19MAR09     | 19MAR09      | 1      | 215         |
| 02L1DD1232 | Design (DDA) review by the rel. authorities      | 28      | 20MAR09     | 16APR09      | 2      | 264         |
| 02L1DD1234 | Obtain rel. authorities' approval for DDA        | 1       | 17APR09     | 17APR09      | 1      | 216         |
| 02L1DD1236 | Obtain SO's consent for design (DDA)             | 0       |             | 18APR09      | 2      | 264         |

| ID         | Activity Description                             | Ord Dur | Early Start | Early Finish | Cal ID | Total Float |
|------------|--|---------|-------------|--------------|--------|-------------|
| 02L1FF0102 | Design preparation for the AIP submission        | 30      | 08FEB08     | 08MAR08      | 2      | 2           |
| 02L1FF0104 | Design (AIP) certification by the Design Checker | 15      | 09MAR08     | 23MAR08      | 2      | 2           |

| ID   | Activity Description                             | Orig Dur | Early Start | Early Finish | Cal ID | Total Float |
|--|--|----------|-------------|--------------|--------|-------------|
| 02L1FF0106   | Design (AIP) submission for the SO's approval    | 1        | 25MAR08     | 25MAR08      | 1      | 1           |
| 02L1FF0108   | Design (AIP) review by the SO                    | 60       | 26MAR08     | 24MAY08      | 2      | 1           |
| 02L1FF0110   | Obtain design (AIP) approval from the SO         | 0        |             | 24MAY08      | 2      | 1           |
| 02L1FF0112   | AIP submission for rel. authorities' approval    | 1        | 26MAY08     | 26MAY08      | 1      | 0           |
| 02L1FF0114   | Design (AIP) review by the rel. authorities      | 28       | 27MAY08     | 23JUN08      | 2      | 0           |
| 02L1FF0116   | Obtain rel. authorities' approval for AIP        | 1        | 24JUN08     | 24JUN08      | 1      | 0           |
| 02L1FF0118   | Obtain SO's consent for design (AIP)             | 0        |             | 25JUN08      | 2      | 0           |
| 02L1FF0120   | Design preparation for the DDA submission        | 30       | 03JUN08     | 02JUL08      | 2      | 0           |
| 02L1FF0122   | Design (DDA) certification by the Design Checker | 15       | 03JUL08     | 17JUL08      | 2      | 0           |
| 02L1FF0124   | Design (DDA) submission for the SO's approval    | 1        | 18JUL08     | 18JUL08      | 1      | 0           |
| 02L1FF0126   | Design (DDA) review by the SO                    | 60       | 19JUL08     | 16SEP08      | 2      | 0           |
| 02L1FF0128   | Obtain design (DDA) approval from the SO         | 0        |             | 16SEP08      | 2      | 0           |
| 02L1FF0130   | DDA submission for rel. authorities' approval    | 1        | 17SEP08     | 17SEP08      | 1      | 0           |
| 02L1FF0132   | Design (DDA) review by the rel. authorities      | 28       | 18SEP08     | 15OCT08      | 2      | 0           |
| 02L1FF0134   | Obtain rel. authorities' approval for DDA        | 1        | 16OCT08     | 16OCT08      | 1      | 0           |
| 02L1FF0136   | Obtain SO's consent for design (DDA)             | 0        |             | 17OCT08      | 2      | 0           |
| <b>Impact Assessment on WSD Yau Kam Tau WTW</b>        |  |          |             |              |        |             |
| 02L1FF0202   | Design preparation for the AIP submission        | 30       | 09MAR08     | 07APR08      | 2      | 107         |
| 02L1FF0204   | Design (AIP) certification by the Design Checker | 15       | 09APR08     | 22APR08      | 2      | 107         |
| 02L1FF0206   | Design (AIP) submission for the SO's approval    | 1        | 23APR08     | 23APR08      | 1      | 88          |
| 02L1FF0208   | Design (AIP) review by the SO                    | 45       | 24APR08     | 07JUN08      | 2      | 107         |
| 02L1FF0210   | Obtain design (AIP) approval from the SO         | 0        |             | 07JUN08      | 2      | 107         |
| 02L1FF0212   | AIP submission for rel. authorities' approval    | 1        | 10JUN08     | 10JUN08      | 1      | 88          |
| 02L1FF0214   | Design (AIP) review by the rel. authorities      | 28       | 11JUN08     | 08JUL08      | 2      | 105         |
| 02L1FF0216   | Obtain rel. authorities' approval for AIP        | 1        | 09JUL08     | 09JUL08      | 1      | 87          |
| 02L1FF0218   | Obtain SO's consent for design (AIP)             | 0        |             | 10JUL08      | 2      | 105         |
| 02L1FF0220   | Design preparation for the DDA submission        | 30       | 18JUN08     | 17JUL08      | 2      | 105         |
| 02L1FF0222   | Design (DDA) certification by the Design Checker | 15       | 18JUL08     | 01AUG08      | 2      | 105         |
| 02L1FF0224   | Design (DDA) submission for the SO's approval    | 1        | 02AUG08     | 02AUG08      | 1      | 87          |
| 02L1FF0226   | Design (DDA) review by the SO                    | 45       | 03AUG08     | 16SEP08      | 2      | 105         |
| 02L1FF0228   | Obtain design (DDA) approval from the SO         | 0        |             | 16SEP08      | 2      | 105         |
| 02L1FF0230   | DDA submission for rel. authorities' approval    | 1        | 17SEP08     | 17SEP08      | 1      | 86          |
| 02L1FF0232   | Design (DDA) review by the rel. authorities      | 28       | 18SEP08     | 15OCT08      | 2      | 106         |
| 02L1FF0234   | Obtain rel. authorities' approval for DDA        | 1        | 16OCT08     | 16OCT08      | 1      | 85          |
| 02L1FF0236   | Obtain SO's consent for design (DDA)             | 0        |             | 17OCT08      | 2      | 107         |
| <b>Impact Assessment on WSD Tai Lam Chung WT No. 3</b> |  |          |             |              |        |             |
| 02L1FF0302   | Design preparation for the AIP submission        | 30       | 08FEB08     | 08MAR08      | 2      | 3           |
| 02L1FF0304   | Design (AIP) certification by the Design Checker | 15       | 09MAR08     | 23MAR08      | 2      | 3           |
| 02L1FF0306   | Design (AIP) submission for the SO's approval    | 1        | 25MAR08     | 25MAR08      | 1      | 2           |
| 02L1FF0308   | Design (AIP) review by the SO                    | 50       | 26MAR08     | 14MAY08      | 2      | 2           |
| 02L1FF0310   | Obtain design (AIP) approval from the SO         | 0        |             | 14MAY08      | 2      | 2           |
| 02L1FF0312   | AIP submission for rel. authorities' approval    | 1        | 15MAY08     | 15MAY08      | 1      | 2           |

| ID         | Activity Description                             | Child Dur | Early Start | Early Finish | CSI ID | Total Float |
|------------|--|-----------|-------------|--------------|--------|-------------|
| 02L1FF0314 | Design (AIP) review by the rel. authorities      | 28        | 16MAY08     | 12JUN08      | 2      | 3           |
| 02L1FF0316 | Obtain rel. authorities' approval for AIP        | 1         | 13JUN08     | 13JUN08      | 1      | 2           |
| 02L1FF0318 | Obtain SO's consent for design (AIP)             | 0         |             | 14JUN08      | 2      | 3           |
| 02L1FF0320 | Design preparation for the DDA submission        | 30        | 23MAY08     | 21JUN08      | 2      | 3           |
| 02L1FF0322 | Design (DDA) certification by the Design Checker | 15        | 22JUN08     | 06JUL08      | 2      | 3           |
| 02L1FF0324 | Design (DDA) submission for the SO's approval    | 1         | 07JUL08     | 07JUL08      | 1      | 3           |
| 02L1FF0326 | Design (DDA) review by the SO                    | 50        | 08JUL08     | 26AUG08      | 2      | 3           |
| 02L1FF0328 | Obtain design (DDA) approval from the SO         | 0         |             | 26AUG08      | 2      | 3           |
| 02L1FF0330 | DDA submission for rel. authorities' approval    | 1         | 27AUG08     | 27AUG08      | 1      | 3           |
| 02L1FF0332 | Design (DDA) review by the rel. authorities      | 28        | 28AUG08     | 24SEP08      | 2      | 4           |
| 02L1FF0334 | Obtain rel. authorities' approval for DDA        | 1         | 25SEP08     | 25SEP08      | 1      | 3           |
| 02L1FF0336 | Obtain SO's consent for design (DDA)             | 0         |             | 26SEP08      | 2      | 5           |

| <b>Impact Assessment on KCRC West Rail Tunnel</b>      |  |           |             |              |        |             |
|--|--|-----------|-------------|--------------|--------|-------------|
| ID   | Activity Description                             | Child Dur | Early Start | Early Finish | CSI ID | Total Float |
| 02L1FF0402   | Design preparation for the AIP submission        | 30        | 08APR08     | 07MAY08      | 2      | 190         |
| 02L1FF0404   | Design (AIP) certification by the Design Checker | 15        | 08MAY08     | 22MAY08      | 2      | 190         |
| 02L1FF0406   | Design (AIP) submission for the SO's approval    | 1         | 23MAY08     | 23MAY08      | 1      | 158         |
| 02L1FF0408   | Design (AIP) review by the SO                    | 60        | 24MAY08     | 22JUL08      | 2      | 191         |
| 02L1FF0410   | Obtain design (AIP) approval from the SO         | 0         |             | 22JUL08      | 2      | 191         |
| 02L1FF0412   | AIP submission for rel. authorities' approval    | 1         | 23JUL08     | 23JUL08      | 1      | 155         |
| 02L1FF0414   | Design (AIP) review by the rel. authorities      | 28        | 24JUL08     | 20AUG08      | 2      | 191         |
| 02L1FF0416   | Obtain rel. authorities' approval for AIP        | 1         | 21AUG08     | 21AUG08      | 1      | 155         |
| 02L1FF0418   | Obtain SO's consent for design (AIP)             | 0         |             | 22AUG08      | 2      | 192         |
| 02L1FF0420   | Design preparation for the DDA submission        | 30        | 31JUL08     | 29AUG08      | 2      | 192         |
| 02L1FF0422   | Design (DDA) certification by the Design Checker | 15        | 30AUG08     | 13SEP08      | 2      | 192         |
| 02L1FF0424   | Design (DDA) submission for the SO's approval    | 1         | 16SEP08     | 16SEP08      | 1      | 155         |
| 02L1FF0426   | Design (DDA) review by the SO                    | 60        | 17SEP08     | 15NOV08      | 2      | 190         |
| 02L1FF0428   | Obtain design (DDA) approval from the SO         | 0         |             | 15NOV08      | 2      | 190         |
| 02L1FF0430   | DDA submission for rel. authorities' approval    | 1         | 17NOV08     | 17NOV08      | 1      | 150         |
| 02L1FF0432   | Design (DDA) review by the rel. authorities      | 28        | 18NOV08     | 15DEC08      | 2      | 189         |
| 02L1FF0434   | Obtain rel. authorities' approval for DDA        | 1         | 16DEC08     | 16DEC08      | 1      | 149         |
| 02L1FF0436   | Obtain SO's consent for design (DDA)             | 0         |             | 17DEC08      | 2      | 189         |
| <b>Impact Assessment on WSD Tsuen Wan Reservoir G.</b> |  |           |             |              |        |             |
| 02L1FF0502   | Design preparation for the AIP submission        | 30        | 08MAY08     | 06JUN08      | 2      | 251         |
| 02L1FF0504   | Design (AIP) certification by the Design Checker | 15        | 07JUN08     | 21JUN08      | 2      | 251         |
| 02L1FF0506   | Design (AIP) submission for the SO's approval    | 1         | 23JUN08     | 23JUN08      | 1      | 205         |
| 02L1FF0508   | Design (AIP) review by the SO                    | 60        | 24JUN08     | 22AUG08      | 2      | 250         |
| 02L1FF0510   | Obtain design (AIP) approval from the SO         | 0         |             | 22AUG08      | 2      | 250         |
| 02L1FF0512   | AIP submission for rel. authorities' approval    | 1         | 23AUG08     | 23AUG08      | 1      | 201         |
| 02L1FF0514   | Design (AIP) review by the rel. authorities      | 28        | 24AUG08     | 20SEP08      | 2      | 251         |
| 02L1FF0516   | Obtain rel. authorities' approval for AIP        | 1         | 22SEP08     | 22SEP08      | 1      | 200         |
| 02L1FF0518   | Obtain SO's consent for design (AIP)             | 0         |             | 23SEP08      | 2      | 251         |
| 02L1FF0520   | Design preparation for the DDA submission        | 30        | 01SEP08     | 30SEP08      | 2      | 251         |

| ID         | Activity Description                             | Orig Bur | Early Start | Early Finish | Cal ID | Total Float |
|------------|--|----------|-------------|--------------|--------|-------------|
| 02L1FF0522 | Design (DDA) certification by the Design Checker | 15       | 01OCT08     | 15OCT08      | 2      | 251         |
| 02L1FF0524 | Design (DDA) submission for the SO's approval    | 1        | 16OCT08     | 16OCT08      | 1      | 202         |
| 02L1FF0526 | Design (DDA) review by the SO                    | 60       | 17OCT08     | 15DEC08      | 2      | 251         |
| 02L1FF0528 | Obtain design (DDA) approval from the SO         | 0        |             | 15DEC08      | 2      | 251         |
| 02L1FF0530 | DDA submission for rel. authorities' approval    | 1        | 16DEC08     | 16DEC08      | 1      | 201         |
| 02L1FF0532 | Design (DDA) review by the rel. authorities      | 28       | 17DEC08     | 13JAN09      | 2      | 251         |
| 02L1FF0534 | Obtain rel. authorities's approval for DDA       | 1        | 14JAN09     | 14JAN09      | 1      | 204         |
| 02L1FF0536 | Obtain SO's consent for design (DDA)             | 0        |             | 15JAN09      | 2      | 251         |

| Design Activities for Vertical Portion A         |  |          |             |              |        |             |
|--|--|----------|-------------|--------------|--------|-------------|
| Temp. Steel Decking Design Over Shing Mun Nullah |  |          |             |              |        |             |
| ID   | Activity Description                             | Orig Bur | Early Start | Early Finish | Cal ID | Total Float |
| 02L1AA0102                                       | Design preparation by the Designer               | 14       | 08FEB08     | 21FEB08      | 2      | 22          |
| 02L1AA0104                                       | Design certification by the Design Checker       | 14       | 22FEB08     | 06MAR08      | 2      | 29          |
| 02L1AA0106                                       | Design submission for the SO's approval          | 1        | 07MAR08     | 07MAR08      | 1      | 21          |
| 02L1AA0108                                       | Design review by the SO                          | 28       | 08MAR08     | 04APR08      | 2      | 29          |
| 02L1AA0110                                       | Obtain design approval from the SO               | 0        |             | 04APR08      | 2      | 29          |
| E/S Design for Spiral Ramp/Cascade/Box Culvert   |  |          |             |              |        |             |
| 02L1AA0202                                       | Design preparation for the AIP submission        | 15       | 22FEB08     | 07MAR08      | 2      | 22          |
| 02L1AA0204                                       | Design (AIP) certification by the Design Checker | 15       | 08MAR08     | 22MAR08      | 2      | 22          |
| 02L1AA0206                                       | Design (AIP) submission for the SO's approval    | 1        | 25MAR08     | 25MAR08      | 1      | 16          |
| 02L1AA0208                                       | Design (AIP) review by the SO                    | 21       | 26MAR08     | 15APR08      | 2      | 20          |
| 02L1AA0210                                       | Obtain design (AIP) approval from the SO         | 0        |             | 15APR08      | 2      | 20          |
| 02L1AA0212                                       | AIP submission for rel. authorities' approval    | 1        | 16APR08     | 16APR08      | 1      | 16          |
| 02L1AA0214                                       | Design (AIP) review by the rel. authorities      | 21       | 17APR08     | 07MAY08      | 2      | 20          |
| 02L1AA0216                                       | Obtain rel. authorities's approval for AIP       | 1        | 08MAY08     | 08MAY08      | 1      | 16          |
| 02L1AA0218                                       | Obtain SO's consent for design (AIP)             | 0        |             | 09MAY08      | 2      | 20          |
| 02L1AA0220                                       | Design preparation for the DDA submission        | 30       | 17APR08     | 16MAY08      | 2      | 20          |
| 02L1AA0222                                       | Design (DDA) certification by the Design Checker | 15       | 17MAY08     | 31MAY08      | 2      | 20          |
| 02L1AA0226                                       | Design (DDA) submission for the SO's approval    | 1        | 02JUN08     | 02JUN08      | 1      | 16          |
| 02L1AA0228                                       | Design (DDA) review by the SO                    | 21       | 03JUN08     | 23JUN08      | 2      | 20          |
| 02L1AA0230                                       | Obtain design (DDA) approval from the SO         | 0        |             | 23JUN08      | 2      | 20          |
| 02L1AA0232                                       | DDA submission for rel. authorities' approval    | 1        | 24JUN08     | 24JUN08      | 1      | 16          |
| 02L1AA0234                                       | Design (DDA) review by the rel. authorities      | 21       | 25JUN08     | 15JUL08      | 2      | 20          |
| 02L1AA0236                                       | Obtain rel. authorities's approval for DDA       | 1        | 16JUL08     | 16JUL08      | 1      | 17          |
| 02L1AA0238                                       | Obtain SO's consent for design (DDA)             | 0        |             | 17JUL08      | 2      | 20          |
| Temp. Platform Design for H-Piling               |  |          |             |              |        |             |
| 02L1AA0302                                       | Design preparation by the Designer               | 15       | 22FEB08     | 07MAR08      | 2      | 627         |
| 02L1AA0304                                       | Design certification by the Design Checker       | 15       | 08MAR08     | 22MAR08      | 2      | 1,618       |
| 02L1AA0306                                       | Design submission for the SO's approval          | 1        | 25MAR08     | 25MAR08      | 1      | 1,312       |
| 02L1AA0308                                       | Design review by the SO                          | 28       | 26MAR08     | 22APR08      | 2      | 1,616       |
| Cascade & Box Culvert Design for Portion A       |  |          |             |              |        |             |
| 02L1AA0402                                       | Design preparation for the AIP submission        | 30       | 08MAR08     | 06APR08      | 2      | 627         |

| ID  | Activity Description                             | Orig. Dur. | Early Start | Early Finish | Cal. ID | Total Final |
|---|--|------------|-------------|--------------|---------|-------------|
| 02L1AA0404  | Design (AIP) certification by the Design Checker | 15         | 07APR08     | 21APR08      | 2       | 627         |
| 02L1AA0406  | Design (AIP) submission for the SO's approval    | 1          | 22APR08     | 22APR08      | 1       | 511         |
| 02L1AA0408  | Design (AIP) review by the SO                    | 60         | 23APR08     | 21JUN08      | 2       | 628         |
| 02L1AA0410  | Obtain design (AIP) approval from the SO         | 0          |             | 21JUN08      | 2       | 628         |
| 02L1AA0412  | AIP submission for rel. authorities' approval    | 1          | 23JUN08     | 23JUN08      | 1       | 511         |
| 02L1AA0414  | Design (AIP) review by the rel. authorities      | 28         | 24JUN08     | 21JUL08      | 2       | 627         |
| 02L1AA0416  | Obtain rel. authorities' approval for AIP        | 1          | 22JUL08     | 22JUL08      | 1       | 508         |
| 02L1AA0418  | Obtain SO's consent for design (AIP)             | 0          |             | 23JUL08      | 2       | 628         |
| 02L1AA0420  | Design preparation for the DDA submission        | 30         | 01JUL08     | 30JUL08      | 2       | 628         |
| 02L1AA0422  | Design (DDA) certification by the Design Checker | 15         | 31JUL08     | 14AUG08      | 2       | 628         |
| 02L1AA0424  | Design (DDA) submission for the SO's approval    | 1          | 15AUG08     | 15AUG08      | 1       | 507         |
| 02L1AA0426  | Design (DDA) review by the SO                    | 60         | 16AUG08     | 14OCT08      | 2       | 628         |
| 02L1AA0428  | Obtain design (DDA) approval from the SO         | 0          |             | 14OCT08      | 2       | 628         |
| 02L1AA0430  | DDA submission for rel. authorities' approval    | 1          | 15OCT08     | 15OCT08      | 1       | 507         |
| 02L1AA0432  | Design (DDA) review by the rel. authorities      | 28         | 16OCT08     | 12NOV08      | 2       | 628         |
| 02L1AA0434  | Obtain rel. authorities' approval for DDA        | 1          | 13NOV08     | 13NOV08      | 1       | 507         |
| 02L1AA0436  | Obtain SO's consent for design (DDA)             | 0          |             | 14NOV08      | 2       | 628         |
| <b>Overhead Gantry Design for Retrieval of TBM</b>      |  |            |             |              |         |             |
| 02L1AA0502  | Design preparation by the Designer               | 15         | 07APR08     | 21APR08      | 2       | 694         |
| 02L1AA0504  | Design certification by the Design Checker       | 15         | 22APR08     | 06MAY08      | 2       | 694         |
| 02L1AA0506  | Design submission for the SO's approval          | 1          | 07MAY08     | 07MAY08      | 1       | 566         |
| 02L1AA0508  | Design review by the SO                          | 30         | 08MAY08     | 06JUN08      | 2       | 699         |
| 02L1AA0510  | Obtain design approval from the SO               | 0          |             | 06JUN08      | 2       | 699         |
| <b>Design Packages for Work in Position B</b>           |  |            |             |              |         |             |
| <b>Temp. Platform Design for RCD for Air Vent Shaft</b> |  |            |             |              |         |             |
| 02L1BB0302  | Design preparation by the Designer               | 15         | 07MAR08     | 21MAR08      | 2       | 17          |
| 02L1BB0304  | Design certification by the Design Checker       | 15         | 22MAR08     | 05APR08      | 2       | 17          |
| 02L1BB0306  | Design submission for the SO's approval          | 1          | 07APR08     | 07APR08      | 1       | 14          |
| 02L1BB0308  | Design review by the SO                          | 28         | 08APR08     | 05MAY08      | 2       | 16          |
| 02L1BB0310  | Obtain design approval from the SO               | 0          |             | 05MAY08      | 2       | 16          |
| <b>ELS Design for Intake Structure Construction</b>     |  |            |             |              |         |             |
| 02L1BB0402  | Design preparation by the Designer               | 15         | 22MAR08     | 05APR08      | 2       | 162         |
| 02L1BB0404  | Design certification by the Design Checker       | 15         | 06APR08     | 20APR08      | 2       | 162         |
| 02L1BB0406  | Design submission for the SO's approval          | 1          | 21APR08     | 21APR08      | 1       | 134         |
| 02L1BB0408  | Design review by the SO                          | 28         | 22APR08     | 19MAY08      | 2       | 162         |
| 02L1BB0410  | Obtain design approval from the SO               | 0          |             | 19MAY08      | 2       | 162         |
| <b>Temp. Support Design for MAAMAS/VDS/DC/AVS</b>       |  |            |             |              |         |             |
| 02L1BB0502  | Design preparation for the AIP submission        | 30         | 07MAR08     | 05APR08      | 2       | 25          |
| 02L1BB0504  | Design (AIP) certification by the Design Checker | 15         | 06APR08     | 20APR08      | 2       | 25          |
| 02L1BB0506  | Design (AIP) submission for the SO's approval    | 1          | 21APR08     | 21APR08      | 1       | 20          |
| 02L1BB0508  | Design (AIP) review by the SO                    | 60         | 22APR08     | 20JUN08      | 2       | 25          |

| ID         | Activity Description                             | Orig Dur | Early Start | Early Finish | Cal ID | Total Float |
|------------|--|----------|-------------|--------------|--------|-------------|
| 02L1BB0510 | Obtain design (AIP) approval from the SO         | 0        |             | 20JUN08      | 2      | 25          |
| 02L1BB0512 | AIP submission for rel. authorities' approval    | 1        | 21JUN08     | 21JUN08      | 1      | 20          |
| 02L1BB0514 | Design (AIP) review by the rel. authorities      | 15       | 22JUN08     | 06JUL08      | 2      | 25          |
| 02L1BB0516 | Obtain rel. authorities's approval for AIP       | 1        | 07JUL08     | 07JUL08      | 1      | 22          |
| 02L1BB0518 | Obtain SO's consent for design (AIP)             | 0        |             | 08JUL08      | 2      | 25          |
| 02L1BB0520 | Design preparation for the DDA submission        | 30       | 16JUN08     | 15JUL08      | 2      | 25          |
| 02L1BB0522 | Design (DDA) certification by the Design Checker | 15       | 16JUL08     | 30JUL08      | 2      | 25          |
| 02L1BB0524 | Design (DDA) submission for the SO's approval    | 1        | 31JUL08     | 31JUL08      | 1      | 21          |
| 02L1BB0526 | Design (DDA) review by the SO                    | 60       | 01AUG08     | 29SEP08      | 2      | 25          |
| 02L1BB0528 | Obtain design (DDA) approval from the SO         | 0        |             | 29SEP08      | 2      | 25          |
| 02L1BB0530 | DDA submission for rel. authorities' approval    | 1        | 30SEP08     | 30SEP08      | 1      | 20          |
| 02L1BB0532 | Design (DDA) review by the rel. authorities      | 28       | 01OCT08     | 28OCT08      | 2      | 26          |
| 02L1BB0534 | Obtain rel. authorities's approval for DDA       | 1        | 29OCT08     | 29OCT08      | 1      | 22          |
| 02L1BB0536 | Obtain SO's consent for design (DDA)             | 0        |             | 30OCT08      | 2      | 26          |

**Temp. Support Design for MA and MAMT Connection**

|            |  |    |         |         |   |     |
|------------|--|----|---------|---------|---|-----|
| 02L1BB0602 | Design preparation for the AIP submission        | 30 | 21APR08 | 20MAY08 | 2 | 527 |
| 02L1BB0604 | Design (AIP) certification by the Design Checker | 15 | 21MAY08 | 04JUN08 | 2 | 804 |
| 02L1BB0606 | Design (AIP) submission for the SO's approval    | 1  | 05JUN08 | 05JUN08 | 1 | 653 |
| 02L1BB0608 | Design (AIP) review by the SO                    | 60 | 06JUN08 | 04AUG08 | 2 | 804 |
| 02L1BB0610 | Obtain design (AIP) approval from the SO         | 0  |         | 04AUG08 | 2 | 804 |
| 02L1BB0612 | AIP submission for rel. authorities' approval    | 1  | 05AUG08 | 05AUG08 | 1 | 652 |
| 02L1BB0614 | Design (AIP) review by the rel. authorities      | 15 | 06AUG08 | 20AUG08 | 2 | 804 |
| 02L1BB0616 | Obtain rel. authorities's approval for AIP       | 1  | 21AUG08 | 21AUG08 | 1 | 652 |
| 02L1BB0618 | Obtain SO's consent for design (AIP)             | 0  |         | 22AUG08 | 2 | 804 |
| 02L1BB0620 | Design preparation for the DDA submission        | 30 | 31JUL08 | 29AUG08 | 2 | 804 |
| 02L1BB0622 | Design (DDA) certification by the Design Checker | 15 | 30AUG08 | 13SEP08 | 2 | 804 |
| 02L1BB0624 | Design (DDA) submission for the SO's approval    | 1  | 16SEP08 | 16SEP08 | 1 | 652 |
| 02L1BB0626 | Design (DDA) review by the SO                    | 60 | 17SEP08 | 15NOV08 | 2 | 803 |
| 02L1BB0628 | Obtain design (DDA) approval from the SO         | 0  |         | 15NOV08 | 2 | 803 |
| 02L1BB0630 | DDA submission for rel. authorities' approval    | 1  | 17NOV08 | 17NOV08 | 1 | 651 |
| 02L1BB0632 | Design (DDA) review by the rel. authorities      | 28 | 18NOV08 | 15DEC08 | 2 | 802 |
| 02L1BB0634 | Obtain rel. authorities's approval for DDA       | 1  | 16DEC08 | 16DEC08 | 1 | 648 |
| 02L1BB0636 | Obtain SO's consent for design (DDA)             | 0  |         | 17DEC08 | 2 | 803 |

**Permanent Design for MA/MAS/VDS/DC/AVS**

|            |  |    |         |         |   |     |
|------------|--|----|---------|---------|---|-----|
| 02L1BB0702 | Design preparation for the AIP submission        | 30 | 21MAY08 | 19JUN08 | 2 | 527 |
| 02L1BB0704 | Design (AIP) certification by the Design Checker | 15 | 20JUN08 | 04JUL08 | 2 | 730 |
| 02L1BB0706 | Design (AIP) submission for the SO's approval    | 1  | 05JUL08 | 05JUL08 | 1 | 591 |
| 02L1BB0708 | Design (AIP) review by the SO                    | 60 | 06JUL08 | 03SEP08 | 2 | 730 |
| 02L1BB0710 | Obtain design (AIP) approval from the SO         | 0  |         | 03SEP08 | 2 | 730 |
| 02L1BB0712 | AIP submission for rel. authorities' approval    | 1  | 04SEP08 | 04SEP08 | 1 | 592 |
| 02L1BB0714 | Design (AIP) review by the rel. authorities      | 15 | 05SEP08 | 19SEP08 | 2 | 730 |
| 02L1BB0716 | Obtain rel. authorities's approval for AIP       | 1  | 20SEP08 | 20SEP08 | 1 | 592 |

| ID  | Activity Description                             | Orig. Dur. | Early Start | Early Finish | Cal. ID | Total Cal. Float |
|---|--|------------|-------------|--------------|---------|------------------|
| 02L1BB0718  | Obtain SO's consent for design (AIP)             | 0          |             | 22SEP08      | 2       | 729              |
| 02L1BB0720  | Design preparation for the DDA submission        | 30         | 31AUG08     | 29SEP08      | 2       | 729              |
| 02L1BB0722  | Design (DDA) certification by the Design Checker | 15         | 30SEP08     | 14OCT08      | 2       | 729              |
| 02L1BB0724  | Design (DDA) submission for the SO's approval    | 1          | 15OCT08     | 15OCT08      | 1       | 592              |
| 02L1BB0726  | Design (DDA) review by the SO                    | 60         | 16OCT08     | 14DEC08      | 2       | 729              |
| 02L1BB0728  | Obtain design (DDA) approval from the SO         | 0          |             | 14DEC08      | 2       | 729              |
| 02L1BB0730  | DDA submission for rel. authorities' approval    | 1          | 15DEC08     | 15DEC08      | 1       | 591              |
| 02L1BB0732  | Design (DDA) review by the rel. authorities      | 28         | 16DEC08     | 12JAN09      | 2       | 729              |
| 02L1BB0734  | Obtain rel. authorities's approval for DDA       | 1          | 13JAN09     | 13JAN09      | 1       | 591              |
| 02L1BB0736  | Obtain SO's consent for design (DDA)             | 0          |             | 14JAN09      | 2       | 729              |
| <b>Permanent Design for MA and MAMT Connection</b>        |  |            |             |              |         |                  |
| 02L1BB0802  | Design preparation for AIP submission            | 30         | 20JUN08     | 19JUL08      | 2       | 527              |
| 02L1BB0804  | Design (AIP) certification by the Design Checker | 15         | 20JUL08     | 03AUG08      | 2       | 527              |
| 02L1BB0806  | Design (AIP) submission for the SO's approval    | 1          | 04AUG08     | 04AUG08      | 1       | 429              |
| 02L1BB0808  | Design (AIP) review by the SO                    | 60         | 05AUG08     | 03OCT08      | 2       | 527              |
| 02L1BB0810  | Obtain design (AIP) approval from the SO         | 0          |             | 03OCT08      | 2       | 527              |
| 02L1BB0812  | AIP submission for rel. authorities' approval    | 1          | 04OCT08     | 04OCT08      | 1       | 427              |
| 02L1BB0814  | Design (AIP) review by the rel. authorities      | 15         | 05OCT08     | 19OCT08      | 2       | 527              |
| 02L1BB0816  | Obtain rel. authorities's approval for AIP       | 1          | 20OCT08     | 20OCT08      | 1       | 429              |
| 02L1BB0818  | Obtain SO's consent for design (AIP)             | 0          |             | 21OCT08      | 2       | 531              |
| 02L1BB0820  | Design preparation for the DDA submission        | 30         | 29SEP08     | 28OCT08      | 2       | 531              |
| 02L1BB0822  | Design (DDA) certification by the Design Checker | 15         | 29OCT08     | 12NOV08      | 2       | 531              |
| 02L1BB0824  | Design (DDA) submission for the SO's approval    | 1          | 13NOV08     | 13NOV08      | 1       | 428              |
| 02L1BB0826  | Design (DDA) review by the SO                    | 60         | 14NOV08     | 12JAN09      | 2       | 531              |
| 02L1BB0828  | Obtain design (DDA) approval from the SO         | 0          |             | 12JAN09      | 2       | 531              |
| 02L1BB0830  | DDA submission for rel. authorities' approval    | 1          | 13JAN09     | 13JAN09      | 1       | 428              |
| 02L1BB0832  | Design (DDA) review by the rel. authorities      | 28         | 14JAN09     | 10FEB09      | 2       | 531              |
| 02L1BB0834  | Obtain rel. authorities's approval for DDA       | 1          | 11FEB09     | 11FEB09      | 1       | 430              |
| 02L1BB0836  | Obtain SO's consent for design (DDA)             | 0          |             | 12FEB09      | 2       | 531              |
| <b>Boulder Assessment &amp; Design of Stabfl. Measure</b> |  |            |             |              |         |                  |
| 02L1BB0902  | Design preparation for the AIP submission        | 15         | 06APR08     | 20APR08      | 2       | 50               |
| 02L1BB0904  | Design (AIP) certification by the Design Checker | 15         | 21APR08     | 05MAY08      | 2       | 50               |
| 02L1BB0906  | Design (AIP) submission for the SO's approval    | 1          | 06MAY08     | 06MAY08      | 1       | 41               |
| 02L1BB0908  | Design (AIP) review by the SO                    | 21         | 07MAY08     | 27MAY08      | 2       | 50               |
| 02L1BB0910  | Obtain design (AIP) approval from the SO         | 0          |             | 27MAY08      | 2       | 50               |
| 02L1BB0912  | AIP submission for rel. authorities' approval    | 1          | 28MAY08     | 28MAY08      | 1       | 41               |
| 02L1BB0914  | Design (AIP) review by the rel. authorities      | 28         | 29MAY08     | 25JUN08      | 2       | 50               |
| 02L1BB0916  | Obtain rel. authorities's approval for AIP       | 1          | 26JUN08     | 26JUN08      | 1       | 42               |
| 02L1BB0918  | Obtain SO's consent for design (AIP)             | 0          |             | 27JUN08      | 2       | 50               |
| 02L1BB0920  | Design preparation for the DDA submission        | 30         | 05JUN08     | 04JUL08      | 2       | 50               |
| 02L1BB0922  | Design (DDA) certification by the Design Checker | 15         | 05JUL08     | 19JUL08      | 2       | 50               |
| 02L1BB0924  | Design (DDA) submission for the SO's approval    | 1          | 21JUL08     | 21JUL08      | 1       | 42               |



| ID         | Activity Description                          | Orig Dur | Early Start | Early Finish | Cal ID | Total Float |
|------------|---|----------|-------------|--------------|--------|-------------|
| 02L1BB0926 | Design (DDA) review by the SO                 | 21       | 22JUL08     | 11AUG08      | 2      | 49          |
| 02L1BB0928 | Obtain design (DDA) approval from the SO      | 0        |             | 11AUG08      | 2      | 49          |
| 02L1BB0930 | DDA submission for rel. authorities' approval | 1        | 12AUG08     | 12AUG08      | 1      | 41          |
| 02L1BB0932 | Design (DDA) review by the rel. authorities   | 28       | 13AUG08     | 09SEP08      | 2      | 50          |
| 02L1BB0934 | Obtain rel. authorities' approval for DDA     | 1        | 10SEP08     | 10SEP08      | 1      | 40          |
| 02L1BB0936 | Obtain SO's consent for design (DDA)          | 0        |             | 11SEP08      | 2      | 50          |

| Design Packages to Work in Position                 |  |    |         |         |   |    |
|---|--|----|---------|---------|---|----|
| <b>ELS Design for Intake Structure Construction</b> |  |    |         |         |   |    |
| 02L1CC0102  | Design preparation by the Designer         | 15 | 08FEB08 | 22FEB08 | 2 | 30 |
| 02L1CC0104  | Design certification by the Design Checker | 15 | 23FEB08 | 08MAR08 | 2 | 30 |
| 02L1CC0106  | Design submission for the SO's approval    | 1  | 10MAR08 | 10MAR08 | 1 | 21 |
| 02L1CC0108  | Design review by the SO                    | 28 | 11MAR08 | 07APR08 | 2 | 29 |
| 02L1CC0110  | Obtain design approval from the SO         | 0  |         | 07APR08 | 2 | 29 |

| Temp. Support Design for MA/MAS/VS/DC/AVS |  |    |         |         |   |     |
|---|--|----|---------|---------|---|-----|
| 02L1CC0302                                | Design preparation for the AIP submission        | 30 | 09MAR08 | 07APR08 | 2 | 262 |
| 02L1CC0304                                | Design (AIP) certification by the Design Checker | 15 | 08APR08 | 22APR08 | 2 | 262 |
| 02L1CC0306                                | Design (AIP) submission for the SO's approval    | 1  | 23APR08 | 23APR08 | 1 | 215 |
| 02L1CC0308                                | Design (AIP) review by the SO                    | 60 | 24APR08 | 22JUN08 | 2 | 262 |
| 02L1CC0310                                | Obtain design (AIP) approval from the SO         | 0  |         | 22JUN08 | 2 | 262 |
| 02L1CC0312                                | AIP submission for rel. authorities' approval    | 1  | 23JUN08 | 23JUN08 | 1 | 215 |
| 02L1CC0314                                | Design (AIP) review by the rel. authorities      | 15 | 24JUN08 | 08JUL08 | 2 | 262 |
| 02L1CC0316                                | Obtain rel. authorities' approval for AIP        | 1  | 09JUL08 | 09JUL08 | 1 | 216 |
| 02L1CC0318                                | Obtain SO's consent for design (AIP)             | 0  |         | 10JUL08 | 2 | 263 |
| 02L1CC0320                                | Design preparation for the DDA submission        | 30 | 18JUN08 | 17JUL08 | 2 | 263 |
| 02L1CC0322                                | Design (DDA) certification by the Design Checker | 15 | 18JUL08 | 01AUG08 | 2 | 263 |
| 02L1CC0324                                | Design (DDA) submission for the SO's approval    | 1  | 02AUG08 | 02AUG08 | 1 | 212 |
| 02L1CC0326                                | Design (DDA) review by the SO                    | 60 | 03AUG08 | 01OCT08 | 2 | 263 |
| 02L1CC0328                                | Obtain design (DDA) approval from the SO         | 0  |         | 01OCT08 | 2 | 263 |
| 02L1CC0330                                | DDA submission for rel. authorities' approval    | 1  | 02OCT08 | 02OCT08 | 1 | 211 |
| 02L1CC0332                                | Design (DDA) review by the rel. authorities      | 28 | 03OCT08 | 30OCT08 | 2 | 263 |
| 02L1CC0334                                | Obtain rel. authorities' approval for DDA        | 1  | 31OCT08 | 31OCT08 | 1 | 211 |
| 02L1CC0336                                | Obtain SO's consent for design (DDA)             | 0  |         | 01NOV08 | 2 | 263 |

| Temp. Support Design for MA and MA/MT Connection |  |    |         |         |   |     |
|--|--|----|---------|---------|---|-----|
| 02L1CC0402                                       | Design preparation for the AIP submission        | 30 | 08MAY08 | 06JUN08 | 2 | 395 |
| 02L1CC0404                                       | Design (AIP) certification by the Design Checker | 15 | 07JUN08 | 21JUN08 | 2 | 395 |
| 02L1CC0406                                       | Design (AIP) submission for the SO's approval    | 1  | 23JUN08 | 23JUN08 | 1 | 320 |
| 02L1CC0408                                       | Design (AIP) review by the SO                    | 60 | 24JUN08 | 22AUG08 | 2 | 394 |
| 02L1CC0410                                       | Obtain design (AIP) approval from the SO         | 0  |         | 22AUG08 | 2 | 394 |
| 02L1CC0412                                       | AIP submission for rel. authorities' approval    | 1  | 23AUG08 | 23AUG08 | 1 | 320 |
| 02L1CC0414                                       | Design (AIP) review by the rel. authorities      | 15 | 24AUG08 | 07SEP08 | 2 | 394 |
| 02L1CC0416                                       | Obtain rel. authorities' approval for AIP        | 1  | 08SEP08 | 08SEP08 | 1 | 319 |
| 02L1CC0418                                       | Obtain SO's consent for design (AIP)             | 0  |         | 09SEP08 | 2 | 394 |

| ID  | Activity Description                             | Orig Dur | Early Start | Early Finish | Cal ID | Total Float |
|---|--|----------|-------------|--------------|--------|-------------|
| 02L1CC0420  | Design preparation for the DDA submission        | 30       | 18AUG08     | 16SEP08      | 2      | 394         |
| 02L1CC0422  | Design (DDA) certification by the Design Checker | 15       | 17SEP08     | 01OCT08      | 2      | 394         |
| 02L1CC0424  | Design (DDA) submission for the SO's approval    | 1        | 02OCT08     | 02OCT08      | 1      | 320         |
| 02L1CC0426  | Design (DDA) review by the SO                    | 60       | 03OCT08     | 01DEC08      | 2      | 394         |
| 02L1CC0428  | Obtain design (DDA) approval from the SO         | 0        |             | 01DEC08      | 2      | 394         |
| 02L1CC0430  | DDA submission for rel. authorities' approval    | 1        | 02DEC08     | 02DEC08      | 1      | 319         |
| 02L1CC0432  | Design (DDA) review by the rel. authorities      | 28       | 03DEC08     | 30DEC08      | 2      | 394         |
| 02L1CC0434  | Obtain rel. authorities' approval for DDA        | 1        | 31DEC08     | 31DEC08      | 1      | 320         |
| 02L1CC0436  | Obtain SO's consent for design (DDA)             | 0        |             | 02JAN09      | 2      | 394         |
| <b>Permanent Design for MA/MAS/VDS/DC/AVS</b>       |  |          |             |              |        |             |
| 02L1CC0502  | Design preparation for the AIP submission        | 30       | 08APR08     | 07MAY08      | 2      | 285         |
| 02L1CC0504  | Design (AIP) certification by the Design Checker | 15       | 08MAY08     | 22MAY08      | 2      | 285         |
| 02L1CC0506  | Design (AIP) submission for the SO's approval    | 1        | 23MAY08     | 23MAY08      | 1      | 233         |
| 02L1CC0508  | Design (AIP) review by the SO                    | 60       | 24MAY08     | 22JUL08      | 2      | 285         |
| 02L1CC0510  | Obtain design (AIP) approval from the SO         | 0        |             | 22JUL08      | 2      | 285         |
| 02L1CC0512  | AIP submission for rel. authorities' approval    | 1        | 23JUL08     | 23JUL08      | 1      | 229         |
| 02L1CC0514  | Design (AIP) review by the rel. authorities      | 15       | 24JUL08     | 07AUG08      | 2      | 285         |
| 02L1CC0516  | Obtain rel. authorities' approval for AIP        | 1        | 08AUG08     | 08AUG08      | 1      | 229         |
| 02L1CC0518  | Obtain SO's consent for design (AIP)             | 0        |             | 09AUG08      | 2      | 285         |
| 02L1CC0520  | Design preparation for the DDA submission        | 30       | 18JUL08     | 16AUG08      | 2      | 285         |
| 02L1CC0522  | Design (DDA) certification by the Design Checker | 15       | 17AUG08     | 31AUG08      | 2      | 285         |
| 02L1CC0524  | Design (DDA) submission for the SO's approval    | 1        | 01SEP08     | 01SEP08      | 1      | 229         |
| 02L1CC0526  | Design (DDA) review by the SO                    | 60       | 02SEP08     | 31OCT08      | 2      | 286         |
| 02L1CC0528  | Obtain design (DDA) approval from the SO         | 0        |             | 31OCT08      | 2      | 286         |
| 02L1CC0530  | DDA submission for rel. authorities' approval    | 1        | 01NOV08     | 01NOV08      | 1      | 231         |
| 02L1CC0532  | Design (DDA) review by the rel. authorities      | 28       | 02NOV08     | 29NOV08      | 2      | 286         |
| 02L1CC0534  | Obtain rel. authorities' approval for DDA        | 1        | 01DEC08     | 01DEC08      | 1      | 231         |
| 02L1CC0536  | Obtain SO's consent for design (DDA)             | 0        |             | 02DEC08      | 2      | 286         |
| <b>Permanent Design for MA and MA/MT Connection</b> |  |          |             |              |        |             |
| 02L1CC0602  | Design preparation for the AIP submission        | 30       | 07JUN08     | 06JUL08      | 2      | 414         |
| 02L1CC0604  | Design (AIP) certification by the Design Checker | 15       | 07JUL08     | 21JUL08      | 2      | 414         |
| 02L1CC0606  | Design (AIP) submission for the SO's approval    | 1        | 22JUL08     | 22JUL08      | 1      | 338         |
| 02L1CC0608  | Design (AIP) review by the SO                    | 60       | 23JUL08     | 20SEP08      | 2      | 414         |
| 02L1CC0610  | Obtain design (AIP) approval from the SO         | 0        |             | 20SEP08      | 2      | 414         |
| 02L1CC0612  | AIP submission for rel. authorities' approval    | 1        | 22SEP08     | 22SEP08      | 1      | 335         |
| 02L1CC0614  | Design (AIP) review by the rel. authorities      | 15       | 23SEP08     | 07OCT08      | 2      | 413         |
| 02L1CC0616  | Obtain rel. authorities' approval for AIP        | 1        | 08OCT08     | 08OCT08      | 1      | 337         |
| 02L1CC0618  | Obtain SO's consent for design (AIP)             | 0        |             | 09OCT08      | 2      | 413         |
| 02L1CC0620  | Design preparation for the DDA submission        | 30       | 17SEP08     | 16OCT08      | 2      | 413         |
| 02L1CC0622  | Design (DDA) certification by the Design Checker | 15       | 17OCT08     | 31OCT08      | 2      | 413         |
| 02L1CC0624  | Design (DDA) submission for the SO's approval    | 1        | 01NOV08     | 01NOV08      | 1      | 337         |
| 02L1CC0626  | Design (DDA) review by the SO                    | 60       | 02NOV08     | 31DEC08      | 2      | 414         |

| ID         | Activity Description                          | Orig Dur | Early Start | Early Finish | Cal ID | Total Float |
|------------|---|----------|-------------|--------------|--------|-------------|
| 02L1CC0628 | Obtain design (DDA) approval from the SO      | 0        |             | 31DEC08      | 2      | 414         |
| 02L1CC0630 | DDA submission for rel. authorities' approval | 1        | 02JAN09     | 02JAN09      | 1      | 334         |
| 02L1CC0632 | Design (DDA) review by the rel. authorities   | 28       | 03JAN09     | 30JAN09      | 2      | 413         |
| 02L1CC0634 | Obtain rel. authorities' approval for DDA     | 1        | 31JAN09     | 31JAN09      | 1      | 337         |
| 02L1CC0636 | Obtain SO's consent for design (DDA)          | 0        |             | 02FEB09      | 2      | 413         |

**Boulder Assessment & Design for Stabili. Measure**

|            |  |    |         |         |   |     |
|------------|--|----|---------|---------|---|-----|
| 02L1CC0702 | Design preparation for the AIP submission        | 15 | 23FEB08 | 08MAR08 | 2 | 262 |
| 02L1CC0704 | Design (AIP) certification by the Design Checker | 15 | 09MAR08 | 23MAR08 | 2 | 319 |
| 02L1CC0706 | Design (AIP) submission for the SO's approval    | 1  | 25MAR08 | 25MAR08 | 1 | 259 |
| 02L1CC0708 | Design (AIP) review by the SO                    | 28 | 26MAR08 | 22APR08 | 2 | 318 |
| 02L1CC0710 | Obtain design (AIP) approval from the SO         | 0  |         | 22APR08 | 2 | 318 |
| 02L1CC0712 | AIP submission for rel. authorities' approval    | 1  | 23APR08 | 23APR08 | 1 | 260 |
| 02L1CC0714 | Design (AIP) review by the rel. authorities      | 28 | 24APR08 | 21MAY08 | 2 | 319 |
| 02L1CC0716 | Obtain rel. authorities' approval for AIP        | 1  | 22MAY08 | 22MAY08 | 1 | 261 |
| 02L1CC0718 | Obtain SO's consent for design (AIP)             | 0  |         | 23MAY08 | 2 | 319 |
| 02L1CC0720 | Design preparation for the DDA submission        | 30 | 01MAY08 | 30MAY08 | 2 | 319 |
| 02L1CC0722 | Design (DDA) certification by the Design Checker | 15 | 31MAY08 | 14JUN08 | 2 | 319 |
| 02L1CC0724 | Design (DDA) submission for the SO's approval    | 1  | 16JUN08 | 16JUN08 | 1 | 259 |
| 02L1CC0726 | Design (DDA) review by the SO                    | 28 | 17JUN08 | 14JUL08 | 2 | 321 |
| 02L1CC0728 | Obtain design (DDA) approval from the SO         | 0  |         | 14JUL08 | 2 | 321 |
| 02L1CC0730 | DDA submission for rel. authorities' approval    | 1  | 15JUL08 | 15JUL08 | 1 | 259 |
| 02L1CC0732 | Design (DDA) review by the rel. authorities      | 28 | 16JUL08 | 12AUG08 | 2 | 321 |
| 02L1CC0734 | Obtain rel. authorities' approval for DDA        | 1  | 13AUG08 | 13AUG08 | 1 | 259 |
| 02L1CC0736 | Obtain SO's consent for design (DDA)             | 0  |         | 14AUG08 | 2 | 322 |

**Design Packages to Volcan. Portion C**

**Drainage Impact Assessment**

|            |  |    |         |         |   |     |
|------------|--|----|---------|---------|---|-----|
| 02L1GG0102 | Design preparation for the AIP submission        | 30 | 15AUG08 | 13SEP08 | 2 | 322 |
| 02L1GG0104 | Design (AIP) certification by the Design Checker | 15 | 14SEP08 | 28SEP08 | 2 | 322 |
| 02L1GG0106 | Design (AIP) submission for the SO's approval    | 1  | 29SEP08 | 29SEP08 | 1 | 260 |
| 02L1GG0108 | Design (AIP) review by the SO                    | 60 | 30SEP08 | 28NOV08 | 2 | 322 |
| 02L1GG0110 | Obtain design (AIP) approval from the SO         | 0  |         | 28NOV08 | 2 | 322 |
| 02L1GG0112 | AIP submission for rel. authorities' approval    | 1  | 29NOV08 | 29NOV08 | 1 | 260 |
| 02L1GG0114 | Design (AIP) review by the rel. authorities      | 15 | 30NOV08 | 14DEC08 | 2 | 323 |
| 02L1GG0116 | Obtain rel. authorities' approval for AIP        | 1  | 15DEC08 | 15DEC08 | 1 | 260 |
| 02L1GG0118 | Obtain SO's consent for design (AIP)             | 0  |         | 16DEC08 | 2 | 323 |
| 02L1GG0120 | Design preparation for the DDA submission        | 30 | 24NOV08 | 23DEC08 | 2 | 323 |
| 02L1GG0122 | Design (DDA) certification by the Design Checker | 15 | 24DEC08 | 07JAN09 | 2 | 323 |
| 02L1GG0124 | Design (DDA) submission for the SO's approval    | 1  | 08JAN09 | 08JAN09 | 1 | 263 |
| 02L1GG0126 | Design (DDA) review by the SO                    | 60 | 09JAN09 | 09MAR09 | 2 | 323 |
| 02L1GG0128 | Obtain design (DDA) approval from the SO         | 0  |         | 09MAR09 | 2 | 323 |
| 02L1GG0130 | DDA submission for rel. authorities' approval    | 1  | 10MAR09 | 10MAR09 | 1 | 263 |
| 02L1GG0132 | Design (DDA) review by the rel. authorities      | 28 | 11MAR09 | 07APR09 | 2 | 323 |

| IB         | Activity Description                      | Orig Dtl | Early Start | Early Finish | Cal ID | Total Float |
|------------|---|----------|-------------|--------------|--------|-------------|
| 02L1GG0134 | Obtain rel. authorities' approval for DDA | 1        | 08APR09     | 08APR09      | 1      | 261         |
| 02L1GG0136 | Obtain SO's consent for design (DDA)      | 0        |             | 09APR09      | 2      | 323         |

**Temp. Platform Design for H-Piling at Portion G**

|            |  |    |         |         |   |     |
|------------|--|----|---------|---------|---|-----|
| 02L1GG0202 | Design preparation for the AIP submission        | 30 | 14SEP08 | 13OCT08 | 2 | 439 |
| 02L1GG0204 | Design (AIP) certification by the Design Checker | 15 | 14OCT08 | 28OCT08 | 2 | 439 |
| 02L1GG0206 | Design (AIP) submission for the SO's approval    | 1  | 29OCT08 | 29OCT08 | 1 | 356 |
| 02L1GG0208 | Design (AIP) review by the SO                    | 28 | 30OCT08 | 26NOV08 | 2 | 439 |
| 02L1GG0210 | Obtain design (AIP) approval from the SO         | 0  |         | 26NOV08 | 2 | 439 |
| 02L1GG0220 | Design preparation for the DDA submission        | 30 | 11NOV08 | 10DEC08 | 2 | 439 |
| 02L1GG0222 | Design (DDA) certification by the Design Checker | 15 | 11DEC08 | 25DEC08 | 2 | 439 |
| 02L1GG0224 | Design (DDA) submission for the SO's approval    | 1  | 27DEC08 | 27DEC08 | 1 | 354 |
| 02L1GG0226 | Design (DDA) review by the SO                    | 28 | 28DEC08 | 24JAN09 | 2 | 438 |
| 02L1GG0228 | Obtain design (DDA) approval from the SO         | 0  |         | 24JAN09 | 2 | 438 |

**ELS Design for Pipe Jacking at Portion G**

|            |  |    |         |         |   |     |
|------------|--|----|---------|---------|---|-----|
| 02L1GG0302 | Design preparation for the AIP submission        | 15 | 14OCT08 | 28OCT08 | 2 | 630 |
| 02L1GG0304 | Design (AIP) certification by the Design Checker | 15 | 29OCT08 | 12NOV08 | 2 | 630 |
| 02L1GG0306 | Design (AIP) submission for the SO's approval    | 1  | 13NOV08 | 13NOV08 | 1 | 509 |
| 02L1GG0308 | Design (AIP) review by the SO                    | 28 | 14NOV08 | 11DEC08 | 2 | 630 |
| 02L1GG0310 | Obtain design (AIP) approval from the SO         | 0  |         | 11DEC08 | 2 | 630 |
| 02L1GG0320 | Design preparation for the DDA submission        | 30 | 26NOV08 | 25DEC08 | 2 | 630 |
| 02L1GG0322 | Design (DDA) certification by the Design Checker | 15 | 26DEC08 | 09JAN09 | 2 | 630 |
| 02L1GG0324 | Design (DDA) submission for the SO's approval    | 1  | 10JAN09 | 10JAN09 | 1 | 510 |
| 02L1GG0326 | Design (DDA) review by the SO                    | 28 | 11JAN09 | 07FEB09 | 2 | 631 |
| 02L1GG0328 | Obtain design (DDA) approval from the SO         | 0  |         | 07FEB09 | 2 | 631 |

**Design Package for ELS Works**

**Design for Communication System**

|            |  |    |         |         |   |     |
|------------|--|----|---------|---------|---|-----|
| 02L1FE0102 | Design preparation for the AIP submission        | 15 | 01JUL08 | 15JUL08 | 2 | 466 |
| 02L1FE0104 | Design (AIP) certification by the Design Checker | 15 | 16JUL08 | 30JUL08 | 2 | 466 |
| 02L1FE0106 | Design (AIP) submission for the SO's approval    | 1  | 31JUL08 | 31JUL08 | 1 | 379 |
| 02L1FE0108 | Design (AIP) review by the SO                    | 30 | 01AUG08 | 30AUG08 | 2 | 466 |
| 02L1FE0110 | Obtain design (AIP) approval from the SO         | 0  |         | 30AUG08 | 2 | 466 |
| 02L1FE0112 | AIP submission for rel. authorities' approval    | 1  | 01SEP08 | 01SEP08 | 1 | 379 |
| 02L1FE0114 | Design (AIP) review by the rel. authorities      | 28 | 02SEP08 | 29SEP08 | 2 | 465 |
| 02L1FE0116 | Obtain rel. authorities' approval for AIP        | 1  | 30SEP08 | 30SEP08 | 1 | 377 |
| 02L1FE0118 | Obtain SO's consent for design (AIP)             | 0  |         | 02OCT08 | 2 | 464 |
| 02L1FE0120 | Design preparation for the DDA submission        | 30 | 17SEP08 | 16OCT08 | 2 | 464 |
| 02L1FE0122 | Design (DDA) certification by the Design Checker | 15 | 17OCT08 | 31OCT08 | 2 | 464 |
| 02L1FE0124 | Design (DDA) submission for the SO's approval    | 1  | 01NOV08 | 01NOV08 | 1 | 377 |
| 02L1FE0126 | Design (DDA) review by the SO                    | 30 | 02NOV08 | 01DEC08 | 2 | 464 |
| 02L1FE0128 | Obtain design (DDA) approval from the SO         | 0  |         | 01DEC08 | 2 | 464 |
| 02L1FE0130 | DDA submission for rel. authorities' approval    | 1  | 02DEC08 | 02DEC08 | 1 | 375 |
| 02L1FE0132 | Design (DDA) review by the rel. authorities      | 28 | 03DEC08 | 30DEC08 | 2 | 464 |

| ID         | Activity Description                       | Orig Dur | Early Start | Early Finish | Cal ID | Total Float |
|------------|--|----------|-------------|--------------|--------|-------------|
| 02L1FE0134 | Obtain rel. authorities's approval for DDA | 1        | 31DEC08     | 31DEC08      | 1      | 373         |
| 02L1FE0136 | Obtain SO's consent for design (DDA)       | 0        |             | 02JAN09      | 2      | 464         |

**Design for Flow Measurement System**

|            |  |    |         |         |   |     |
|------------|--|----|---------|---------|---|-----|
| 02L1FE0202 | Design preparation for the AIP submission        | 15 | 01JUL08 | 15JUL08 | 2 | 816 |
| 02L1FE0204 | Design (AIP) certification by the Design Checker | 15 | 16JUL08 | 30JUL08 | 2 | 816 |
| 02L1FE0206 | Design (AIP) submission for the SO's approval    | 1  | 31JUL08 | 31JUL08 | 1 | 682 |
| 02L1FE0208 | Design (AIP) review by the SO                    | 30 | 01AUG08 | 30AUG08 | 2 | 816 |
| 02L1FE0210 | Obtain design (AIP) approval from the SO         | 0  |         | 30AUG08 | 2 | 816 |
| 02L1FE0220 | Design preparation for the DDA submission        | 30 | 15AUG08 | 13SEP08 | 2 | 816 |
| 02L1FE0222 | Design (DDA) certification by the Design Checker | 15 | 14SEP08 | 28SEP08 | 2 | 816 |
| 02L1FE0224 | Design (DDA) submission for the SO's approval    | 1  | 29SEP08 | 29SEP08 | 1 | 664 |
| 02L1FE0226 | Design (DDA) review by the SO                    | 30 | 30SEP08 | 29OCT08 | 2 | 818 |
| 02L1FE0228 | Obtain design (DDA) approval from the SO         | 0  |         | 29OCT08 | 2 | 818 |

**Schedule of Milestones for CoS Centre (02L)**

|            |  |   |  |         |   |       |
|------------|--|---|--|---------|---|-------|
| 02L10D1002 | 2L 1; On submission of PDP to the SO             | 0 |  | 10JAN08 | 2 | 1,719 |
| 02L10D1004 | 2L 2; On acceptance of PDP by the SO             | 0 |  | 06MAR08 | 2 | 1,663 |
| 02L10D1006 | 2L 3; On submission of AIP to the SO; Portion A  | 0 |  | 22APR08 | 2 | 1,616 |
| 02L10D1008 | 2L 4; On acceptance of AIP by the SO; Portion A  | 0 |  | 21JUN08 | 2 | 1,556 |
| 02L10D1010 | 2L 5; On submission of DDA to the SO; Portion A  | 0 |  | 15AUG08 | 2 | 1,501 |
| 02L10D1012 | 2L 6; On acceptance of DDA by the SO; Portion A  | 0 |  | 14OCT08 | 2 | 1,441 |
| 02L10D1014 | 2L 7; On submission of AIP to the SO; Portion B  | 0 |  | 04AUG08 | 2 | 1,512 |
| 02L10D1016 | 2L 8; On acceptance of AIP by the SO; Portion B  | 0 |  | 03OCT08 | 2 | 1,452 |
| 02L10D1018 | 2L 9; On submission of DDA to the SO; Portion B  | 0 |  | 13NOV08 | 2 | 1,411 |
| 02L10D1020 | 2L 10; On acceptance of DDA by the SO; Portion B | 0 |  | 12JAN09 | 2 | 1,351 |
| 02L10D1022 | 2L 11; On submission of AIP to the SO; Portion C | 0 |  | 22JUL08 | 2 | 1,525 |
| 02L10D1024 | 2L 12; On acceptance of AIP by the SO; Portion C | 0 |  | 20SEP08 | 2 | 1,465 |
| 02L10D1026 | 2L 13; On submission of DDA to the SO; Portion C | 0 |  | 01NOV08 | 2 | 1,423 |
| 02L10D1028 | 2L 14; On acceptance of DDA by the SO; Portion C | 0 |  | 31DEC08 | 2 | 1,363 |
| 02L10D1030 | 2L 15; On submission of AIP by the SO; Portion D | 0 |  | 09NOV08 | 2 | 1,415 |
| 02L10D1032 | 2L 16; On acceptance of DDA by the SO; Portion D | 0 |  | 18MAR09 | 2 | 1,286 |
| 02L10D1034 | 2L 17; On submission of AIP to the SO; Portion F | 0 |  | 25MAR08 | 2 | 1,644 |
| 02L10D1036 | 2L 18; On acceptance of AIP by the SO; Portion F | 0 |  | 24MAY08 | 2 | 1,584 |
| 02L10D1038 | 2L 19; On submission of DDA to the SO; Portion F | 0 |  | 18JUL08 | 2 | 1,529 |
| 02L10D1040 | 2L 20; On acceptance of DDA by the SO; Portion F | 0 |  | 16SEP08 | 2 | 1,469 |
| 02L10D1042 | 2L 21; On acceptance of AIP by the SO; Portion G | 0 |  | 11DEC08 | 2 | 1,383 |
| 02L10D1044 | 2L 22; On acceptance of DDA by the SO; Portion G | 0 |  | 07FEB09 | 2 | 1,325 |
| 02L10D1046 | 2L 23; On completion of all works under this CC  | 0 |  | 18MAR09 | 2 | 1,286 |

| ID         | Activity Description                            | Orig Dur | Early Start | Early Finish | Cal ID | Total Float |
|------------|---|----------|-------------|--------------|--------|-------------|
| 3DL1FT0202 | Obtain Tunnel Design (DDA) approval from the SO | 0        |             | 17OCT08      | 1      | 0           |
| 3DL1FT0206 | Installation of Geotechnical Instrumentation    | 260      | 18OCT08     | 02SEP09      | 1      | 0           |
| 3DL1FT0208 | Maintain/monitor geotechnical instrumentation   | 1,104    | 01NOV08     | 26JUL12      | 1      | 0           |

### Construction of Main Tunnel

#### Geotechnical Instrumentation

| ID         | Activity Description             | Orig Dur | Early Start | Early Finish | Cal ID | Total Float |
|------------|----------------------------------|----------|-------------|--------------|--------|-------------|
| 3AL1FT0302 | TBM & Excavation Sys Procurement | 30       | 14DEC07     | 12JAN08      | 2      | 0           |
| 3AL1FT0304 | TBM design & manufacturing       | 252      | 21DEC07     | 28AUG08      | 2      | 0           |
| 3AL1FT0306 | TBM workshop tests               | 7        | 29AUG08     | 04SEP08      | 2      | 0           |
| 3AL1FT0308 | TBM dismounting & packing        | 21       | 05SEP08     | 25SEP08      | 2      | 0           |
| 3AL1FT0310 | TBM shipment to Hong Kong        | 45       | 26SEP08     | 09NOV08      | 2      | 0           |

#### TBM Manufacture, Testing/Delivery

| ID         | Activity Description                        | Orig Dur | Early Start | Early Finish | Cal ID | Total Float |
|------------|---|----------|-------------|--------------|--------|-------------|
| 3AL1FT0402 | Procure sub-contract for segment lining     | 0        |             | 03MAR08      | 1      | 7           |
| 3AL1FT0403 | Design preparation of MT for AIP submission | 0        |             | 08MAR08      | 1      | 2           |
| 3AL1FT0404 | Design of segment mould                     | 60       | 09MAR08     | 07MAY08      | 2      | 3           |
| 3AL1FT0406 | Manufacture of segment moulds               | 180      | 08MAY08     | 03NOV08      | 2      | 3           |
| 3AL1FT0408 | Prepare/submit QA Sys & Fabrication MS      | 60       | 08MAY08     | 06JUL08      | 2      | 89          |
| 3AL1FT0410 | SO approve QA system & Fabrication MS       | 28       | 07JUL08     | 07AUG08      | 1      | 75          |
| 3AL1FT0412 | Approval of Tunnel Linig Design             | 0        |             | 17OCT08      | 2      | 20          |
| 3AL1FT0416 | Manufacturer of segments                    | 320      | 04NOV08     | 01DEC09      | 1      | 3           |
| 3AL1FT0418 | Delivery of Segments                        | 320      | 09DEC08     | 08JAN10      | 1      | 3           |

#### Manufacture Pre-cast Lining/Delivery

| ID         | Activity Description                            | Orig Dur | Early Start | Early Finish | Cal ID | Total Float |
|------------|---|----------|-------------|--------------|--------|-------------|
| 10AR1JT052 | Approval of Impact Assessment Report by SO/WSD  | 0        |             | 26SEP08      | 2      | 5           |
| 10AR1JT053 | Obtain WSD's agreement for Tunnel Shutdown Date | 0        |             | 01OCT08      | 2      | 0           |
| 10AR1JT054 | Tunnel Shutdown Commences                       | 0        | 01DEC08*    |              | 2      | 0           |
| 10AR1JT055 | Preparatory works; temp. ventilation & lighting | 3        | 01DEC08     | 03DEC08      | 1      | 51          |
| 10AR1JT056 | Carry out strengthening works                   | 58       | 04DEC08     | 16FEB09      | 1      | 51          |
| 10AR1JT057 | Subsequent inspection by SO/WSD                 | 2        | 17FEB09     | 18FEB09      | 1      | 51          |
| 10AR1JT058 | WSD Tunnel strats operation                     | 0        | 19FEB09     |              | 1      | 51          |

#### Strengthening Works at the WSD for Main Tunnel

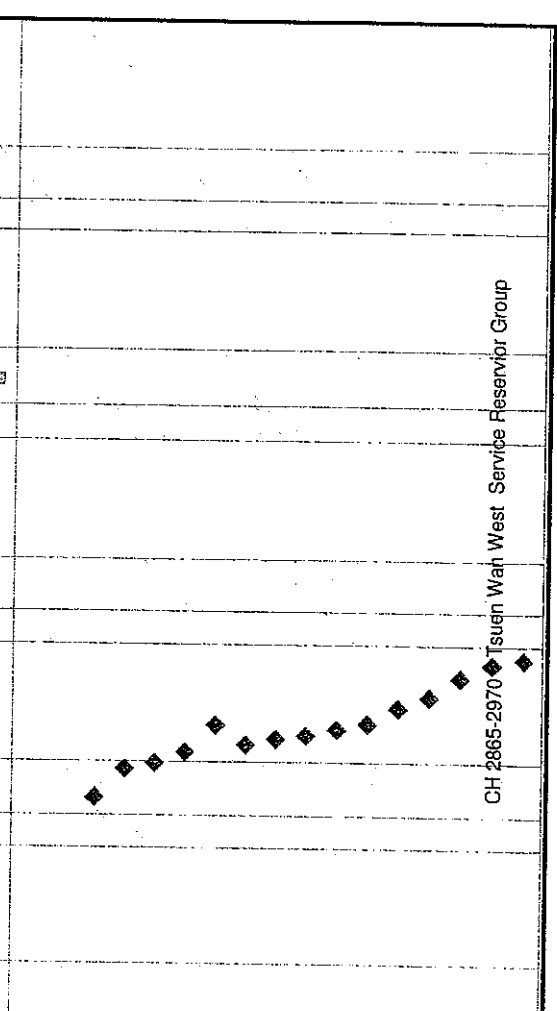
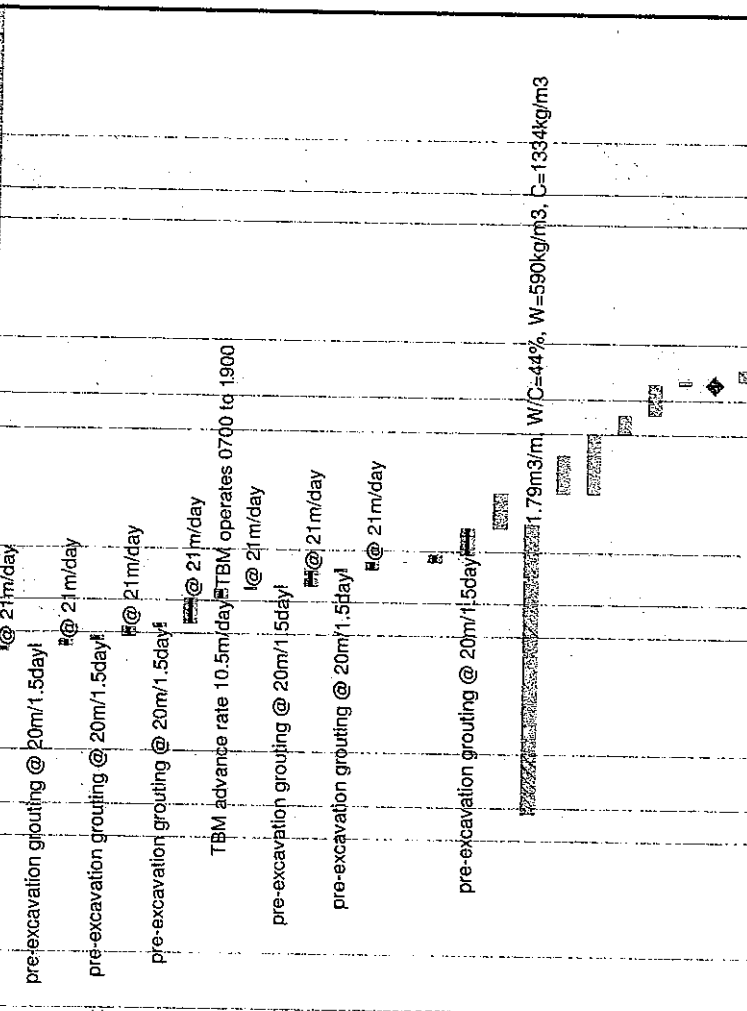
| ID         | Activity Description                            | Orig Dur | Early Start | Early Finish | Cal ID | Total Float |
|------------|---|----------|-------------|--------------|--------|-------------|
| 3AL1FT0602 | Approval of Impact Assessment Report by SO/WSD  | 0        |             | 26SEP08      | 1      | 29          |
| 3AL1FT0604 | Procure/delivery of instrumentations            | 90       | 27SEP08     | 15JAN09      | 1      | 29          |
| 3AL1FT0612 | Obtain WSD's agreement for Tunnel Shutdown date | 0        |             | 22FEB09      | 2      | 0           |
| 3AL1FT0614 | WSD Tunnel shutdown for instrumentation works   | 0        | 24APR09     |              | 2      | 0           |
| 3AL1FT0616 | Joint survey & geo. instrumentations; daytime   | 3        | 24APR09     | 26APR09      | 2      | 0           |

#### Geotechnical Instrumentation for WSD Tunnel

| ID         | Activity Description                            | Orig Dur | Early Start | Early Finish | Cal ID | Total Float |
|------------|---|----------|-------------|--------------|--------|-------------|
| 3AL1FT0602 | Approval of Impact Assessment Report by SO/WSD  | 0        |             | 26SEP08      | 1      | 29          |
| 3AL1FT0604 | Procure/delivery of instrumentations            | 90       | 27SEP08     | 15JAN09      | 1      | 29          |
| 3AL1FT0612 | Obtain WSD's agreement for Tunnel Shutdown date | 0        |             | 22FEB09      | 2      | 0           |
| 3AL1FT0614 | WSD Tunnel shutdown for instrumentation works   | 0        | 24APR09     |              | 2      | 0           |
| 3AL1FT0616 | Joint survey & geo. instrumentations; daytime   | 3        | 24APR09     | 26APR09      | 2      | 0           |



2009  
 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31  
 2012  
 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC  
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31



| ID         | Activity Description                              | Orig Dur | Early Start | Early Finish | Earliest ID | Cal. Total Float |
|------------|---|----------|-------------|--------------|-------------|------------------|
| 3AL1FT0842 | TBM advances; CH2865-2765                         | 5        | 30SEP09     | 07OCT09      | 1           | 8                |
| 3AL1FT0844 | TBM advances; F5 CH2765-2745                      | 3        | 08OCT09     | 10OCT09      | 1           | 8                |
| 3AL1FT0846 | TBM advances; CH2745-2685                         | 8        | 12OCT09     | 20OCT09      | 1           | 8                |
| 3AL1FT0848 | TBM advances; F4 CH2585-2535                      | 6        | 21OCT09     | 28OCT09      | 1           | 8                |
| 3AL1FT0850 | TBM advances; CH2535-2255                         | 13       | 29OCT09     | 12NOV09      | 1           | 8                |
| 3AL1FT0852 | TBM advances; F3 CH2255-2205                      | 6        | 13NOV09     | 19NOV09      | 1           | 8                |
| 3AL1FT0854 | TBM advances; CH2205-1449                         | 36       | 20NOV09     | 04JAN10      | 1           | 8                |
| 3AL1FT0856 | TBM advances; Noise sensitive area CH1449-1295    | 15       | 05JAN10     | 21JAN10      | 1           | 8                |
| 3AL1FT0858 | TBM advances; CH1295-1250                         | 2        | 22JAN10     | 23JAN10      | 1           | 8                |
| 3AL1FT0860 | TBM advances; F2 CH1250-1230                      | 3        | 25JAN10     | 27JAN10      | 1           | 8                |
| 3AL1FT0862 | TBM advances; CH1230-795                          | 21       | 28JAN10     | 24FEB10      | 1           | 8                |
| 3AL1FT0864 | TBM advances; P2 CH795-770                        | 3        | 25FEB10     | 27FEB10      | 1           | 8                |
| 3AL1FT0866 | TBM advances; CH770-540                           | 11       | 01MAR10     | 12MAR10      | 1           | 8                |
| 3AL1FT0868 | TBM advances; P1 CH540-530                        | 1        | 13MAR10     | 13MAR10      | 1           | 8                |
| 3AL1FT0870 | TBM advances; CH530-300                           | 11       | 15MAR10     | 26MAR10      | 1           | 8                |
| 3AL1FT0872 | TBM advances; F1 CH300-0                          | 37       | 27MAR10     | 14MAY10      | 1           | 8                |
| 3AL1FT0873 | Desassembly & demobilization of TBM               | 50*      | 15MAY10     | 15JUL10      | 1           | 17               |
| 3AL1FT0874 | Back grouting (daytime); CH5100-00                | 414      | 22DEC08     | 20MAY10      | 1           | 116              |
| 3AL1FT0876 | Complete maintenance access & dry weather channel | 60       | 16JUL10     | 24SEP10      | 1           | 129              |
| 3AL1FT0878 | Installation of communication system (Daytime)    | 90       | 16JUL10     | 01NOV10      | 1           | 71               |
| 3AL1FT0880 | Testing & Commissioning; daytime                  | 28       | 02NOV10     | 03DEC10      | 1           | 71               |
| 3AL1FT0882 | Authorities' inspection/remedial works; daytime   | 45       | 04DEC10     | 28JAN11      | 1           | 71               |
| 3AL1FT0884 | Contractor serve notice for Works completion      | 7        | 29JAN11     | 04FEB11      | 2           | 577              |
| 3AL1FT0886 | Handover of Portion F                             | 0        |             | 28JAN11      | 1           | 144              |
| 3AL1FT0888 | SO issues completion certificate                  | 21       | 05FEB11     | 25FEB11      | 2           | 577              |

**Schedule of Milestones for Cost Centre No. 6aR**

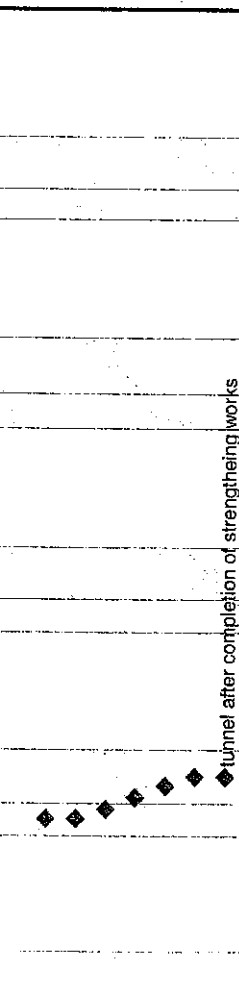
|            |  |   |  |         |   |       |
|------------|--|---|--|---------|---|-------|
| 6AR1FT0902 | 6aR 1; On completion of grouting at P7         | 0 |  | 29JAN09 | 2 | 1,334 |
| 6AR1FT0904 | 6aR 2; On completion of grouting at F6c        | 0 |  | 25MAR09 | 2 | 1,279 |
| 6AR1FT0906 | 6aR 3; On completion of grouting at F6b        | 0 |  | 01APR09 | 2 | 1,272 |
| 6AR1FT0908 | 6aR 4; On completion of grouting at F6a        | 0 |  | 29APR09 | 2 | 1,250 |
| 6AR1FT0910 | 6aR 5; On completion of grouting at WSD T. 3   | 0 |  | 10JUN09 | 2 | 1,202 |
| 6AR1FT0912 | 6aR 6; On completion of 20% grout by lth at P6 | 0 |  | 07MAY09 | 2 | 1,236 |
| 6AR1FT0914 | 6aR 7; On completion of 40% grout by lth at P6 | 0 |  | 16MAY09 | 2 | 1,227 |
| 6AR1FT0916 | 6aR 8; On completion of 60% grout by lth at P6 | 0 |  | 26MAY09 | 2 | 1,217 |
| 6AR1FT0918 | 6aR 9; On completion of 80% grout by lth at P6 | 0 |  | 05JUN09 | 2 | 1,207 |
| 6AR1FT0920 | 6aR 10; On completion of grouting works at P6  | 0 |  | 15JUN09 | 2 | 1,197 |
| 6AR1FT0922 | 6aR 11; On completion of grouting wks at P5    | 0 |  | 10JUL09 | 2 | 1,172 |
| 6AR1FT0924 | 6aR 12; On completion of grouting wks at P4    | 0 |  | 31JUL09 | 2 | 1,151 |
| 6AR1FT0926 | 6aR 13; On completion of grouting wks at P3    | 0 |  | 05SEP09 | 2 | 1,115 |
| 6AR1FT0928 | 6aR 14; On completion of grouting wks at WSD's | 0 |  | 29SEP09 | 2 | 1,091 |
| 6AR1FT0930 | 6aR 15; On completion of grouting wks at F5    | 0 |  | 10OCT09 | 2 | 1,080 |



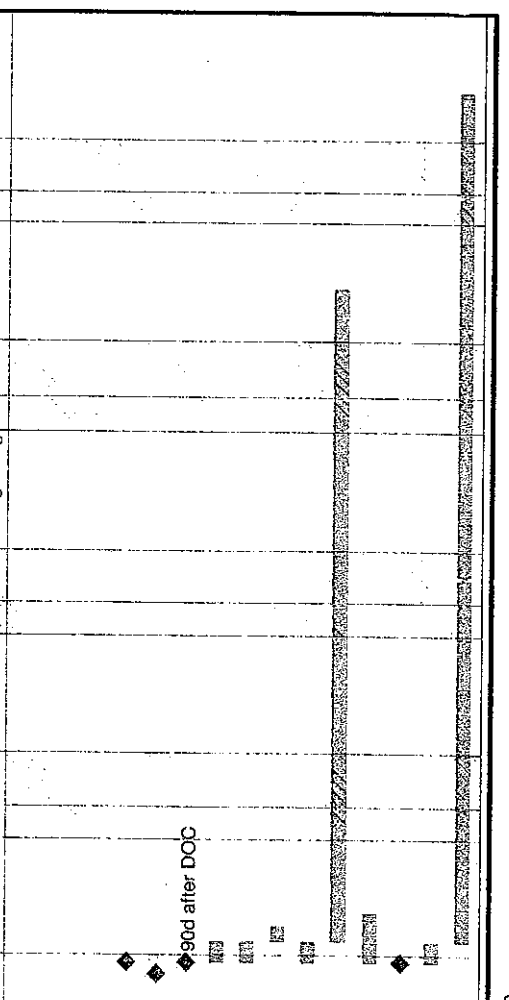


| ID         | Activity Description                             | Orig. Dur. | Entry Start | Entry Finish | Total Cal. ID | Total Float |
|------------|--|------------|-------------|--------------|---------------|-------------|
| 3AL1FT1050 | 3aL 25; On completion of maint. access/flow chan | 0          |             | 24SEP10      | 2             | 731         |
| 3AL1FT1052 | 3aL 26; On completion of provision of communic.  | 0          |             | 01NOV10      | 2             | 693         |
| 3AL1FT1054 | 3aL 27; On completion of all works under this CC | 0          |             | 28JAN11      | 2             | 605         |

| Schedule of Milestones for Cost Centre No. 3aL |  |            |             |              |               |             |
|--|--|------------|-------------|--------------|---------------|-------------|
| ID   | Activity Description                             | Orig. Dur. | Entry Start | Entry Finish | Total Cal. ID | Total Float |
| 3DL10T1202                                     | 3dL 1; On complet. of install geo instrument.    | 0          |             | 02SEP09      | 2             | 1,118       |
| 3DL10T1204                                     | 3dL 2; Maint./monit. geo. inst. for 12 mth       | 0          |             | 26DEC08      | 2             | 1,368       |
| 3DL10T1206                                     | 3dL 3; Maint./monitor geo. inst. for 24          | 0          |             | 26DEC09      | 2             | 1,003       |
| 3DL10T1208                                     | 3dL 4; Maint./monitor geo. inst. for 36          | 0          |             | 26DEC10      | 2             | 638         |
| 3DL10T1210                                     | 3dL 5; Maint./monitor geo. inst. for 48          | 0          |             | 26DEC11      | 2             | 273         |
| 3DL10T1212                                     | 3dL 6; On completion of maint. & monit. of geo.  | 0          |             | 26JUL12      | 2             | 60          |
| 3DL10T1214                                     | 3dL 7; On installation of FMD at Portion A       | 0          |             | 12MAR11      | 2             | 562         |
| 3DL10T1216                                     | 3dL 8; On installation of FMD at Portion B       | 0          |             | 10JUN11      | 2             | 472         |
| 3DL10T1218                                     | 3dL 9; On installation of FMD at Portion C       | 0          |             | 05MAR11      | 2             | 569         |
| 3DL10T1220                                     | 3dL 10; On installation of FMD at Portion D      | 0          |             | 19MAY11      | 2             | 494         |
| 3DL10T1222                                     | 3dL 11; On completion of maint. & monit. of FMD  | 0          |             | 26JUL12      | 2             | 60          |
| 3DL10T1224                                     | 3dL 12; On completion of all works under this CC | 0          |             | 26JUL12      | 2             | 60          |

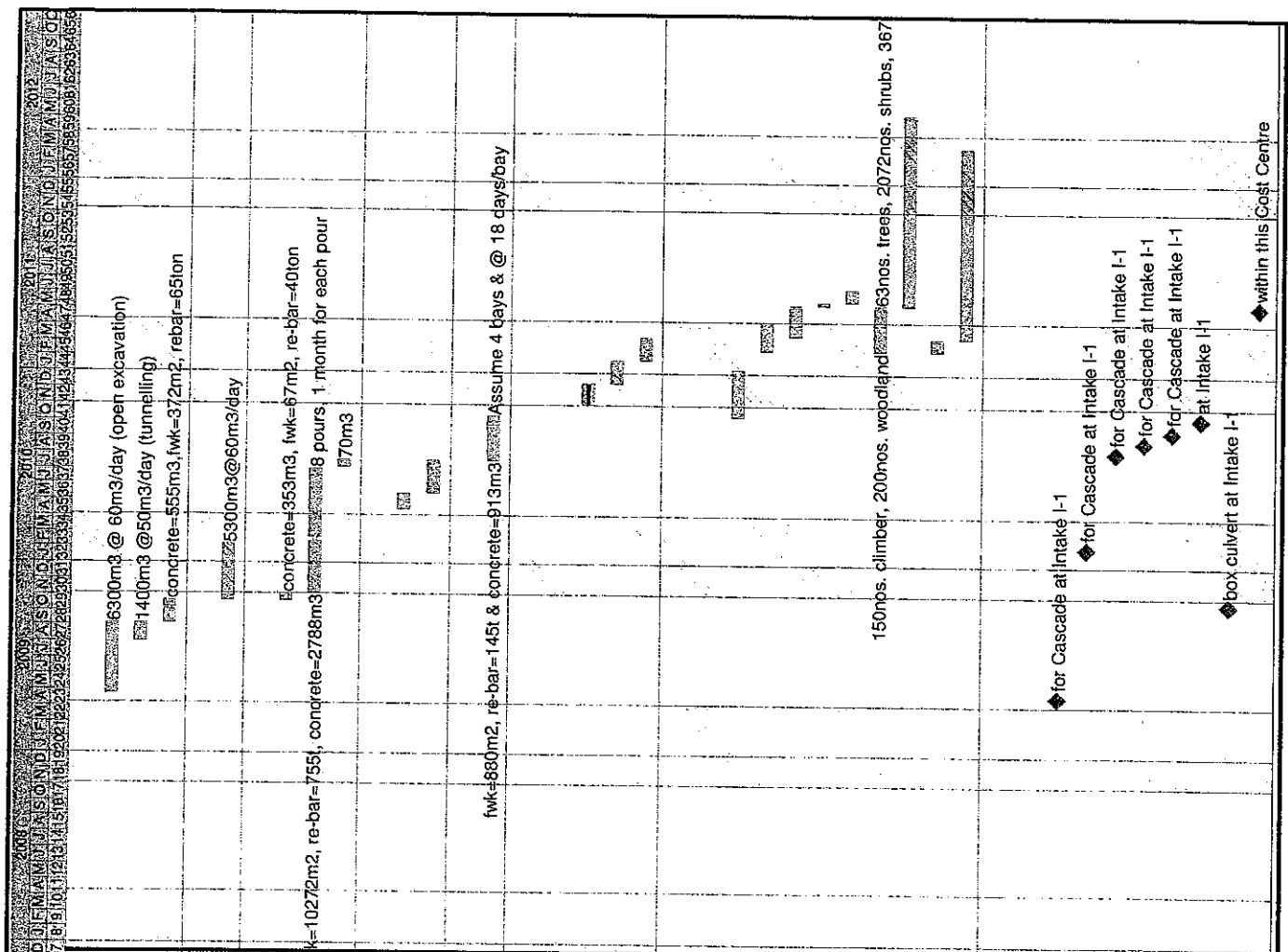


| Schedule of Milestones for Cost Centre No. 10aR |   |            |             |              |               |             |
|---|---|------------|-------------|--------------|---------------|-------------|
| ID  | Activity Description                            | Orig. Dur. | Entry Start | Entry Finish | Total Cal. ID | Total Float |
| 10AR1JT131                                      | 10aR 1; On installation of temp. ventilation    | 0          |             | 03DEC08      | 2             | 1,391       |
| 10AR1JT132                                      | 10aR 2; On installation temp. lighting          | 0          |             | 03DEC08      | 2             | 1,391       |
| 10AR1JT133                                      | 10aR 3; On completion of 25% strengthening wks  | 0          |             | 20DEC08      | 2             | 1,374       |
| 10AR1JT134                                      | 10aR 4; On completion of 50% strengthening wks  | 0          |             | 10JAN09      | 2             | 1,353       |
| 10AR1JT135                                      | 10aR 5; On completion of 75% strengthening wks  | 0          |             | 31JAN09      | 2             | 1,332       |
| 10AR1JT136                                      | 10aR 6; On completion of strengthening works    | 0          |             | 16FEB09      | 2             | 1,316       |
| 10AR1JT137                                      | 10aR 7; On rechange of the water after wrk comp | 0          |             | 18FEB09      | 2             | 1,314       |



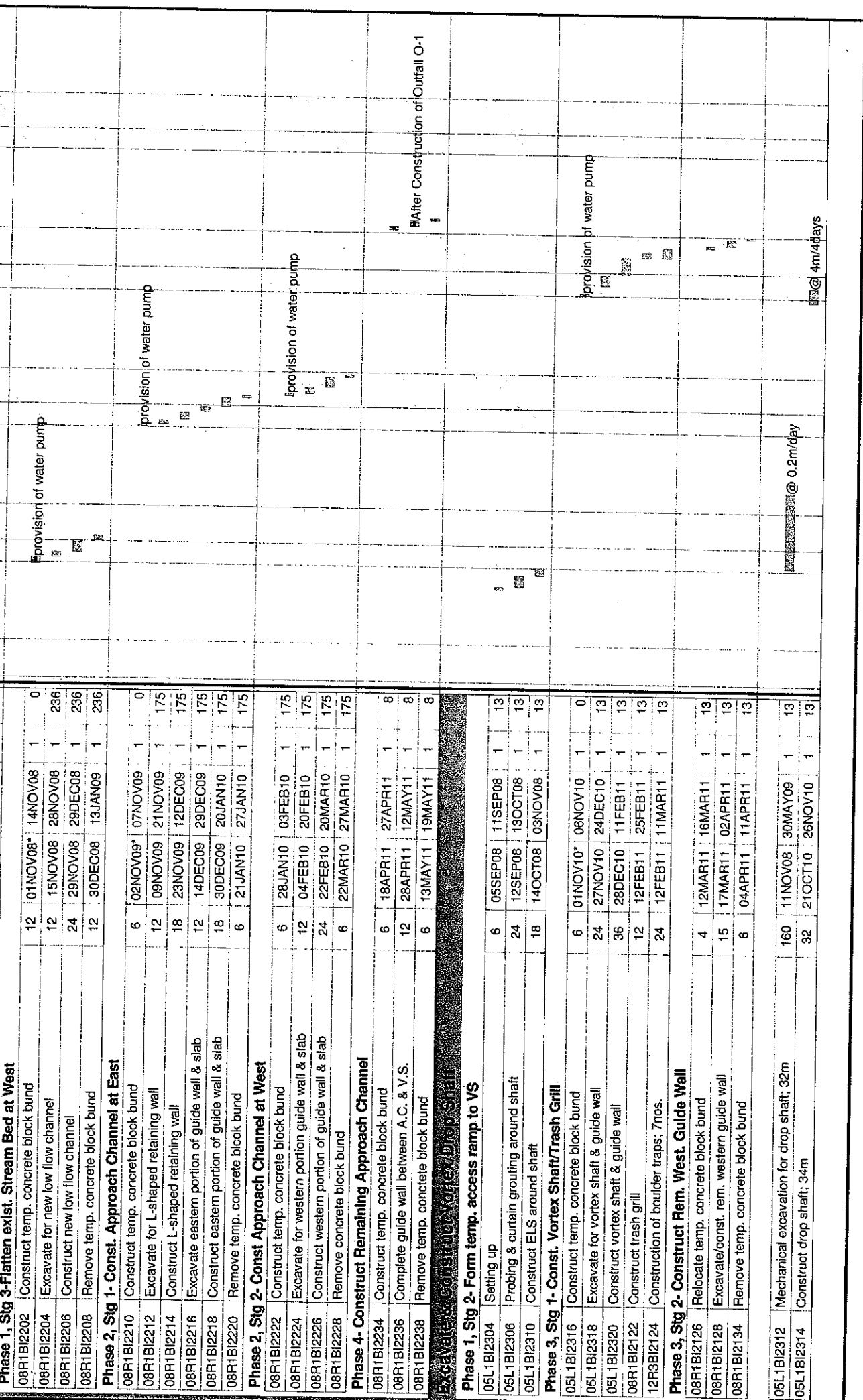
| Construction of Intake I-1 |  |            |             |              |               |             |
|----------------------------|--|------------|-------------|--------------|---------------|-------------|
| ID                         | Activity Description                             | Orig. Dur. | Entry Start | Entry Finish | Total Cal. ID | Total Float |
| 01R1AI1108                 | Obtain tree felling permit                       | 0          |             | 26MAR08      | 2             | 90          |
| 01R1AI1110                 | Obtain TTA (ingress & egress) approval           | 0          | 07MAR08     |              | 2             | 59          |
| 01R1AI1112                 | Possession of site                               | 0          | 26MAR08     |              | 1             | 12          |
| 01R1AI1114                 | Site establishment                               | 30         | 27MAR08     | 02MAY08      | 1             | 31          |
| 01R1AI1116                 | Site clearance                                   | 30         | 27MAR08     | 02MAY08      | 1             | 31          |
| 01R1AI1117                 | Erect temp. steel decking spanning Shing M. Nui  | 24         | 03MAY08     | 31MAY08      | 1             | 31          |
| 01R1AI1122                 | Install remote control CCTV as per ER 4.4-10     | 30         | 27MAR08     | 02MAY08      | 1             | 12          |
| 01R1AI1124                 | Maintain & operate CCTV                          | 1,165      | 03MAY08     | 11JUL11      | 2             | 16          |
| 16R7AI1102                 | Tree transplanting; 4 nos.                       | 72         | 27MAR08     | 23JUN08      | 1             | 73          |
| 3DL1AI1104                 | Obtain approval for Geotechnical Instrumentation | 0          |             | 26MAR08      | 2             | 29          |
| 3DL1AI1106                 | Installation of Geotechnical Instrumentation     | 30         | 27MAR08     | 02MAY08      | 1             | 24          |
| 3DL1AI1108                 | Monitor/report Geotechnical Instrumentation      | 1,230      | 03MAY08     | 27JUN12      | 1             | 24          |





| ID  | Activity Description                             | Orig. Dur. | Early Start | Early Finish | Cal. ID | Total Float |
|---|--|------------|-------------|--------------|---------|-------------|
| <b>Excavation from +88.5mPD to +72.5mPD; North</b>    |  |            |             |              |         |             |
| 04L1A11442  | Bulk excavation; rock (6300m3)                   | 110        | 25APR09     | 04SEP09      | 1       | 17          |
| 07R1A11444  | Bulk excavation for vehicular access; 1400m3     | 30         | 01AUG09     | 04SEP09      | 1       | 17          |
| 07R1A11446  | Construct vehicular access                       | 36         | 05SEP09     | 19OCT09      | 1       | 17          |
| <b>Excavation to Bottom Level to south west of SR</b> |  |            |             |              |         |             |
| 04L1A11448  | Bulk excavation; rock (5300m3)                   | 88         | 20OCT09     | 03FEB10      | 1       | 71          |
| <b>Construction of Spiral Ramp Structure</b>          |  |            |             |              |         |             |
| 07R1A11402  | Ratt foundation                                  | 12         | 20OCT09     | 03NOV09      | 1       | 17          |
| 07R1A11404  | Construct RC spiral ramp                         | 192        | 04NOV09     | 30JUN10      | 1       | 17          |
| 07R1A11406  | Construct RC spiral ramp top                     | 12         | 02JUL10     | 15JUL10      | 1       | 17          |
| <b>Dismantle &amp; removal of TBM</b>                 |  |            |             |              |         |             |
| 04L1A11450  | Install temporary steel works for removal of TBM | 24         | 16APR10     | 14MAY10      | 1       | 17          |
| 04L1A11452  | Disassembly & demobilization of TBM              | 50         | 15MAY10     | 15JUL10      | 1       | 17          |
| <b>Construction of Cascade Structure</b>              |  |            |             |              |         |             |
| 04L1A11454  | Construct box culvert & cascade                  | 72         | 16JUL10     | 09OCT10      | 1       | 17          |
| <b>Modification of Existing Channel to Dry Season</b> |  |            |             |              |         |             |
| 07R1A11502  | Modify channel bed & construct weir; Phase 1     | 36         | 01NOV10     | 11DEC10      | 1       | 0           |
| 07R1A11504  | Modify channel bed and orifice; Phase 2          | 36         | 13DEC10     | 26JAN11      | 1       | 61          |
| 07R1A11506  | Modify channel bed and orifice; Phase 3          | 36         | 27JAN11     | 12MAR11      | 1       | 61          |
| <b>Remaining Works to be Handover</b>                 |  |            |             |              |         |             |
| 07R1A11602  | Backfill & compaction above box culvert; Port. A | 72         | 11OCT10     | 06JAN11      | 1       | 90          |
| 07R1A11606  | Finishing & reinstatement works; Portion A       | 48         | 14FEB11     | 11APR11      | 1       | 61          |
| 07R1A11608  | Pre-handover inspections and remedial works      | 48         | 14MAR11     | 13MAY11      | 1       | 61          |
| 07R1A11610  | Contractor serve notice for Works completion     | 7          | 14MAY11     | 20MAY11      | 2       | 412         |
| 07R1A11612  | SO issues completion certificate                 | 21         | 21MAY11     | 10JUN11      | 2       | 412         |
| 16R7A11602  | Landscaping works at Portion A                   | 72         | 14FEB11     | 13MAY11      | 1       | 62          |
| 16R7A11604  | Establishment Works at Portion A                 | 365        | 14MAY11     | 12MAY12      | 2       | 75          |
| 3DL1A11602  | Install flow measurement devices at Intake I-1   | 24         | 14FEB11     | 12MAR11      | 1       | 82          |
| 3DL1A11604  | Maintain & monitor flow monitoring               | 365        | 13MAR11     | 11MAR12      | 2       | 137         |
| <b>Schedule of Milestones at Cost Centre No. 1</b>    |  |            |             |              |         |             |
| 04L1A11802  | 4L 1; On completion of 50% excavation            | 0          |             | 24APR09      | 2       | 1,249       |
| 04L1A11804  | 4L 2; On completion of excavation                | 0          |             | 03FEB10      | 2       | 964         |
| 04L1A11806  | 4L 3; On completion of 25% concreting            | 0          |             | 05AUG10      | 2       | 781         |
| 04L1A11808  | 4L 4; On completion of 50% concreting            | 0          |             | 26AUG10      | 2       | 760         |
| 04L1A11810  | 4L 5; On completion of 75% concreting            | 0          |             | 16SEP10      | 2       | 739         |
| 04L1A11812  | 4L 6; On completion of Cascade                   | 0          |             | 09OCT10      | 2       | 716         |
| 04L1A11814  | 4L 7; On completion of connecting BC             | 0          |             | 19OCT09      | 2       | 1,071       |
| 04L1A11816  | 4L 8; On completion of all works under this CC   | 0          |             | 13MAY11      | 2       | 500         |





| ID  | Activity Description                             | Orig Dur | Early Start | Early Finish | Cal ID | Total Float |
|---|--|----------|-------------|--------------|--------|-------------|
| <b>Excavate &amp; Construct Air Vent Shaft</b>      |  |          |             |              |        |             |
| <b>Phase 1, Stg 2- Form temp. access ramp to VS</b> |  |          |             |              |        |             |
| 05L1B12302  | Form temp. access ramp; Lo Wai Rd to Drop Shaft  | 24       | 07JUN08     | 07JUL08      | 1      | 13          |
| 05L1B12402  | Construct temp. platform for RCD                 | 10       | 08JUL08     | 18JUL08      | 1      | 13          |
| 05L1B12404  | Mobilize & set up plans for RCD excavation       | 6        | 19JUL08     | 25JUL08      | 1      | 13          |
| 05L1B12406  | Excavate by RCD; 34m @ 1m/day                    | 34       | 26JUL08     | 03SEP08      | 1      | 13          |
| 05L1B12408  | Demobilize RCD                                   | 1        | 04SEP08     | 04SEP08      | 1      | 13          |
| 05L1B12410  | Dismante & remove temp platform                  | 6        | 04NOV08     | 10NOV08      | 1      | 13          |
| 35L1B12412  | Construct air vent shaft; 34m                    | 34       | 27NOV10     | 08JAN11      | 1      | 67          |
| <b>Excavate &amp; Construct Man Access Shaft</b>    |  |          |             |              |        |             |
| 05L1B12502  | Construct ELS around shaft                       | 24       | 01NOV08     | 28NOV08      | 1      | 0           |
| 05L1B12504  | Probing & curtain grouting around shaft          | 24       | 29NOV08     | 29DEC08      | 1      | 443         |
| 05L1B12512  | Mechanical excavation for man access shaft; 38m  | 190      | 30DEC08     | 21AUG09      | 1      | 443         |
| 05L1B12514  | Construct man access shaft including stairs; 38m | 76       | 27NOV10     | 02MAR11      | 1      | 67          |
| <b>Excavate &amp; Construct De-aeration Chamber</b> |  |          |             |              |        |             |
| 05L1B12602  | Mechanical excavation for chamber; 22.5m         | 132      | 01JUN09     | 05NOV09      | 1      | 13          |
| 05L1B12604  | Construct de-aeration chamber                    | 32       | 10SEP10     | 20OCT10      | 1      | 13          |
| <b>Excavate &amp; Construct Adit Tunnel</b>         |  |          |             |              |        |             |
| 35L1B12102  | Mechanical excavation for Adit Tunnel            | 200      | 06NOV09     | 13JUL10      | 1      | 13          |
| 35L1B12104  | Construct adit tunnel; 60m                       | 50       | 14JUL10     | 09SEP10      | 1      | 13          |
| 35L1B12106  | Mechanical excavation breakthrough               | 12       | 12JAN11     | 25JAN11      | 1      | 38          |
| 35L1B12108  | Construct collar between MT & AT                 | 36       | 26JAN11     | 11MAR11      | 1      | 38          |
| <b>Excavate &amp; Construct Man Access Tunnel</b>   |  |          |             |              |        |             |
| 05L1B12802  | Mechanical excavation for Man Access Tunnel      | 240      | 06NOV09     | 28AUG10      | 1      | 109         |
| 05L1B12804  | Mechanical excavation breakthrough               | 3        | 30AUG10     | 01SEP10      | 1      | 109         |
| 05L1B12806  | Construct man access tunnel; 35m                 | 36       | 27NOV10     | 11JAN11      | 1      | 38          |
| <b>Remaining Works Prior to Handover</b>            |  |          |             |              |        |             |
| 08R1B12102  | Finishing & reinstatement works; Portion B       | 48       | 18APR11     | 17JUN11      | 1      | 8           |
| 08R1B12103  | Pre-handover inspections and remedial works      | 48       | 20MAY11     | 16JUL11      | 1      | 8           |
| 08R1B12104  | Contractor serve notice for Works completion     | 7        | 17JUL11     | 23JUL11      | 2      | 348         |
| 08R1B12105  | SO issues completion certificate                 | 21       | 24JUL11     | 13AUG11      | 2      | 348         |
| 16R7512102  | Landscaping works at Portion B                   | 72       | 18APR11     | 16JUL11      | 1      | 8           |
| 16R7512104  | Establishment Works at Portion B                 | 365      | 17JUL11     | 15JUL12      | 2      | 11          |
| 3DL1B12101  | Install flow measurement devices at Intake I-2   | 24       | 13MAY11     | 10JUN11      | 1      | 11          |

| Activity Description               | Orig Bur | Early Start | Early Finish | Cal ID | Total Float |
|------------------------------------|----------|-------------|--------------|--------|-------------|
| T & C for flow measurement system  | 28       | 11JUN11     | 14JUL11      | 1      | 11          |
| Maintain & monitor flow monitoring | 365      | 11JUN11     | 09JUN12      | 2      | 47          |

| <b>Schedule of Milestones for Cos Centre No. 3b</b> |          |             |              |        |             |
|---|----------|-------------|--------------|--------|-------------|
| Activity Description                                | Orig Bur | Early Start | Early Finish | Cal ID | Total Float |
| 3bL 1; On establishing tunnelling equipments        | 0        |             | 05NOV09      | 2      | 1,054       |
| 3bL 2; On completion of 12.5% perm. tunnel linin    | 0        |             | 20JUL10      | 2      | 797         |
| 3bL 3; On completion of 25% perm. tunnel lining     | 0        |             | 27JUL10      | 2      | 790         |
| 3bL 4; On completion of 37.5% perm. tunnel linin    | 0        |             | 04AUG10      | 2      | 782         |
| 3bL 5; On completion of 50% perm. tunnel lining     | 0        |             | 11AUG10      | 2      | 775         |
| 3bL 6; On completion of 62.5% perm. tunnel linin    | 0        |             | 19AUG10      | 2      | 767         |
| 3bL 7; On completion of 75% perm. tunnel lining     | 0        |             | 26AUG10      | 2      | 760         |
| 3bL 8; On completion of 87.5% perm. tunnel linin    | 0        |             | 02SEP10      | 2      | 753         |
| 3bL 9; On completion of perm. tunnel lining         | 0        |             | 09SEP10      | 2      | 746         |
| 3bL 10; On completion of all works under this CC    | 0        |             | 11MAR11      | 2      | 563         |

| <b>Schedule of Milestones for Cos Centre No. 5L</b> |          |             |              |        |             |
|---|----------|-------------|--------------|--------|-------------|
| Activity Description                                | Orig Bur | Early Start | Early Finish | Cal ID | Total Float |
| 5L 1; On completion of 25% of excavation            | 0        |             | 30MAY09      | 2      | 1,213       |
| 5L 2; On completion of 50% of excavation            | 0        |             | 14SEP09      | 2      | 1,106       |
| 5L 3; On completion of 75% of excavation            | 0        |             | 09MAR10      | 2      | 930         |
| 5L 4; On completion of all excavation               | 0        |             | 28AUG10      | 2      | 758         |
| 5L 5; On completion of drop shaft & vortex shaft    | 0        |             | 11FEB11      | 2      | 591         |
| 5L 6; On completion of de-aeration chamber          | 0        |             | 20OCT10      | 2      | 705         |
| 5L 7; On completion of air vent shaft               | 0        |             | 08JAN11      | 2      | 625         |
| 5L 8; On completion of man access shaft             | 0        |             | 02MAR11      | 2      | 572         |
| 5L 9; On completion of man access acit              | 0        |             | 11JAN11      | 2      | 622         |
| 5L 10; On completion of all works under this CC     | 0        |             | 16JUL11      | 2      | 436         |

| <b>Schedule of Milestones for Cos Centre No. 8R</b> |          |             |              |        |             |
|---|----------|-------------|--------------|--------|-------------|
| Activity Description                                | Orig Bur | Early Start | Early Finish | Cal ID | Total Float |
| 8R 1; On completion of approach channel             | 0        |             | 12MAY11      | 2      | 501         |
| 8R 2; On completion of trash grill                  | 0        |             | 25FEB11      | 2      | 577         |
| 8R 3; On completion of all works under this CC      | 0        |             | 16JUL11      | 2      | 436         |

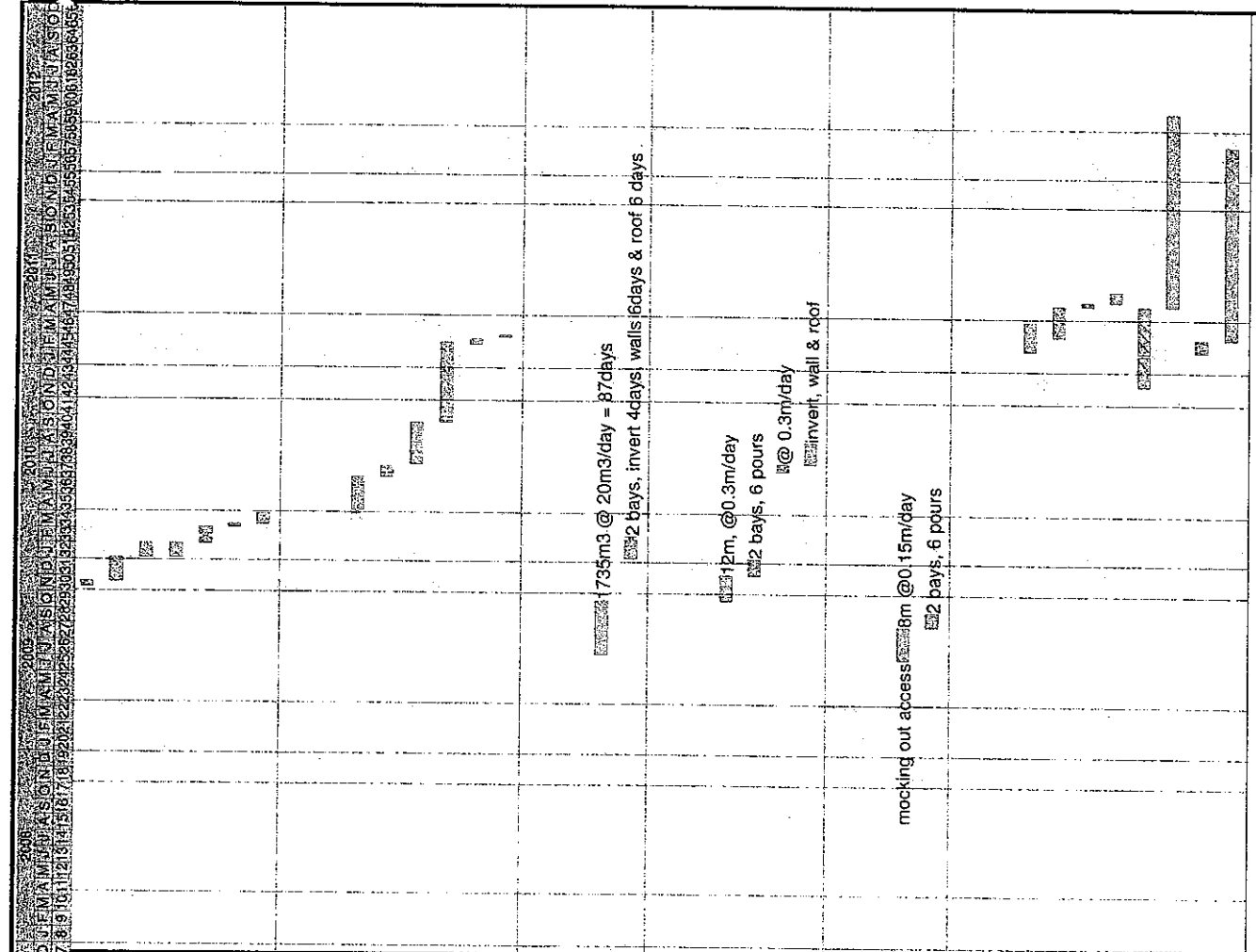
| <b>Schedule of Milestones for Cos Centre No. 12R</b> |          |             |              |        |             |
|--|----------|-------------|--------------|--------|-------------|
| Activity Description                                 | Orig Bur | Early Start | Early Finish | Cal ID | Total Float |
| 12R 1; On completion of 50% pile retain. wall        | 0        |             | 14JUL08      | 2      | 1,533       |
| 12R 2; On completion of pile retain. wall            | 0        |             | 13SEP08      | 2      | 1,472       |
| 12R 3; On completion of boulder traps                | 0        |             | 11MAR11      | 2      | 563         |
| 12R 4; On completion of all works under this CC      | 0        |             | 16JUL11      | 2      | 436         |

| <b>Schedule of Milestones for Cos Centre No. 12R</b> |          |             |              |        |             |
|--|----------|-------------|--------------|--------|-------------|
| Activity Description                                 | Orig Bur | Early Start | Early Finish | Cal ID | Total Float |
| equipment for tunnelling at Intake I-2               |          |             |              |        |             |
| for Adit Tunnel at Intake I-2                        |          |             |              |        |             |
| for Adit Tunnel at Intake I-2                        |          |             |              |        |             |
| for Adit Tunnel at Intake I-2                        |          |             |              |        |             |
| for Adit Tunnel at Intake I-2                        |          |             |              |        |             |
| for Adit Tunnel at Intake I-2                        |          |             |              |        |             |
| for Adit Tunnel at Intake I-2                        |          |             |              |        |             |
| for Adit Tunnel at Intake I-2                        |          |             |              |        |             |
| under this Cost Centre                               |          |             |              |        |             |
| below G.L. except for Adit at Intake I-2             |          |             |              |        |             |
| below G.L. except for Adit at Intake I-2             |          |             |              |        |             |
| below G.L. except for Adit at Intake I-2             |          |             |              |        |             |
| vortex shaft at Intake I-2                           |          |             |              |        |             |
| chamber at Intake I-2                                |          |             |              |        |             |
| shaft at Intake I-2                                  |          |             |              |        |             |
| shaft at Intake I-2                                  |          |             |              |        |             |
| adit at Intake I-2                                   |          |             |              |        |             |
| under this Cost Centre                               |          |             |              |        |             |
| channel and associated decking at Intake I-2         |          |             |              |        |             |
| at Intake I-2  |          |             |              |        |             |
| under this Cost Centre                               |          |             |              |        |             |
| wall at Intake I-2                                   |          |             |              |        |             |
| wall at Intake I-2                                   |          |             |              |        |             |
| traps at Intake I-2                                  |          |             |              |        |             |
| under this Cost Centre                               |          |             |              |        |             |









| ID  | Activity Description                           | Orig Dur | Early Start | Early Finish | Cal ID | Total Float |
|---|--|----------|-------------|--------------|--------|-------------|
| 09R1C18804  | Removal of large boulders                      | 10       | 09NOV09     | 19NOV09      | 1      | 67          |
| 09R1C18806  | Excavation of the stream bed                   | 36       | 20NOV09     | 04JAN10      | 1      | 67          |
| 09R1C18808  | Laying of granular filter                      | 24       | 05JAN10     | 01FEB10      | 1      | 91          |
| 09R1C18810  | Laying of rock armour                          | 24       | 05JAN10     | 01FEB10      | 1      | 67          |
| 09R1C18812  | Construction of boulder trap; 7 nos.           | 24       | 02FEB10     | 04MAR10      | 1      | 67          |
| 09R1C18814  | Removal of sand bag bund                       | 4        | 05MAR10     | 09MAR10      | 1      | 67          |
| 09R1C18816  | Construct temporary concrete block bund        | 18       | 10MAR10     | 30MAR10      | 1      | 67          |
| <b>Excavate &amp; Construct Approach Channel</b>    |  |          |             |              |        |             |
| <b>Phase 3</b>                                      |  |          |             |              |        |             |
| 09R1C18902  | Excavation of the Stream Bed                   | 54       | 31MAR10     | 08JUN10      | 1      | 67          |
| 09R1C18904  | Laying Granular Filter within Stream Bed       | 18       | 09JUN10     | 30JUN10      | 1      | 67          |
| 09R1C18908  | Open excavation for Approach Channel           | 69       | 02JUL10     | 20SEP10      | 1      | 67          |
| 09R1C18910  | Construction of Approach Channel               | 122      | 21SEP10     | 19FEB11      | 1      | 67          |
| 09R1C18912  | Construction of trash grill                    | 12       | 14FEB11     | 26FEB11      | 1      | 67          |
| 09R1C18914  | Removal of concrete block bund                 | 6        | 28FEB11     | 05MAR11      | 1      | 67          |
| <b>Excavate &amp; Construct De-aeration Chamber</b> |  |          |             |              |        |             |
| <b>Phase 2</b>                                      |  |          |             |              |        |             |
| 06L1C13102  | Excavation for de-aeration chamber             | 87       | 10JUL09     | 21OCT09      | 1      | 83          |
| 06L1C13104  | Construction of de-aeration chamber            | 32       | 09JAN10     | 18FEB10      | 1      | 83          |
| <b>Excavate &amp; Construct Adit Tunnel</b>         |  |          |             |              |        |             |
| <b>Phase 2</b>                                      |  |          |             |              |        |             |
| 3CL1C13102  | Mechanical excavation for Adit Tunnel          | 40       | 22OCT09     | 08DEC09      | 1      | 83          |
| 3CL1C13104  | Construction of Adit Tunnel                    | 24       | 09DEC09     | 08JAN10      | 1      | 83          |
| 3CL1C13106  | Mechanical excavation breakthrough             | 12       | 22JUN10     | 06JUL10      | 1      | 206         |
| 3CL1C13108  | Construct collar between MT & AT               | 36       | 07JUL10     | 17AUG10      | 1      | 206         |
| <b>Excavate &amp; Construct Man Access Tunnel</b>   |  |          |             |              |        |             |
| <b>Phase 2</b>                                      |  |          |             |              |        |             |
| 06L1C13122  | Mechanical excavation for man access tunnel    | 53       | 02JUL09     | 01SEP09      | 1      | 170         |
| 06L1C13124  | Construction of man access tunnel              | 24       | 02SEP09     | 29SEP09      | 1      | 170         |
| <b>Remaining Works Prior to Handover to Client</b>  |  |          |             |              |        |             |
| 09R1C13142  | Finishing & reinstatement works; Portion C     | 48       | 07FEB11     | 02APR11      | 1      | 67          |
| 09R1C13143  | Pre-handover inspections and remedial works    | 48       | 07MAR11     | 05MAY11      | 1      | 67          |
| 09R1C13144  | Contractor serve notice for Works completion   | 7        | 06MAY11     | 12MAY11      | 2      | 480         |
| 09R1C13146  | SO issues completion certificate               | 21       | 13MAY11     | 02JUN11      | 2      | 480         |
| 16R7C13142  | Landscaping works at Portion C                 | 120      | 06DEC10     | 05MAY11      | 1      | 68          |
| 16R7C13144  | Establishment Works at Portion C               | 365      | 06MAY11     | 04MAY12      | 2      | 83          |
| 3DL1C13141  | Install flow measurement devices at intake I-3 | 24       | 07FEB11     | 05MAR11      | 1      | 88          |
| 3DL1C13143  | Maintain & monitor flow monitoring             | 365      | 06MAR11     | 04MAR12      | 2      | 144         |



| ID         | Activity Description                            | Orig Dur | Early Start | Early Finish | Cat IB | Cat Total |
|------------|---|----------|-------------|--------------|--------|-----------|
| 1394CI3S07 | 13R 7; On completion of 40% piles by number     | 0        | 27JUN08     | 27JUN08      | 2      | 1,550     |
| 1394CI3S08 | 13R 8; On completion of 50% piles by number     | 0        | 09JUL08     | 09JUL08      | 2      | 1,538     |
| 1394CI3S09 | 13R 9; On completion of 60% piles by number     | 0        | 19JUL08     | 19JUL08      | 2      | 1,528     |
| 1394CI3S10 | 13R 10; On completion of 70% piles by number    | 0        | 30JUL08     | 30JUL08      | 2      | 1,517     |
| 1394CI3S11 | 13R 11; On completion of 80% piles by number    | 0        | 07AUG08     | 07AUG08      | 2      | 1,509     |
| 1394CI3S12 | 13R 12; On completion of 90% piles by number    | 0        | 28AUG08     | 28AUG08      | 2      | 1,488     |
| 1394CI3S13 | 13R 13; On completion of all piling works       | 0        | 19SEP08     | 19SEP08      | 2      | 1,466     |
| 1394CI3S14 | 13R 14; On completion of boulder traps          | 0        | 04MAR10     | 04MAR10      | 2      | 935       |
| 1394CI3S15 | 13R 15; On completion of all work under this CC | 0        | 26MAR10     | 26MAR10      | 2      | 913       |

**Construction of Outfall O-1**

| ID         | Activity Description                             | Orig Dur | Early Start | Early Finish | Cat IB | Cat Total |
|------------|--|----------|-------------|--------------|--------|-----------|
| 01R1DO0108 | Obtain TTA (ingress & egress) approval           | 0        | 06MAR08     | 06MAR08      | 2      | 7         |
| 01R1DO0110 | Obtain tree felling permit                       | 0        | 26MAR08     | 26MAR08      | 2      | 0         |
| 01R1DO0112 | Obtain excavation permit                         | 0        | 20FEB08     | 20FEB08      | 2      | 22        |
| 01R1DO0114 | Site establishment                               | 30       | 14MAR08     | 22APR08      | 1      | 0         |
| 01R1DO0116 | Site clearance                                   | 30       | 14MAR08     | 22APR08      | 1      | 0         |
| 01R1DO0118 | Install remote control CCTV as per ER 4.4.10     | 30       | 14MAR08     | 22APR08      | 1      | 13        |
| 01R1DO0120 | Maintain & operate CCTV                          | 1,175    | 23APR08     | 11JUL11      | 2      | 16        |
| 01R1DO0126 | Application/approval for temp. CLP Power Supply  | 200      | 28DEC07     | 14JUL08      | 2      | 9         |
| 01R1DO0128 | Establish temp. CLP power sub-station            | 90       | 15JUL08     | 30OCT08      | 1      | 8         |
| 01R1DO0130 | Apply for Marine Permit for Works at Portion E   | 14       | 30JUL09     | 12AUG09      | 2      | 58        |
| 01R1DO0132 | Obtain marine permit from Marine Department      | 45       | 13AUG09     | 26SEP09      | 2      | 58        |
| 3DL1DO0104 | Obtain approval for Geotechnical Instrumentation | 0        | 14MAR08     | 14MAR08      | 2      | 2         |
| 3DL1DO0106 | Installation of Geotechnical Instrumentation     | 30       | 08MAR08     | 16APR08      | 1      | 1         |
| 3DL1DO0108 | Monitor/report Geotechnical Instrumentation      | 1,250    | 17APR08     | 06JUL12      | 1      | 17        |

**Form Temporary Access/Tree Felling**

|            |   |     |         |         |   |    |
|------------|---|-----|---------|---------|---|----|
| 10R1DO0202 | Form 80m long (+14 to +69mPD) temp. access road | 60  | 18MAR08 | 02JUN08 | 1 | 0  |
| 14R1DO0202 | Existing boulder stabilization works            | 100 | 23JUN08 | 21OCT08 | 1 | 16 |
| 16R7DO0202 | Tree transplanting; 164 nos.                    | 120 | 28MAR08 | 20AUG08 | 1 | 0  |

**Form Temporary Launching Platform**

|            |   |     |         |         |   |   |
|------------|---|-----|---------|---------|---|---|
| 10R1DO0302 | Cut slope (69 to 41mPD)/install perm. soil nails  | 90  | 26APR08 | 13AUG08 | 1 | 0 |
| 10R1DO0304 | Cut slope & form launching platform; 41 to 24mPD  | 90  | 25JUN08 | 11OCT08 | 1 | 0 |
| 10R1DO0306 | Cut rock benching & form platform; 14 to 24mPD    | 72  | 14AUG08 | 08NOV08 | 1 | 0 |
| 3AL1DO0302 | Excavate TBM launching chamber; 15m long          | 24  | 19OCT08 | 08NOV08 | 1 | 0 |
| 3AL1DO0304 | Install crane/gantry facilities                   | 40  | 13OCT08 | 27NOV08 | 1 | 0 |
| 3AL1DO0306 | Install steel platform, hopper & other facilities | 120 | 13OCT08 | 07MAR09 | 1 | 0 |

◆ at Intake I-3  
 ◆ at Intake I-3  
 ◆ at Intake I-3  
 ◆ at Intake I-3  
 ◆ at Intake I-3  
 ◆ at Intake I-3  
 ◆ traps at Intake I-3  
 ◆ under this Cost Centre  
 ◆ Re-align footpath, erect hoarding/catchfence, construct temp. entrance with wheel washing faci  
 ◆ soil 4000m3, soil nails 532 nbs.  
 ◆ rock, 1400m3  
 ◆ 5200m3, concrete blocks



| ID  | Activity Description                             | Orig Dur | Earlv Start | Earlv Finish | Cal ID | Total Float |
|---|--|----------|-------------|--------------|--------|-------------|
| 10R1DO0706  | Excavate for box culvert (upper part)            | 66       | 01SEP10     | 19NOV10      | 1      | 8           |
| 10R1DO0708  | Construct box-culvert (upper part)               | 66       | 15OCT10     | 04JAN11      | 1      | 8           |
| 10R1DO0710  | Excavate for cascade construction                | 36       | 05JAN11     | 18FEB11      | 1      | 8           |
| 10R1DO0712  | Construct cascade                                | 48       | 19FEB11     | 16APR11      | 1      | 8           |
| 10R1DO0714  | Construct retaining wall, baffle, railing etc.   | 48       | 19FEB11     | 16APR11      | 1      | 33          |
| <b>Seabed Protection Works</b>                        |  |          |             |              |        |             |
| 10R1DO0804  | Excavate & formation for 100m*16m slab           | 72       | 11MAY10     | 05AUG10      | 1      | 93          |
| 10R1DO0806  | Construct concrete apron with pre-cast RC slabs  | 72       | 26MAY10     | 19AUG10      | 1      | 93          |
| 10R1DO0808  | Installation of precast stepped blocks           | 144      | 06AUG10     | 27JAN11      | 1      | 93          |
| 10R1DO0810  | Removal of platform & formation                  | 12       | 08MAR11     | 21MAR11      | 1      | 39          |
| 10R1DO0812  | Install remain. Concrete apron for rem. Area     | 12       | 22MAR11     | 04APR11      | 1      | 39          |
| 14R5DO0802  | Removal of sea wall armour                       | 72       | 26APR10     | 22JUL10      | 1      | 93          |
| <b>Remaining Works for Port Handover</b>              |  |          |             |              |        |             |
| 10R1DO0904  | Finishing & reinstatement works; Portion D       | 48       | 19MAR11     | 19MAY11      | 1      | 33          |
| 10R1DO0906  | Pre-handover inspections and remedial works      | 48       | 18APR11     | 17JUN11      | 1      | 33          |
| 10R1DO0908  | Contractor serve notice for Works completion     | 7        | 18JUN11     | 24JUN11      | 2      | 437         |
| 10R1DO0910  | SO issues completion certificate                 | 21       | 25JUN11     | 15JUL11      | 2      | 437         |
| 16R7DO0902  | Landscaping works at Portion D                   | 120      | 19JAN11     | 17JUN11      | 1      | 33          |
| 16R7DO0904  | Establishment Works at Portion D                 | 365      | 18JUN11     | 16JUN12      | 2      | 40          |
| 3DLDO0902   | Install flow measurement devices at Outfall O-1  | 24       | 18APR11     | 19MAY11      | 1      | 29          |
| 3PLDO0904   | Maintain & monitor flow monitoring               | 365      | 20MAY11     | 18MAY12      | 2      | 69          |
| <b>Schedule of Milestones for Cost Centre No. 10a</b> |  |          |             |              |        |             |
| 10R1DO1002  | 10R 1; On completion of 20% excavation works     | 0        |             | 09JUL08      | 2      | 1,538       |
| 10R1DO1004  | 10R 2; On completion of 40% excavation works     | 0        |             | 03SEP08      | 2      | 1,482       |
| 10R1DO1006  | 10R 3; On completion of 60% excavation works     | 0        |             | 08NOV08      | 2      | 1,416       |
| 10R1DO1008  | 10R 4; On completion of 80% excavation works     | 0        |             | 14OCT09      | 2      | 1,076       |
| 10R1DO1010  | 10R 5; On completion all excavation works        | 0        |             | 18FEB11      | 2      | 584         |
| 10R1DO1012  | 10R 6; On completion of cascade structure        | 0        |             | 16APR11      | 2      | 527         |
| 10R1DO1014  | 10R 7; On completion of spiral ramp to +16mPD    | 0        |             | 23FEB10      | 2      | 944         |
| 10R1DO1016  | 10R 8; On completion of spiral access ramp       | 0        |             | 25JUN10      | 2      | 822         |
| 10R1DO1018  | 10R 9; On completion box-culvert & open channel  | 0        |             | 07MAR11      | 2      | 567         |
| 10R1DO1020  | 10R 10; On completion of seabed protection wks   | 0        |             | 04APR11      | 2      | 539         |
| 10R1DO1022  | 10R 11; On completion of all works under this CC | 0        |             | 17JUN11      | 2      | 465         |
| <b>Schedule of Milestones for Cost Centre No. 10b</b> |  |          |             |              |        |             |
| 14R5DO1102  | 14R 1; On complet. of remove exist. rock armour  | 0        |             | 23JUL10      | 2      | 795         |
| 14R5DO1104  | 14R 2; On complet. of 50% soil nailing by number | 0        |             | 20JUN08      | 2      | 1,557       |
| 14R5DO1106  | 14R 3; On completion all soiling works           | 0        |             | 13AUG08      | 2      | 1,503       |

| ID  | Activity Description                             | Orig Dur | Earlv Start | Earlv Finish | Cal ID | Total Float |
|---|--|----------|-------------|--------------|--------|-------------|
| 10R1DO0706  | Excavate for box culvert (upper part)            | 66       | 01SEP10     | 19NOV10      | 1      | 8           |
| 10R1DO0708  | Construct box-culvert (upper part)               | 66       | 15OCT10     | 04JAN11      | 1      | 8           |
| 10R1DO0710  | Excavate for cascade construction                | 36       | 05JAN11     | 18FEB11      | 1      | 8           |
| 10R1DO0712  | Construct cascade                                | 48       | 19FEB11     | 16APR11      | 1      | 8           |
| 10R1DO0714  | Construct retaining wall, baffle, railing etc.   | 48       | 19FEB11     | 16APR11      | 1      | 33          |
| <b>Seabed Protection Works</b>                        |  |          |             |              |        |             |
| 10R1DO0804  | Excavate & formation for 100m*16m slab           | 72       | 11MAY10     | 05AUG10      | 1      | 93          |
| 10R1DO0806  | Construct concrete apron with pre-cast RC slabs  | 72       | 26MAY10     | 19AUG10      | 1      | 93          |
| 10R1DO0808  | Installation of precast stepped blocks           | 144      | 06AUG10     | 27JAN11      | 1      | 93          |
| 10R1DO0810  | Removal of platform & formation                  | 12       | 08MAR11     | 21MAR11      | 1      | 39          |
| 10R1DO0812  | Install remain. Concrete apron for rem. Area     | 12       | 22MAR11     | 04APR11      | 1      | 39          |
| 14R5DO0802  | Removal of sea wall armour                       | 72       | 26APR10     | 22JUL10      | 1      | 93          |
| <b>Remaining Works for Port Handover</b>              |  |          |             |              |        |             |
| 10R1DO0904  | Finishing & reinstatement works; Portion D       | 48       | 19MAR11     | 19MAY11      | 1      | 33          |
| 10R1DO0906  | Pre-handover inspections and remedial works      | 48       | 18APR11     | 17JUN11      | 1      | 33          |
| 10R1DO0908  | Contractor serve notice for Works completion     | 7        | 18JUN11     | 24JUN11      | 2      | 437         |
| 10R1DO0910  | SO issues completion certificate                 | 21       | 25JUN11     | 15JUL11      | 2      | 437         |
| 16R7DO0902  | Landscaping works at Portion D                   | 120      | 19JAN11     | 17JUN11      | 1      | 33          |
| 16R7DO0904  | Establishment Works at Portion D                 | 365      | 18JUN11     | 16JUN12      | 2      | 40          |
| 3DLDO0902   | Install flow measurement devices at Outfall O-1  | 24       | 18APR11     | 19MAY11      | 1      | 29          |
| 3PLDO0904   | Maintain & monitor flow monitoring               | 365      | 20MAY11     | 18MAY12      | 2      | 69          |
| <b>Schedule of Milestones for Cost Centre No. 10a</b> |  |          |             |              |        |             |
| 10R1DO1002  | 10R 1; On completion of 20% excavation works     | 0        |             | 09JUL08      | 2      | 1,538       |
| 10R1DO1004  | 10R 2; On completion of 40% excavation works     | 0        |             | 03SEP08      | 2      | 1,482       |
| 10R1DO1006  | 10R 3; On completion of 60% excavation works     | 0        |             | 08NOV08      | 2      | 1,416       |
| 10R1DO1008  | 10R 4; On completion of 80% excavation works     | 0        |             | 14OCT09      | 2      | 1,076       |
| 10R1DO1010  | 10R 5; On completion all excavation works        | 0        |             | 18FEB11      | 2      | 584         |
| 10R1DO1012  | 10R 6; On completion of cascade structure        | 0        |             | 16APR11      | 2      | 527         |
| 10R1DO1014  | 10R 7; On completion of spiral ramp to +16mPD    | 0        |             | 23FEB10      | 2      | 944         |
| 10R1DO1016  | 10R 8; On completion of spiral access ramp       | 0        |             | 25JUN10      | 2      | 822         |
| 10R1DO1018  | 10R 9; On completion box-culvert & open channel  | 0        |             | 07MAR11      | 2      | 567         |
| 10R1DO1020  | 10R 10; On completion of seabed protection wks   | 0        |             | 04APR11      | 2      | 539         |
| 10R1DO1022  | 10R 11; On completion of all works under this CC | 0        |             | 17JUN11      | 2      | 465         |
| <b>Schedule of Milestones for Cost Centre No. 10b</b> |  |          |             |              |        |             |
| 14R5DO1102  | 14R 1; On complet. of remove exist. rock armour  | 0        |             | 23JUL10      | 2      | 795         |
| 14R5DO1104  | 14R 2; On complet. of 50% soil nailing by number | 0        |             | 20JUN08      | 2      | 1,557       |
| 14R5DO1106  | 14R 3; On completion all soiling works           | 0        |             | 13AUG08      | 2      | 1,503       |

**Drainage Improvement Works at Portion G**

| ID         | Activity Description                             | Orig. Est. No | Early Start | Early Finish | Cal ID | Total Float |
|------------|--|---------------|-------------|--------------|--------|-------------|
| 01R6GG0102 | Prepare/submit Drainage Assessment Report        | 90            | 30MAY09     | 27AUG09      | 2      | 6           |
| 01R6GG0104 | DAF reviewed/approved by SO and DSD              | 90            | 28AUG09     | 25NOV09      | 2      | 6           |
| 01R6GG0112 | Obtain TTA (ingress & egress) approval           | 0             |             | 25NOV09      | 2      | 6           |
| 01R6GG0114 | Possession of Portion G - 700d of DOC            | 0             | 26NOV09     |              | 2      | 6           |
| 01R6GG0116 | Site clearance/Site Establishment                | 30            | 10DEC09     | 16JAN10      | 1      | 62          |
| 3DL6GG0104 | Obtain approval for Geotechnical Instrumentation | 0             |             | 25NOV09      | 2      | 6           |
| 3DL6GG0106 | Installation of Geotechnical Instrumentation     | 12            | 26NOV09     | 09DEC09      | 1      | 5           |
| 3DL6GG0108 | Monitor/report Geotechnical Instrumentation      | 770           | 10DEC09     | 20JUL12      | 1      | 5           |

**Piling Works**

|            |   |     |         |         |   |     |
|------------|---|-----|---------|---------|---|-----|
| 15R6GG0200 | Obtain SO's consent for temp. works design      | 0   |         | 24JAN09 | 1 | 351 |
| 15R6GG0202 | Mobilization & set up for temp. platform        | 3   | 18JAN10 | 20JAN10 | 1 | 62  |
| 15R6GG0204 | Construct steel working platform for H-piling   | 110 | 21JAN10 | 08JUN10 | 1 | 62  |
| 15R6GG0206 | Mobilization & set up for H-piling; Wall 1      | 3   | 23APR10 | 26APR10 | 1 | 62  |
| 15R6GG0208 | 52 nos. 600mm dia. H-piles; Wall 1 @ 1.5 nr/day | 35  | 27APR10 | 08JUN10 | 1 | 62  |
| 15R6GG0210 | Excavate & construct skin wall 1 at Portion G   | 35  | 09JUN10 | 21JUL10 | 1 | 62  |
| 15R6GG0212 | Mobilization & set up for H-piling; Wall 2      | 3   | 09JUN10 | 11JUN10 | 1 | 62  |
| 15R6GG0214 | 40 nos. 600mm dia. H-piles; Wall 2 @ 1.5 nr/day | 27  | 12JUN10 | 15JUL10 | 1 | 62  |
| 15R6GG0216 | Excavate & construct skin wall 2 at Portion G   | 27  | 16JUL10 | 16AUG10 | 1 | 62  |

**Drainage Improvement Works**

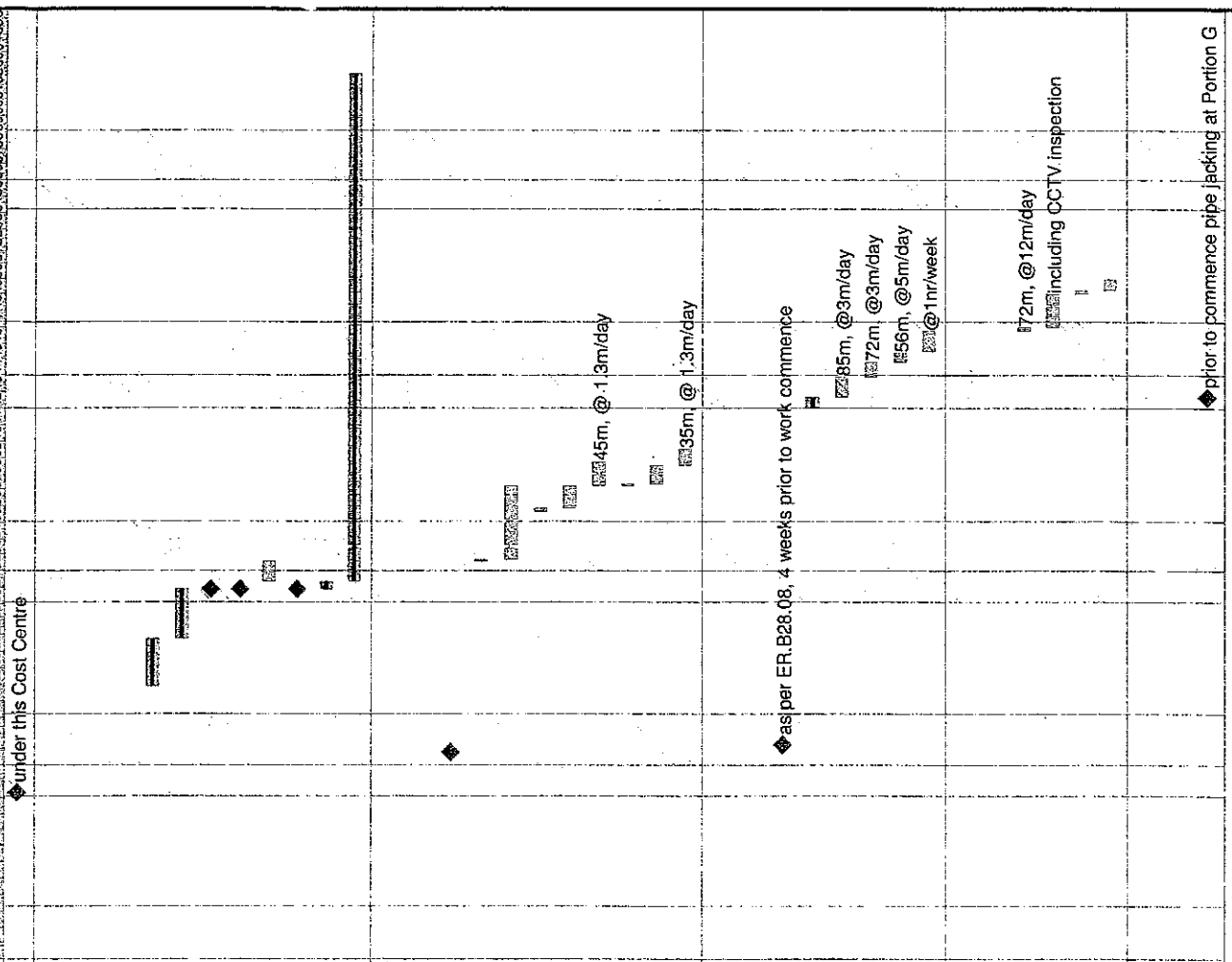
|            |  |    |          |         |   |     |
|------------|--|----|----------|---------|---|-----|
| 15R6GG0301 | Obtain approval of ELS design package incl MS  | 0  |          | 07FEB09 | 2 | 631 |
| 15R6GG0302 | Install ELS & excavate shaft for pipe jacking  | 18 | 01NOV10* | 20NOV10 | 1 | 0   |
| 15R6GG0304 | Construct 1.5m dia. drainage by pipe jacking   | 30 | 22NOV10  | 28DEC10 | 1 | 44  |
| 15R6GG0306 | Construct 1.5m dia. drainage by open trenching | 24 | 29DEC10  | 26JAN11 | 1 | 44  |
| 15R6GG0308 | Construct .75m & 1.5m U and Stepped Channel    | 12 | 27JAN11  | 12FEB11 | 1 | 44  |
| 15R6GG0310 | Construct 3 nos. manhole & 2 nos. catchpit     | 35 | 14FEB11  | 25MAR11 | 1 | 44  |

**Remaining Works to be Handover to Client**

|            |  |    |         |         |   |     |
|------------|--|----|---------|---------|---|-----|
| 15R6GG0312 | Reinstate carriageway & footway              | 6  | 26MAR11 | 01APR11 | 1 | 44  |
| 15R6GG0402 | Pre-handover inspections and remedial works  | 48 | 02APR11 | 02JUN11 | 1 | 44  |
| 15R6GG0404 | Contractor serve notice for Works completion | 7  | 03JUN11 | 09JUN11 | 2 | 452 |
| 15R6GG0408 | SO issues completion certificate             | 21 | 10JUN11 | 30JUN11 | 2 | 452 |

**Schedule of Milestones to Cost Centre No 15R**

|            |   |   |  |         |   |     |
|------------|---|---|--|---------|---|-----|
| 15R6GG0502 | 15R 1; On completion of all temp. works | 0 |  | 20NOV10 | 2 | 674 |
|------------|---|---|--|---------|---|-----|





| ID         | Activity Description                          | On Dur | Early Start | Early Finish | Cal ID | Total Float |
|------------|---|--------|-------------|--------------|--------|-------------|
| 15R6GG0504 | 15R 2; On completion of 25% of pipejacking    | 0      | 30NOV10     | 2            | 664    |             |
| 15R6GG0506 | 15R 3; On completion of 50% of pipejacking    | 0      | 08DEC10     | 2            | 656    |             |
| 15R6GG0508 | 15R 4; On completion of 75% of pipejacking    | 0      | 17DEC10     | 2            | 647    |             |
| 15R6GG0510 | 15R 5; On completion of all pipejacking       | 0      | 28DEC10     | 2            | 636    |             |
| 15R6GG0512 | 15R 6; On completion of all wks under this CC | 0      | 02JUN11     | 2            | 480    |             |

- ◆ pipe jacking method at Portion G
- ◆ pipe jacking method at Portion G
- ◆ pipe jacking method at Portion G
- ◆ pipe jacking method at Portion G
- ◆ under this Cost Centre

# Appendix D

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## Implementation Status of Environmental Mitigation Measures

## IMPLEMENTATION SCHEDULE

| EIA Ref.           | Recommended Mitigation Measures  | Who to implement the measure ? | Location of the measure | What requirements or standards for the measure to achieve ? | Status |
|--------------------|--|--------------------------------|-------------------------|---|--------|
| <b>Air Quality</b> |  |                                |                         |   |        |
| 3.6.1              | <b>Specific</b>  | DSD's Contractor               | Construction Work Sites | Air Pollution Control (Construction Dust) Regulation        |        |
|                    | As mentioned in Section 3.5, exceedances of 1-hour and 24-hour average TSP guideline levels have been predicted at most of the ASRs. Hence, mitigation measures are considered necessary in order to suppress the potential dust impact.   |                                |                         |   | N/A    |
|                    | The dust suppression measures set out in the <i>Air Pollution Control (Construction Dust) Regulation</i> , in fact, are more extensive. Therefore, it is expected that with watering the construction site every four times daily together with strict implementation of dust suppression measures as stipulated in the <i>Air Pollution Control (Construction Dust) Regulation</i> , the dust level is expected to be reduced by over 75%.  |                                |                         |   | N/A    |
|                    | <b>General</b>   |                                |                         |   |        |
|                    | To further ensure compliance with the guideline and AQO limit at the ASRs at all time, it is recommended to implement the <i>Air Pollution Control (Construction Dust) Regulation</i> and include good site practice in the contract clauses to minimize cumulative dust impact. In addition, a comprehensive dust monitoring and audit programme is recommended to ensure proper implementation of the identified mitigation measures. Details of the monitoring and audit requirements are provided in a separate EM&A Manual. |                                |                         |   | N/A    |
|                    | <ul style="list-style-type: none"> <li>• effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building or if a canopy is provided at the first floor level, from the first floor level, up to the highest level of the scaffolding where a scaffolding is erected around the perimeter of a building under construction;</li> </ul>  |                                |                         |   | N/A    |
|                    | <ul style="list-style-type: none"> <li>• dump truck for material transport should be totally enclosed by impervious sheeting;</li> </ul>   |                                |                         |   | ✓      |
|                    | <ul style="list-style-type: none"> <li>• any excavated dusty materials or stockpile of dusty materials should be covered entirely by impervious sheeting or sprayed with water so as to maintain the entire surface wet, and recovered or backfilled or reinstated within 24 hours of the excavation or unloading;</li> </ul>  |                                |                         |   | N/A    |
|                    | <ul style="list-style-type: none"> <li>• stockpile of dusty materials should not extend beyond the pedestrian barriers, fencing or traffic cones;</li> </ul>   | N/A                            |                         |   |        |
|                    | <ul style="list-style-type: none"> <li>• dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> </ul>  | N/A                            |                         |   |        |

| EIA Ref.     | Recommended Mitigation Measures  | Who to implement the measure ? | Location of the measure | What requirements or standards for the measure to achieve ? | Status  |
|--------------|--|--------------------------------|-------------------------|---|---|
| 3.6.1        | <ul style="list-style-type: none"> <li>• the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;</li> <li>• where a site boundary adjoins a road, street or other area accessible to the public, hoarding of not less than 2.4m high from ground level should be provided along the entire length except for a site entrance or exit;</li> <li>• every main haul road should be sealed with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet;</li> <li>• the portion of road leading only to a construction site that is within 30m of a designated vehicle entrance or exit should be kept clear of dusty materials;</li> <li>• stockpile of dusty materials should be either covered entirely by impervious sheeting, placed in an area sheltered on the top and the 3 sides; or sprayed with water so as to maintain the entire surface wet;</li> <li>• all dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty material wet;</li> <li>• vehicle speed should be limited to 10 kph except on completed access roads;</li> <li>• every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites;</li> <li>• the load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle; and</li> <li>• the working area of excavation should be sprayed with water immediately before, during and immediately after the operations so as to maintain the entire surface wet.</li> </ul> | DSD's Contractor               | Construction Work Sites | Air Pollution Control (Construction Dust) Regulation        | <p>N/A</p> <p>✓</p> <p>✓</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>✓</p> <p>✓</p> <p>N/A</p> <p>N/A</p> |
| <b>Noise</b> |  |                                |                         |   |   |
| 4.6.1        | <p><b>During Construction</b></p> <p>Appropriate mitigation measures such as the use of quiet equipment and movable barriers will be developed to ensure that noise can be reduced to acceptable levels without causing programme delays</p> <p><i>Good Site Practice</i></p> <p>Good site practice and noise management can significantly reduce the impact of construction site activities on nearby NSRs. The following package of measures should be followed during construction:</p> <ul style="list-style-type: none"> <li>• only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction works;</li> <li>• machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> </ul>  | DSD's Contractor               | Construction Work Sites | PN 2/93 Noise from Construction Activities & EIAO           | <p>N/A</p> <p>N/A</p> <p>✓</p> <p>✓</p>   |

| EIA Ref.             | Recommended Mitigation Measures   | Who to implement the measure ? | Location of the measure | What requirements or standards for the measure to achieve ?                                   | Status |
|----------------------|---|--------------------------------|-------------------------|---|--------|
| 4.6.1                | <ul style="list-style-type: none"> <li>plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs;</li> </ul>   | DSD's Contractor               | Construction Work Sites | Air Pollution Control (Construction Dust) Regulation  | N/A    |
|                      | <ul style="list-style-type: none"> <li>mobile plant should be sited as far away from NSRs as possible; and</li> </ul>   |                                |                         |   | N/A    |
|                      | <ul style="list-style-type: none"> <li>material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>   |                                |                         |   | N/A    |
|                      | <i>For Drill and Blast Works</i> <ul style="list-style-type: none"> <li>Charge mass per delay should be decreased by minimising the number of blastholes firing on each delay.</li> </ul>   |                                |                         |   | N/A    |
|                      | <ul style="list-style-type: none"> <li>Smaller blasthole patterns and longer delays should be used between dependent charges.</li> </ul>  |                                |                         |   | N/A    |
|                      | <ul style="list-style-type: none"> <li>Times of blasting should be established to suit the situation and firing blasts when neighbours are busy with their daily tasks (and at a regular time such as lunch time).</li> </ul>   |                                |                         |   | N/A    |
|                      | <i>For TBM Tunnelling</i> <ul style="list-style-type: none"> <li>For the tunnel excavation, it is anticipated that beyond the initial length (say within 30m), excavation will be carried out well within the tunnel and door should be provided to further minimize the noise nuisance to the nearby receivers.</li> </ul> |                                |                         |   | N/A    |
| 4.6.2                | <b>During Operation</b><br><br>Good site practice and noise management can significantly reduce the impact of maintenance activities on nearby NSRs. The following package of measures should be followed during construction   | DSD's Contractor               | Project Area            | NCO & EIAO  | N/A    |
|                      | <ul style="list-style-type: none"> <li>only well-maintained plant should be operated on-site;</li> </ul>  |                                |                         |   | N/A    |
|                      | <ul style="list-style-type: none"> <li>machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; and</li> </ul>   |                                |                         |   | N/A    |
|                      | <ul style="list-style-type: none"> <li>plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs.</li> </ul>   |                                |                         |   | N/A    |
| <b>Water Quality</b> |   |                                |                         |   |        |
| 5.9.1                | <b>During Construction</b><br><br>Mitigation measures and a spill control and response plan have been prepared for works at the intakes and work sites.   | DSD's Contractor               | Construction Work Sites | Practice Note for Professional Persons with regard to site drainage (ProPECC PN 1/94) and WQO | N/A    |
|                      | <i>Precautions to be taken at any time of year when rainstorms are likely:</i> <ul style="list-style-type: none"> <li>Temporarily exposed surfaces should be covered e.g. by tarpaulin.</li> </ul>  |                                |                         |   | ✓      |
|                      | <ul style="list-style-type: none"> <li>Temporary access roads should be protected by crushed stone or gravel.</li> </ul>  |                                |                         |   | N/A    |
|                      | <ul style="list-style-type: none"> <li>Trenches should be dug and backfilled in short sections. Measures should be taken to minimize the ingress of rainwater into trenches.</li> </ul>   |                                |                         |   | N/A    |
|                      | <i>Actions to be taken when a rainstorm is imminent or forecast:</i> <ul style="list-style-type: none"> <li>Silt removal facilities, should be checked to ensure that they can function properly.</li> </ul>  |                                |                         |   | N/A    |

| EIA Ref.   | Recommended Mitigation Measures   | Who to implement the measure ? | Location of the measure | What requirements or standards for the measure to achieve ? | Status |
|--|---|--------------------------------|-------------------------|---|--------|
| 5.9.1  | <ul style="list-style-type: none"> <li>• Open stockpiles of construction materials on site should be covered with tarpaulin or similar fabric.</li> </ul> | DSD's Contractor               | Construction Work Sites | WQO   | N/A    |
| <ul style="list-style-type: none"> <li>• All temporary covers to slopes and stockpiles should be secured.</li> </ul>   | N/A   |                                |                         |   |        |
| <p><i>Actions to be taken during or after rainstorms:</i></p> <ul style="list-style-type: none"> <li>• Silt removal facilities should be checked and maintained to ensure satisfactory working conditions.</li> </ul>                              | N/A   |                                |                         |   |        |
| <p><b><u>Spill Control and Response Plan</u></b></p>   | N/A   |                                |                         |   |        |
| <p><b>1 Prevention and Precaution Measures</b></p>   | N/A   |                                |                         |   |        |
| <p><b><i>General Precautions</i></b></p>   | N/A   |                                |                         |   |        |
| <ul style="list-style-type: none"> <li>• No discharge of silty water into watercourses.</li> </ul>   | N/A   |                                |                         |   |        |
| <ul style="list-style-type: none"> <li>• All materials to be used during construction and operation shall be identified and their hazard potential evaluated.</li> </ul>   | N/A   |                                |                         |   |        |
| <ul style="list-style-type: none"> <li>• Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken with the areas appropriately equipped to control these discharges.</li> </ul> | N/A   |                                |                         |   |        |
| <ul style="list-style-type: none"> <li>• Any soil contaminated with chemicals/oils shall be removed from site and the void created shall be filled with suitable materials.</li> </ul>   | N/A   |                                |                         |   |        |
| <ul style="list-style-type: none"> <li>• Any construction plant which causes pollution to catchwaters or water gathering ground due to leakage of oil or fuel shall be removed off-site immediately.</li> </ul>                                    | N/A   |                                |                         |   |        |
| <ul style="list-style-type: none"> <li>• Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport</li> </ul>  | N/A   |                                |                         |   |        |
| <ul style="list-style-type: none"> <li>• Chemical waste containers shall be suitably labelled to notify and warn the personnel who are handling the wastes to avoid accidents.</li> </ul>  | N/A   |                                |                         |   |        |
| <ul style="list-style-type: none"> <li>• Storage areas shall be selected at safe locations on site and adequate space shall be allocated to the storage area.</li> </ul>   | N/A   |                                |                         |   |        |
| <ul style="list-style-type: none"> <li>• Prevent obstructions and tripping hazards.</li> </ul>   | N/A   |                                |                         |   |        |
| <p><b><i>Storage Precautions</i></b></p>   | N/A   |                                |                         |   |        |
| <ul style="list-style-type: none"> <li>• All chemical storage containers shall be correctly labelled.</li> </ul>   | N/A   |                                |                         |   |        |
| <ul style="list-style-type: none"> <li>• Solid and impermeable enclosure walls or storage shelves shall be used.</li> </ul>  | N/A   |                                |                         |   |        |
| <ul style="list-style-type: none"> <li>• Only compatible chemical wastes shall be stored in the same storage area.</li> </ul>  | N/A   |                                |                         |   |        |
| <ul style="list-style-type: none"> <li>• The storage areas shall be inspected to detect any leakages or defective containers on a regular basis.</li> </ul>  | N/A   |                                |                         |   |        |
| <ul style="list-style-type: none"> <li>• The storage areas shall be inspected to detect any leakages or defective containers on a regular basis.</li> </ul>  | N/A   |                                |                         |   |        |
| <ul style="list-style-type: none"> <li>• Suitable notices warning of hazards, emergency response plans, telephone numbers etc shall be posted around the site, including storage areas.</li> </ul>   | N/A   |                                |                         |   |        |
| <ul style="list-style-type: none"> <li>• Large and heavy containers shall be stored at ground level.</li> </ul>  | N/A   |                                |                         |   |        |

| EIA Ref. | Recommended Mitigation Measures   | Who to implement the measure ? | Location of the measure | What requirements or standards for the measure to achieve ? | Status |
|----------|---|--------------------------------|-------------------------|---|--------|
|          | <ul style="list-style-type: none"> <li>Chemical waste containers shall be stored below eye level.</li> </ul>  |                                |                         |   | N/A    |
| 5.9.1    | <ul style="list-style-type: none"> <li>Adequate space for handling of the containers shall be provided</li> </ul>   | DSD's Contractor               | Construction Work Sites | WQO   | N/A    |
|          | <ul style="list-style-type: none"> <li>Spill response kits shall be located adjacent/near to the storage areas.</li> </ul>  |                                |                         |   | N/A    |
|          | <ul style="list-style-type: none"> <li>A log of chemical wastes shall be maintained.</li> </ul>   |                                |                         |   | N/A    |
|          | <ul style="list-style-type: none"> <li>Incompatible chemicals shall be stored separately.</li> </ul>  |                                |                         |   | N/A    |
|          | <p><b>2 Responses/Action Plan</b></p>   |                                |                         |   |        |
|          | <p>All Workers shall be made aware of emergency telephone numbers and the location of all relevant pollution control equipment. Training be given in emergency response/action plans. The action include the following steps:</p> |                                |                         |   | N/A    |
|          | <ul style="list-style-type: none"> <li>Only trained personnel who are equipped with protective clothing and equipment shall be allowed to enter the spillage area for clean up.</li> </ul>  |                                |                         |   | N/A    |
|          | <ul style="list-style-type: none"> <li>Spills shall be transferred appropriate back into containers using suitable equipment.</li> </ul>  |                                |                         |   | N/A    |
|          | <ul style="list-style-type: none"> <li>Absorbent materials shall be used to clean up the spills and shall be disposed of as chemical wastes.</li> </ul>   |                                |                         |   | N/A    |
|          | <ul style="list-style-type: none"> <li>Where appropriate suitable solvents may be used to clean the contaminated area after removal of all contaminated materials.</li> </ul>   |                                |                         |   | N/A    |
|          | <ul style="list-style-type: none"> <li>All necessary protective devices, safety equipment, containers and clean up materials for emergency use shall be maintained to a high standard.</li> </ul>                                 |                                |                         |   | N/A    |
|          | <p><b>3 Spill Clean Up and Disposal</b></p>   |                                |                         |   |        |
|          | <p>Effect the response plan.</p>  |                                |                         |   | N/A    |
|          | <p>Control the leakage and absorb the spillage using suitably absorbent materials.</p>  |                                |                         |   | N/A    |
|          | <p>Provide safety equipment and personal protective equipment for handling of chemical wastes would be similar to that for handling of chemicals.</p>   |                                |                         |   | N/A    |
|          | <p><i>Safety equipment includes but is not limited to:</i></p>  |                                |                         |   | N/A    |
|          | <ul style="list-style-type: none"> <li>Fire extinguishers.</li> </ul>   |                                |                         |   | N/A    |
|          | <ul style="list-style-type: none"> <li>Spades, brushes, dustpan, mop and bucket (or similar readily available on site).</li> </ul>  |                                |                         |   | N/A    |
|          | <ul style="list-style-type: none"> <li>Absorbent material such as dry sand, tissues and toweling (all materials readily available on-site).</li> </ul>  |                                |                         |   | N/A    |
|          | <ul style="list-style-type: none"> <li>Containers including plaster bags, drums, etc.</li> </ul>  |                                |                         |   | N/A    |
|          | <ul style="list-style-type: none"> <li>Absorbing materials.</li> </ul>  | N/A                            |                         |   |        |
|          | <ul style="list-style-type: none"> <li>Pumps.</li> </ul>  | N/A                            |                         |   |        |
|          | <p><i>Personal protective equipment includes as appropriate:</i></p>  | N/A                            |                         |   |        |
|          | <ul style="list-style-type: none"> <li>First-aid kits.</li> </ul>   | N/A                            |                         |   |        |
|          | <ul style="list-style-type: none"> <li>Safety helmet and goggles.</li> </ul>  | N/A                            |                         |   |        |
|          | <ul style="list-style-type: none"> <li>Gloves which can resist chemical reaction.</li> </ul>  | N/A                            |                         |   |        |

| EIA Ref.                | Recommended Mitigation Measures  | Who to implement the measure ? | Location of the measure | What requirements or standards for the measure to achieve ?  | Status                                 |
|-------------------------|--|--------------------------------|-------------------------|--|--|
| 5.9.1                   | <ul style="list-style-type: none"> <li>Protective boot and clothing.</li> </ul>  | DSD's Contractor               | Construction Work Sites | WQO  | N/A                                    |
|                         | <ul style="list-style-type: none"> <li>Respirators and gas masks.</li> </ul>   |                                |                         |  | N/A                                    |
|                         | <ul style="list-style-type: none"> <li>Face visor and masks.</li> </ul>  |                                |                         |  | N/A                                    |
| 5.9.2                   | <p><b>Emergency Responses to Spillages</b></p> <p>Emergency plans and clean up procedures will need to be provided by the Contractor recognising his specific working methods and construction programme, activities and sequences. Agreement must be sought prior to commencement of the construction work but the following principles should be considered.</p> <p><i>The emergency plans should include the procedures for:</i></p> <ul style="list-style-type: none"> <li>spill prevention and precaution;</li> <li>response actions; and</li> <li>spill clean up and disposal.</li> </ul> <p><i>Spill prevention and precaution embraces good site practice and covers:</i></p> <ul style="list-style-type: none"> <li>good housekeeping practices;</li> <li>chemical storage requirements; and</li> <li>chemical transfer and transport.</li> </ul> |                                |                         |  | N/A<br>N/A<br>N/A<br>N/A<br>N/A<br>N/A |
| 5.9.3                   | <p><b>During Operation</b></p> <p>Regular inspection of the tunnels is essential to monitor the structural integrity and proper functioning of the drainage tunnel, which allows repairing of structural deterioration when it begins to develop. It is recommended that routine inspection shall be carried out at least two times per year for the drainage tunnel at the beginning and end of wet season from April to September.</p>   | DSD's Contractor               | Project Area            |  | N/A                                    |
| <b>Waste Management</b> |  |                                |                         |  |  |
| 6.5.1                   | <p><b>During Construction</b></p> <p><i>Vegetation Removed from Site Clearance</i><br/>Wastes generated from site clearance shall be sorted and excavated topsoil segregated from roots for re-use in landscaping works, thus eliminating the need for off-site disposal.</p>  | DSD's Contractor               | Construction Work Sites | Waste Disposal Ordinance (Cap.354); Waste Disposal (Chemical Wastes) (General) Regulation (Cap 354) and ETWBTC No. 15/2003, Waste anagement on Construction Site | ✓                                      |
|                         | <p><i>Construction and Demolition Materials</i><br/>The Contractor should reuse any C&amp;D material on-site. C&amp;D waste should be segregated and stored in different containers to other wastes to encourage the re-use or recycling of materials and their proper disposal. The use of wooden hoardings shall not be allowed. An alternative material, which can be reused or recycled, for example, metal (aluminium, alloy, etc) shall be used.</p>   |                                |                         |  | N/A                                    |



| EIA Ref. | Recommended Mitigation Measures   | Who to implement the measure ? | Location of the measure | What requirements or standards for the measure to achieve ?                  | Status |
|----------|---|--------------------------------|-------------------------|--|--------|
| 6.5.1    | As referred to the section 6.4.1, the 317,936m <sup>3</sup> of inert surplus material generated by the project is suitable for public fill. The public fill reception facility at Tuen Mun Area 38 provides a suitable facility for the reuse of surplus inert C&D material generated from the project.   | DSD's Contractor               | Construction Work Sites | WDO (Cap.354), ETWBTC No. 15/2003, ETWBTC No. 12/2002 and ETWBTC No. 31/2004 | N/A    |
|          | Under the contract, the contractor will be required to minimise the generation of C&D material and reuse it on site through the following:  |                                |                         |  | N/A    |
|          | (a) to plan in the design and construction, methods to minimise the generation of C&D material;   |                                |                         |  | N/A    |
|          | (b) to submit a Waste Management Plan (WMP) in accordance with Environment Transport and Works Bureau Technical Circular (ETWBTC) No. 15/2003 or any superseding circular(s);   |                                |                         |  | N/A    |
|          | (c) to reuse recycled aggregates in accordance with ETWBTC No. 12/2002 or any superseding circular(s);  |                                |                         |  | N/A    |
|          | (d) to observe the requirements of the Trip-Ticket System, stipulated in ETWBTC No. 31/2004 or any superceding circular(s), for disposal of C&D material;   |                                |                         |  | N/A    |
|          | (e) to incorporate a Waste Management System into the WMP for effective management and control of C&D materials to avoid/reduce/minimise the generation of C&D material during construction.  |                                |                         |  | N/A    |
|          | The contractor will be required to properly sort into inert C&D materials, metals, timber and other non-inert C&D material in the workplace to prevent cross-contamination.   |                                |                         |  | ✓      |
|          | In addition, DSD will conduct site inspection to monitor the contractors' performance in the implementation of the WMP and other relevant specified requirements.   | DSD                            | Construction Work Sites | WDO (Cap.354) and ETWBTC No. 15/2003   | N/A    |
|          | <i>Excavated Materials</i><br>Excavated materials should be segregated from other wastes to avoid contamination thereby ensuring acceptability at public filling areas and avoiding the need for disposal at landfill.  | DSD's Contractor               | Construction Work Sites | WDO (Cap.354) and ETWBTC No. 15/2003   | N/A    |
|          | <i>Municipal Waste</i><br>Temporary refuse collection facilities should be set-up by the contractor and wastes should be stored in appropriate containers prior to collection and disposal.   |                                |                         |  | ✓      |
|          | Domestic effluent generated by the workforce will be directed to foul sewer or chemical toilets if public facilities are not available.   |                                |                         |  | ✓      |
| 6.5.1    | <i>Waste Management Plan</i><br>A Waste Management Plan (WMP) for the construction of the Project should be prepared as part of the contractors submission. It will provide recommendations for appropriate recycling or disposal route and should include method statement for stockpiling and transportation of the excavated material and other construction wastes should also be included in the WMP and approved before the commencement of construction. All mitigation measures arising from the approved WMP shall be fully implemented. | DSD's Contractor               | Construction Work Sites | WDO (Cap.354), ETWBTC No. 15/2003 and ETWBTC No. 33/2002                     | ✓      |

| EIA Ref.       | Recommended Mitigation Measures   | Who to implement the measure ? | Location of the measure | What requirements or standards for the measure to achieve ? | Status |
|----------------|---|--------------------------------|-------------------------|---|--------|
|                | For the purpose of enhancing the management of C&D material including rock, and to minimize its generation at source, a C&D Material Management Plan (C&DMMP) has been prepared for this project and would be processed in accordance with the Environment, Transport and Works Bureau Technical Circular (Works) No. 33/2002 - Management of Construction and Demolition Material Including Rock.  |                                |                         |   | N/A    |
| <b>Ecology</b> |   |                                |                         |   |        |
| 7.7.1          | <p><b>Avoidance</b></p> <p>The surface structures are located mainly on existing disturbed areas (ie pollution and urbanisation) and have generally avoided the natural stream sections of higher species diversity and abundance of aquatic organisms.</p> <p>The major construction activities at streams are scheduled to avoid wet season of high water flow which may adversely affect the downstream natural habitats due to the construction runoff.</p>   | DSD's Contractor               | Construction Work Sites | EIAO  | N/A    |
|                |   |                                |                         |   | N/A    |
| 7.7.2          | <p><b>Minimisation</b></p> <p>The previous discussion in Section 7.6.4 has indicated that the impacts on ecological resources due to the construction and operation of the proposed Project are generally expected to be low. The following mitigation measures to minimise impacts and disturbance to the surrounding habitats, are recommended.</p>   |                                |                         |   | N/A    |
|                | <p><i>Measures for Construction Runoff</i></p> <p>Install sheet piles/cofferdam/weir along the boundary of the works area within the stream habitats in particular Sam Dip Tam Stream and Tso Kung Tam Stream before the commencement of works to prevent construction runoff during construction. Provision of adequate designed sand/ silt removal facilities such as sand traps, silt traps and sediment basin in the areas which could potentially be affected may be required.</p>   |                                |                         |   | N/A    |
|                | <p><i>Good Construction Practice</i></p> <p>Erect fences along the boundary of the works area before the commencement of works to prevent tipping, vehicle movements, and encroachment of personnel onto adjacent areas, particularly the stream habitats.</p> <p>Avoid any damage and disturbance, particularly those caused by filling and illegal dumping, to the remaining and surrounding natural stream habitats.</p> <p>Regularly check the work site boundaries to ensure that they are not breached and that no damage occurs to surrounding areas.</p> <p>Prohibit and prevent open fires within the site boundary during construction and provide temporary fire fighting equipment in the work areas.</p> <p>Treat any damage that may have occurred to individual major trees in the adjacent area with surgery.</p> | DSD's Contractor               | Construction Work Sites | EIAO  | N/A    |
|                |   | N/A                            |                         |   |        |
|                |   | N/A                            |                         |   |        |
|                |   | N/A                            |                         |   |        |
|                |   | N/A                            |                         |   |        |

| EIA Ref. | Recommended Mitigation Measures   | Who to implement the measure ? | Location of the measure | What requirements or standards for the measure to achieve ? | Status |
|----------|---|--------------------------------|-------------------------|---|--------|
|          | Reinstate temporary work sites/disturbed areas, particularly stream of natural bottom and bank, plantation, intertidal habitat, and the areas located within the proposed Ecological Park, immediately after completion of the construction works, ie through on-site tree/shrub planting and reprovision of natural or semi-natural bottom (also refer to Section 7.7.3), in order to facilitate the recolonisation of the wildlife recorded during the baseline surveys. Tree/shrub species used should make reference from those in the surrounding area   | DSD's Contractor               | Construction Work Sites | EIAO  | N/A    |
| 7.7.3    | <p><b>Compensation</b></p> <p>Provide natural stream bed (approximately 0.03 ha) for the new Dry Weather Flow Channel (created from village-orchard) by laying natural stones at Intake I-2 (Figure 7.7). The reinstated stream bed shall mimic the existing natural conditions with certain portion of big boulders creating the lentic and lotic zones for the aquatic fauna, and while it will be developed during detailed design may draw on concepts shown in Figure 2.18.</p> <p>Provide natural stream bed (approximately 0.5 ha,) for the Approach Channel and Dry Weather Flow Channel by laying natural stones at Intake I-3 (Figure 7.8). The reinstated stream bed shall mimic the existing natural conditions (rocky bottom with very limited aquatic plants) with certain portion of big boulders creating the lentic and lotic zones for the aquatic fauna, and while it will be developed during detailed design may draw on concepts shown in Figure 2.18.</p> <p>Provide natural bottom (ie retain the existing stream bed or reinstate the stream bed by providing boulders/ rocks, riprap or gabion) for the affected stream sections (Figure 7.8) in order to allow natural colonisation of aquatic fauna.</p> <p>Provide at least 2.2 ha of compensatory planting on the permanent and temporary affected plantation areas, particularly the slopes along access road and adjacent to Intake I-3 and cascade at Outfall O-1, after construction to stabilise the slope to present soil erosion and consequent stream sedimentation. Among the 2.2 ha compensatory planting, at least 0.5 ha of compensatory tree planting on the new formed slope along the access road of the Intake I-3 and 0.5 ha of compensatory tree planting over the cascade (by constructing intermediate platform) at Outfall O-1 will be provided (location refer to Figures 7.4 – 7.6). Species used for planting should take reference from the species identified in Appendix F and be native to Hong Kong or South China region.</p> <p>Provide armour rocks for the affected intertidal habitat in order to allow natural colonisation of intertidal organisms.</p> |                                |                         |   | N/A    |

| EIA Ref.                 | Recommended Mitigation Measures  | Who to implement the measure ?                        | Location of the measure | What requirements or standards for the measure to achieve ? | Status |
|--------------------------|--|---|-------------------------|---|--------|
| <b>Cultural Heritage</b> |  |   |                         |   |        |
| 8.6                      | As no impacts on recorded archaeological sites or area with archaeological potential were identified within the Study Area, no mitigation measure for archaeological resources is considered necessary.  |   |                         |   | N/A    |
|                          | The construction methods to be employed should seek to avoid potential vibration impacts to Kuen Yuen Tung Monastery at Lo Wai, the Western Monastery, Yuen Yuen Home for the Aged, Hong Hoi Chee Hong Temple, Chiu Yum Tsing Yuen, Tse's Grave, Wan Lin Bridge and Sam Dip Tam Rock Carving in Sam Dip Tam and the Tin Hau Temple, Yam Kom Tau Village Rural Committee and the Yeung's Ancestral Hall in Yau Kom Tau as these sites fall within 50 m of the Preferred Option of the drainage tunnel alignment or associated Intakes/Outfall construction activities. Construction works that generates excessive vibration in close proximity to these sites should be restricted to protect the building from adverse vibration impacts and to ensure that the building structures will not be damaged as a result of these impacts. | DSD's Contractor                                      | Construction Work Sites | EIAO  | N/A    |
|                          | In order to ensure that no structural or superficial damage will be caused by the construction activities, a precautionary approach involving a pre-construction condition survey and establishment of appropriate vibration limits for the potentially impacted structures should be adopted. Protection measures for the potentially impacted structures, if considered necessary from the pre-construction condition survey, should be implemented prior to the commencement of construction works. Vibration monitoring during the construction phase should be undertaken as part of the EM&A programme.  | Qualified archaeologist/<br>built heritage specialist | Construction Work Sites | EIAO  | N/A    |
| <b>Fisheries</b>         |  |   |                         |   |        |
| 10.6                     | In accordance with the guidelines in the <i>EIAO-TM</i> on fisheries impact assessment the general policy for mitigating impacts to fisheries, in order of priority are avoidance, minimization and compensation.  | DSD's Contractor                                      | Construction Work Sites | EIAO  | N/A    |
|                          | Impacts to fisheries resources and fishing operations have largely been avoided during the construction and operation of the drainage tunnel through the avoidance of dredging, reclamation and filling activities. Good construction practice and associated measures were recommended in Water Quality Assessment in Section 5 to control water quality impacts to within acceptable levels and are also expected to control impacts to fisheries resources. Hence, no fisheries-species mitigation measures are required during construction and operation of the drainage tunnel.  |   |                         |   | N/A    |

Remarks:

- ✓ Compliance of mitigation measure
- × Non-compliance of mitigation measure
- N/A Not applicable

# Appendix E

---

Status of License and Permit



**Updated Status of Environmental Permit & Licence**

| Application Date | Issued Date | Due Date | Environmental Permit / Licence  | Ref No.      | Account No.       | Remarks   |
|------------------|-------------|----------|---|--------------|-------------------|---|
| 2-Jan-2008       | 3-Jan-2008  |          | Registration as a Waste Producer  | 001026707    |                   | Contractor received the acknowledge receipt on 3 Jan 2008.  |
| 2-Jan-2008       | 26-Feb-2008 |          | Waste Disposal (Chemical Waste) (General) - Chemical Waste Producer                               |              | 5111-324-M2703-01 |   |
| 2-Jan-2008       | 17-Jan-2008 |          | Waste Disposal (Charges for Disposal of Construction Waste) Regulation - Billing Account          |              | 7006574           |   |
| 10-Jan-2008      | 10-Jan-2008 |          | Notification Pursuant to Section 3(1) of the Air Pollution Control (Construction Dust) Regulation | 001026901    |                   | Contractor received the acknowledge receipt on 10 Jan 2008.   |
| 25-Feb-2008      |             |          | Water Pollution Control Ordinance – Outfall 1   | 001028154    |                   | Contractor received the acknowledge receipt on 3 March 2008. Waiting for EPD further notification.                                |
| 9-Apr-2008       |             |          | Notification of Change in the Registration of Chemical Waste Producer                             |              |                   | MCSJV's Managing Director had been changed from Mr. Richard Myrans to Mr. Christopher Shaw. Waiting for EPD further notification. |
| 10-Apr-2008      |             |          | Further Environmental Permit  | FEP-088/2008 |                   | Contractor received the acknowledge receipt on 17 April 2008. Waiting for EPD further notification.                               |
| 11-Apr-2008      |             |          | Application for Issuance of Chits for Disposal of Construction Waste for Existing Account Holder  |              |                   | Contractor had applied extra 200 chits for further usage. Waiting for EPD further notification.                                   |
| 18-Apr-2008      |             |          | Water Pollution Control Ordinance – Intake 1, Intake 2, Intake 3 & Portion I                      |              |                   | Waiting for EPD further notification.   |

# Appendix F

---

Calibration Certificates

**High Volume Air Sampler Calibration Worksheet**

**Project Title:** Design and Construction of Tsuen Wan Drainage Tunnel  
**Monitoring Location:** Long Beach Gardan  
**Calibration Date:** 08-Apr-08  
**Calibration Due Date:** 08-Jun-08  
**Time:** 08:45

|                         |          |
|-------------------------|----------|
| Sampler Model:          | TE5005X  |
| Serial No.:             | 0390     |
| Calibrator Orifice no.: | 517N     |
| Slope (m):              | 2.02842  |
| Intercept (b):          | -0.01789 |
| Correction coeff. (r)   | 0.9999   |

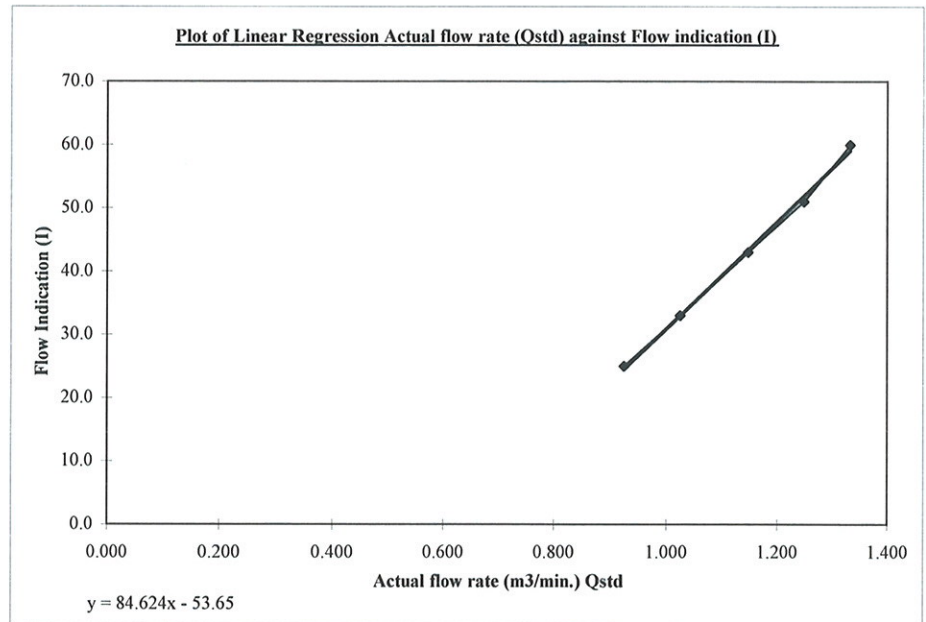
|                                 |        |
|---------------------------------|--------|
| Standard pressure (mmHg) Pstd:  | 756.9  |
| Standard temp. (K) Tstd:        | 297.18 |
| Calibration pressure (mmHg) Pa: | 755.7  |
| Calibration temp. (K) Ta:       | 301.6  |

$$\text{Flow (corrected)} = \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}}$$


$$Qstd = \frac{1}{m} \times \left( \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}} - b \right)$$

| Sample no. | Pressure Drop (H), inch | Flow (corrected), m <sup>3</sup> /min | Actual flow rate (Qstd), m <sup>3</sup> /min | Flow indication (I), arbitrary |
|------------|-------------------------|---------------------------------------|--|--------------------------------|
| 1          | 7.3                     | 2.684                                 | 1.332  | 60.0                           |
| 2          | 6.4                     | 2.513                                 | 1.248  | 51.0                           |
| 3          | 5.4                     | 2.308                                 | 1.147  | 43.0                           |
| 4          | 4.3                     | 2.060                                 | 1.024  | 33.0                           |
| 5          | 3.5                     | 1.858                                 | 0.925  | 25.0                           |


Correlation Coefficient : 0.9987



Remark  
 1HPa = 0.750062 mmHg

**Calibrated by:** Hui Chun Ming  
 (  )

**Date:** 9.4.08

**Checked by:** Tang Hiu Yeung  
 (  )

**Date:** 9.4.08



**High Volume Air Sampler Calibration Worksheet**

**Project Title:** Design and Construction of Tsuen Wan Drainage Tunnel  
**Monitoring Location:** Greenview Terrace  
**Calibration Date:** 08-Apr-08  
**Calibration Due Date:** 08-Jun-08  
**Time:** 08:30

|                         |          |
|-------------------------|----------|
| Sampler Model:          | TE5005X  |
| Serial No.:             | 0646     |
| Calibrator Orifice no.: | 517N     |
| Slope (m):              | 2.02842  |
| Intercept (b):          | -0.01789 |
| Correction coeff. (r)   | 0.9999   |

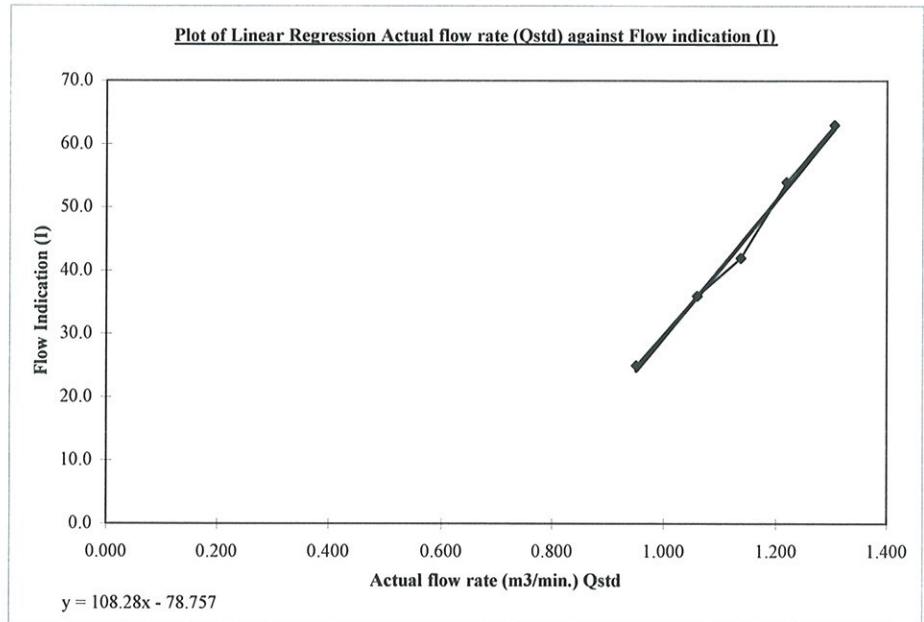
$$\text{Flow (corrected)} = \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}}$$

|                                 |        |
|---------------------------------|--------|
| Standard pressure (mmHg) Pstd:  | 756.9  |
| Standard temp. (K) Tstd:        | 297.18 |
| Calibration pressure (mmHg) Pa: | 755.7  |
| Calibration temp. (K) Ta:       | 301.6  |


$$Qstd = \frac{1}{m} \times \left( \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}} - b \right)$$

| Sample no. | Pressure Drop (H), inch | Flow (corrected), m <sup>3</sup> /min | Actual flow rate (Qstd), m <sup>3</sup> /min | Flow indication (I), arbitrary |
|------------|-------------------------|---------------------------------------|--|--------------------------------|
| 1          | 7.0                     | 2.628                                 | 1.304  | 63.0                           |
| 2          | 6.1                     | 2.453                                 | 1.218  | 54.0                           |
| 3          | 5.3                     | 2.287                                 | 1.136  | 42.0                           |
| 4          | 4.6                     | 2.130                                 | 1.059  | 36.0                           |
| 5          | 3.7                     | 1.911                                 | 0.951  | 25.0                           |


Correlation Coefficient : 0.9962



Remark  
 1HPa = 0.750062 mmHg

**Calibrated by:** Hui Chun Ming  
 (  )

**Date:** 9-4-08

**Checked by:** Tang Hiu Yeung  
 (  )

**Date:** 9-4-08

**High Volume Air Sampler Calibration Worksheet**

**Project Title:** Design and Construction of Tsuen Wan Drainage Tunnel  
**Monitoring Location:** Ho Fung College  
**Calibration Date:** 08-Apr-08  
**Calibration Due Date:** 08-Jun-08  
**Time:** 17:30

|                         |          |
|-------------------------|----------|
| Sampler Model:          | BM2000HX |
| Serial No.:             | 4994     |
| Calibrator Orifice no.: | 517N     |
| Slope (m):              | 2.02842  |
| Intercept (b):          | -0.01789 |
| Correction coeff. (r)   | 0.9999   |

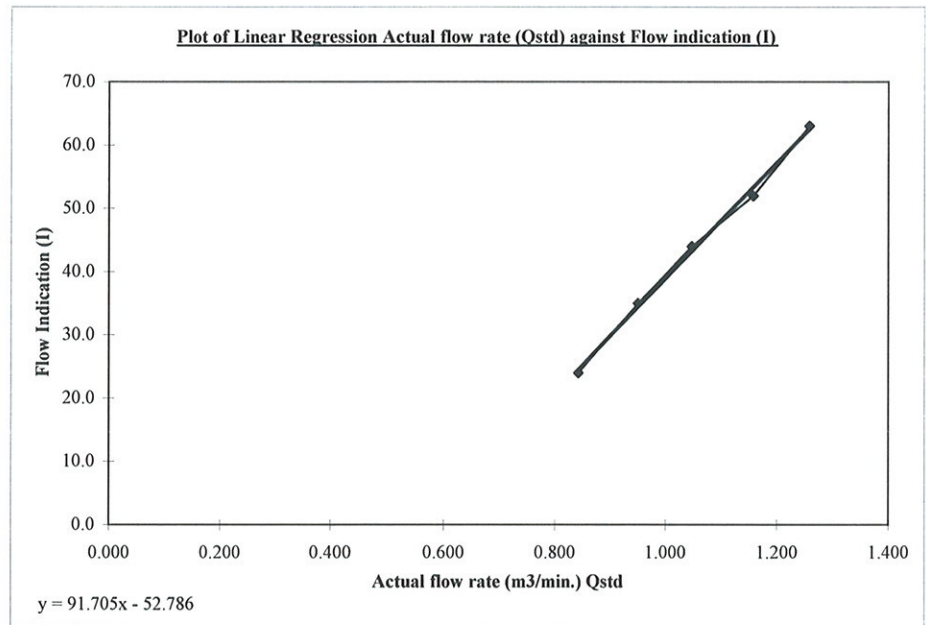
|                                 |        |
|---------------------------------|--------|
| Standard pressure (mmHg) Pstd:  | 756.9  |
| Standard temp. (K) Tstd:        | 297.18 |
| Calibration pressure (mmHg) Pa: | 755.7  |
| Calibration temp. (K) Ta:       | 301.6  |

$$Flow(\text{corrected}) = \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}}$$

$$Qstd = \frac{1}{m} \times \left( \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}} - b \right)$$

| Sample no. | Pressure Drop (H), inch | Flow (corrected), m <sup>3</sup> /min | Actual flow rate (Qstd), m <sup>3</sup> /min | Flow indication (I), arbitrary |
|------------|-------------------------|---------------------------------------|--|--------------------------------|
| 1          | 6.5                     | 2.532                                 | 1.257  | 63.0                           |
| 2          | 5.5                     | 2.329                                 | 1.157  | 52.0                           |
| 3          | 4.5                     | 2.107                                 | 1.048  | 44.0                           |
| 4          | 3.7                     | 1.911                                 | 0.951  | 35.0                           |
| 5          | 2.9                     | 1.691                                 | 0.843  | 24.0                           |


Correlation Coefficient : 0.9983



Remark  
 1HPa = 0.750062 mmHg

**Calibrated by:** Hui Chun Ming  
 (  )

**Date:** 9-4-08

**Checked by:** Tang Hiu Yeung  
 (  )

**Date:** 9-4-08

**High Volume Air Sampler Calibration Worksheet**

**Project Title:** Design and Construction of Tsuen Wan Drainage Tunnel  
**Monitoring Location:** Heng Hoi Chi Hong Ship Temple  
**Calibration Date:** 08-Apr-08  
**Calibration Due Date:** 08-Jun-08  
**Time:** 13:00

|                         |          |
|-------------------------|----------|
| Sampler Model:          | BM2000HX |
| Serial No.:             | 5875     |
| Calibrator Orifice no.: | 517N     |
| Slope (m):              | 2.02842  |
| Intercept (b):          | -0.01789 |
| Correction coeff. (r)   | 0.9999   |

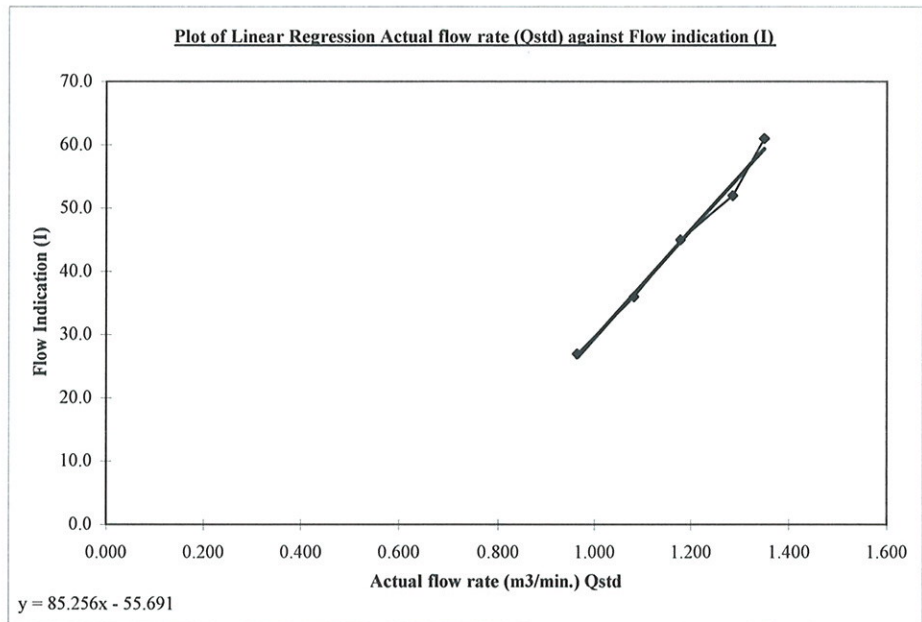
|                                 |        |
|---------------------------------|--------|
| Standard pressure (mmHg) Pstd:  | 756.9  |
| Standard temp. (K) Tstd:        | 297.18 |
| Calibration pressure (mmHg) Pa: | 755.7  |
| Calibration temp. (K) Ta:       | 301.6  |

$$\text{Flow (corrected)} = \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}}$$


$$Q_{std} = \frac{1}{m} \times \left( \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}} - b \right)$$

| Sample no. | Pressure Drop (H), inch | Flow (corrected), m <sup>3</sup> /min | Actual flow rate (Qstd), m <sup>3</sup> /min | Flow indication (I), arbitrary |
|------------|-------------------------|---------------------------------------|--|--------------------------------|
| 1          | 7.5                     | 2.720                                 | 1.350  | 61.0                           |
| 2          | 6.8                     | 2.590                                 | 1.286  | 52.0                           |
| 3          | 5.7                     | 2.371                                 | 1.178  | 45.0                           |
| 4          | 4.8                     | 2.176                                 | 1.082  | 36.0                           |
| 5          | 3.8                     | 1.936                                 | 0.963  | 27.0                           |


Correlation Coefficient : 0.9951



Remark  
 1HPa = 0.750062 mmHg

**Calibrated by:** Hui Chun Ming  
 (  )

**Date:** 9.4.08

**Checked by:** Tang Hiu Yeung  
 (  )

**Date:** 9-4-08



TISCH ENVIRONMENTAL, INC.  
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AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Apr 23, 2007 Roots-meter S/N 9833620 Ta (K) - 295  
 Operator Tisch Orifice I.D. - 517N Pa (mm) - 751.84

| PLATE OR Run # | VOLUME START (m3) | VOLUME STOP (m3) | DIFF VOLUME (m3) | DIFF TIME (min) | METER        | ORFICE         |
|----------------|-------------------|------------------|------------------|-----------------|--------------|----------------|
|                |                   |                  |                  |                 | DIFF Hg (mm) | DIFF H2O (in.) |
| 1              | NA                | NA               | 1.00             | 1.4100          | 3.2          | 2.00           |
| 2              | NA                | NA               | 1.00             | 0.9950          | 6.3          | 4.00           |
| 3              | NA                | NA               | 1.00             | 0.8910          | 7.9          | 5.00           |
| 4              | NA                | NA               | 1.00             | 0.8490          | 8.7          | 5.50           |
| 5              | NA                | NA               | 1.00             | 0.7000          | 12.7         | 8.00           |

DATA TABULATION

| Vstd                      | (x axis) Qstd | (y axis) | Va                        | (x axis) Qa | (y axis) |
|---------------------------|---------------|----------|---------------------------|-------------|----------|
| 0.9951                    | 0.7057        | 1.4137   | 0.9957                    | 0.7062      | 0.8859   |
| 0.9910                    | 0.9959        | 1.9993   | 0.9916                    | 0.9966      | 1.2528   |
| 0.9887                    | 1.1097        | 2.2353   | 0.9894                    | 1.1104      | 1.4007   |
| 0.9877                    | 1.1634        | 2.3444   | 0.9884                    | 1.1642      | 1.4690   |
| 0.9824                    | 1.4034        | 2.8275   | 0.9831                    | 1.4044      | 1.7717   |
| Qstd slope (m) = 2.02842  |               |          | Qa slope (m) = 1.27016    |             |          |
| intercept (b) = -0.01789  |               |          | intercept (b) = -0.01121  |             |          |
| coefficient (r) = 0.99998 |               |          | coefficient (r) = 0.99998 |             |          |

y axis =  $\text{SQRT}[\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta})]$

y axis =  $\text{SQRT}[\text{H}_2\text{O}(\text{Ta}/\text{Pa})]$

CALCULATIONS

$V_{std} = \text{Diff. Vol} [(\text{Pa} - \text{Diff. Hg}) / 760] (298 / \text{Ta})$   
 $Q_{std} = V_{std} / \text{Time}$

$V_a = \text{Diff Vol} [(\text{Pa} - \text{Diff Hg}) / \text{Pa}]$   
 $Q_a = V_a / \text{Time}$

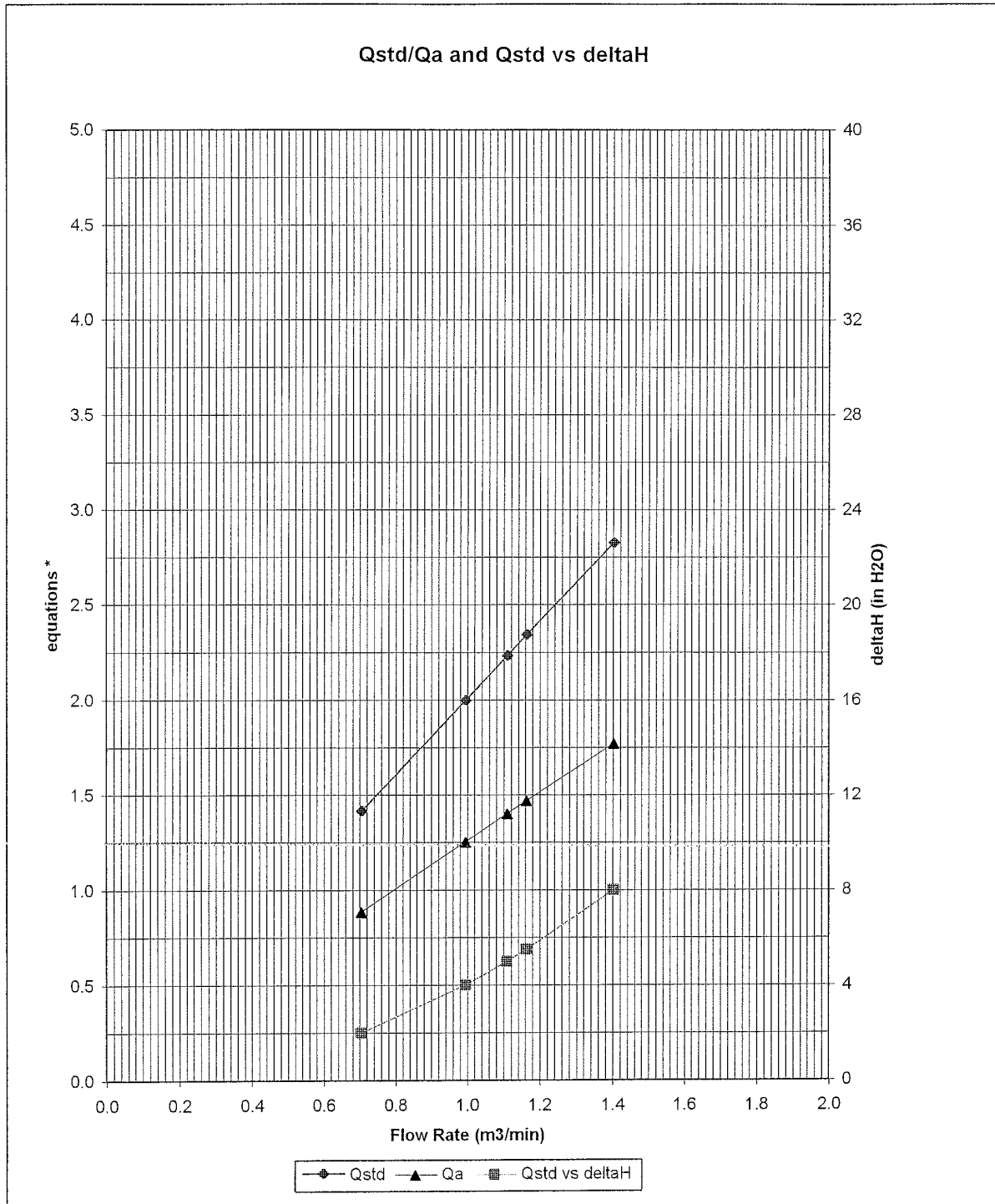
For subsequent flow rate calculations:

$Q_{std} = 1/m \{ [\text{SQRT}(\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta}))] - b \}$   
 $Q_a = 1/m \{ [\text{SQRT} \text{H}_2\text{O}(\text{Ta}/\text{Pa})] - b \}$



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AIR POLLUTION MONITORING EQUIPMENT



\* y-axis equations:

Qstd series: 
$$\sqrt{\Delta H \left( \frac{P_a}{P_{std}} \right) \left( \frac{T_{std}}{T_a} \right)}$$

Qa series: 
$$\sqrt{(\Delta H (T_a / P_a))}$$

#517N



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AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Apr 28, 2008 Rootsmeter S/N 9833620 Ta (K) - 296  
 Operator: Tisch Orifice I.D. - 517N Pa (mm) - 749.3

| PLATE OR Run # | VOLUME START (m3) | VOLUME STOP (m3) | DIFF VOLUME (m3) | DIFF TIME (min) | METER DIFF Hg (mm) | ORIFICE DIFF H2O (in.) |
|----------------|-------------------|------------------|------------------|-----------------|--------------------|------------------------|
| 1              | NA                | NA               | 1.00             | 1.4040          | 3.2                | 2.00                   |
| 2              | NA                | NA               | 1.00             | 0.9940          | 6.4                | 4.00                   |
| 3              | NA                | NA               | 1.00             | 0.8860          | 7.9                | 5.00                   |
| 4              | NA                | NA               | 1.00             | 0.8450          | 8.8                | 5.50                   |
| 5              | NA                | NA               | 1.00             | 0.6980          | 12.8               | 8.00                   |

DATA TABULATION

| Vstd                                | (x axis) Qstd | (y axis) | Va                        | (x axis) Qa | (y axis) |
|-------------------------------------|---------------|----------|---------------------------|-------------|----------|
| 0.9883                              | 0.7039        | 1.4090   | 0.9957                    | 0.7092      | 0.8889   |
| 0.9841                              | 0.9901        | 1.9926   | 0.9915                    | 0.9975      | 1.2570   |
| 0.9820                              | 1.1084        | 2.2278   | 0.9894                    | 1.1167      | 1.4054   |
| 0.9809                              | 1.1608        | 2.3365   | 0.9882                    | 1.1695      | 1.4740   |
| 0.9756                              | 1.3977        | 2.8179   | 0.9829                    | 1.4082      | 1.7777   |
| Qstd slope (m) = 2.02953            |               |          | Qa slope (m) = 1.27086    |             |          |
| intercept (b) = -0.01939            |               |          | intercept (b) = -0.01223  |             |          |
| coefficient (r) = 0.99999           |               |          | coefficient (r) = 0.99999 |             |          |
| y axis = SQRT[H2O(Pa/760) (298/Ta)] |               |          | y axis = SQRT[H2O(Ta/Pa)] |             |          |

CALCULATIONS

$$Vstd = \text{Diff. Vol} [(Pa - \text{Diff. Hg}) / 760] (298 / Ta)$$

$$Qstd = Vstd / \text{Time}$$

$$Va = \text{Diff Vol} [(Pa - \text{Diff Hg}) / Pa]$$

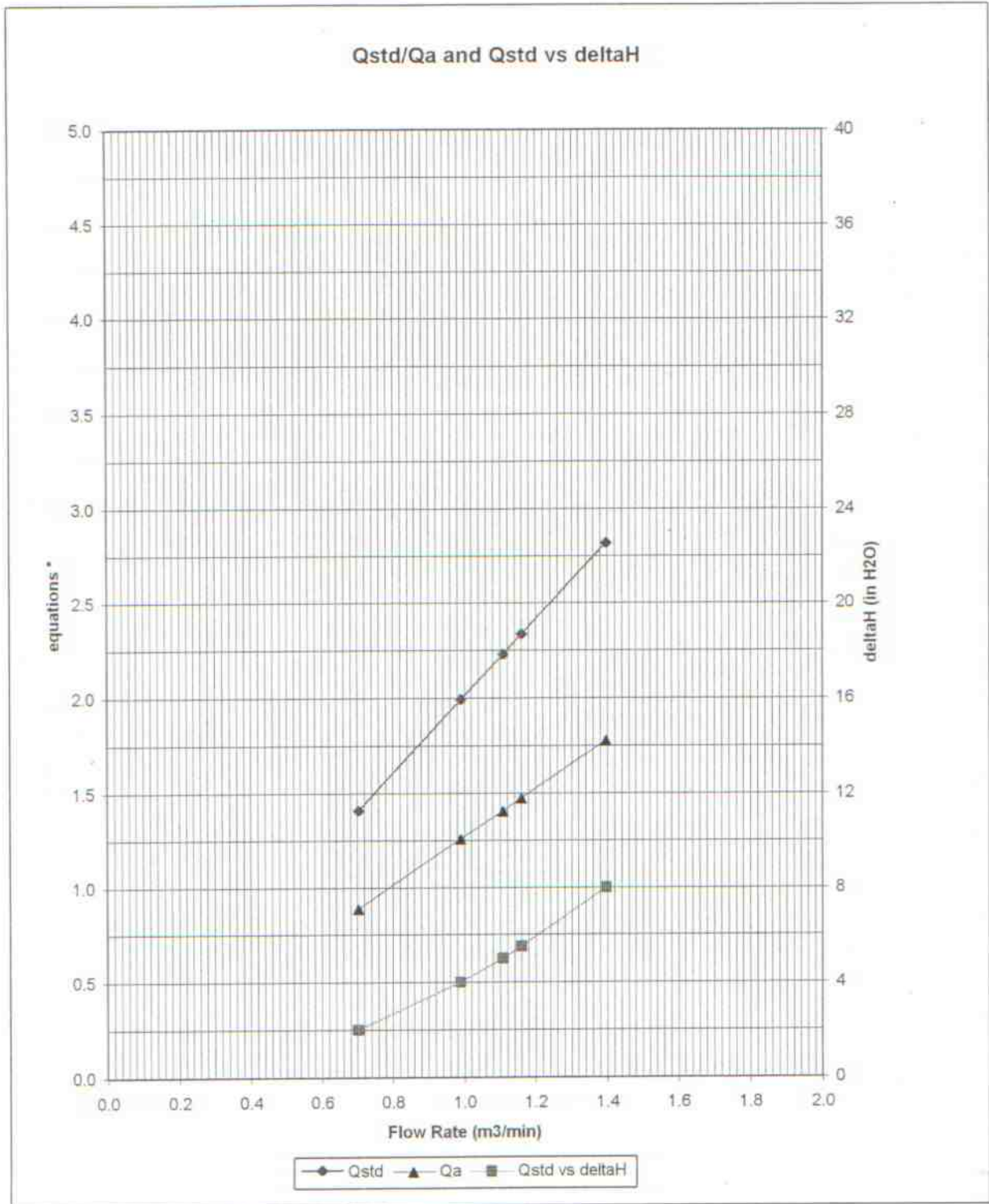
$$Qa = Va / \text{Time}$$

For subsequent flow rate calculations:

$$Qstd = 1/m \{ [\text{SQRT}(\text{H2O}(\text{Pa}/760) (298/\text{Ta}))] - b \}$$

$$Qa = 1/m \{ [\text{SQRT} \text{H2O}(\text{Ta}/\text{Pa})] - b \}$$

AIR POLLUTION MONITORING EQUIPMENT



\* y-axis equations:

Qstd series: 
$$\sqrt{\Delta H \left( \frac{P_a}{P_{std}} \right) \left( \frac{T_{std}}{T_a} \right)}$$

Qa series: 
$$\sqrt{(\Delta H (T_a / P_a))}$$

#517N

# Calibration Certificate

Certificate No. **80026**

Page 1 of 3 Pages

**Customer :** Hyder Consulting Limited

**Address :** Room 3801., Hopewell Centre, 183 Queen's Road East, Wan Chai, Hong Kong

**Order No. :** Q72325

**Date of receipt :** 3-Jan-08

## Item Tested

**Description :** Sound Level Meter

**Manufacturer :** B&K

**Model :** 2238

**Serial No. :** 2285726

## Test Conditions

**Date of Test :** 17-Jan-08

**Supply Voltage :** --

**Ambient Temperature :** (23 ± 3)°C

**Relative Humidity :** (50 ± 25) %

## Test Specifications

Calibration check.

Calibration procedure : Z01.

## Test Results

All results were within the IEC 651 Type 1 & IEC 804 Type 1 specification.

The results are shown in the attached page(s).

Main Test equipment used:

| <u>Equipment No.</u> | <u>Description</u>       | <u>Cert. No.</u> | <u>Due Date</u> | <u>Traceable to</u> |
|----------------------|--------------------------|------------------|-----------------|---------------------|
| S017                 | Multi-Function Generator | C071115          | 14-Mar-08       | SCL-HKSAR           |
| S024                 | Sound Level Calibrator   | 71791            | 16-Jul-08       | NIM-PRC & SCL-HKSAR |

The values given in this Calibration 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 environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. 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 International System of Units (SI).

The test results apply to the above Unit-Under-Test only

**Calibrated by :**   
P.F. Wong

**Approved by :**   
Dorothy Cheuk

**Date:** 17-Jan-08

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8646

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# Calibration Certificate

Certificate No. **80026**

Page 2 of 3 Pages

Results :

## 1. SPL Accuracy

| Range    | UUT Setting |          |              | Applied Value (dB) | UUT Reading (dB) |
|----------|-------------|----------|--------------|--------------------|------------------|
|          | Freq. Wgt.  | Bandwith | Center Freq. |                    |                  |
| 20 ~ 100 | A           | BB/F     | --           | 94.03              | 93.9             |
|          | A           | BB/S     | --           |                    | 93.9             |
|          | C           | BB/F     | --           |                    | 93.9             |
| 40 ~ 120 | A           | BB/F     | --           | 94.03              | 94.0             |
|          | A           | BB/F     | --           | 113.97             | 113.8            |

IEC 651 Type 1 Spec. :  $\pm 0.7$  dB  
Uncertainty :  $\pm 0.1$  dB

## 2. Level Stability : 0.0 dB

IEC 651 Type 1 Spec. :  $\pm 0.3$  dB  
Uncertainty :  $\pm 0.01$  dB

## 3. Linearity

### 3.1 Level Linearity

| UUT Range | Applied Value (dB) | UUT Reading (dB) | Variation (dB) | IEC 651 Type 1 Spec. (Primary Indicator Range) |
|-----------|--------------------|------------------|----------------|--|
| 140       | 114.0              | 114.0            | 0.0            | $\pm 0.7$ dB                                   |
| 130       | 104.0              | 104.0            | 0.0            |  |
| 120       | 94.0               | 94.0 (Ref.)      | --             |  |
| 110       | 84.0               | 84.0             | 0.0            |  |
| 100       | 74.0               | 74.0             | 0.0            |  |
| 90        | 64.0               | 64.0             | 0.0            |  |
| 80        | 54.0               | 54.0             | 0.0            |  |

Uncertainty :  $\pm 0.1$  dB

### 3.2 Differential level linearity

| UUT Range | Applied Value (dB) | UUT Reading (dB) | Variation (dB) | IEC 651 Type 1 Spec. |
|-----------|--------------------|------------------|----------------|----------------------|
| 120       | 84.0               | 84.0             | 0.0            | $\pm 0.4$ dB         |
|           | 94.0               | 94.0 (Ref.)      | --             |                      |
|           | 95.0               | 95.0             | 0.0            | $\pm 0.2$ dB         |
|           | 104.0              | 103.9            | 0.1            | $\pm 0.3$ dB         |
|           | 105.0              | 104.9            | 0.1            | $\pm 1.0$ dB         |

Uncertainty :  $\pm 0.1$  dB



# Calibration Certificate

Certificate No. 80026

Page 3 of 3 Pages

## 4. Frequency Weighting

A weighting

| Frequency | Attenuation (dB) | IEC 651 Type 1 Spec.          |
|-----------|------------------|-------------------------------|
| 31.5 Hz   | - 39.3           | - 39.4 dB, $\pm 1.5$ dB       |
| 63 Hz     | - 26.1           | - 26.2 dB, $\pm 1.5$ dB       |
| 125 Hz    | - 16.1           | - 16.1 dB, $\pm 1$ dB         |
| 250 Hz    | - 8.7            | - 8.6 dB, $\pm 1$ dB          |
| 500 Hz    | - 3.2            | - 3.2 dB, $\pm 1$ dB          |
| 1 kHz     | 0.0 (Ref)        | 0 dB, $\pm 1$ dB              |
| 2 kHz     | + 1.2            | + 1.2 dB, $\pm 1$ dB          |
| 4 kHz     | + 1.0            | + 1.0 dB, $\pm 1$ dB          |
| 8 kHz     | - 1.1            | - 1.1 dB, + 1.5 dB ~ -3 dB    |
| 16 kHz    | - 6.7            | - 6.6 dB, + 3 dB ~ - $\infty$ |

Uncertainty :  $\pm 0.1$  dB

## 5. Time Averaging

| Applied Burst duty Factor | Applied Leq Value (dB) | UUT Reading (dB) | IEC 804 Type 1 Spec. |
|---------------------------|------------------------|------------------|----------------------|
| continuous                | 40.0                   | 40.0             | --                   |
| 1/10                      | 40.0                   | 39.9             | $\pm 0.5$ dB         |
| 1/10 <sup>2</sup>         | 40.0                   | 39.6             |                      |
| 1/10 <sup>3</sup>         | 40.0                   | 39.4             | $\pm 1.0$ dB         |
| 1/10 <sup>4</sup>         | 40.0                   | 39.1             |                      |

Uncertainty :  $\pm 0.1$  dB

Remarks : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric pressure : 1 015 hPa.

----- END -----



Hong Kong Calibration Ltd.  
香港校正有限公司

## Calibration Certificate

Certificate No. **80027**

Page 1 of 2 Pages

**Customer :** Hyder Consulting Limited

**Address :** Room 3801., Hopewell Centre, 183 Queen's Road East, Wan Chai, Hong Kong

**Order No. :** Q72325

**Date of receipt :** 3-Jan-08

### Item Tested

**Description :** Sound Level Calibrator

**Manufacturer :** B&K

**Model :** Type 4231

**Serial No. :** 1770806

### Test Conditions

**Date of Test :** 17-Jan-08

**Supply Voltage :** --

**Ambient Temperature :** (23 ± 3)°C

**Relative Humidity :** (50 ± 25) %

### Test Specifications

Calibration check.

Calibration procedure : F21, Z02.

### Test Results

All results were within the IEC 942 Class 1 specification.  
The results are shown in the attached page(s).


Main Test equipment used:

| <u>Equipment No.</u> | <u>Description</u>     | <u>Cert. No.</u> | <u>Due Date</u> | <u>Traceable to</u> |
|----------------------|------------------------|------------------|-----------------|---------------------|
| S014                 | Spectrum Analyzer      | 73602            | 7-Jul-08        | NIM-PRC & SCL-HKSAR |
| S024                 | Sound Level Calibrator | 71791            | 16-Jul-08       | NIM-PRC & SCL-HKSAR |
| S041                 | Universal Counter      | 73453            | 22-Aug-08       | SCL-HKSAR           |

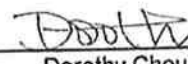
The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. 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 International System of Units (SI).  
The test results apply to the above Unit-Under-Test only

Calibrated by :

  
P.F. Wong

Approved by :

  
Dorothy Cheuk

Date: 17-Jan-08

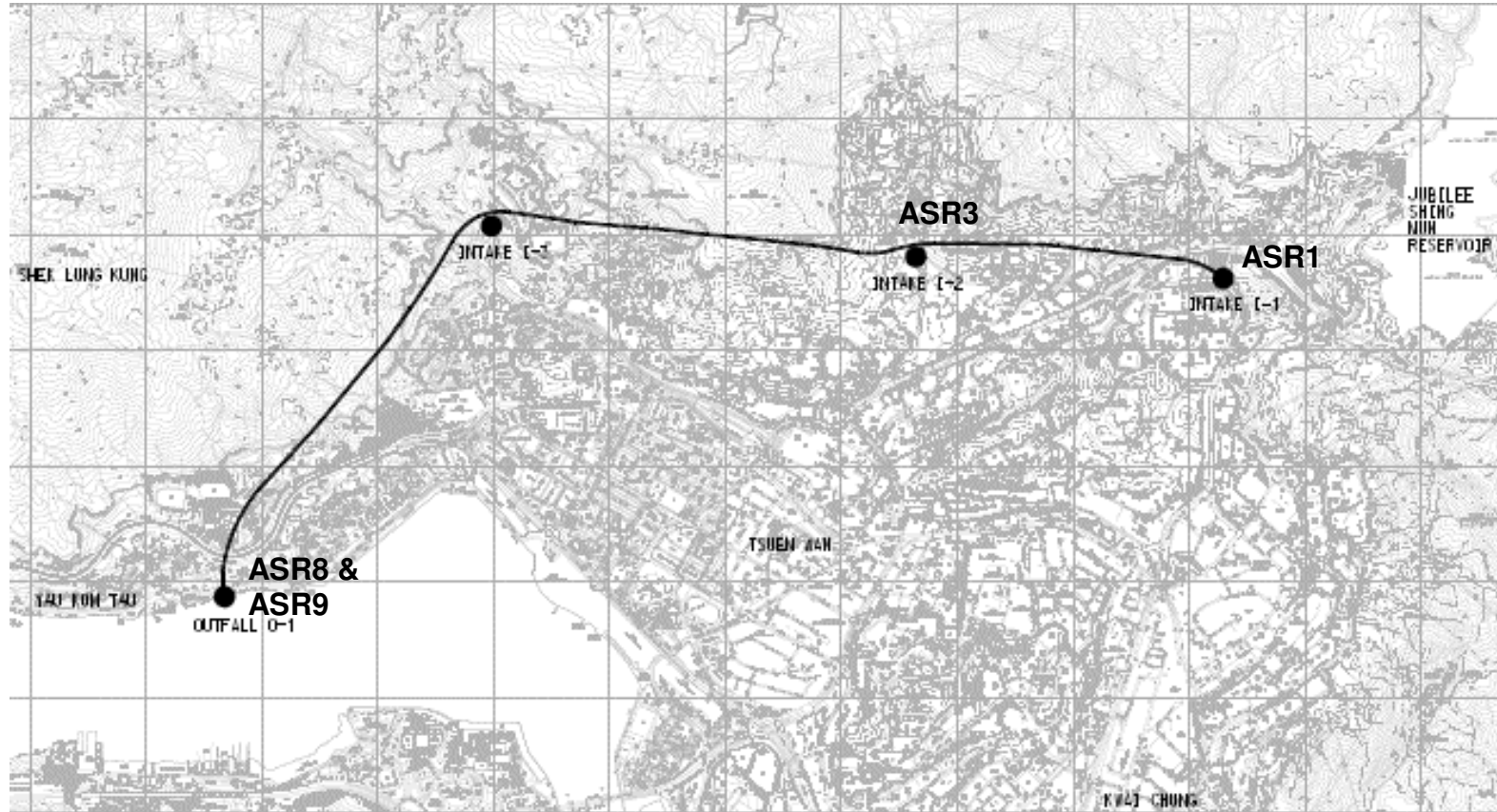
This Certificate is issued by:  
Hong Kong Calibration Ltd.  
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-75, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.  
Tel: 2425 8801 Fax: 2425 8848

The copyright of this certificate is owned by Hong Kong Calibration Ltd.. It may not be reproduced except in full.

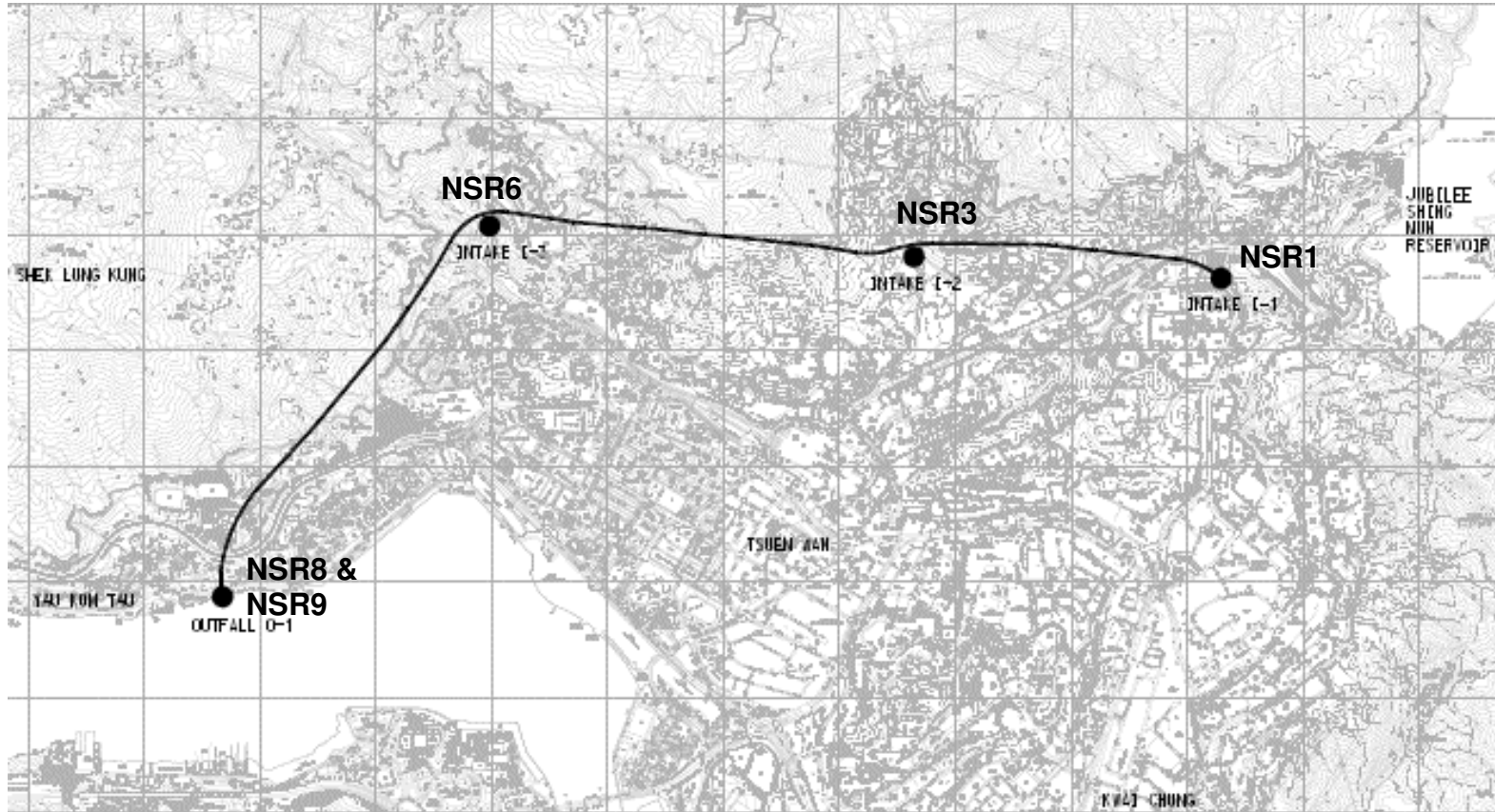
# Appendix G

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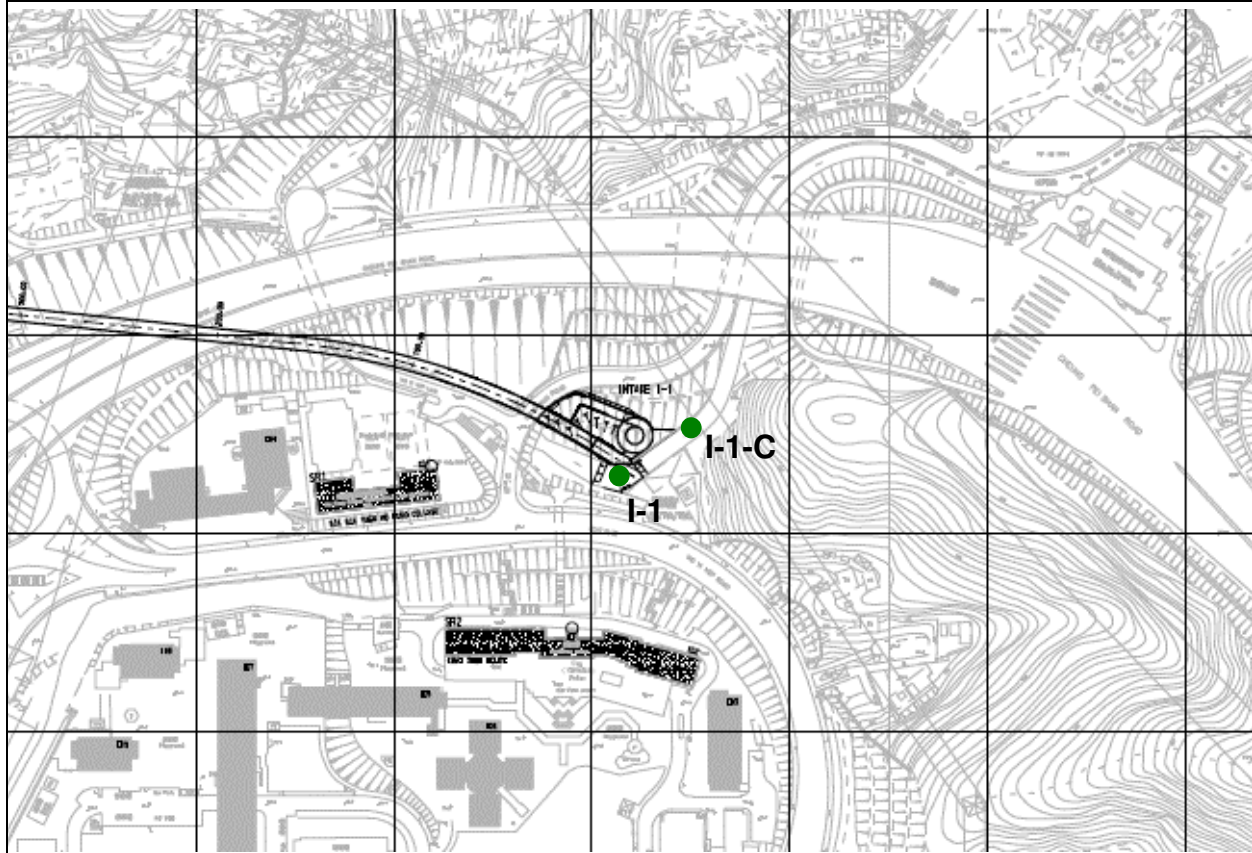
## Monitoring Locations



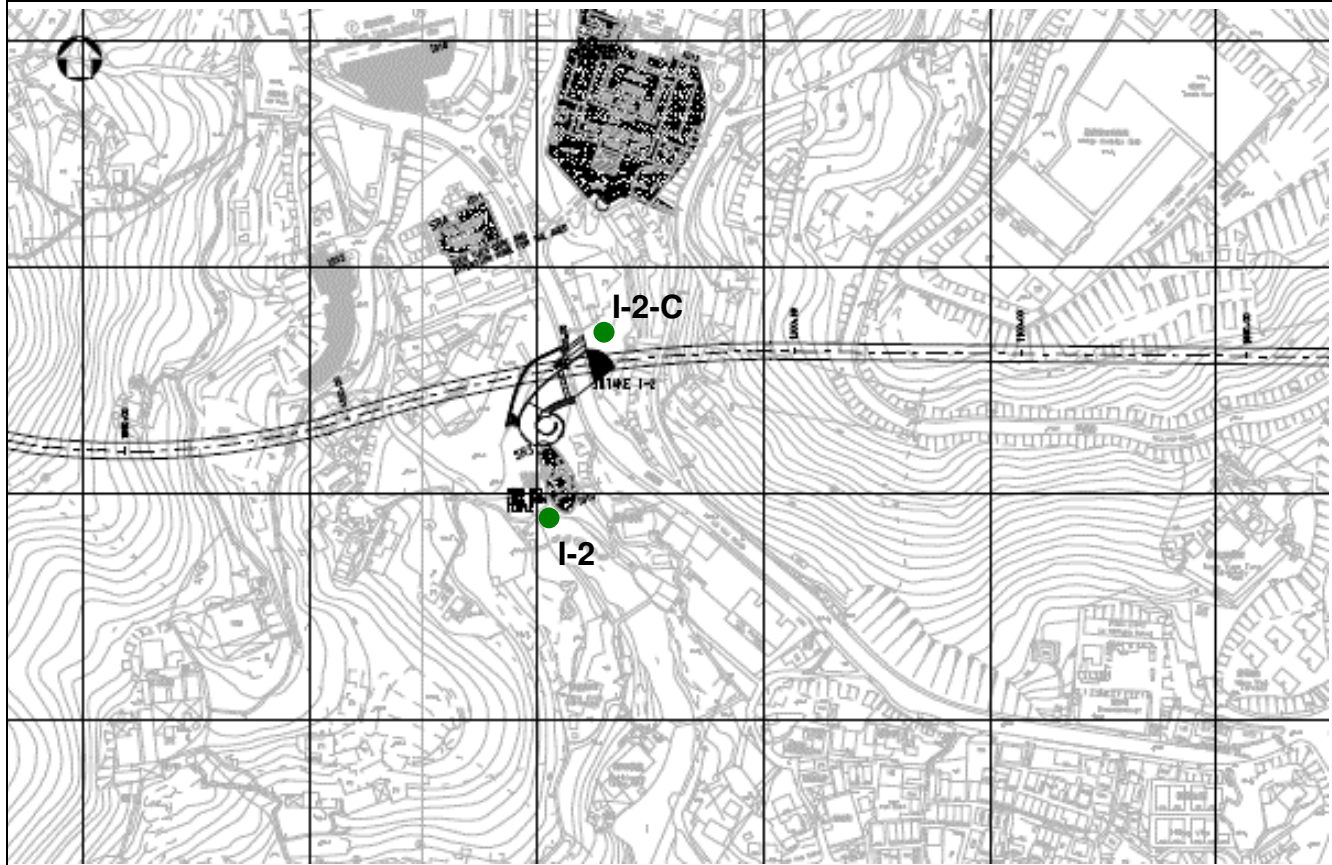
Air Quality Monitoring Station



Noise Monitoring Station

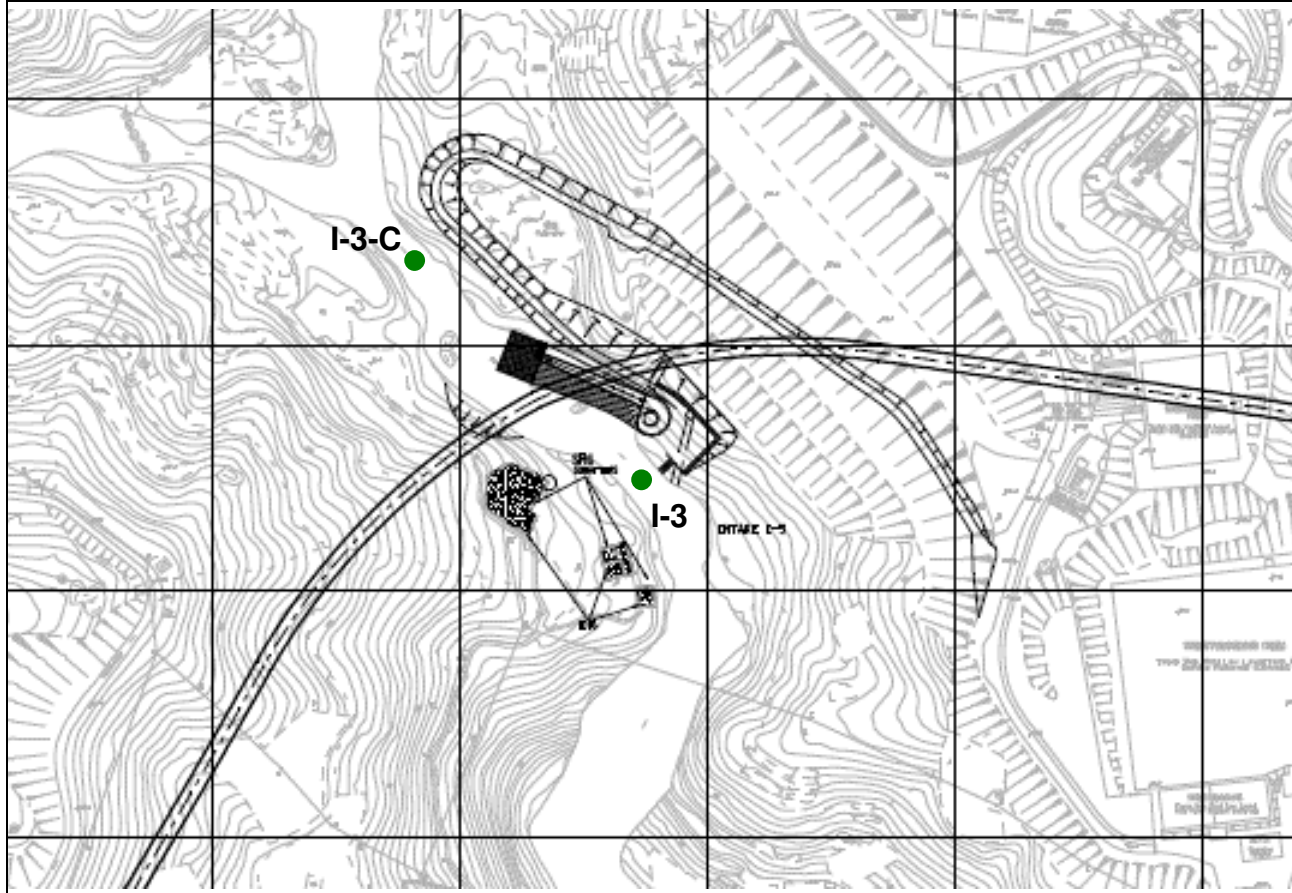


I-1 & I-1-C at Intake I-1

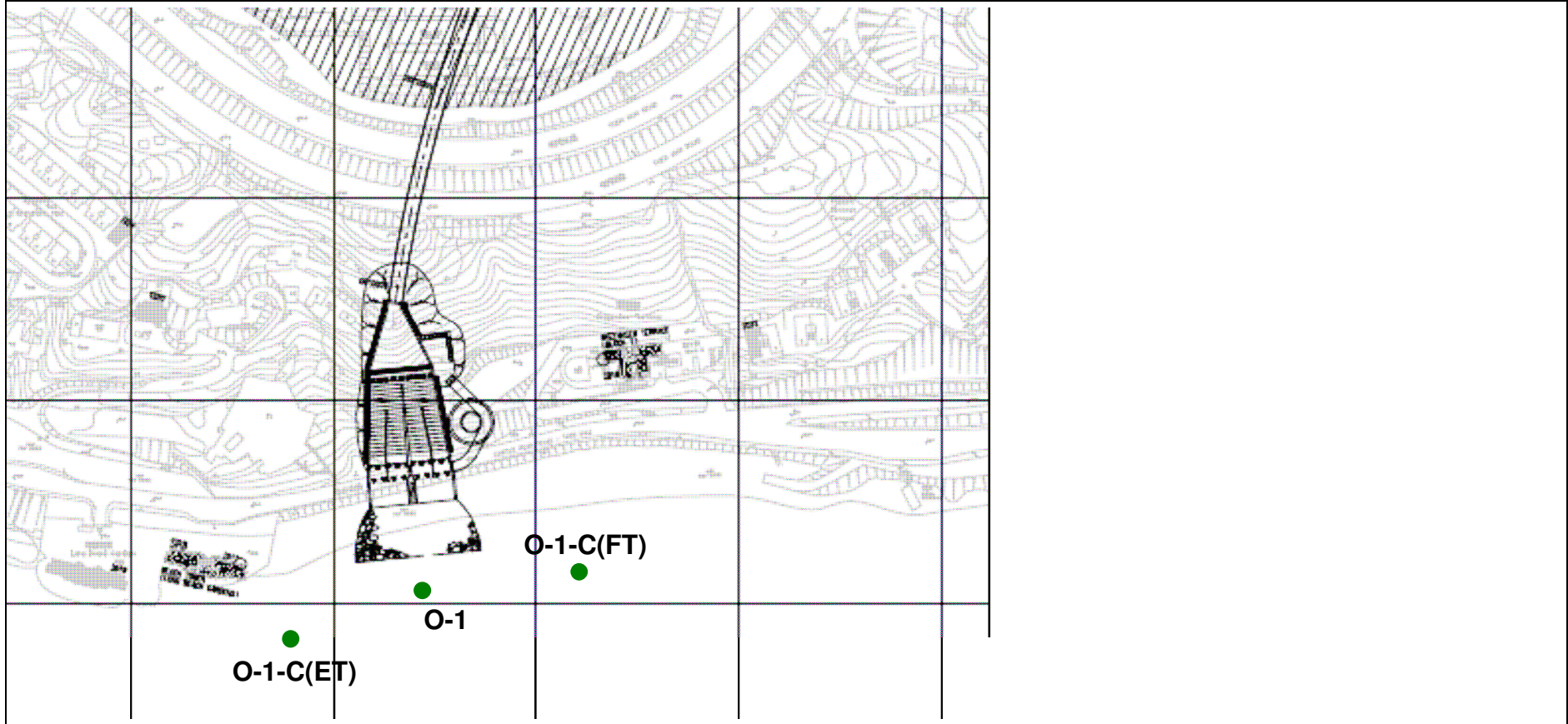


I-2 & I-2-C at Intake I-2





I-3 & I-3-C at Intake I-3



O-1, O-1-C(ET) & O-1-C(FT) at Outfall O-1

# Appendix H

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EM&A Schedule

**Tsuen Wan Drainage Tunnel**  
**Impact Monitoring Programme – April 2008**

| Date      |     | Air | Noise | Water |
|-----------|-----|-----|-------|-------|
| 01-Apr-08 | Tue |     |       |       |
| 02-Apr-08 | Wed |     |       |       |
| 03-Apr-08 | Thu |     |       |       |
| 04-Apr-08 | Fri |     |       |       |
| 05-Apr-08 | Sat |     |       |       |
| 06-Apr-08 | Sun |     |       |       |
| 07-Apr-08 | Mon |     |       |       |
| 08-Apr-08 | Tue | ✓   | ✓     | ✓     |
| 09-Apr-08 | Wed |     |       |       |
| 10-Apr-08 | Thu |     |       | ✓     |
| 11-Apr-08 | Fri |     |       |       |
| 12-Apr-08 | Sat |     |       | ✓     |
| 13-Apr-08 | Sun |     |       |       |
| 14-Apr-08 | Mon | ✓   | ✓     |       |
| 15-Apr-08 | Tue |     |       | ✓     |
| 16-Apr-08 | Wed |     |       |       |
| 17-Apr-08 | Thu |     |       | ✓     |
| 18-Apr-08 | Fri |     |       |       |
| 19-Apr-08 | Sat | ✓   |       | ✓     |
| 20-Apr-08 | Sun |     |       |       |
| 21-Apr-08 | Mon |     |       |       |
| 22-Apr-08 | Tue |     |       | ✓     |
| 23-Apr-08 | Wed |     |       |       |
| 24-Apr-08 | Thu |     |       | ✓     |
| 25-Apr-08 | Fri | ✓   | ✓     |       |
| 26-Apr-08 | Sat |     |       | ✓     |
| 27-Apr-08 | Sun |     |       |       |
| 28-Apr-08 | Mon |     |       |       |
| 29-Apr-08 | Tue |     |       | ✓     |
| 30-Apr-08 | Wed |     |       |       |

Note:

Shaded area indicates public holiday.

Air – Monitoring of 1-hour TSP per six days

Noise – Noise measurements once per week

Water – Water measurements takes three times per week

**Contract No. DC/2007/12 – Design and Construction of  
Tsuen Wan Drainage Tunnel  
Impact Monitoring Programme – May 2008**

| Date      |     | Air | Noise | Water |
|-----------|-----|-----|-------|-------|
| 01-May-08 | Thu |     |       |       |
| 02-May-08 | Fri | ✓   | ✓     | ✓     |
| 03-May-08 | Sat |     |       |       |
| 04-May-08 | Sun |     |       |       |
| 05-May-08 | Mon |     |       | ✓     |
| 06-May-08 | Tue |     |       |       |
| 07-May-08 | Wed |     |       | ✓     |
| 08-May-08 | Thu | ✓   | ✓     |       |
| 09-May-08 | Fri |     |       | ✓     |
| 10-May-08 | Sat |     |       |       |
| 11-May-08 | Sun |     |       |       |
| 12-May-08 | Mon |     |       |       |
| 13-May-08 | Tue |     |       | ✓     |
| 14-May-08 | Wed | ✓   | ✓     |       |
| 15-May-08 | Thu |     |       | ✓     |
| 16-May-08 | Fri |     |       |       |
| 17-May-08 | Sat |     |       | ✓     |
| 18-May-08 | Sun |     |       |       |
| 19-May-08 | Mon |     |       | ✓     |
| 20-May-08 | Tue | ✓   | ✓     |       |
| 21-May-08 | Wed |     |       | ✓     |
| 22-May-08 | Thu |     |       |       |
| 23-May-08 | Fri |     |       | ✓     |
| 24-May-08 | Sat |     |       |       |
| 25-May-08 | Sun |     |       |       |
| 26-May-08 | Mon | ✓   | ✓     | ✓     |
| 27-May-08 | Tue |     |       |       |
| 28-May-08 | Wed |     |       | ✓     |
| 29-May-08 | Thu |     |       |       |
| 30-May-08 | Fri |     |       | ✓     |
| 31-May-08 | Sat | ✓   |       |       |

Note:

Shaded area indicates public holiday.

Air – Monitoring of three times for 1-hour TSP per every six days

Noise – Noise measurements once every week at (0700-1900 Monday to Saturday)

Water – Water monitoring will be propose after the completion of additional baseline monitoring (05 May 2008)

**Contract No. DC/2007/12 – Design and Construction of  
Tsuen Wan Drainage Tunnel  
Impact Monitoring Programme – June 2008**

| Date      |     | Air | Noise | Water |
|-----------|-----|-----|-------|-------|
| 01-Jun-08 | Sun |     |       |       |
| 02-Jun-08 | Mon |     |       | ✓     |
| 03-Jun-08 | Tue |     |       |       |
| 04-Jun-08 | Wed |     |       | ✓     |
| 05-Jun-08 | Thu |     |       |       |
| 06-Jun-08 | Fri | ✓   | ✓     | ✓     |
| 07-Jun-08 | Sat |     |       |       |
| 08-Jun-08 | Sun |     |       |       |
| 09-Jun-08 | Mon |     |       | ✓     |
| 10-Jun-08 | Tue |     |       |       |
| 11-Jun-08 | Wed |     |       | ✓     |
| 12-Jun-08 | Thu | ✓   | ✓     |       |
| 13-Jun-08 | Fri |     |       | ✓     |
| 14-Jun-08 | Sat |     |       |       |
| 15-Jun-08 | Sun |     |       |       |
| 16-Jun-08 | Mon |     |       | ✓     |
| 17-Jun-08 | Tue |     |       |       |
| 18-Jun-08 | Wed | ✓   | ✓     | ✓     |
| 19-Jun-08 | Thu |     |       |       |
| 20-Jun-08 | Fri |     |       | ✓     |
| 21-Jun-08 | Sat |     |       |       |
| 22-Jun-08 | Sun |     |       |       |
| 23-Jun-08 | Mon |     |       | ✓     |
| 24-Jun-08 | Tue | ✓   | ✓     |       |
| 25-Jun-08 | Wed |     |       | ✓     |
| 26-Jun-08 | Thu |     |       |       |
| 27-Jun-08 | Fri |     |       | ✓     |
| 28-Jun-08 | Sat |     |       |       |
| 29-Jun-08 | Sun |     |       |       |
| 30-Jun-08 | Mon | ✓   | ✓     | ✓     |

Note:

Shaded area indicates public holiday.

Air – Monitoring of three times for 1-hour TSP per every six days

Noise – Noise measurements once every week at (0700-1900 Monday to Saturday)

Water – Water measurements takes three times per week

**Contract No. DC/2007/12 – Design and Construction of  
Tsuen Wan Drainage Tunnel  
Impact Monitoring Programme – July 2008**

| Date      |     | Air | Noise | Water |
|-----------|-----|-----|-------|-------|
| 01-Jul-08 | Tue |     |       |       |
| 02-Jul-08 | Wed |     |       | ✓     |
| 03-Jul-08 | Thu |     |       |       |
| 04-Jul-08 | Fri |     |       | ✓     |
| 05-Jul-08 | Sat | ✓   |       |       |
| 06-Jul-08 | Sun |     |       |       |
| 07-Jul-08 | Mon |     |       | ✓     |
| 08-Jul-08 | Tue |     |       |       |
| 09-Jul-08 | Wed |     |       | ✓     |
| 10-Jul-08 | Thu |     |       |       |
| 11-Jul-08 | Fri | ✓   | ✓     | ✓     |
| 12-Jul-08 | Sat |     |       |       |
| 13-Jul-08 | Sun |     |       |       |
| 14-Jul-08 | Mon |     |       | ✓     |
| 15-Jul-08 | Tue |     |       |       |
| 16-Jul-08 | Wed |     |       | ✓     |
| 17-Jul-08 | Thu | ✓   | ✓     |       |
| 18-Jul-08 | Fri |     |       | ✓     |
| 19-Jul-08 | Sat |     |       |       |
| 20-Jul-08 | Sun |     |       |       |
| 21-Jul-08 | Mon |     |       | ✓     |
| 22-Jul-08 | Tue |     |       |       |
| 23-Jul-08 | Wed | ✓   | ✓     | ✓     |
| 24-Jul-08 | Thu |     |       |       |
| 25-Jul-08 | Fri |     |       | ✓     |
| 26-Jul-08 | Sat |     |       |       |
| 27-Jul-08 | Sun |     |       |       |
| 28-Jul-08 | Mon | ✓   | ✓     | ✓     |
| 29-Jul-08 | Tue |     |       |       |
| 30-Jul-08 | Wed |     |       | ✓     |
| 31-Jul-08 | Thu |     |       |       |

Note:

Shaded area indicates public holiday.

Air – Monitoring of three times for 1-hour TSP per every six days

Noise – Noise measurements once every week at (0700-1900 Monday to Saturday)

Water – Water measurements takes three times per week

# Appendix I

---

## Monitoring Results



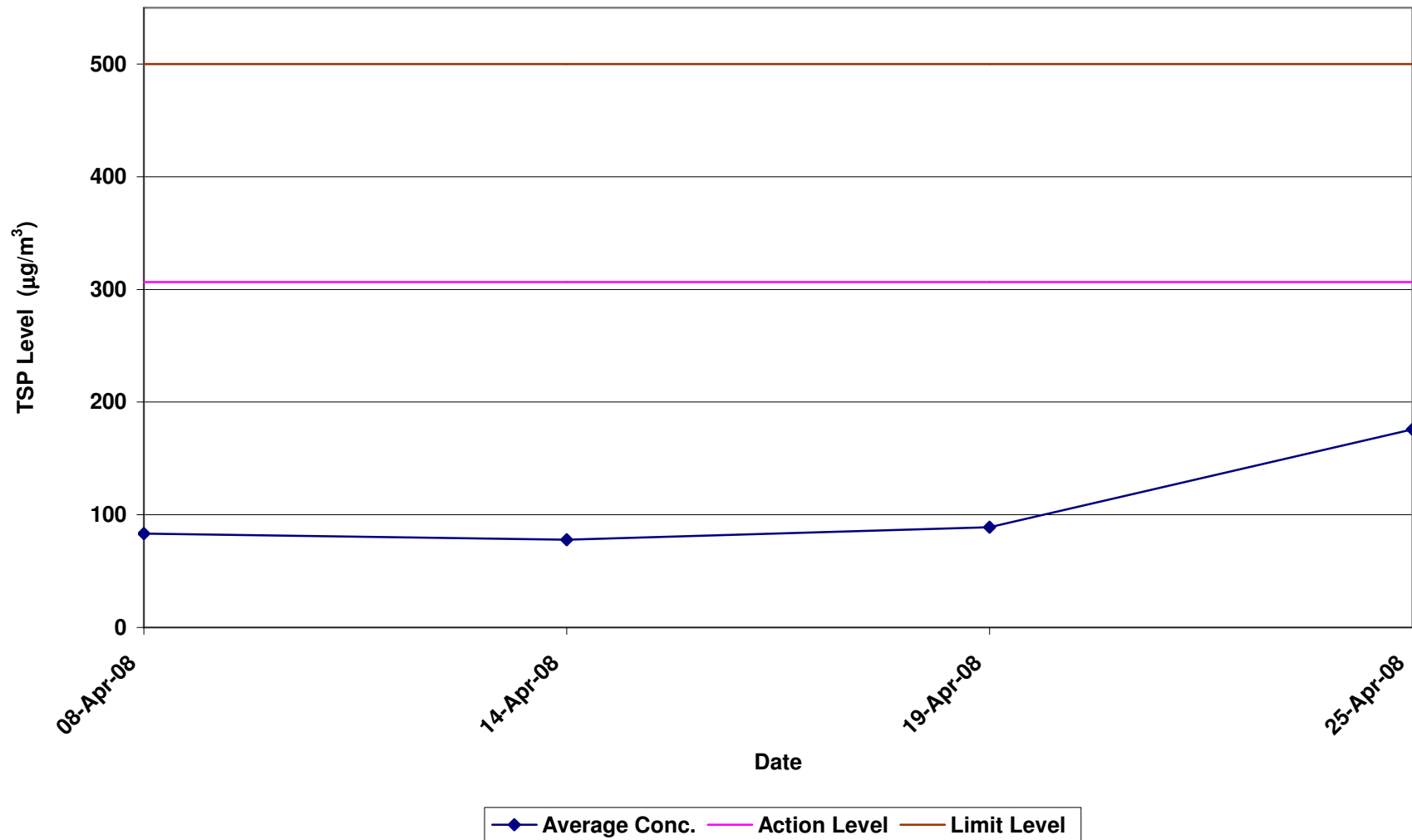
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel

Air Quality Impact Monitoring Results (1-Hour TSP)

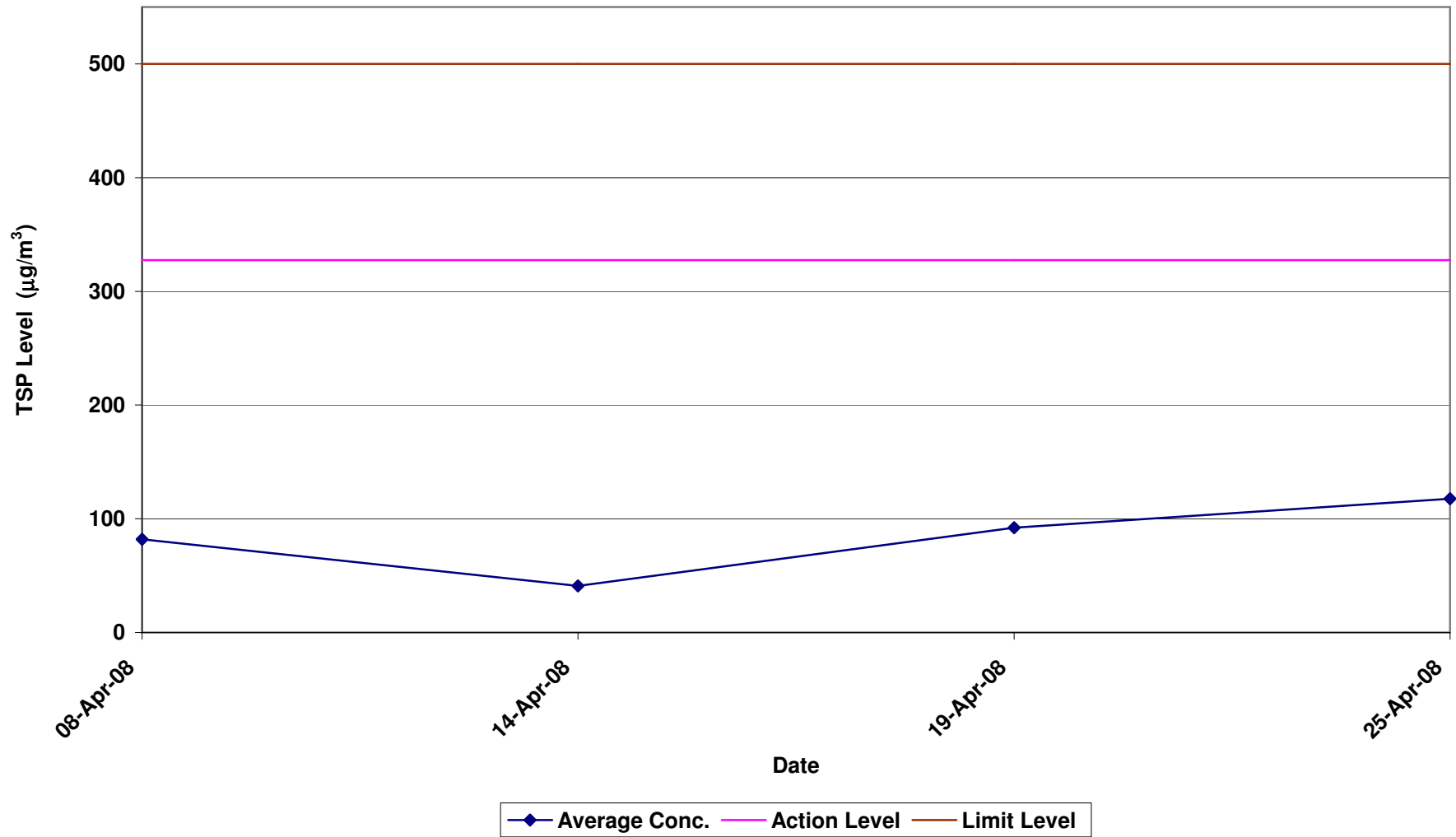
| Location                                   | Monitoring Date | Weather Conditions | Wind Speed with Direction (m/s) | Temp (oC) | Timer-I | Timer-F | Time (mins) | Flow-I (CFM) | Flow-F (CFM) | Flow-I (m <sup>3</sup> /min) | Flow-F (m <sup>3</sup> /min) | Flow-avg (m <sup>3</sup> /min) | Volume (m <sup>3</sup> ) | Weight-I (g) | Weight-F (g) | Weight-diff. (g) | 1-hr TSP (µg/m <sup>3</sup> ) | Average 1-Hr TSP (µg/m <sup>3</sup> ) | Action/Limit Levels (µg/m <sup>3</sup> ) | Observation /Site Condition | Remark |     |                                      |
|--|-----------------|--------------------|---------------------------------|-----------|---------|---------|-------------|--------------|--------------|------------------------------|------------------------------|--------------------------------|--------------------------|--------------|--------------|------------------|-------------------------------|---------------------------------------|--|-----------------------------|--------|-----|--------------------------------------|
| Sik Sik Yuen Ho Fung College Intake (ASR1) | 08-Apr-08       | Sunny              | 0.6 S                           | 27        | 552990  | 553082  | 55.2        | 38           | 38           | 1.08                         | 1.08                         | 1.08                           | 59.78                    | 2.7416       | 2.7474       | 0.0058           | 97.0                          | 83.4                                  | 306.6/500                                | N/A                         |        |     |                                      |
|  |                 | Sunny              | 0.6 S                           | 27        | 553082  | 553175  | 55.8        | 38           | 38           | 1.08                         | 1.08                         | 1.08                           | 60.43                    | 2.7816       | 2.7863       | 0.0047           | 77.8                          |                                       |  |                             |        |     |                                      |
|  |                 | Sunny              | 0.6 S                           | 27        | 553175  | 553269  | 56.4        | 38           | 38           | 1.08                         | 1.08                         | 1.08                           | 61.08                    | 2.7902       | 2.7948       | 0.0046           | 75.3                          |                                       |  |                             |        |     |                                      |
|  | 14-Apr-08       | Sunny              | 1.1 S                           | 24        | 553269  | 553364  | 57.0        | 40           | 40           | 1.11                         | 1.11                         | 1.11                           | 63.08                    | 2.7857       | 2.7915       | 0.0058           | 91.9                          |                                       |  |                             |        |     |                                      |
|  |                 | Sunny              | 1.1 S                           | 24        | 553364  | 553460  | 57.6        | 40           | 40           | 1.11                         | 1.11                         | 1.11                           | 63.74                    | 2.7799       | 2.7845       | 0.0046           | 72.2                          |                                       |  |                             |        |     |                                      |
|  |                 | Sunny              | 1.1 S                           | 24        | 553460  | 553562  | 61.2        | 40           | 40           | 1.11                         | 1.11                         | 1.11                           | 67.73                    | 2.7835       | 2.7882       | 0.0047           | 69.4                          |                                       |  |                             |        |     |                                      |
|  | 19-Apr-08       | Cloudy             | 4.1N                            | 17        | 553562  | 553660  | 58.8        | 40           | 40           | 1.11                         | 1.11                         | 1.11                           | 65.07                    | 2.7991       | 2.8061       | 0.0070           | 107.6                         |                                       |  |                             |        |     |                                      |
|  |                 | Rainy              | 4.1N                            | 18        | 553660  | 553760  | 60.0        | 40           | 40           | 1.11                         | 1.11                         | 1.11                           | 66.40                    | 2.7882       | 2.7948       | 0.0066           | 99.4                          |                                       |  |                             |        |     |                                      |
|  |                 | Rainy              | 4.1N                            | 18        | 553760  | 553863  | 61.8        | 40           | 40           | 1.11                         | 1.11                         | 1.11                           | 68.39                    | 2.7757       | 2.7798       | 0.0041           | 59.9                          |                                       |  |                             |        |     |                                      |
|  | 25-Apr-08       | Cloudy             | 1.0 SE                          | 20        | 553863  | 553960  | 58.2        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 63.72                    | 2.7725       | 2.7857       | 0.0132           | 207.2                         |                                       |  |                             |        |     |                                      |
|  |                 | Cloudy             | 1.0 SE                          | 20        | 553960  | 554055  | 57.0        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 62.41                    | 2.8085       | 2.8181       | 0.0096           | 153.8                         |                                       |  |                             |        |     |                                      |
|  |                 | Cloudy             | 1.0 SE                          | 20        | 554055  | 554149  | 56.4        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 61.75                    | 2.7955       | 2.8058       | 0.0103           | 166.8                         |                                       |  |                             |        |     |                                      |
| Hong Hoi Chee Hong Temple Intake (ASR3)    | 08-Apr-08       | Sunny              | 0.4 S                           | 27        | 521997  | 522090  | 55.8        | 38           | 38           | 1.08                         | 1.08                         | 1.08                           | 60.19                    | 2.726        | 2.7316       | 0.0056           | 93.0                          | 82.0                                  | 327.4/500                                | N/A                         |        |     |                                      |
|  |                 | Sunny              | 0.4 S                           | 27        | 522090  | 522182  | 55.2        | 38           | 38           | 1.08                         | 1.08                         | 1.08                           | 59.54                    | 2.7281       | 2.7332       | 0.0051           | 85.7                          |                                       |  |                             |        |     |                                      |
|  |                 | Sunny              | 0.4 S                           | 27        | 522182  | 522276  | 56.4        | 38           | 38           | 1.08                         | 1.08                         | 1.08                           | 60.83                    | 2.7207       | 2.7248       | 0.0041           | 67.4                          |                                       |  |                             |        |     |                                      |
|  | 14-Apr-08       | Sunny              | 0.7 S                           | 24        | 522276  | 522370  | 56.4        | 37           | 37           | 1.07                         | 1.07                         | 1.07                           | 60.31                    | 2.7859       | 2.7873       | 0.0014           | 23.2                          |                                       |  |                             |        |     |                                      |
|  |                 | Sunny              | 0.7 S                           | 24        | 522370  | 522466  | 57.6        | 37           | 37           | 1.07                         | 1.07                         | 1.07                           | 61.59                    | 2.8083       | 2.8109       | 0.0026           | 42.2                          |                                       |  |                             |        |     |                                      |
|  |                 | Sunny              | 0.7 S                           | 24        | 522466  | 522564  | 58.8        | 37           | 37           | 1.07                         | 1.07                         | 1.07                           | 62.88                    | 2.7991       | 2.8027       | 0.0036           | 57.3                          |                                       |  |                             |        |     |                                      |
|  | 19-Apr-08       | Rainy              | 4.3N.E                          | 17        | 522564  | 522658  | 56.4        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 61.35                    | 2.7987       | 2.8107       | 0.0120           | 195.6                         |                                       |  |                             |        |     |                                      |
|  |                 | Rainy              | 4.3N.E                          | 17        | 522658  | 522753  | 57.0        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 62.01                    | 2.7751       | 2.7790       | 0.0039           | 62.9                          |                                       |  |                             |        |     |                                      |
|  |                 | Rainy              | 4.3N.E                          | 17        | 522753  | 522854  | 60.6        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 65.92                    | 2.7581       | 2.7593       | 0.0012           | 16.2                          |                                       |  |                             |        |     |                                      |
|  | 25-Apr-08       | Cloudy             | 0.9 SE                          | 20        | 522854  | 523103  | 62.4        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 67.88                    | 2.7375       | 2.7416       | 0.0041           | 60.4                          |                                       |  |                             |        |     |                                      |
|  |                 | Cloudy             | 0.9 SE                          | 20        | 523103  | 523202  | 59.4        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 64.62                    | 2.7389       | 2.7482       | 0.0093           | 143.9                         |                                       |  |                             |        |     |                                      |
|  |                 | Cloudy             | 0.9 SE                          | 20        | 523202  | 523303  | 60.6        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 65.92                    | 2.7609       | 2.7707       | 0.0098           | 148.7                         |                                       |  |                             |        |     |                                      |
| Long Beach Gardens Outfall (ASR8)          | 08-Apr-08       | Sunny              | 0.9 S                           | 27        | 576843  | 576940  | 58.2        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 63.31                    | 2.7402       | 2.7441       | 0.0039           | 61.6                          | 73.8                                  | 343.5/500                                | N/A                         |        |     |                                      |
|  |                 | Sunny              | 0.9 S                           | 27        | 576940  | 577035  | 57.0        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 62.01                    | 2.7713       | 2.7755       | 0.0042           | 67.7                          |                                       |  |                             |        |     |                                      |
|  |                 | Sunny              | 0.9 S                           | 27        | 577035  | 577130  | 57.0        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 62.01                    | 2.7599       | 2.7656       | 0.0057           | 91.9                          |                                       |  |                             |        |     |                                      |
|  | 14-Apr-08       | Sunny              | 1.2 S                           | 24        | 577130  | 577225  | 57.0        | 38           | 38           | 1.08                         | 1.08                         | 1.08                           | 61.48                    | 2.7823       | 2.7853       | 0.0030           | 48.8                          |                                       |  |                             |        |     |                                      |
|  |                 | Sunny              | 1.2 S                           | 24        | 577225  | 577321  | 57.6        | 38           | 38           | 1.08                         | 1.08                         | 1.08                           | 62.13                    | 2.7660       | 2.7696       | 0.0036           | 57.9                          |                                       |  |                             |        |     |                                      |
|  |                 | Sunny              | 1.2 S                           | 24        | 577321  | 577416  | 57.0        | 38           | 38           | 1.08                         | 1.08                         | 1.08                           | 61.48                    | 2.7723       | 2.7777       | 0.0054           | 87.8                          |                                       |  |                             |        |     |                                      |
|  | 19-Apr-08       | Rainy              | 4.8N                            | 17        | 577416  | 577510  | 56.4        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 61.35                    | 2.7667       | 2.7766       | 0.0099           | 161.4                         |                                       |  |                             |        |     |                                      |
|  |                 | Rainy              | 4.8N                            | 17        | 577510  | 577606  | 57.6        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 62.66                    | 2.7696       | 2.7749       | 0.0053           | 84.6                          |                                       |  |                             |        |     |                                      |
|  |                 | Rainy              | 4.8N                            | 17        | 577606  | 577701  | 57.0        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 62.01                    | 2.7818       | 2.7953       | 0.0135           | 217.7                         |                                       |  |                             |        |     |                                      |
|  | 25-Apr-08       | Cloudy             | 1.1 SE                          | 20        | 577701  | 577802  | 60.6        | 38           | 38           | 1.08                         | 1.08                         | 1.08                           | 65.36                    | 2.7309       | 2.7487       | 0.0178           | 272.3                         |                                       |  |                             |        |     |                                      |
|  |                 | Cloudy             | 1.1 SE                          | 20        | 577802  | 577903  | 60.6        | 40           | 40           | 1.10                         | 1.10                         | 1.10                           | 66.48                    | 2.7545       | 2.7675       | 0.0130           | 195.5                         |                                       |  |                             |        |     |                                      |
|  |                 | Cloudy             | 1.1 SE                          | 20        | 577903  | 578004  | 60.6        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 65.92                    | 2.7999       | 2.8114       | 0.0115           | 174.4                         |                                       |  |                             |        |     |                                      |
| Greenview Terrace Outfall (ASR9)           | 08-Apr-08       | Sunny              | 0.7 S                           | 27        | 548563  | 548656  | 55.8        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 60.70                    | 2.7292       | 2.7326       | 0.0034           | 56.0                          | 49.0                                  | 329.0/500                                | N/A                         |        |     |                                      |
|  |                 | Sunny              | 0.7 S                           | 27        | 548656  | 548749  | 55.8        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 60.70                    | 2.7305       | 2.7338       | 0.0033           | 54.4                          |                                       |  |                             |        |     |                                      |
|  |                 | Sunny              | 0.7 S                           | 27        | 548749  | 548841  | 55.2        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 60.05                    | 2.7216       | 2.7238       | 0.0022           | 36.6                          |                                       |  |                             |        |     |                                      |
|  | 14-Apr-08       | Sunny              | 1.2 S                           | 24        | 548841  | 548934  | 55.8        | 38           | 38           | 1.08                         | 1.08                         | 1.08                           | 60.19                    | 2.7626       | 2.7648       | 0.0022           | 36.6                          |                                       |  |                             |        |     |                                      |
|  |                 | Sunny              | 1.2 S                           | 24        | 548934  | 549027  | 55.8        | 38           | 38           | 1.08                         | 1.08                         | 1.08                           | 60.19                    | 2.7853       | 2.7889       | 0.0036           | 59.8                          |                                       |  |                             |        |     |                                      |
|  |                 | Sunny              | 1.2 S                           | 24        | 549027  | 549121  | 56.4        | 38           | 38           | 1.08                         | 1.08                         | 1.08                           | 60.83                    | 2.7821       | 2.7854       | 0.0033           | 54.2                          |                                       |  |                             |        |     |                                      |
|  | 19-Apr-08       | -                  | -                               | -         | -       | -       | -           | -            | -            | -                            | -                            | -                              | -                        | -            | -            | -                | -                             |                                       |  | -                           | -      | N/A | Mesurment Void (Typhoon signal no.3) |
|  |                 | -                  | -                               | -         | -       | -       | -           | -            | -            | -                            | -                            | -                              | -                        | -            | -            | -                | -                             |                                       |  | -                           | -      | -   | -                                    |
|  |                 | -                  | -                               | -         | -       | -       | -           | -            | -            | -                            | -                            | -                              | -                        | -            | -            | -                | -                             |                                       |  | -                           | -      | -   | -                                    |
|  | 25-Apr-08       | Cloudy             | 0.9 SE                          | 20        | 549447  | 549548  | 60.6        | 38           | 38           | 1.08                         | 1.08                         | 1.08                           | 65.36                    | 2.7157       | 2.7288       | 0.0131           | 200.4                         |                                       |  |                             |        |     |                                      |
|  |                 | Cloudy             | 0.9 SE                          | 20        | 549548  | 549649  | 60.6        | 40           | 40           | 1.10                         | 1.10                         | 1.10                           | 66.48                    | 2.7867       | 2.7948       | 0.0081           | 121.8                         |                                       |  |                             |        |     |                                      |
|  |                 | Cloudy             | 0.9 SE                          | 20        | 549649  | 549750  | 60.6        | 39           | 39           | 1.09                         | 1.09                         | 1.09                           | 65.92                    | 2.8168       | 2.8242       | 0.0074           | 112.3                         |                                       |  |                             |        |     |                                      |

Italic font and yellow shaded indicates an exceedance of Action Level  
 Bold font and red shaded area indicates an exceedance of Limit Level

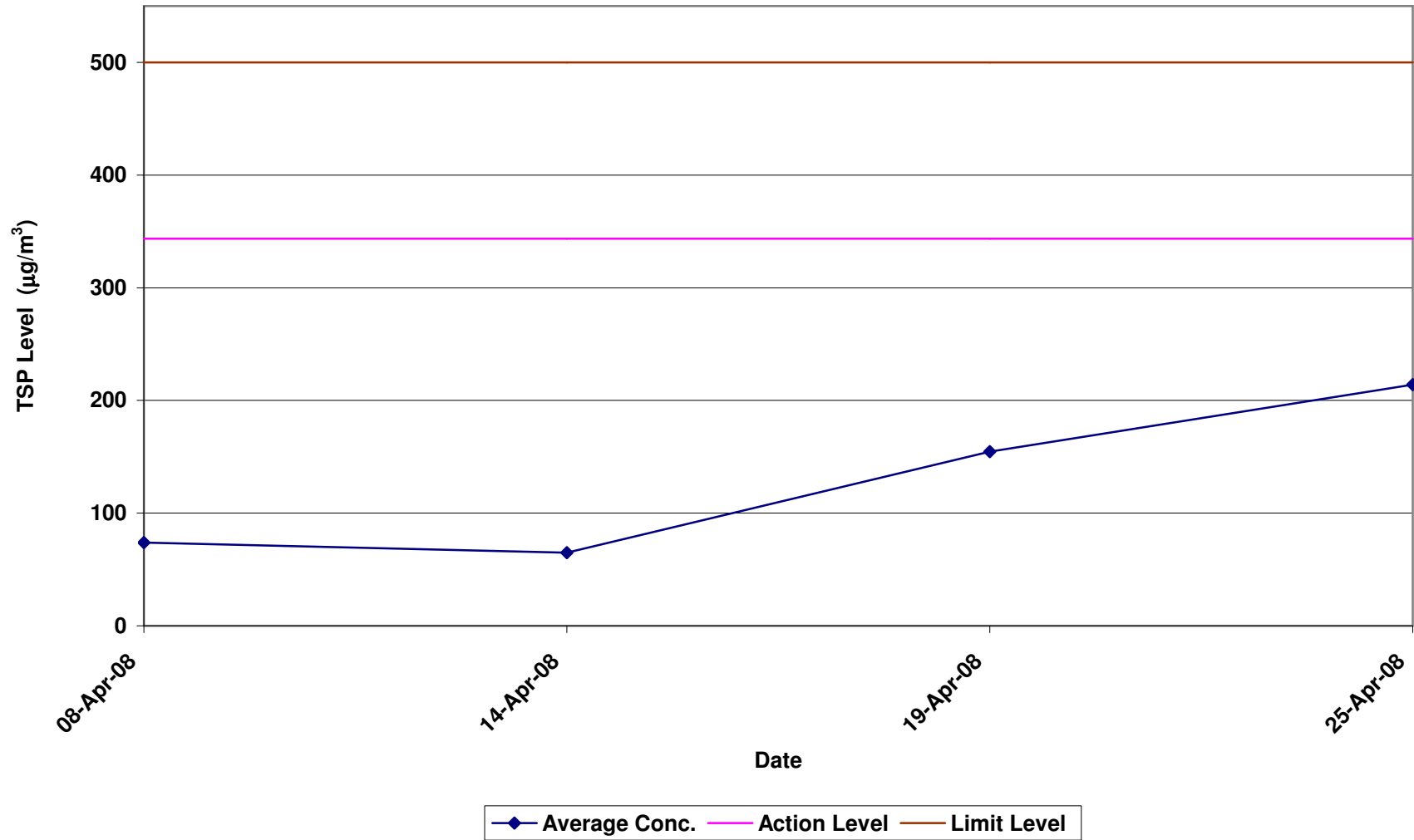
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drianage Tunnel  
Air Quality Monitoring (1-hr TSP) Results at Sik Sik Yuen Ho Fung College (ASR1)  
April 2008



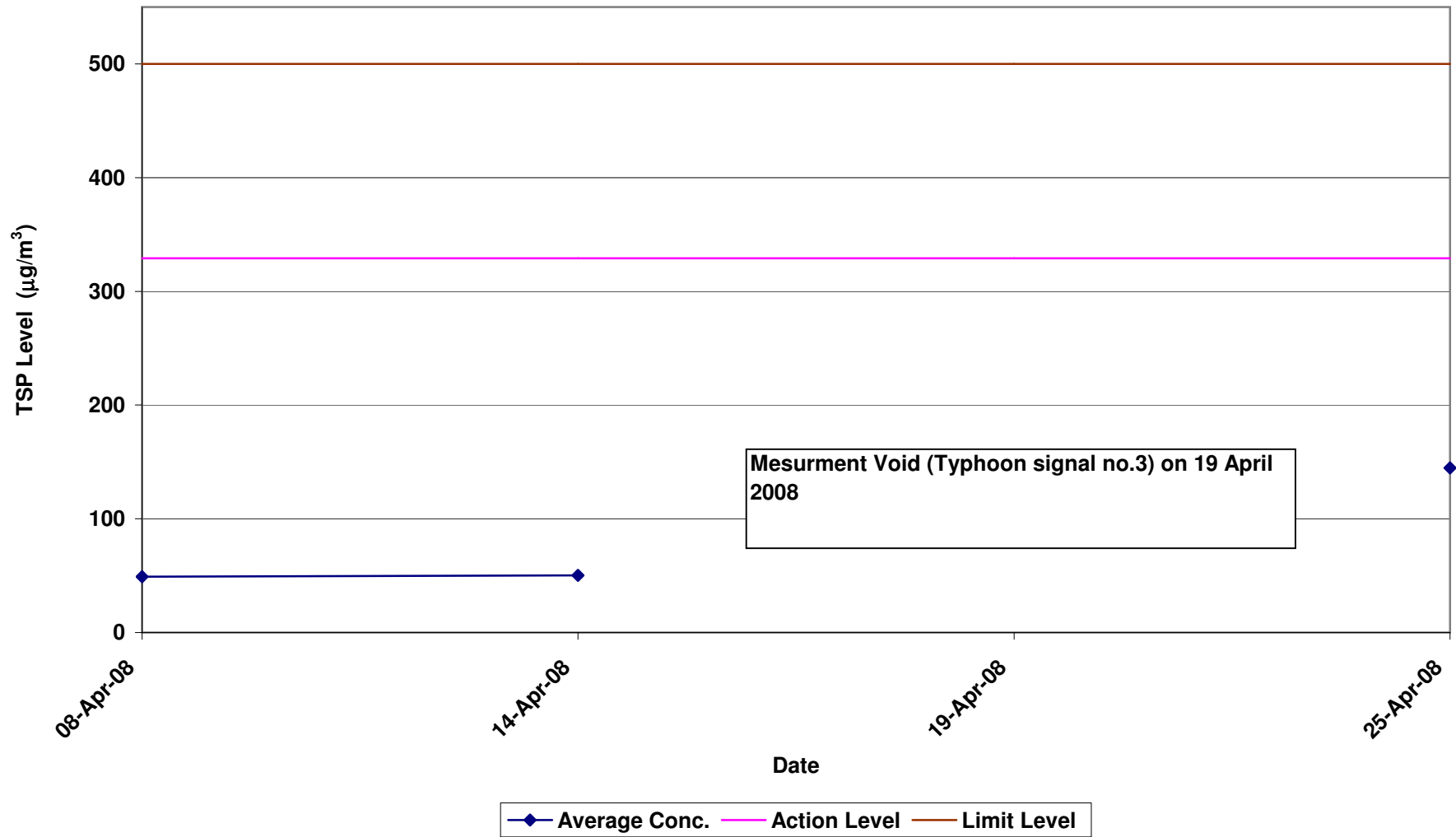
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Air Quality Monitoring (1-hr TSP) Results at Hong Hoi Chee Hong Temple (ASR3)  
April 2008



Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drianage Tunnel  
Air Quality Monitoring (1-hr TSP) Results at Long Beach Gardens (ASR8)  
April 2008



Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Air Quality Monitoring (1-hr TSP) Results at Greenview Terrace (ASR9)  
April 2008



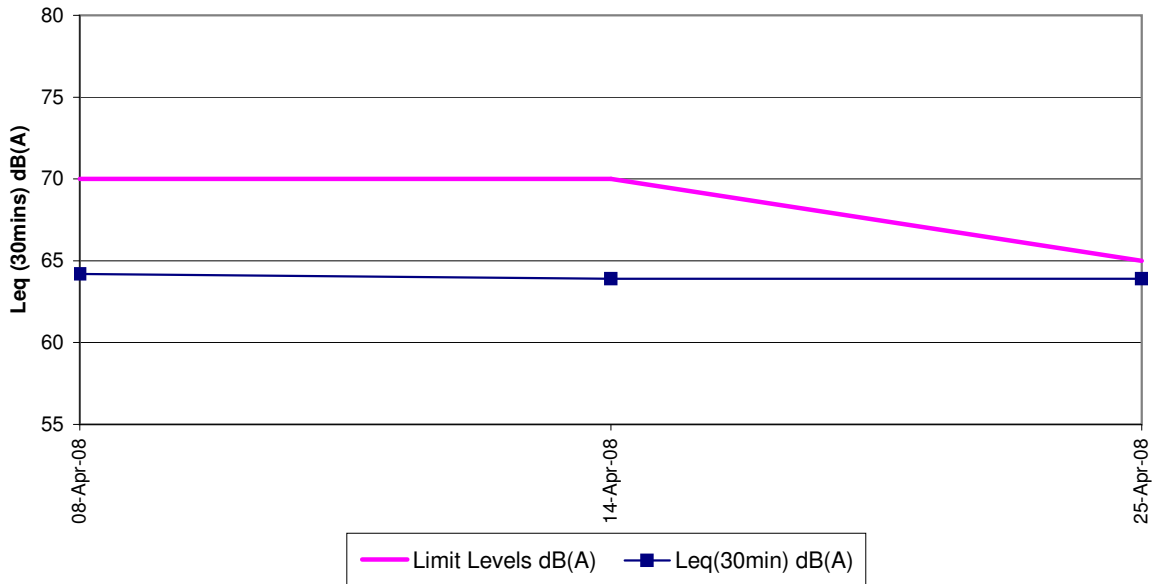
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel**

**Noise Impact Monitoring Results**

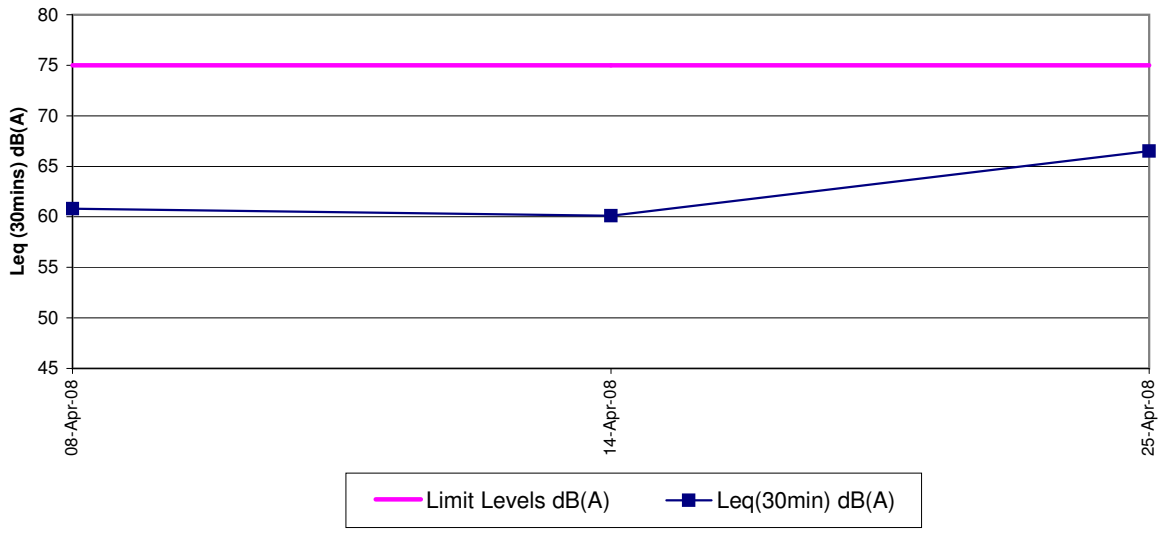
| Monitoring Locations                  | Date      | Weather Conditions | Temperature | Wind Speed | Wind      | Start Time | End Time | Limit Levels | L <sub>eq(30min)</sub> | L <sub>10(30min)</sub> | L <sub>90(30min)</sub> | Observation / Site Condition                      | Remark |
|---------------------------------------|-----------|--------------------|-------------|------------|-----------|------------|----------|--------------|------------------------|------------------------|------------------------|---|--------|
|                                       |           |                    | (°C)        | (m/s)      | Direction |            |          |              |                        |                        |                        |   |        |
| Sik Sik Yuen Ho Fung College<br>NSR 1 | 08-Apr-08 | Sunny              | 27          | 0.6        | S         | 12:00      | 12:30    | 70           | 64.2                   | 67.3                   | 58.4                   | Traffic noise                                     |        |
|                                       | 14-Apr-08 | Fine               | 24          | 0.3        | SW        | 08:30      | 09:00    | 70           | 63.9                   | 66.3                   | 61.1                   | School alarm                                      |        |
|                                       | 25-Apr-08 | Cloudy             | 20          | 1          | SE        | 09:00      | 09:30    | 65           | 63.9                   | 66.2                   | 59.8                   | Traffic noise; human noise                        |        |
| Hong Hoi Chee Hong Temple<br>NSR 3    | 08-Apr-08 | Sunny              | 27          | 0.4        | S         | 08:30      | 09:00    | 75           | 60.8                   | 63.4                   | 58.2                   | N/A   |        |
|                                       | 14-Apr-08 | Fine               | 24          | 0.3        | SW        | 08:30      | 09:00    | 75           | 60.1                   | 62.9                   | 57.0                   | N/A   |        |
|                                       | 25-Apr-08 | Cloudy             | 20          | 0.9        | SE        | 08:30      | 09:00    | 75           | 66.5                   | 68.0                   | 64.8                   | N/A   |        |
| Squatters<br>NSR 6                    | 08-Apr-08 | Sunny              | 27          | 0.4        | S         | 13:00      | 13:30    | 75           | 60.6                   | 63.2                   | 57.6                   | Dog barking                                       |        |
|                                       | 14-Apr-08 | Fine               | 24          | 0.6        | SW        | 13:00      | 13:30    | 75           | 60.0                   | 62.3                   | 57.7                   | Dog barking                                       |        |
|                                       | 25-Apr-08 | Cloudy             | 20          | 0.7        | SE        | 13:00      | 13:30    | 75           | 61.3                   | 64.2                   | 58.3                   | Dog barking                                       |        |
| Long Beach Gardens<br>NSR 8           | 08-Apr-08 | Sunny              | 27          | 0.9        | S         | 17:30      | 18:00    | 75           | 64.8                   | 66.3                   | 62.9                   | Traffic noise                                     |        |
|                                       | 14-Apr-08 | Fine               | 24          | 0.8        | SW        | 17:30      | 18:00    | 75           | 60.7                   | 63.9                   | 58.3                   | N/A   |        |
|                                       | 25-Apr-08 | Cloudy             | 20          | 0.9        | SE        | 17:30      | 18:00    | 75           | 68.6                   | 70.9                   | 66.6                   | N/A   |        |
| Greenview Terrace<br>NSR 9            | 08-Apr-08 | Sunny              | 27          | 0.7        | S         | 18:15      | 18:45    | 75           | 67.2                   | 68.7                   | 65.0                   | Traffic noise; other site construction activities |        |
|                                       | 14-Apr-08 | Fine               | 24          | 0.5        | SW        | 18:15      | 18:45    | 75           | 64.7                   | 66.8                   | 61.5                   | N/A   |        |
|                                       | 25-Apr-08 | Cloudy             | 20          | 0.9        | SE        | 18:15      | 18:45    | 75           | 68.7                   | 70.9                   | 65.7                   | N/A   |        |

The limit level of NSR1 is 65dB(A) during school examination period.  
25 April 2008 NSR1 noise monitoring was on HKAL period.

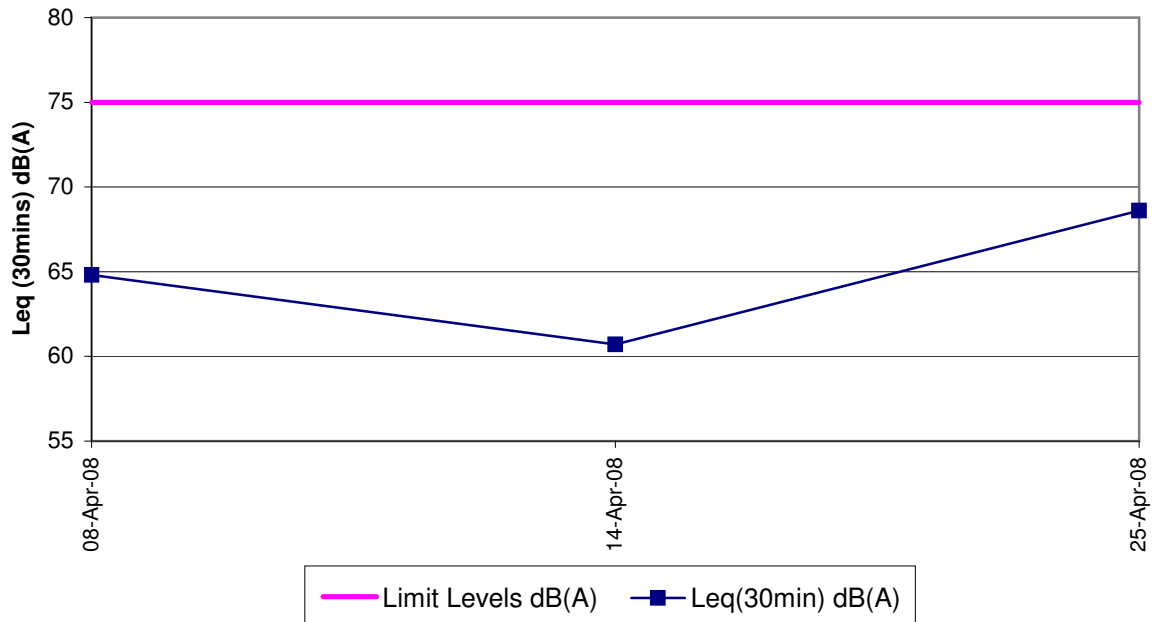
**Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drianage Tunnel  
Noise Monitoring Results at Sik Sik Yuen Ho Fung College (NSR1)  
April 2008**



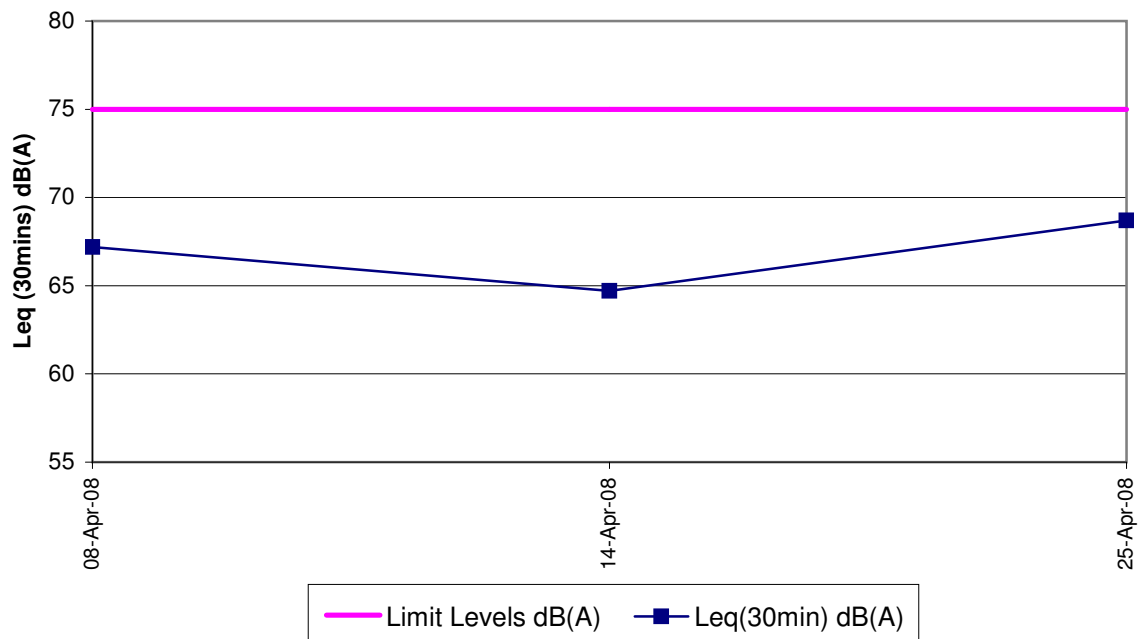
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Noise Monitoring Results at Hong Hoi Chee Hong Temple (NSR3)  
April 2008**



Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drianage Tunnel  
Noise Monitoring Results at Long Beach Gardens (NSR8)  
April 2008



Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drianage Tunnel  
Noise Monitoring Results at Greenview Terrace (NSR9)  
April 2008





Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel  
Noise Monitoring Results at Squatters (NSR6)  
April 2008

