



Maeda - CRGL - SELI Joint Venture

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

Monthly EM&A Report (December 2012)

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**Report No** 

EB000364R0891

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EB000364R0891

Date

17 January 2013

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#### **EXECUTIVE SUMMARY**

- 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-CRGL-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 EM&A Manual and Environmental Permit (EP). Commencement of the construction work had been notified to the Environmental Protection Department (EPD) in January 2008. This Monthly EM&A Report summarises the EM&A works undertaken in December 2012.
- According to the EM&A Manual, there are four designated air quality monitoring locations, five designated noise monitoring locations and five 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 the non-restricted hours, major construction activities undertaken by the Contractor at Tsuen Wan Drainage Tunnel included site cleaning and tidying at Outfall, I-1, I-2 and I-3; construction of reinforced concrete (RC) structure of cascade, tapered channel and box culvert at Outfall; slope reinstatement at Outfall; construction of anti-pedestrian measure at basin at Outfall; construction of surface drainage at Outfall; installation of railing on spiral ramp roof at Outfall; construction of RC structure of main adit tunnel, vortex shaft (VS) and approach channel and drainage work at I-3; excavation and construction of permanent access road at I-3; piling and excavation for additional boulder traps at I-3; installation of trash grill at I-3; casting for granular bedding at I-3; installation of railing for approach channel at I-3; backfilling of deaeration chamber at I-3 hydroseeding at 50 degree slope at I-3; breaking and excavation for vortex shaft, approach channel, L-shape retaining wall and additional boulder traps at I-2; construction of RC structure of main adit tunnel, man access shaft (MAS), lower man access adit (LMAA), vortex drop shaft (VDS), approach channel and L-shape retaining wall at I-2; dismantling steel decking platform above VDS at I-2; excavation and construction of air vent shaft (AVS) RC superstructure at I-2; construction of trash grill RC frame at I-1; preparation work for installation of penstock system at I-1; construction of remaining retaining wall at I-1; backfilling for slope reinstatement at I-1; grouting and segment repair works at Tunnel; and installation of radio communication system at Tunnel.
- No exceedance was recorded for air quality monitoring during the reporting month.
- No exceedance was recorded for noise monitoring during the reporting month.
- Exceedances for river water quality monitoring are summarised in the following table:

Parameter	Action Level Exceedance	Limit Level Exceedance
DO	Nil	Nil
Turbidity	One record at I-1 on 29 December 2012	One record at I-1 on 10 December 2012; One record at I-3 on 3 December 2012
SS	Two records at I-1 on 14 December 2012 and 19 December 2012	Three records at I-1 on 3 December 2012, 10 December 2012 and 29 December 2012

 Marine water quality monitoring for dredging and marine works has been terminated since 1 May 2012. As such, there was no marine water quality monitoring in this reporting month.



- The status of waste generation in the reporting month is:
  - A total of 574.1 m<sup>3</sup> C&D material was disposed of to public fill at Tuen Mun. No inert C&D material was reused in this Contract and no inert C&D material was reused in other Contracts. Detail information could be referred to Section 5.1.1 of this report;
  - About 62.4 m<sup>3</sup> general waste was disposed of to NENT Landfill;
  - About 350.0 kg paper/cardboard was recycled in the reporting month;
  - About 62,521.0 kg metal was generated in the reporting month;
  - About 30.0 kg plastic waste was disposed of in the reporting month; and
  - About 16,200.0 kg chemical waste was disposed of in the reporting month.
- In this reporting month, two site inspections and one monthly site audit were carried out by the 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. All observations, which were recorded on the site inspection checklists, were passed to the Contractor together with the ET's recommendations.
- As advised by the Contractor and verified by ET:
  - No non-compliance regarding the site inspection was received in the reporting month;
  - No environmental complaint was received in the reporting month; and
  - No summons and prosecution was received in the reporting month.
- The major construction works for the upcoming three months will be:
  - Site cleaning and tidying at Outfall, I-1, I-2 and I-3;
  - Construction of tapered channel, cascade, box culvert and access road RC structure at Outfall:
  - Slope reinstatement works at Outfall;
  - Finishing works for spiral ramp at Outfall;
  - Construction of surface drainage at Outfall;
  - Construction of anti-pedestrian measure at Outfall;
  - Installation of penstock system at Outfall;
  - Excavation and construction of permanent access road at I-3;
  - Construction of road drainage works at I-3;
  - Construction of vortex shaft, approach channel and air vent shaft RC structure at I-3:
  - Construction of additional boulder traps and granular bedding at I-3;
  - Installation of trash grill at I-3;
  - Excavation and construction of vortex drop shaft and air vent shaft RC structure at I-2;



- Construction of main adit tunnel, man access shaft, man access adit, approach channel and additional boulder traps RC structure at I-2;
- Slope reinstatement works at I-2;
- Installation of trash grill at I-2;
- Modification works of existing stream at I-2;
- Construction of surface drainage at I-1;
- Slope reinstatement works at I-1;
- Construction of inclined ramp at I-1;
- Installation of trash grill at I-1;
- Installation of penstock system at I-1;
- Finishing works for spiral ramp at I-1;
- Grouting and segment repair works at Tunnel; and
- Installation of radio communication system at Tunnel.



#### 1 INTRODUCTION

- 1.1.1 The Drainage Services Department (DSD) proposed to construct a tunnel with an internal diameter of 6.5 m and a length of 5.13 km, with the purpose to alleviate the flooding risk in Tsuen Wan and Kwai Chung.
- 1.1.2 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 designated project and related activities taking place concurrently. From the EIA, the recommendations for monitoring contained herein are made.
- 1.1.3 The Maeda-CRGL-SELI Joint Venture (MCSJV) was awarded by DSD with the Contract Design and Construction of Tsuen Wan Drainage Tunnel.
- 1.1.4 Hyder was commissioned by the MCSJV as the Environmental Team (ET) to implement an EM&A programme 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.
- 1.1.5 The construction works of the Project was commenced in January 2008. This is the fifty-fifth monthly EM&A report summarising the impact monitoring results and audit findings of the EM&A programme in December 2012.



## 2 PROJECT INFORMATION

## 2.1 Project Organization and Management Structure

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

## 2.2 Construction Progress

- 2.2.1 The overall project programme from the detail design to completion of all civil works shall take approximately 61 months. The construction programme is presented in Appendix C.
- 2.2.2 The major construction activities undertaken in the reporting month were:
  - Site cleaning and tidying at Outfall, I-1, I-2 and I-3;
  - Construction of reinforced concrete (RC) structure of cascade, tapered channel and box culvert at Outfall;
  - Construction of surface drainage at Outfall;
  - Installation of railing on spiral ramp roof at Outfall;
  - Slope reinstatement at Outfall;
  - Construction of anti-pedestrian measure at basin at Outfall;
  - Construction of RC structure of main adit tunnel, vortex shaft (VS) and approach channel and drainage work at I-3;
  - Excavation and construction of permanent access road at I-3;
  - Piling and excavation for additional boulder traps at I-3;
  - Installation of trash grill at I-3; casting for granular bedding at I-3;
  - Installation of railing for approach channel at I-3;
  - Backfilling of de-aeration chamber at I-3 hydroseeding at 50 degree slope at I-3;
  - Breaking and excavation for vortex shaft, approach channel, L-shape retaining wall and additional boulder traps at I-2;
  - Construction of RC structure of main adit tunnel, man access shaft (MAS), lower man access adit (LMAA), vortex drop shaft (VDS), approach channel and L-shape retaining wall at I-2;
  - Dismantling steel decking platform above VDS at I-2;
  - Excavation and construction of air vent shaft (AVS) RC superstructure at I-2;
  - Construction of trash grill RC frame at I-1;
  - Preparation work for installation of penstock system at I-1;
  - Construction of remaining retaining wall at I-1;
  - Backfilling for slope reinstatement at I-1;
  - Grouting and segment repair works at Tunnel;
  - Installation of radio communication system at Tunnel.



- 2.2.3 No marine mud dredging works for basin scheme at portion E was conducted in the reporting month, as all marine works were completed on 30 March 2012.
- 2.2.4 Rebar fixing for main adit (MA), shuttering for de-aeration chamber (DC) wall, erecting falsework for vortex shaft roof, and shuttering for MA were undertaken during the restricted hours in the reporting period.

## 2.3 Mitigation Measures

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

#### 2.4 Statuses of Licences and Permits

2.4.1 A summary of relevant permits and licences for the Project is given in Appendix E.



#### 3 SUMMARY OF EM&A REQUIREMENT

# 3.1 Air Quality

#### Air Quality Parameters

3.1.1 One-hour total suspended particulates (TSP) levels were measured at the designated air quality monitoring locations in accordance with the EM&A Manual. Information such as date of monitoring, duration, weather condition, equipment used and monitoring results were recorded on the field data sheet developed for the Project. The monitoring results are presented in Section 4.

## Monitoring Methodology

- 3.1.2 One-hour TSP monitoring was carried out under typical weather conditions (with no adverse weather such as typhoon signal or rain storm warning) three times every six days using High Volume Air Samplers (HVASs). Monitoring was conducted in accordance with 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.
- 3.1.3 After each sampling, the filter paper loaded with dust was kept in a clean and tightly sealed plastic bag. The filter paper was then re-conditioned in desiccators for 24 hours before obtaining the weight under laboratory conditions.
- 3.1.4 The average concentrations of the TSP were calculated based on the following information obtained from monitoring:
  - Flow rate;
  - Weight of the filter paper before and after sampling; and
  - Sampling period indicated by the elapsed-time meter.
- 3.1.5 All samples were 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 was carried out by ALS Technichem (HK) Pty Limited (HOKLAS Registration Number 066).

#### Monitoring Equipment and Calibration

- 3.1.6 High Volume Air Samplers (HVASs) were used for 1-hour TSP monitoring to 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.
- 3.1.7 All HVASs were 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 was used for the calculation of the TSP level. Calibration Kit Model TE5025A was used for calibration of the HVAS. Recalibration of the HVAS was carried out after motor maintenance, at least once every six months, which was 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	1785	ASR 1
HVAS	BM2000HX	5875	1785	ASR 3
HVAS	TE5005X	1059	1785	ASR 8
HVAS	TE5005X	1713	1785	ASR 9

Table 3-1 Air Quality Monitoring Equipment

# **Monitoring Location**

3.1.8 Four designated air quality monitoring locations were identified in the contract specific EM&A manual. 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 Garden)	G/F
ASR9	Greenview Terrace (Block 1)	G/F

Table 3-2 Air Quality Monitoring Locations

#### **Action and Limit Levels**

3.1.9 The Action and Limit Levels for the 1-hour TSP monitoring are 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-hour TSP Level in μg/m³		
Station	Action Level	Limit Level	
ASR 1	307	500	
ASR 3	327	500	
ASR 8	337	500	
ASR 9	329	500	

Table 3-3 Action & Limit Levels for Air Quality



EVENT	ACTION				
LACIAI	ET	IEC	SOR	CONTRACTOR	
ACTION LEVEL					
Exceedance for one sample	<ul> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform IEC and SOF</li> <li>Repeat measureme to confirm finding;</li> <li>Increase monitoring frequency to daily.</li> </ul>	nt	Notify Contractor.	<ul> <li>Rectify any unacceptable practice;</li> <li>Amend working methods if appropriate.</li> </ul>	
Exceedance for two or more consecutive samples	<ul> <li>Identify source;</li> <li>Inform IEC and SOF</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> <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>	ET;  Check Contractor's working method;  Discuss with ET and Contractor on possible remedial measures;  Advise the ET on the effectiveness of the proposed remedial measures;  Supervise Implementation of remedial measures.	measures properly implemented.	<ul> <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>	
LIMIT LEVEL	one - Identification	Charle manuffer to	Confirmation	Take immed #545	
sample	one • Identify source, investigate the causes of exceedance and propose remedial measures;	<ul> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and</li> </ul>	<ul> <li>Confirm receipt of notification of exceedance in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial</li> </ul>	<ul> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within 3 working</li> </ul>	



EVENT.	ACTION				
EVENT	ET	IEC	SOR	CONTRACTOR	
	<ul> <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>	Contractor on possible remedial measures;  • Advise SOR on the effectiveness of the proposed remedial measures;  • Supervise implementation of remedial measures.	measures properly implemented.	days of notification;  Implement the agreed proposals;  Amend proposal if appropriate.	
	<ul> <li>Notify IEC, SOR,</li> <li>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 mitigation to be implemented;</li> <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</li> </ul>	Contractor on the potential remedial actions;  Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise SOR accordingly;  Supervise the implementation of remedial measures.	the IEC, agree with	agreed proposals;  Resubmit proposals if problem still not under control;  Stop the relevant portion of works as determined by SOR until the exceedance is abated.	

Table 3-4 Event/Action Plan for Air Quality



#### 3.2 Noise

#### **Noise Parameters**

- 3.2.1 The construction noise level was measured in terms of equivalent A-weighted sound pressure level ( $L_{eq}$ ) measured in decibels (dB(A)). Monitoring of  $L_{eq(30 \text{ min})}$  was 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.
- 3.2.2 The two statistical sound levels  $L_{10}$  and  $L_{90}$ , the level exceeded for 10 and 90 percent of the time respectively, were also recorded during monitoring. Major noise sources observed, both on-site and off-site, were recorded on the field data sheet. All measurements were recorded and presented to the nearest 0.1 dB(A) in this report. Results are presented in Section 4.

## 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, were used. Noise levels for the A-weighted levels  $L_{eq(30 \text{ min})}$ ,  $L_{10}$  and  $L_{90}$  were measured throughout the impact monitoring. An average, by sound power, of six consecutive 5-minute readings was used to provide  $L_{eq(30 \text{ min})}$  for non-restricted hours (0700-1900 hours from Monday to Saturday except public holidays). A facade correction of 3 dB(A) was applied to the measurements that were carried out under free field conditions.
- During the impact monitoring, parameters such as dates, weather condition, equipment used, measurement results and major noise sources were 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 might 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.

## Monitoring Equipment and Calibration

- 3.2.5 Rion Precision Sound Level Meters of Type NL-31 and B&K Integrating Sound Level Meter of Type 2238 in compliance with the International Electrotechnical Commission Publication specifications (Paragraph 3.2.3) were used for noise monitoring in this reporting month.
- 3.2.6 Prior to and following each noise measurement, the accuracy of the sound level meters was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements were considered as valid only if the calibration levels from before and after the noise measurement agreed to within 1.0 dB(A). Sound level meters and calibrators were calibrated annually to ensure they performed to the same level of accuracy as stated in the manufacturer's specifications. The noise monitoring



equipment used during the reporting month are shown in Table 3-5 below. The calibration certificates are included in Appendix F.

Equipment Type	Manufacturer	Type Number	Serial Number	Location
Sound Level Meter	Rion	NL-31	00410224	NSR1, NSR3,
Sound Level Meter	B&K	2238	2448529	NSR6, NSR8 and _NSR9
Sound Level Calibrator	Rion	NC-73	10486660	
Sound Level Calibrator	B&K	4231	2699361	

Table 3-5 Noise Monitoring Equipment

## **Monitoring Location**

3.2.7 Five designated noise monitoring locations were identified in the contract specific EM&A Manual. They are listed in Table 3-6 below and shown in Appendix G. All the locations below are in facade measurement.

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 Garden)	G/F
NSR9	Croonview Terrose (Block 1)	Podium (up to 6 July 2009)
	Greenview Terrace (Block 1)	Roof* (since 16 July 2009)

<sup>\*</sup> The noise monitoring location of NSR9 had been adjusted to rooftop since 16 July 2009.

Table 3-6 Noise Monitoring Locations

#### **Action and Limit Levels**

3.2.8 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 hours on normal weekdays	When one documented complaint is received	75 dB(A)*

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

Table 3-7 Action & Limit Levels for Air Borne Noise



Event	Action			
Event	ET Leader	IEC	SOR	Contractor
Action Level	Notify IEC and the Contractor. Carry out investigation. Report the results of investigation to IEC and the Contractor. Discuss with the Contractor and formulate remedial measures. Increase monitoring frequency to check	<ul> <li>Review with analysed results submitted by ET.</li> <li>Review the proposed remedial measures by the Contractor and advise SOR accordingly.</li> <li>Supervise the implementation of remedial measures.</li> </ul>	notification of exceedance in writing.  • Notify the Contractor.	Implement noise     mitigation proposals.
Limit Level	<ul> <li>ildentify the source.</li> <li>Notify IEC, SOR, EPD and the Contractor.</li> <li>Repeat measurement to confirm findings.</li> <li>Increase monitoring frequency.</li> <li>Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented.</li> <li>Inform IEC, SOR, and EPD the causes and actions taken for the exceedances.</li> <li>Assess effectiveness of the Contractor's remedial actions and keep IEC, EPD and SOR informed of the results.</li> <li>If exceedance stops, cease additional monitoring.</li> </ul>	Discuss amongst SOR, ET Leader and the Contractor on the potential remedial actions.     Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise SOR accordingly.     Supervise the implementation of remedial measures.	Confirm receipt of notification of exceedance in writing. Notify the Contractor. Require the Contractor to propose remedial measures for the analysed noise problem. Ensure remedial measures are properly implemented. 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.	<ul> <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> <li>Stop the relevant activity of works as determined by the SOR until the exceedance is abated.</li> </ul>

Table 3-8 Event/Action Plan for Airborne Noise



## 3.3 Water Quality

3.3.1 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 near the Project site, it is suggested that a programme of monitoring should be established to confirm the effectiveness of these mitigation measures in protecting these water bodies.

## Water Quality Parameters

- 3.3.2 Monitoring for dissolved oxygen (DO), temperature, turbidity, pH and suspended solids (SS) should 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 should 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.

## Monitoring Methodology

- In accordance with the EM&A Manual, the water quality monitoring for all specified parameters were measured at all designated monitoring locations including control points at an interval of 3 days per week. DO, temperature, turbidity, pH and SS measurements were undertaken at designated monitoring locations.
- 3.3.5 It should be noted that water samples for all monitoring parameters were collected, stored, preserved and analysed according to Standard Methods, APHA 17 ed. and/or methods agreed by the Director of Environmental Protection.
- 3.3.6 Each sample was analysed in accordance with the APHA Standard Methods for the Examination of Water and Wastewater, 18<sup>th</sup> edition, or an equivalent method approved by the EPD. In any circumstance, the sample testing should 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.

#### Monitoring Equipment and Calibration

3.3.7 All the water samples collected were transferred to clearly labelled and pre-cleaned sample containers with necessary preservatives immediately after collection. The sample containers were provided by a HOKLAS accredited laboratory. About 1 L of samples was collected for all laboratory analysis. Following sampling, samples should be stored in a cool box at temperature 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. The water quality monitoring equipment used during the reporting month is shown in Table 3-9 below.



Equipment Type	Manufacturer	Model	Quantity
DO / Temperature Meter	YSI	55/12	1
DO / Temperature Meter	YSI	Professional Plus	1
pH Meter	Hanna	HI-8014	1
Turbidimeter	Hanna	HI 98703-02	1

Table 3-9 Water Quality Monitoring Equipment

3.3.8 All in-situ monitoring equipment were checked and calibrated prior to use. They were 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 were checked with certified standard solutions before each use. Wet bulb calibrations for all DO meters were 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" was observed. The calibration certificates are included in Appendix F.

## **Monitoring Location**

3.3.9 Five designated impact monitoring locations (three river stations and two marine stations) and five control locations (three river control stations and two marine control stations) were identified in the contract specific EM&A Manual for river and marine water quality monitoring. These monitoring stations are listed in Table 3-10 below and shown in Appendix G.

#### Monitoring Station ID Name of Premises

River	
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
Marine	
O-1 (FT) and (ET)	Outfall O-1 during Flood Tide and 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

<sup>\*</sup>The upper stream location (I-3-C\*) had been relocated from end of February 2009 due to coarse stone blockage.

Table 3-10 Water Quality Monitoring Locations



- 3.3.10 Note that there were two control stations for Outfall O-1, one for sampling during flood tide and one for sampling during ebb tide. Only one of these control stations for Outfall O-1 was sampled during each sampling. Control station to be sampled was determined based on the tidal information provided by the Hong Kong Observatory.
- 3.3.11 Referring to Section 4.4 of the approved Contract Specific EM&A Manual (Report No. EB000364R0273, dated 6 January 2010), while the construction of the Outfall requires minor dredging, water quality monitoring at the Outfall shall be undertaken during the period of the dredging works. As advised by the Contractor, all relevant marine works at Portion E of the site were completed in April 2012. As such, the ET submitted a proposal to EPD on 30 April 2012 to terminate the marine water quality monitoring effective from 1 May 2012. EPD had no objection to the proposal in their reply on 7 May 2012.

#### **Action and Limit Levels**

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

Parameters	Action	Limit
DO in mg/L	Surface and Middle	Surface and Middle
(Surface, Middle and Bottom)	5%-ile of baseline data for surface and middle layer.	4 mg/L except 5 mg/L for Fish Culture Zone or
	·	1%-ile of baseline data for surface and middle layer
	Bottom	Bottom
	5%-ile of baseline data for bottom layer.	2 mg/L or 1%-ile of baseline data for bottom layer
SS in mg/L (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 (depth-averaged)	J 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 limit.
- 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 necessary.

Table 3-11 Action/Limit Levels for Water Quality



Event	ET Leader	IEC	SOR	Contractor
Action Level being exceeded by one sampling day	<ul> <li>Repeat in-situ measurement to confirm findings;</li> <li>Identify source(s) of impact;</li> <li>Inform IEC and Contractor;</li> <li>Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>Discuss mitigation measures with IEC and Contractor; and</li> <li>Repeat measurement on next day of exceedance.</li> </ul>	Contractor on the mitigation measures • Review proposals on mitigation measures submitted by Contractor and advise the SOR accordingly; and • Assess the	the proposed  mitigation measures and  Make agreement on the mitigation measures to be implemented.	compliance in
Action Level being exceeded by more than one consecutive sampling day	Repeat in-situ measurement to confirm findings; Identify source(s) of impact; Inform IEC and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC and Contractor; Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; and Repeat	Discuss with ET and Contractor on the mitigation measures;     Review proposals on mitigation measures submitted by Contractor and advise the SOR accordingly; and     Assess the effectiveness of the implemented mitigation measures.	Discuss with IEC on the proposed mitigation measures;     Make agreement on the mitigation measures to be implemented; and     Assess the effectiveness of the implemented mitigation measures.	Inform the Engineer and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET and IEC and propose mitigation measures to IEC and SOR within 3 working days; and Implement the agreed mitigation measures.



Event	ET Leader	IEC	SOR	Contractor
	measurement on next day of exceedance.			
Limit Level being exceeded by one sampling day	<ul> <li>Repeat in-situ measurement to confirm findings;</li> <li>Identify source(s) of impact;</li> <li>Inform IEC, Contractor and EPD;</li> <li>Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>Discuss mitigation measures with IEC, SOR and Contractor;</li> <li>Ensure mitigation measures are implemented; and</li> <li>Increase the monitoring frequency to daily until no exceedance of Limit level.</li> </ul>	<ul> <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> </ul>	Discuss with IEC, ET and Contractor on the proposed mitigation measures;     Request Contractor to critically review the working methods;     Make agreement on the mitigation measures to be implemented; and     Assess the effectiveness of the implemented mitigation measures.	Inform the SOR and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET, IEC and SOR and propose mitigation measures to IEC and SOR within 3 working days; and Implement the agreed mitigation measures.
Limit Level being exceeded by more than one consecutive sampling day	<ul> <li>Repeat in-situ measurement to confirm findings;</li> <li>Identify source(s) of impact;</li> <li>Inform IEC, Contractor and EPD;</li> <li>Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>Discuss mitigation measures with</li> </ul>	<ul> <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</li> </ul>	<ul> <li>Discuss with IEC, ET and Contractor on the proposed mitigation measures;</li> <li>Request Contractor to critically review the working methods;</li> <li>Make agreement on the mitigation measures to be implemented;</li> <li>Assess the effectiveness of</li> </ul>	notification of the non-compliance in writing; • Rectify unacceptable



Event	ET Leader	IEC	SOR	Contractor
	IEC, SOR and Contractor;  • Ensure mitigation measures are implemented; and • Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.	measures.	the implemented mitigation measures; and  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.	propose mitigation measures to IEC and SOR within 3 working days;  Implement the agreed mitigation measures; and  As directed by the SOR, to slow down or to stop all or part of the marine work or construction activities.

Table 3-12 Event/Action Plan for Water Quality



## 4 MONITORING RESULT

# 4.1 Air Quality

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

## 1-hour TSP Monitoring

4.1.2 Results of 1-hour TSP level are shown in Table 4-1. All measurements were recorded and presented to the nearest 0.1  $\mu$ g/m<sup>3</sup> in this report. Detailed results including weather conditions and graphical presentations are presented in Appendix I.

Station	Monitoring Date	Monitoring Result (μg/m³)	Action/Limit Levels (μg/m³)
		20.3	,,
	6-Dec-12	26.7	_
		40.7	_
		52.1	_
	12-Dec-12	62.3	_
		87.7	_
		96.6	_
ASR 1	18-Dec-12	64.8	307/500
		72.4	_
		54.6	_
	24-Dec-12	20.3	
	-	43.2	
	28-Dec-12	91.5	
		95.3	
		141.0	_
		32.0	
	6-Dec-12	50.7	
		97.4	
		101.4	
ASR 3	12-Dec-12	45.4	327/500
		97.4	
		104.1	
	18-Dec-12	98.7	
		90.7	
Report (December 2012)	_	_	



Station	Monitoring Date	Monitoring Result (μg/m³)	Action/Limit Levels (μg/m³)
		73.4	
	24-Dec-12	65.4	
		109.4	
		66.7	_
	28-Dec-12	129.4	_
		73.4	_
		67.6	
	6-Dec-12	37.9	_
		44.6	_
		58.2	_
	12-Dec-12	146.1	_
		46.0	_
		28.4	_
ASR 8	18-Dec-12	35.2	337/500
		52.7	
	24-Dec-12 28-Dec-12	90.6	
		48.7	
		41.9	
		62.2	
		300.2	
		35.2	
		24.3	
	6-Dec-12	33.7	_
	0 200 .2	75.6	_
		86.4	_
	12-Dec-12	67.5	_
		66.1	329/500
ASR 9		66.1	
	18-Dec-12	51.3	
		47.2	_
		97.1	_
	24-Dec-12	36.4	_
		75.6	_



Station	Monitoring Date	Monitoring Result (μg/m³)	Action/Limit Levels (μg/m³)
		70.2	
	28-Dec-12	152.5	
		79.6	

Table 4-1 Air Quality Monitoring Results

4.1.3 No project related air quality exceedance was recorded in the reporting month.

#### 4.2 Noise

# Air Borne Noise Monitoring

4.2.2 The air borne noise monitoring schedule of 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. All measurements including  $L_{10}$  and  $L_{90}$  are recorded and presented to the nearest 0.1 dB(A) in this report. Detailed results including weather conditions and graphical presentation are presented in Appendix I.

Station	Monitoring Date	$L_{eq (30 min)} dB(A)$	Limit Levels dB(A)
	6-Dec-12	63.0	_
NSR 1 -	12-Dec-12	64.7	70
NSK I —	19-Dec-12	65.0	- 70
_	24-Dec-12	64.1	_
	6-Dec-12	71.1	
NCD 2	12-Dec-12	64.3	_
NSR 3 -	19-Dec-12	66.3	_
_	24-Dec-12	72.2	_
	6-Dec-12	54.7	_
NCD 6	12-Dec-12	56.1	_
NSR 6 -	18-Dec-12	60.5	_
_	24-Dec-12	57.2	- 75
	6-Dec-12	64.2	- 75
NOD 0	12-Dec-12	64.4	_
NSR 8 -	18-Dec-12	64.4	_
_	24-Dec-12	63.2	_
	6-Dec-12	63.2	_
NOD 0	12-Dec-12	64.5	_
NSR 9 -	18-Dec-12	64.8	_
_	24-Dec-12	65.0	_

Table 4-2 Air Borne Noise Monitoring Results



4.2.3 No project related noise exceedance was recorded in the reporting month.

# 4.3 Water Quality Monitoring

4.3.1 The water quality monitoring schedule of the reporting period is given in Appendix H. Summaries of exceedances for water quality monitoring are provided in Table 4-3 to Table 4-5.

Parameter	Action Level Exceedance	Limit Level Exceedance
DO	Nil	Nil
Turbidity	One record at I-1 on 29 December 2012	One record at I-1 on 10 December 2012
SS	Two records at I-1 on 14 December 2012 and 19 December 2012	Three records at I-1 on 3 December 2012, 10 December 2012 and 29 December 2012
Total	3	4

Table 4-3 Summary of Exceedances for I-1

Parameter	Action Level Exceedance	Limit Level Exceedance
DO	Nil	Nil
Turbidity	Nil	Nil
SS	Nil	Nil
Total	0	0

Table 4-4 Summary of Exceedances for I-2

Parameter	Action Level Exceedance	Limit Level Exceedance
DO	Nil	Nil
Turbidity	Nil	One record at I-3 on 3 December 2012
SS	Nil	Nil
Total	0	1

Table 4-5 Summary of Exceedances for I-3

4.3.2 Results of measured water quality parameters during the reporting month are shown in Table 4-6. Detailed results including weather conditions and graphical presentations are enclosed in Appendix I.



#### River Water Quality Monitoring

4.3.3 Eight exceedances were recorded for the river water quality monitoring within the reporting month.

#### **Exceedances of Turbidity Level**

#### Limit Level at I-1 on 10 December 2012

4.3.4 One exceedance of turbidity limit level was recorded at I-1 on 10 December 2012. The measured turbidity level (12.76 NTU) was higher than the baseline action / limit level, but lower than the turbidity level (13.23 NTU) of the upstream control station (I-1-C). Details of the construction activities conducted on the monitoring day are given in Appendix J. No direct disturbance was observed from the site. Therefore, the exceedance was considered to be contributed by high turbidity level at upsteam location. Since the exceedance was non-project related, no further action was required.

#### Action Level at I-1 on 29 December 2012

4.3.5 One exceedance of turbidity limit level was recorded at I-1 on 29 December 2012. The measured turbidity level (11.11 NTU) was higher than the baseline action level, but lower than the turbidity level (11.26 NTU) of the upstream control station (I-1-C). Details of the construction activities conducted on the monitoring day are given in Appendix J. No direct disturbance was observed from the site. About 0.5 to 2 mm of rainfall was observed over the catchment of I-1 between 13:00 and 14:00 on the monitoring day by the Hong Kong Observatory. The exceedance was considered to be contributed by rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.

#### Limit Level at I-3 on 3 December 2012

4.3.6 One exceedance of turbidity limit level was recorded at I-3 on 3 December 2012. The measured turbidity level (4.19 NTU) was higher than the baseline limit level, but lower than the turbidity level (4.29 NTU) of the upstream control station (I-3-C). Details of the construction activities conducted on the monitoring day are given in Appendix J. No direct disturbance was observed from the site. Therefore, the exceedance was considered to be contributed by natural variation. Since the exceedance was non-project related, no further action was required.

#### Exceedances of Suspended Solids Level

#### Limit Level at I-1 on 3 December 2012

4.3.7 One exceedance of SS limit level was recorded at I-1 on 3 December 2012. The measured SS level (4.60 mg/L) was lower than the baseline action / limit level, but higher than 130% of the SS level (3.10 mg/L) of the upstream control station (I-1-C). Details of the construction activities conducted on the monitoring day are given in



Appendix J. No direct disturbance was observed from the site. Therefore, the exceedance was considered to be contributed by natural variation. Since the exceedance was non-project related, no further action was required.

#### Limit Level at I-1 on 10 December 2012

4.3.8 One exceedance of SS limit level was recorded at I-1 on 10 December 2012. The measured SS level (9.80 mg/L) was higher than the baseline action level, and higher than 130% of the SS level (5.60 mg/L) of the upstream control station (I-1-C). Details of the construction activities conducted on the monitoring day are given in Appendix J. No wastewater directly discharged from the site was observed. Although the SS level at I-1 was about 75% higher than that at I-1-C, no direct sources of impact from the site were identified. At such, no further mitigation measures or actions were recommended.

#### Limit Level at I-1 on 29 December 2012

4.3.9 One exceedance of SS limit level was recorded at I-1 on 29 December 2012. The measured SS level (10.20 mg/L) was higher than the baseline action / limit level, but lower than 120% of the SS level (9.70 mg/L) of the upstream control station (I-1-C). Details of the construction activities conducted on the monitoring day are given in Appendix J. No direct disturbance was observed from the site. About 0.5 to 2 mm of rainfall was observed over the catchment of I-1 between 13:00 and 14:00 on the monitoring day by the Hong Kong Observatory. The exceedance was considered to be contributed by rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.

#### Action Level at I-1 on 14 December 2012

4.3.10 One exceedance of SS action level was recorded at I-1 on 14 December 2012. The measured SS level (9.15 mg/L) was higher than the baseline action level, but lower than the SS level (12.40 mg/L) of the upstream control station (I-1-C). Details of the construction activities conducted on the monitoring day are given in Appendix J. No direct disturbance was observed from the site. Therefore, the exceedance was considered to be contributed by SS level at upstream location. Since the exceedance was non-project related, no further action was required.

#### Action Level at I-1 on 19 December 2012

4.3.11 One exceedance of SS action level was recorded at I-1 on 19 December 2012. The measured SS level (6.70 mg/L) was lower than the baseline action / limit level, but higher than 120% of the SS level (5.45 mg/L) of the upstream control station (I-1-C). Details of the construction activities conducted on the monitoring day are given in Appendix J. No direct disturbance was observed from the site. Therefore, the exceedance was considered to be contributed by natural variation. Since the exceedance was non-project related, no further action was required.



Station	Date	Temperature (°C)	DO (mg/L)	Action/Limit Level for DO (mg/L)	рН	Turbidity (NTU)	Action/Limit Level for Turbidity (NTU	SS (mg/L)	Action/Limit Level for SS (mg/L)
I-1	3-Dec-12	19.50	8.55	3.42 / 3.34	7.78	6.48	9.75 / 12.47	4.60	8.85 / 10.17
	5-Dec-12	18.90	8.28		7.80	3.89	_	<2.00	_
	7-Dec-12	21.00	8.45		8.00	3.65	_	2.00	_
	10-Dec-12	19.80	8.32		7.86	12.76	_	9.80	_
	12-Dec-12	20.50	8.42		7.92	3.19		<2.00	
	14-Dec-12	21.20	8.43		7.97	4.04		9.15	
	17-Dec-12	22.00	8.32		7.96	3.01		7.35	
	19-Dec-12	17.90	9.12		7.91	4.15		6.70	
	21-Dec-12	22.40	8.81		7.96	3.94	_	4.95	
	24-Dec-12	16.00	9.13		7.91	3.01	_	3.30	
	27-Dec-12	18.90	8.93		7.83	5.89	_	6.25	
	29-Dec-12	20.00	9.19		7.80	11.11		10.20	
	31-Dec-12	15.00	9.06		7.80	3.43	_	2.20	_



Date	Temperature (°C)	DO (mg/L)	Action/Limit Level for DO (mg/L)	рН	Turbidity (NTU)	Action/Limit Level for Turbidity (NTI	, ,	Action/Limit Level for SS (mg/L)
3-Dec-12	19.50	8.79	-/-	7.78	6.67	-/-	3.10	-/-
5-Dec-12	19.00	8.30		7.80	4.01	_	<2.00	_
7-Dec-12	21.00	8.38		8.00	3.66	_	<2.00	_
10-Dec-12	19.80	8.24		7.86	13.23	_	5.60	
12-Dec-12	20.60	8.24		7.92	3.20		<2.00	
14-Dec-12	21.20	8.36		7.97	4.19		12.40	
17-Dec-12	22.00	8.24		7.96	3.13	_	7.30	_
19-Dec-12	17.90	9.21		7.91	4.32	_	5.45	
21-Dec-12	22.50	8.89		7.96	4.09		4.85	
24-Dec-12	16.00	9.22		7.91	3.08	_	3.65	
27-Dec-12	18.90	9.01		7.83	5.98	_	5.80	
29-Dec-12	19.90	9.12		7.80	11.26	_	9.70	
31-Dec-12	15.00	9.15		7.80	3.61	_	2.30	_
	5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12 21-Dec-12 24-Dec-12 27-Dec-12 29-Dec-12	3-Dec-12 19.50  5-Dec-12 19.00  7-Dec-12 21.00  10-Dec-12 19.80  12-Dec-12 20.60  14-Dec-12 21.20  17-Dec-12 22.00  19-Dec-12 17.90  21-Dec-12 16.00  27-Dec-12 18.90  29-Dec-12 19.90	3-Dec-12       19.50       8.79         5-Dec-12       19.00       8.30         7-Dec-12       21.00       8.38         10-Dec-12       19.80       8.24         12-Dec-12       20.60       8.24         14-Dec-12       21.20       8.36         17-Dec-12       22.00       8.24         19-Dec-12       17.90       9.21         21-Dec-12       22.50       8.89         24-Dec-12       16.00       9.22         27-Dec-12       18.90       9.01         29-Dec-12       19.90       9.12	3-Dec-12 19.50 8.79/_  5-Dec-12 19.00 8.30  7-Dec-12 21.00 8.38  10-Dec-12 19.80 8.24  12-Dec-12 20.60 8.24  14-Dec-12 21.20 8.36  17-Dec-12 17.90 9.21  21-Dec-12 16.00 9.22  27-Dec-12 18.90 9.01  29-Dec-12 19.90 9.12	S-Dec-12   19.50   8.79   -/-   7.78	3-Dec-12 19.50 8.79 7.78 6.67  5-Dec-12 19.00 8.30 7.80 4.01  7-Dec-12 21.00 8.38 8.00 3.66  10-Dec-12 19.80 8.24 7.86 13.23  12-Dec-12 20.60 8.24 7.92 3.20  14-Dec-12 21.20 8.36 7.97 4.19  17-Dec-12 22.00 8.24 7.96 3.13  19-Dec-12 17.90 9.21 7.91 4.32  21-Dec-12 22.50 8.89 7.96 4.09  24-Dec-12 16.00 9.22 7.91 3.08  27-Dec-12 18.90 9.01 7.83 5.98  29-Dec-12 19.90 9.12 7.80 11.26	3-Dec-12	Second   S



Station	Date	Temperature (°C)	DO (mg/L)	Action/Limit Level for DO (mg/L)	рН	Turbidity (NTU)	Action/Limit Level for Turbidity (NTI	, , ,	Action/Limit Level for SS (mg/L)
I-2	3-Dec-12	19.55	8.56	3.66 / 3.63	7.80	4.68	6.63 / 6.99	<2.00	7.68 / 8.34
	5-Dec-12	18.60	8.34		7.80	1.86	_	<2.00	
	7-Dec-12	21.20	8.55		7.90	1.82	_	<2.00	
	10-Dec-12	19.90	8.34		7.88	1.89		<2.00	
	12-Dec-12	20.20	8.29		7.98	1.72		<2.00	
	14-Dec-12	21.55	8.40		8.00	1.66		<2.00	
	17-Dec-12	21.80	8.08		7.97	1.70		<2.00	
	19-Dec-12	17.90	9.04		7.92	1.69		<2.00	
	21-Dec-12	22.40	8.74		7.96	1.68		<2.00	
	24-Dec-12	16.20	8.96		7.93	1.76		<2.00	
	27-Dec-12	18.80	8.76	_	7.81	1.25		<2.00	
	29-Dec-12	19.80	9.16		7.78	1.54		<2.00	
	31-Dec-12	15.10	9.09		7.76	1.56	_	<2.00	



Station	Date	Temperature (°C)	DO (mg/L)	Action/Limit Level for DO (mg/L)	рН	Turbidity (NTU)	Action/Limit Level for Turbidity (NTU	, , ,	Action/Limit Level for SS (mg/L)
-2-C	3-Dec-12	19.60	8.50	-/-	7.80	4.60	-/-	<2.00	-/-
	5-Dec-12	18.50	8.39		7.81	1.95		<2.00	
	7-Dec-12	21.20	8.49		7.90	1.89	_	<2.00	_
	10-Dec-12	19.90	8.41		7.88	1.92		<2.00	
	12-Dec-12	20.20	8.31		7.98	1.75	_	<2.00	
	14-Dec-12	21.70	8.51		7.99	1.72	_	<2.00	
	17-Dec-12	21.95	8.16		7.95	1.72		<2.00	
	19-Dec-12	17.90	9.09		7.92	1.59	_	<2.00	
	21-Dec-12	22.55	8.81		7.96	1.75		<2.00	
	24-Dec-12	16.20	9.04		7.93	1.79	_	<2.00	
	27-Dec-12	18.80	8.67		7.80	1.22	_	<2.00	
	29-Dec-12	19.80	9.25		7.78	1.61		<2.00	
	31-Dec-12	15.10	9.01		7.76	1.62	_	<2.00	_
							_		



Station	Date	Temperature (°C)	DO (mg/L)	Action/Limit Level for DO (mg/L)	рН	Turbidity (NTU)	Action/Limit Level for Turbidity (NTU	SS (mg/L)	Action/Limit Level for SS (mg/L)
I-3	3-Dec-12	19.60	8.50	3.65 / 3.51	7.80	4.19	3.99 / 4.18	<2.00	6.13 / 7.23
	5-Dec-12	18.20	8.22		7.86	3.81		<2.00	
	7-Dec-12	21.50	8.44		7.92	3.96	_	<2.00	
	10-Dec-12	20.00	8.14	  	7.92	1.93		<2.00	
	12-Dec-12	20.00	8.14		7.88	1.92		<2.00	
	14-Dec-12	21.80	8.23		8.01	1.82		<2.00	
	17-Dec-12	21.70	8.25		7.95	1.73		<2.00	
	19-Dec-12	17.90	9.15		7.95	1.76	_	<2.00	
	21-Dec-12	22.40	8.73		7.95	1.81		<2.00	
	24-Dec-12	16.30	9.13		7.94	1.92		<2.00	
	27-Dec-12	19.00	8.77		7.78	1.42		<2.00	
	29-Dec-12	19.70	9.17		7.78	1.93		<2.00	
	31-Dec-12	15.10	9.08		7.79	1.72	_	<2.00	



Station	Date	Temperature (°C)	DO (mg/L)	Action/Limit Level for DO (mg/L)	рН	Turbidity (NTU)	Action/Limit Level for Turbidity (NT		Action/Limit Level for SS (mg/L)
I-3-C	3-Dec-12	19.60	8.56	-/-	7.80	4.29	-/-	2.20	-/-
	5-Dec-12	18.20	8.26		7.85	3.67		<2.00	
	7-Dec-12	21.40	8.48		7.92	4.11	_	<2.00	
	10-Dec-12	20.00	8.21		7.92	1.87	_	<2.00	
	12-Dec-12	19.95	8.20		7.88	1.90	_	<2.00	
	14-Dec-12	21.60	8.30		8.02	1.83	_	<2.00	
	17-Dec-12	21.70	8.16		7.95	1.80	_	2.60	
	19-Dec-12	17.90	9.13		7.94	1.78	_	<2.00	
	21-Dec-12	22.40	8.67		7.95	1.87		<2.00	
	24-Dec-12	16.30	9.06		7.93	1.94		<2.00	
	27-Dec-12	19.00	8.68		7.77	1.44	_	<2.00	
	29-Dec-12	19.70	9.05		7.78	2.01	_	<2.00	
	31-Dec-12	15.10	9.22		7.79	1.74	_	<2.00	

Note: *Italic* indicates the occurrence of exceedance of *Action level*. **Bold** indicates the occurrence of exceedance of **Limit level Table 4-6 Water Quality Monitoring Results** 



## 4.4 Summary of Project-Related Exceedances

4.4.1 Table 4-7 summarises the project-related exceedance results recorded in December 2012. Note that exceedances that are considered not related to the construction activities are not included in this table.

Environmental Monitoring	Total No. of Measurement	Action Level Exceedance	% of Action Level Exceedance	Limit Level Exceedance	% of Limit Level Exceedance
Air Quality	60	0	0	0	0
Air Borne Noise	20	0	0	0	0
Water	78	0	0	0	0

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

Table 4-7 Summary of Project-Related Exceedances



## 5 WASTE MANAGEMENT

5.1.1 The status of waste management is summarised in Table 5-1.

Status of waste management	Quantity
Inert C&D Material Disposed to Public Fill at Tuen Mun (m³)	574.1
Inert C&D Material Reused in this Contract (m <sup>3</sup> )	0
Inert C&D Material Reused in other Contract(s)* (m³)	0
Metals Generated (kg)	62,521.0
Paper / Cardboard Packaging (kg)	350.0
Plastics (kg)	30.0
Chemical Waste (kg)	16,200.0
General Waste Disposed of to NENT Landfill (m <sup>3</sup> )	62.4

<sup>\*</sup> Other Contract(s) include(s) XRL823AB, and Tailor Recycle Aggregate.

Table 5-1 Waste Generated in December 2012



## 6 NON-COMPLIANCE AND DEFICIENCY

## 6.1 Site Audit by ET

6.1.1 ET has carried out two 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 inspections / 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
6 December 2012	Nil	Nil	Nil
21 December 2012	Nil	Nil	Nil

Table 6-1 Site Inspections by ET



## 7 COMPLAINT

- 7.1.1 A complaint hotline at <u>9850 3241</u> of the Contractor has been established for the Project.
- 7.1.2 No environmental complaint was received during the reporting month.
- 7.1.3 Details of the past complaint investigation and observations can also be referred to Appendix K.
- 7.1.4 Cumulative statistics of environmental complaints are shown in Table 7-1.

Complaints Received in the Reporting Month	<b>Cumulative Number of Complaints</b>
0	26

Table 7-1 Cumulative Statistics of Environmental Complaints



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

- 8.1.1 No summons and successful prosecution was received during the reporting month.
- 8.1.2 Cumulative statistics of notification of summons, successful prosecutions and convictions are shown in Table 8-1.

Notification	of Summons	Successful Prosecu	tion and Conviction
December 2012	Cumulative	December 2012	Cumulative
0	0	0	0

Table 8-1 Cumulative Statistics of Notification of Summons and Successful Prosecutions and Convictions



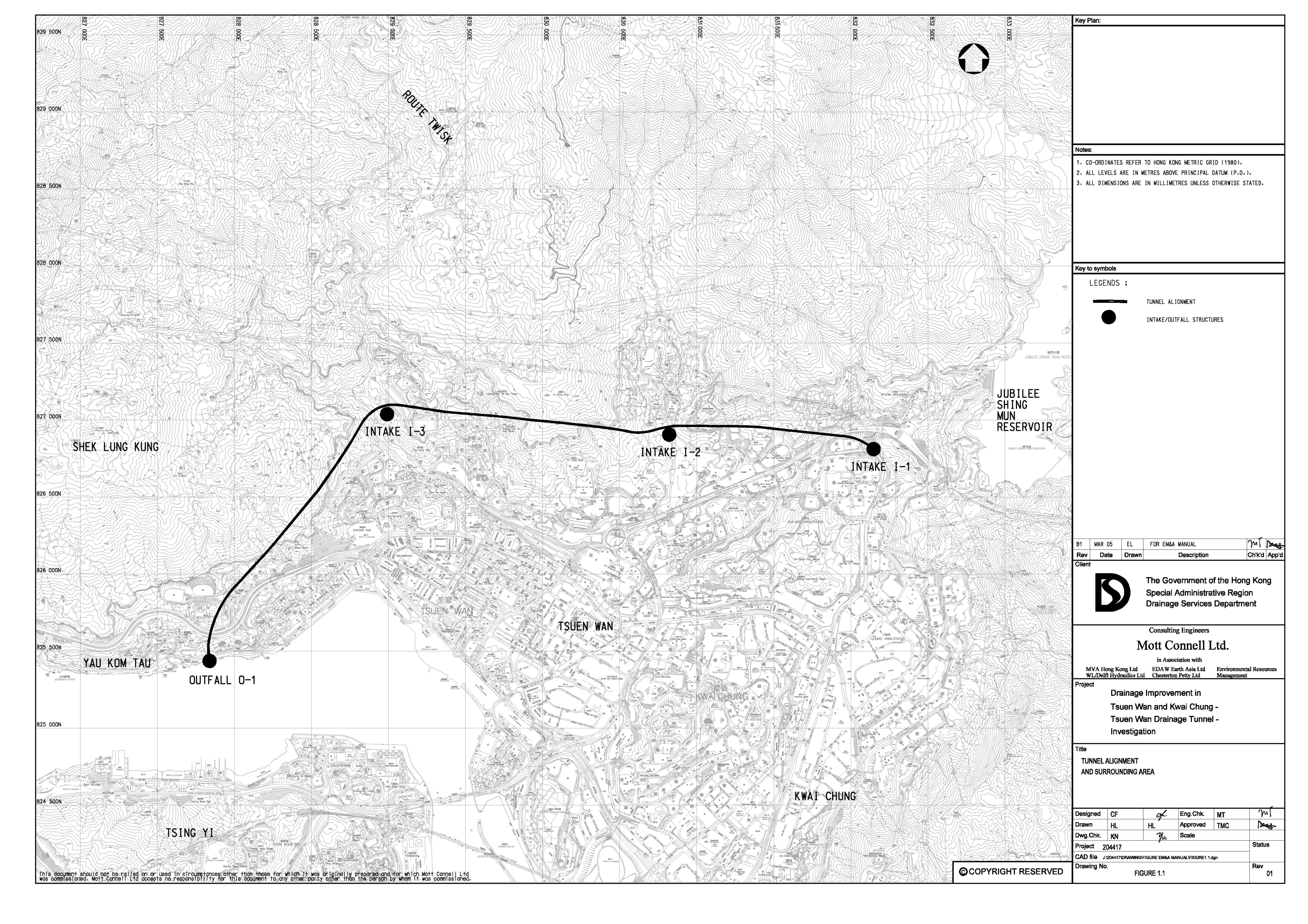
#### 9 FUTURE KEY ISSUE

- 9.1.1 The forecast of construction works for the upcoming three months are:
  - Site cleaning and tidying at Outfall, I-1, I-2 and I-3;
  - Construction of tapered channel, cascade, box culvert and access road RC structure at Outfall;
  - Slope reinstatement works at Outfall;
  - Finishing works for spiral ramp at Outfall;
  - Construction of surface drainage at Outfall;
  - Construction of anti-pedestrian measure at Outfall;
  - Installation of penstock system at Outfall;
  - Excavation and construction of permanent access road at I-3;
  - Construction of road drainage works at I-3;
  - Construction of vortex shaft, approach channel and air vent shaft RC structure at I-3;
  - Construction of additional boulder traps and granular bedding at I-3;
  - Installation of trash grill at I-3;
  - Excavation and construction of vortex drop shaft and air vent shaft RC structure at I-
  - Construction of main adit tunnel, man access shaft, man access adit, approach channel and additional boulder traps RC structure at I-2;
  - Slope reinstatement works at I-2;
  - Installation of trash grill at I-2;
  - Modification works of existing stream at I-2;
  - Construction of surface drainage at I-1;
  - Slope reinstatement works at I-1;
  - Construction of inclined ramp at I-1;
  - Installation of trash grill at I-1;
  - Installation of penstock system at I-1;
  - Finishing works for spiral ramp at I-1;
  - Grouting and segment repair works at Tunnel; and
  - Installation of radio communication system at Tunnel.



Appendix A

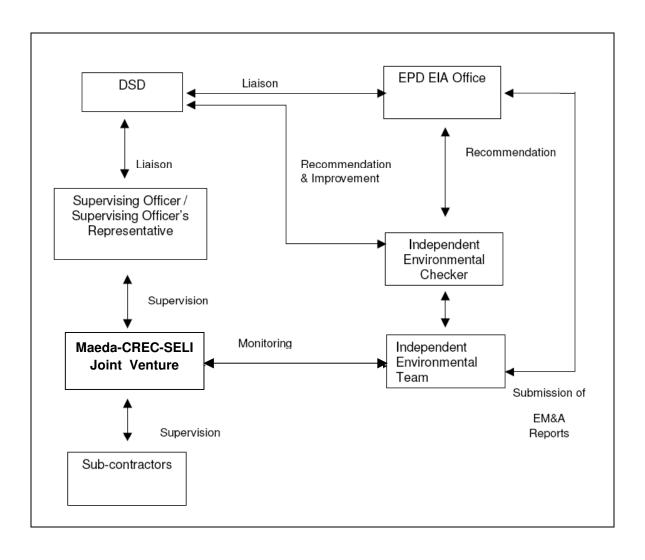
Site Map and Works Area





# Appendix B

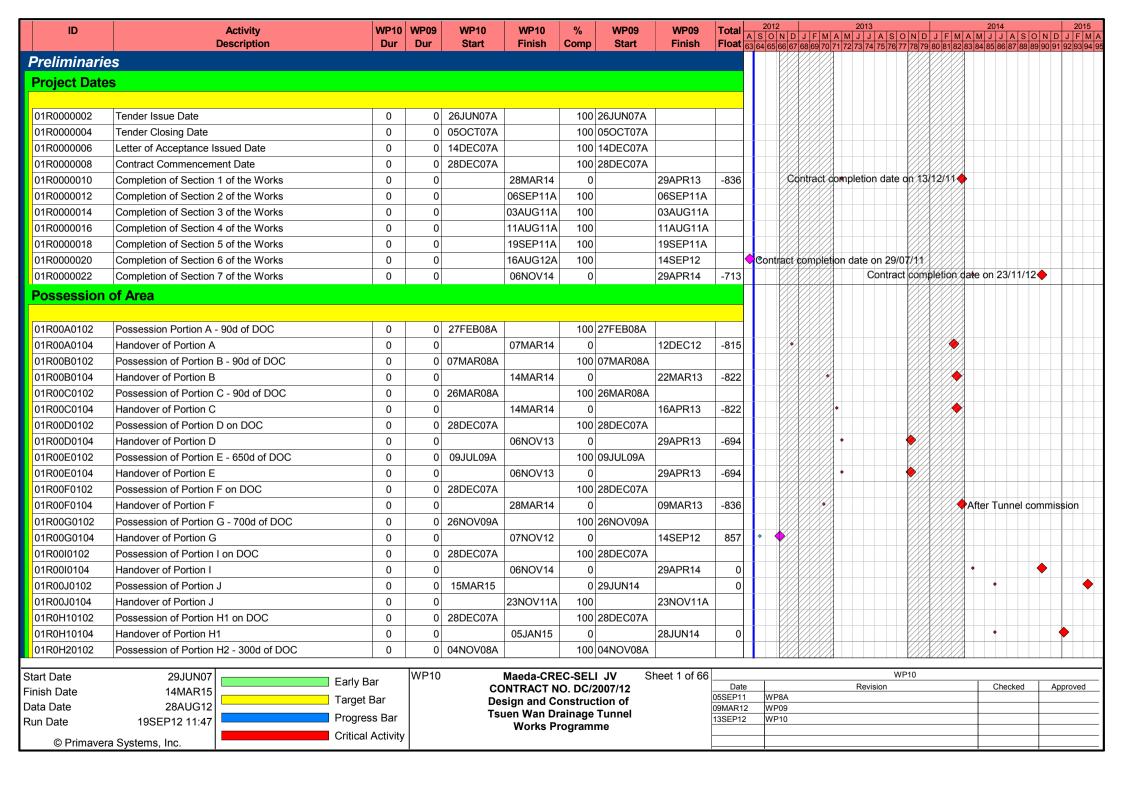
# **Organization Chart**





# Appendix C

# **Construction Programme**



ID	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total	20			2013		201		2015
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish	Float	63 64 6	5 66 67	J F M	A M J J A S 71 72 73 74 75 76	77 78 79 80 81	M A M J 82 83 84 85 8	J A S O N 6 87 88 89 90	D J F M A 95 91 92 93 94 95
01R0H20104	Handover of Portion H2	0	0		05JAN15	0		28JUN14	0						•		•
Section of V	Works - DOP to Completion																
	•																
01R1000202	S1-Works in Portions A to F except works in S2-7	1,950	1,950	28DEC07A	14MAR14	84	28DEC07A	29APR13	-839	-							
01R1000204	S1-Maintenance Period (365 days)	365	365	15MAR14	14MAR15	0	30APR13	29APR14	-839								
01R20A0206	S2-Slope Stabilization works within Portion A	1,288	1,288	27FEB08A	06SEP11A	100	27FEB08A	06SEP11A									
01R20A0208	S2-Maintenance Period (365 days)	365	365	07SEP11A	05SEP12	98	07SEP11A	05SEP12	0								
01R30B0210	S3-Slope Stabilization works within Portion B	1,245	1,245	07MAR08A	03AUG11A	100	07MAR08A	03AUG11A									
01R30B0212	S3-Maintenance Period (365 days)	365	365	04AUG11A	02AUG12A	100	04AUG11A	02AUG12									
01R40C0214	S4-Slope Stabilization works within Portion C	1,234	1,234	26MAR08A	11AUG11A	100	26MAR08A	11AUG11A									
01R40C0216	S4-Maintenance Period (365 days)	365	365	12AUG11A	10AUG12A	100	12AUG11A	10AUG12									
01R50D0218	S5-Slope Stabilization works within Portion D	1,308	1,308	28DEC07A	19SEP11A	100	28DEC07A	19SEP11A									
01R50D0220	S5-Maintenance Period (365 days)	365	365	20SEP11A	18SEP12	94	20SEP11A	18SEP12	0	+							
01R60G0222	S6-Works within Portion G	1,023	1,023	27NOV09A	16AUG12A	100	27NOV09A	14SEP12		+							
01R60G0224	S6-Maintenance Period (365 days)	365	365	17AUG12A	16AUG13	3	15SEP12	14SEP13	-385								
01R7000226	S7-Ladscape softworks & establishment works	2,315	2,315	28DEC07A	06NOV14	71	28DEC07A	29APR14	-745							ir	nclu. preserv
01R7000228	S7-Maintenance Period (30 days)	30	30	07NOV14	06DEC14	0	30APR14	29MAY14	-745								<b>=</b>
Facilities fo	r the SO as per ER 12																
01R0000302	Provide temporary accommodation	7	7	28DEC07A	15JAN08A	100	28DEC07A	15JAN08A									
01R0000304	Design the SO's principle office	95	95	28DEC07A	28AUG08A	100	28DEC07A	28AUG08A									
01R0000305	Erect Hoarding/Signboard/Gate/Fencing	35	35	28MAR08A	16MAR09A	100	28MAR08A	16MAR09A									
01R0000306	Erect SO's principle office in Portion H1/H2	100	100	19MAY08A	13SEP08A	100	19MAY08A	13SEP08A									
01R0000308	Provide secondary offices, directed by SO	64	64	14SEP08A	13JUN09A	100	14SEP08A	13JUN09A									
01R0000310	Provide transport for the SO as per App. ER,M	90	90	28DEC07A	02MAY08A	100	28DEC07A	02MAY08A									
01R0000311	Provide survey equipments as per App. ER,M	30	30	28DEC07A	19AUG08A	100	28DEC07A	19AUG08A									
01R0000314	Maintain & Service the Principle Office	2,084	2,084	14SEP08A	06DEC14	66	14SEP08A	29MAY14	0								
01R0000316	Maintain & service the Secondary Office	1,645	1,645	28OCT08A	14MAR14	81	28OCT08A	29APR13	0								
01R0000318	Maintain & Service the transportation	2,330	2,330	12JAN08A	06DEC14	70	12JAN08A	29MAY14	0								
01R0000319	Maintain & Service the survey equipments	2,293	2,293	18FEB08A	06DEC14	69	18FEB08A	29MAY14	0			77777					<u> </u>
01R0000372	Demolish & removal of Principle Office	30	30	07DEC14	05JAN15	0	30MAY14	28JUN14	0								
Contractor's	s Accommodation as per ER.B																
01R0001402	Design Contractor's main office	30	30	01FEB08A	19MAY08A	100	01FEB08A	19MAY08A									
01R0001406	Maintain & service Contractor's office	2,142	2,142	18JUL08A	06DEC14	67	18JUL08A	29MAY14	0	-							•
01R0001408	Demolish & removal of Contractor's main office	30	30	07DEC14	05JAN15	0	30MAY14	28JUN14	0						<b>—</b>		
01R000141	Erect Contractor's main office in Portion H1	50*	50*	19MAY08A	17JUL08A	100	19MAY08A	17JUL08A									
01R0001412	Construct base slab	10	10	19MAY08A	30MAY08A	100	19MAY08A	30MAY08A									
01R0001413	Install steel frames	12	12	31MAY08A	21JUN08A	100	31MAY08A	21JUN08A									
01R0001414	Install wall/roof panels, windows etc	6	6	23JUN08A	30JUN08A	100	23JUN08A	30JUN08A									
01R0001415	Install & E& M/ceiling/floor panels	8	8	02JUL08A	12JUL08A	100	02JUL08A	12JUL08A									
01R0001416	Site clearance	1	1	14JUL08A	17JUL08A	100	14JUL08A	17JUL08A									
					•								•				

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total A	2012 S O N	N D J F M A	2013 M J J A S	6 O N D J F M A	2014 2015 M J J A S O N D J F M A 3 84 85 86 87 88 89 90 91 92 93 94 95
01R0001417	Install furnitures/internet & move in	2	2	14JUL08A	17JUL08A	•	14JUL08A	17JUL08A	1 1000	04 05 0	6 67 66 69 70 71	12 13 14 13 1	0 77 76 79 60 61 62 63	04 05 06 07 06 09 90 91 92 95 94 95
Works Prog	ramme & Monthly Report as per SCC 27													
Tromo i rogi	Talling of Monthly Report to per 555 27													
01R0000502	Prepare/Submit draft Works Programme	7	7	14DEC07A	21DFC07A	100	14DEC07A	21DEC07A						
01R0000504	SO's review/comment on draft Works Programme	14	14		23JAN08A		22DEC07A	23JAN08A						
01R0000505	Prepare/Submit draft Works Programme Rev. 1	28	28	24JAN08A	15FEB08A		24JAN08A	15FEB08A						
01R0000506	Prepare/Submit 1st 3-Month Rolling Programme	14	14	14DEC07A	03JAN08A		14DEC07A	03JAN08A						
01R0000507	SO's approval on draft Works Programme	14	14	16FEB08A	28MAR08A		16FEB08A	28MAR08A						
01R0000508	Submit Revised Works Programme	14	14	28AUG08A	30SEP08A		28AUG08A	30SEP08A						
01R0000510	SO's Approval of Revised Works Programme	14	14	02OCT08A	28FEB09A		02OCT08A	28FEB09A						
01R0000512	Monthly update program	1,929	1,929	18JAN08A	14MAR14		18JAN08A	29APR13	0				to t	be included in the Monthly Re
01R0000514	Contractor's Monthly Progress Report	1,925	1,925	22JAN08A	14MAR14		22JAN08A	29APR13	0					
<u> </u>	as per SCC 35	1,020	1,020											
Salety Plair	as per 300 35													
04 50000000	Outroit don't Onfoto Disc	44	4.4	44050074	00050074	400	44050074	00050074						
01R0000602	Submit draft Safety Plan	14	14	14DEC07A	29DEC07A		14DEC07A	29DEC07A						
01R0000604	Hold an ad hoc meeting with RE on Safety Plan	7	7	31DEC07A	09JAN08A		31DEC07A	09JAN08A						
01R0000606	Submit 6 copies of the Safety Plan	35	35	14DEC07A	26FEB08A			26FEB08A						
01R0000608	Submit updated safety organiza. chart monthly	1,867	1,867	20MAR08A	14MAR14	-		29APR13	0					
17R0000602	Fulfill all relevant safety obligation	1,950	1,950	28DEC07A	14MAR14	84	28DEC07A	29APR13	0					
Contractor's	All Insurances													
01R0000704	Submit documents for all insurances are effected	21	21	14DEC07A	02SEP08A	100	14DEC07A	02SEP08A						
Quality Syst	em as per ER 9.3													
01R0000802	Appoint a Quality Manager	14	14	28DEC07A	02JAN08A	100	28DEC07A	02JAN08A						
01R0000804	Submit proposed Quality System for SO's consent	28	28	14DEC07A	22JAN08A	100	14DEC07A	22JAN08A						
01R0000806	Submit QSSP for approval of the SO	28	28	28DEC07A	14MAR08A	100	28DEC07A	14MAR08A						
01R0000808	Maintain & update Quality System	1,922	1,922	25JAN08A	14MAR14	84	25JAN08A	29APR13	0					
Environmen														
Liiviioiiiici	•													
01R0000902	Nominate Environmental Officer	14	14	14DEC07A	21DEC07A	100	14DEC07A	21DEC07A	1					
01R0000902	Establish a billing account for disposal	21	21	14DEC07A	02JAN08A		14DEC07A	02JAN08A						
01R0000903	Submit draft EMP	21	21					02JAN08A						
01R0000904	Revise draft EMP within 7 days of SO's notice	14	14	04JAN08A				21FEB08A						
01R0000908	Submit final version of EMP	45	45	14DEC07A			14DEC07A							
01R0000908	Review/update/submit EMP monthly	1,919	1,919	28JAN08A	14MAR14			29APR13	0					
01R0000910 01R0000912	Employ IET	21	21	14DEC07A	02JAN08A			02JAN08A	J					
01R0000912 01R0000914	Submit Baseline Monitoring Plan	21	21	28DEC07A	18JAN08A		28DEC07A	18JAN08A						
01R0000914 01R0000915	Seek for EPD's Agreement on WQML & schedule	21	21	18JAN08A	31JAN08A		18JAN08A	31JAN08A						
01R0000915 01R0000916	Carry out baseline monitoring	37	37		20MAR08A			20MAR08A						
01R0000918	Prepare/submit reports for baseline monitoring	20		21MAR08A				28MAR08A						
01R0000918 01R0000920	Impact monitoring & reporting	1,855		01APR08A			01APR08A							
01K0000920	impact monitoring a reporting	1,000	1,000	UTAPRUSA	14IVIAR 14	04	UTAPRUSA	ZSAFKIS	l v	1	NNNN			

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total A	2012 S O N	D J F	M A N	2013 1 J J A S 2 73 74 75 7	S O N E	D J F M	20 A M J	J A S	O N E	2015 D J F M 1 92 93 94
17R0000902	Fulfill all relevant environmental obligation	1,950	1,950	28DEC07A	14MAR14	84	28DEC07A	29APR13	0	01 00 00			2 10 14 10 1	77		100 04 00	00 07 00	00 00 0	1 02 00 04
Excavation	Permit/Utilities per SCC 54 & SCC 83																		
01R0001002	Nominate IIUMS co-ordinator	7	7	14DEC07A	15JAN08A	100	14DEC07A	15JAN08A											
01R0001004	SO approve IIUMS co-ordinator	14	14	16JAN08A	29FEB08A	100	16JAN08A	29FEB08A											
01R0001006	Submit brand name of UGS detection equipment	7	7	28DEC07A	18FEB08A	100	28DEC07A	18FEB08A											
01R0001008	Utilities detection & report to the SO	21	21	29FEB08A	05APR08A		29FEB08A	05APR08A								1			
01R0001010	Liaison with UUs	21	21	04JAN08A	29FEB08A	100	04JAN08A	29FEB08A							X/////				
01R0001012	Apply XP for site entrance construction	7	7	21JAN08A	08MAR08A	100	21JAN08A	08MAR08A								1			
01R0001014	HyD process XP for site entrance construction	20	20	10MAR08A	28MAY08A	100	10MAR08A	28MAY08A								1			
01R0001016	HyD issue XP for site entrance construction	0	0		28MAY08A	100		28MAY08A							X/////	1			
01R0001018	Apply XP for GI works at I-1 & I-2	1	1	22APR08A	20MAY08A	100	22APR08A	20MAY08A								1			
01R0001020	HyD process XP for GI works at I-1 & I-2	30	30	23APR08A	26SEP08A	100	23APR08A	26SEP08A											
01R0001022	HyD issue XP for GI works at I-1 & I-2	0	0		26SEP08A	100		26SEP08A											
01R0001024	Apply XP for trial grout at Fault F1	1	1	22APR08A	20MAY08A	100	22APR08A	20MAY08A											
01R0001026	HyD process XP for trial grout at Fault F1	30	30	23APR08A	22JUL08A	100	23APR08A	22JUL08A											
01R0001028	HyD issue XP for trial grout at Fault F1	0	0		22JUL08A	100		22JUL08A											
Pre-constru	ction Condition Survey																		
Preliminaries	Street St														XXXX				
01R0001102	Appoint a Qualified Structural Engineer	30	30	28DEC07A	19MAR08A	100	28DEC07A	19MAR08A											
01R0001104	Submit nos. & extent of the affected EBS	30		28DEC07A			28DEC07A	19MAR08A											+
	petween I-1 & I-2	00		20220077	101111111111111111111111111111111111111		202200.71	101111111111111111111111111111111111111							<del>X//////</del>				+
01R0001118	Carry out stg 1 PCS between I-1 & I-2	6	6	22APR08A	23APR08A	100	22APR08A	23APR08A											
01R0001110	Prepare/submit reports for stg 1 PCS bet I-1&I-2	60		24APR08A			24APR08A	22SEP08A											
01R0001122	Review/accept reports for stg 1 PCS bet I-1&I-2	60		31MAY08A															+++
L	petween I-2 & I-3	00	00	011111111111111111111111111111111111111	200/ ((100/ (	100	0 11VII (1 00) (	2007 11 1007 1											+
01R0001130	Carry out stg 1 PCS between I-2 & I-3	5	5	25MAR08A	30APR08A	100	25MAR08A	30APR08A											
01R0001132	Prepare/submit reports for stg 1 PCS bet I-2&I-3	60		24APR08A			24APR08A	22SEP08A											
01R0001134	Review/accept reports for stg 1 PCS bet I-2&I-3	60		24MAY08A															+++
	petween I-3 & O-1	1 33	- 55		0 11 22 007 1			0 11 22 007 1											+
01R0001142	Carry out stg 1 PCS between I-3 & O-1	5	5	25MAR08A	26MAR08A	100	25MAR08A	26MAR08A								1			
01R0001144	Prepare/submit reports for stg 1 PCS bet I-3&O-1	60	-	26MAR08A			26MAR08A									1			
01R0001146	Review/accept reports for stg 1 PCS bet I-3&O-1	60		31MAY08A	ļ		31MAY08A									1			
	t vicinity of O-1	1 00			10.11.22.001.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1011											+
01R0001106	Carry out stg 1 PCS at vicinity of O-1	5	5	25MAR08A	29MAR08A	100	25MAR08A	29MAR08A							XXXI.				
01R0001108	Prepare/submit reports for stg 1 PCS at O-1	60		31MAR08A				10SEP08A							XXX				
01R0001110	Review/accept reports for stg 1 PCS at 0-1	60		27MAY08A				09FEB09A							XXX				
1	petween I-1 & I-2	1				1.20		. =							XXXXI				
01R0001124	Carry out stg 2 PCS between I-1 & I-2	5	5	22APR08A	02JUN08A	100	22APR08A	02JUN08A							X/X///				
01R0001126	Prepare/submit reports for stg 2 PCS bet I-1&I-2	60					24APR08A	10JUN08A											
01R0001128	Review/accept reports for stg 2 PCS bet I-1&I-2	60		11JUN08A			11JUN08A	09FEB09A											
2		1 00			1 221 2200/(	1 .50		1			<u> </u>	Y/X			N/V/V				

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total Float	2012 A S O N 3 64 65 6	N D J F M A I	2013 M J J A S O N D J F M 2 73 74 75 76 77 78 79 80 81 82	2014 2015 A M J J A S O N D J F M . 83 84 85 86 87 88 89 90 91 92 93 94 9
PCS Stage 2 b	petween I-2 & I-3									1			50 04 00 00 01 00 00 01 02 00 04 0
01R0001136	Carry out stg 2 PCS between I-2 & I-3	5	5	30APR08A	07JUN08A	100	30APR08A	07JUN08A					
01R0001138	Prepare/submit reports for stg 2 PCS bet I-2&I-3	60	60	02MAY08A	12JUN08A	100	02MAY08A	12JUN08A					
01R0001140	Review/accept reports for stg 2 PCS bet I-2&I-3	60	60	13JUN08A	09FEB09A	100	13JUN08A	09FEB09A					
PCS Stage 2 b	petween I-3 & O-1												
01R0001148	Carry out stg 2 PCS between I-3 & O-1	5	5	09MAY08A	13JUN08A	100	09MAY08A	13JUN08A					
01R0001150	Prepare/submit reports for stg 2 PCS bet I-3&O-1	60	60	04JUN08A	18JUN08A	100	04JUN08A	18JUN08A					
01R0001152	Review/accept reports for stg 2 PCS bet I-3&O-1	60	60	19JUN08A	09FEB09A	100	19JUN08A	09FEB09A					
PCS Stage 2 a	at Vicinity of O-1		'										
01R0001112	Carry out stg 2 PCS at vicinity of O-1	12	12	01APR08A	06JUN08A	100	01APR08A	06JUN08A					
01R0001114	Prepare/submit reports for stg 2 PCS at O-1	60	60	02JUN08A	16JUN08A	100	02JUN08A	16JUN08A					
01R0001116	Review/accept reports for stg 2 PCS at O-1	60	60	17JUN08A	09FEB09A	100	17JUN08A	09FEB09A					
Pre-const. coi	ndition structural survey; I-1		'										
01R0001154	Prepare/submit reports for EBS at I-1	28	28	28AUG08A	10JAN09A	100	28AUG08A	10JAN09A					
01R0001156	Review/accept reports for EBS at I-1	28	28	12JAN09A	24MAR09A	100	12JAN09A	24MAR09A					
Pre-const. coi	ndition structural survey; I-2												
01R0001158	Prepare/submit reports for EBS at I-2	28	28	28AUG08A	10JAN09A	100	28AUG08A	10JAN09A					
01R0001160	Review/accept reports for EBS at I-2	28	28	12JAN09A	24MAR09A	100	12JAN09A	24MAR09A					
Pre-const. coi	ndition structural survey; I-3												
01R0001162	Prepare/submit reports for EBS at I-3	28	28	28AUG08A	10JAN09A	100	28AUG08A	10JAN09A					
01R0001164	Review/accept reports for EBS at I-3	28	28	12JAN09A	24MAR09A	100	12JAN09A	24MAR09A					
Pre-const. coi	ndition structural survey; O-1												
01R0001166	Prepare/submit reports for EBS at O-1	28	28	28AUG08A	10JAN09A	100	28AUG08A	10JAN09A					
01R0001168	Review/accept reports for EBS at O-1	28	28	12JAN09A	24MAR09A	100	12JAN09A	24MAR09A					
Pre-const. coi	ndition structural survey; Tunnel												
01R0001170	Prepare/submit reports for EBS along Tunnel alig	346	346	28AUG08A	22SEP09A	100	28AUG08A	22SEP09A					
01R0001172	Review/accept reports for EBS along Tunnel align	207	207	16JAN09A	22APR10A	100	16JAN09A	22APR10A					
Traffic													
01R0001202	Appoint Traffic Consultant/Traffic Engineer	14	14	14DEC07A	03JAN08A	100	14DEC07A	03JAN08A					
01R0001204	Eng's Approval of Traffic Consultant	7	7	28DEC07A	28FEB08A	100	28DEC07A	28FEB08A					
01R0001206	Prepare/submit TTA Schemes (ingress & egress)	14	14	04JAN08A	31JAN08A	100	04JAN08A	31JAN08A					
01R0001216	Obtain endorsement of TTA schemes from TMLG	21	21	01FEB08A	01APR08A		01FEB08A	01APR08A					
01R0001234	Approval of TTA schemes by the Authorities	14	14	02APR08A	19APR08A	100	02APR08A	19APR08A					
01R0001236	Approval of TTA schemes by the Authorities	14	14	02APR08A	19APR08A	100	02APR08A	19APR08A					
	at of Sub-contractors as per SCC 44												
	or our community as per coort.												
01R0001302	Submit a Sub-contractor Management Plan	30	30	14DEC07A	12JAN08A	100	14DEC07A	12JAN08A					
01R0001304	Submit Quarterly the Updated SMP	1,762			14MAR14			29APR13	0			P	er SCC 44 (13) (b)
Trees	The second secon	7. 52	,, , , ==										
	o o New Tree Transplanting Area												
	s a New Tree Transplanting Area				164110004	400		164110004					
VO028-02	Receive VO28 for new tree transplanting area	0	0		16AUG08A	100		16AUG08A			XXXXXX		

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total Float	2012 A S O N	N D J F N	M A M	2013	IASOND LEMA
VO028-04	Preparation works for new T.T. area	20	20	18AUG08A	07SEP08A	100	18AUG08A	07SEP08A		0 04 00 0			10 14 10 10 11 10 10 00 01 02 00 04 00	70 07 00 00 00 07 02 00 04 00
							<u> </u>							
01R0001502	Appoint Landscape Specialist Contractor	14	14	14DEC07A	14JAN08A	100	14DEC07A	14JAN08A						
01R0001504	SO's Approval of Landscape Contractor	7	7	15JAN08A	28FEB08A	100	15JAN08A	28FEB08A						
01R0001506	Nominate competent person to oversee tree works	45	45	14DEC07A	29JAN08A	100	14DEC07A	29JAN08A						
01R0001510	Obtain Tree Removal Permit by Others	90	90	28DEC07A	06MAR08A	100	28DEC07A	06MAR08A						
01R0001512	Remove / Transplant Trees start	0	0	08SEP08A		100	08SEP08A							
Survey														
01R0001602	Appoint Surveyors	14	14	28DEC07A	10JAN08A	100	28DEC07A	10JAN08A						
01R0001604	SO's Approval of Surveyor	7	7	11JAN08A	16APR08A		11JAN08A	16APR08A						
01R0001608	Initial Survey	28	28	18JAN08A	10MAR08A		18JAN08A	10MAR08A						
01R0001610	Maintain & carry out survey works	1,893	1,893	23FEB08A	14MAR14		23FEB08A	29APR13	0					
·	System as per ER B.30	,,,,,,	,					1114						++++++
Sinart Gard	Cystem as per Liv D.00													
01R0001802	Submit Smart Card Sys for SO's Approval	7	7	28DEC07A	15JAN08A	100	28DEC07A	15JAN08A						
01R0001802 01R0001804	Install & start Operating Smart-Card System	60	60	28DEC07A	23FEB08A		28DEC07A	23FEB08A						
01R0001806	Operate & Maintain Smart-Card System	2,256		25FEB08A	06NOV14			29APR14	0					
<u> </u>		2,230	2,250	ZJI LDUOA	00110714	70	ZJI LBOOA	29AI IN14	0					
Procuremen	t of Sub-contractor													
0480004004	To all Discourt	00	00	004110004	071445004	100	004110004	071445004						
01R0001904	Spoil Disposal	60		28AUG08A				27MAR09A						
01R0001906	Earthwork for Outfall O-1	60	60	14DEC07A	05JUN08A		14DEC07A	05JUN08A						
01R0001910	Re-bar Supply	90	90	14DEC07A	30MAY08A		14DEC07A	30MAY08A						
01R0001912	Soil Nailing	60		28DEC07A	02APR08A		28DEC07A	02APR08A						
01R0001914	H-piling Works	90	90	14DEC07A	09MAY08A		14DEC07A	09MAY08A						
01R0001916	Fabrication of Pre-cast Lining	80	80	02JUN08A	05JAN09A		02JUN08A	05JAN09A						
01R0001920	Drainage/Road Works for Access Road at I-3	60	60 90	08AUG08A	03NOV08A		08AUG08A	03NOV08A						
01R0001922 01R0001924	Temp. steel decking over Shing Mun Nullah at I-1	90		14DEC07A 28JUN08A	25APR08A 31JUL09A		14DEC07A 28JUN08A	25APR08A 31JUL09A						
01R0001924 01R0001936	Design/Install Communication System  Procurement & delivery of Communication System	414	414	09JUL12A	05NOV12			25AUG12	-377					
01R0001936 01R0018A02	Supply TBM/Main Tunnel Construction	120	120	14DEC07A	21DEC07A		14DEC07A	21DEC07A	-3//					
01R0018A02	Security Security	17	17	17DEC07A	02JAN08A		17DEC07A	02JAN08A						
01R0018A04 01R0018A06	Progress Photo/Vedio	25	25	29DEC07A	22JAN08A		29DEC07A	22JAN08A						
01R0018A08	Webpage/Physical Model/3D Animation	48	48	14DEC07A			14DEC07A	14FEB08A	+					
01R0018A08	Hoarding/Fencing Erection	60	-	04JAN08A				03MAR08A	+ +					
01R0018A10	Erection of Contractor's Office	67	67	28DEC07A				03MAR08A						
01R0018A12	Remote Control CCTV	60	- 1	04JAN08A				03MAR08A						
01R0018A16	Concrete Supply	45	45	14DEC07A				11MAR08A	+					
01R0018A18	Geotechnical Instrumentation	60	60	15JAN08A	14MAR08A		15JAN08A	14MAR08A	+					
01R0018A10	Drilling/Grouting for Geotchnical Instrumentat.	60	60		15MAR08A		16JAN08A	15MAR08A	+					
01R0018A22	Site Clearance	60	60	26JAN08A			26JAN08A	25MAR08A	+					
01R0018A24	Erection of SOR's Office	95		02JAN08A				05APR08A						
01110010/24	Elocation of Corto Office	1 33	33	520/ 11 10 0/A	30/ 11 TOOM	100	020/ 11 <b>1</b> 00/1	20/ 11 TOOM			<u>(X/X/X/X</u>			

ID	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total	2012 S O N	IDJF	M A M	2013 J J A S O N D J F M A	2014 M J J A S O	2015 N D J F M A
0470040400	Description	Dur	Dur	Start 02APR08A	Finish	Comp		Finish	Float 63	64 65 66	6 67 68 69	70 71 72	73 74 75 76 77 78 79 80 81 82 8	8 84 85 86 87 88 89	90 91 92 93 94 9
01R0018A26 01R0018A28	Carry out Grout Trial at Fault F1	90	90	23APR08A	30JUN08A 21JUL08A		02APR08A 23APR08A	30JUN08A 21JUL08A							
01R0018A28	Design/Fabricate Segmental Lining Mould  Construction of Skin Walls	90	90	21JUL08A	03JAN09A		21JUL08A	03JAN09A							
01R0018A30	Design/Fabricate/Supply/Install Conveyor Belt	90	90	14JUL08A	05JAN09A 05JAN09A		14JUL08A	05JAN09A 05JAN09A							
01R0018A32	Supply of Locomotive	90	90	14JUL08A	100CT08A		14JUL08A	100CT08A							
01R0018A34	Excavation Works at I-1	60	60	28AUG08A	21JAN09A		28AUG08A	21JAN09A							
01R0018A38	Construction of Steel Platform at O-1	50		28AUG08A	14MAR09A		28AUG08A	14MAR09A							
01R0018A38	Construction of Steel Platform at I-2	50		28AUG08A	27DEC08A		28AUG08A	27DEC08A							
01R0018A40	Pre-excavation Grouting for Shaft Excavation	60		28AUG08A	11MAR09A		28AUG08A	11MAR09A							
01R0018A42	Excavation/Construction of TBM Launching Chamber	70	70	28AUG08A	18DEC08A		28AUG08A	18DEC08A							
01R0018A48	Construction of Subgrade Structure at I-1	364	364	28AUG08A	26DEC09A		28AUG08A	26DEC09A							
01R0018A48	Shaft Excavation by RCD at I-2	90		28AUG08A	26NOV08A		28AUG08A	26NOV08A							
01R0018A50	Excavation/Construction of Shafts/Adits/Chambers	90	90	28AUG08A	26MAR09A		28AUG08A	26MAR09A							
01R0018A52	Construction of Hopper at O-1	90	90	28AUG08A	31JAN09A		28AUG08A	31JAN09A							
01R0018A54	Suttering of Spiral Ramp	364	364	28AUG08A	23JAN10A		28AUG08A	23JAN10A							
01R0018A58	Open Cut Excavation & Construction at I-3	90	90	28AUG08A	02MAY09A		28AUG08A	02MAY09A							
01R0018A58	Lining Formworks for Underground Structures	1,016	1,016	28AUG08A	270CT11A		28AUG08A	270CT11A							
01R0018A60		90		28AUG08A	03APR09A		28AUG08A	03APR09A							
01R0018A61	Tunnel Data Management System (TDMS)	90	90	28AUG08A	26MAR09A		28AUG08A	26MAR09A							
01R0018A62	Supply of Aggregate	169	169	28FEB09A	02NOV09A		28FEB09A	02NOV09A							
	Supply of Aggregate	200	200	28FEB09A	27JUL10A		28FEB09A	27JUL10A							
01R0018A68 01R0018A70	Construct Box Culvert/Cascade/Spiral Ramp at O-1 Stainless steel Works	200	200	28FEB09A	14MAR11A		28FEB09A	14MAR11A							
			250	28FEB09A			28FEB09A	20NOV09A							
01R0018A72 01R0018A74	Pipe Jacking Works at Lo Wai Finishing Works	250 980	980	28FEB09A	20NOV09A			27JAN12A							
	Finishing Works	900	960	ZOFEDU9A	27 JAN 12A	100	ZOFEDU9A	ZIJANIZA							
Others															
	cation of Trash Grill for Intakes						1	1							
01R1BI2T02	Procure sub- contract	0	0		14MAR11A	100		14MAR11A							
01R1BI2T12	Prepare shop drawing	157	157	15MAR11A			15MAR11A	05MAR12							
01R1BI2T22	Procure stainless steel material	48		01AUG11A		100	01AUG11A	14MAR12							
01R1BI2T32	Fabrication	60	60	16APR12A	130CT12	33	15MAR12	30MAY12	-357						
01R1BI2T42	Delivery	12	12	15OCT12	29OCT12	0	31MAY12	13JUN12	-357	-					
	Pre-cast Staircase at MAS/MAA														
01RSC05	Prepare & material procurement	60			09MAY12A	100	28FEB12	14MAY12							
01RSC15	Fabrication	60	60	17MAR12A	09OCT12	40	15MAY12	25JUL12	-281						
	catio of Steel Gate for Outfall														
01RSG02	Recieve VO#137 for Penstock	0	0		10SEP11A	100		10SEP11A							
01RSG05	Obtain approval for shop drawing/technical subm	122	122	12SEP11A	11FEB12A		12SEP11A	11FEB12A							
01RSG15	Fabrication & approval of inspection report	136	136	13FEB12A	27JUL12A	100	13FEB12A	28JUL12							
01RSG25	Packup & Delivery	42	42	28JUL12A	12SEP12	67	30JUL12	15SEP12	742						
Fabrication of	Steel Handrailing for MAS														
01RSH05	Prepare shop drawing & material procurement	60	60	28JAN12A	21MAR12A	100	28JAN12A	21MAR12			XXXII				
01RSH15	Fabrication	96	96	22MAR12A	02OCT12	69	22MAR12	20JUL12	-311						
01RSH25	Delivery	12	12	25SEP12	09OCT12	0	21JUL12	03AUG12	-311	•					

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total Float	201: A S O	ND	J F M	2013 A M J J A 71 72 73 74 75	S O N D J F	2014 M A M J J A S O N 82 83 84 85 86 87 88 89 90	D J
	2000,1510.1	1 20.			1	- ССр		1	111000	03 04 00	00 07	00 09 70	11 12 13 14 13	10 11 10 19 00 01	62 63 64 63 60 67 66 69 90	91 92
01R0001928	Submit Contractor's Management Team	0	0		10JAN08A	100		10JAN08A								
01R0001930	Submit Photographer for Monthly Progress Photo	0	0	28JAN08A		100	28JAN08A									
01R0001932	Install Project Signboards at Potions A,B,C & D	30	30	28FEB09A	29MAY09A	100	28FEB09A	29MAY09A								
01R0001934	Presentation of TDMS to SOR/ Employer; ER 4.4.6	6	6	27MAR09A	06MAY09A	100	27MAR09A	06MAY09A								
01R0001940	Prepare/submit Operation & Maintenance Manual	90	90	28FEB12A	08SEP12	87	28FEB12	27MAY12	-500	as p	er El	24,4.11				
01R0001942	Prepare/submit As-built Drawings	90	90	29DEC13	28MAR14	0	30APR13	28JUL13	351				—		as per ER4.4.12	
01R0001944	Produce 2 documentary video for tunnel	30	30	29MAR14	27APR14	0	30APR13	29MAY13	321				_		ER 4.4.13	
Constructio	n Risk Assessment (CRA) as per ER 7															
	rks at Portion A (I-1)															
01R00PCRA2	Prepare/submit PCRA for works at I-1	21	21	07APR08A	20AUG08A	100	07APR08A	20AUG08A								
01R00PCRA4	DC review & certify PCRA for works at I-1	60	60	22MAY08A	13OCT08A	100	22MAY08A	13OCT08A								
01R00PCRA6	SOR review & accept PCRA at works at I-1	60	60	12MAY08A	25SEP08A	100	12MAY08A	25SEP08A								
PCRA for Wor	rks at Portion B (I-2)															
01R00PCRB2	Prepare/submit PCRA for works at I-2	21	21	14APR08A	20AUG08A	100	14APR08A	20AUG08A								
01R00PCRB4	DC review & certify PCRA for works at I-2	60	60	22MAY08A		100	22MAY08A	13OCT08A								
01R00PCRB6	SOR review & accept PCRA at works at I-2	60	60	22MAY08A	25SEP08A	100	22MAY08A	25SEP08A								
PCRA for Wor	rks at Portion C (I-3)															
01R00PCRC2	Prepare/submit PCRA for works at I-3	21	21	01APR08A	20AUG08A	100	01APR08A	20AUG08A								
01R00PCRC4	DC review & certify PCRA for works at I-3	60	60	21MAY08A			21MAY08A	13OCT08A								
01R00PCRC6	SOR review & accept PCRA at works at I-3	60	60	21MAY08A		100	21MAY08A	25SEP08A								
PCRA for Wor	rks at Portion D/E (O-1)															
01R00PCRD2	Prepare/submit PCRA for works at O-1	21	21	01APR08A	20AUG08A	100	01APR08A	20AUG08A								
01R00PCRD4	DC review & certify PCRA for works at O-1	60	60	21MAY08A	13OCT08A	100	21MAY08A	13OCT08A								
01R00PCRD6	SOR review & accept PCRA at works at O-1	60	60	12MAY08A	25SEP08A	100	12MAY08A	25SEP08A								
PCRA for Wor	ks at Portion F/J (Main Tunnel)															
01R00PCRF2	Prepare/submit PCRA for main tunnel works	21	21	09JUN08A	23APR09A	100	09JUN08A	23APR09A								
01R00PCRF4	DC review & certify PCRA for main tunnel works	60	60	14JUL08A	08JUN09A	100	14JUL08A	08JUN09A								
01R00PCRF6	SOR review & accept PCRA for main tunnel works	60	60	16JUL08A	24JUL09A	100	16JUL08A	24JUL09A								
DCRA for Wor	rks at Portion A (I-1)		1													
01R00DCRA2	Prepare/submit DCRA for works at I-1	14	14	02OCT08A	27OCT08A	100	02OCT08A	27OCT08A					1			
01R00DCRA4	DC review & certify DCRA for works at I-1	21		28OCT08A			28OCT08A	17FEB09A								
01R00DCRA6	SOR review & accept DCRA at works at I-1	49	49	05NOV08A	26MAR09A	100	05NOV08A	26MAR09A								
DCRA for Wor	rks at Portion B (I-2)															
01R00DCRB2		14	14	14OCT08A	02JUN09A	100	14OCT08A	02JUN09A								
01R00DCRB4	DC review & certify DCRA for works at I-2	21	21	05DEC08A	09JUN09A	100	05DEC08A	09JUN09A								
01R00DCRB6	SOR review & accept DCRA at works at I-2	49	49	10DEC08A	28AUG09A	100	10DEC08A	28AUG09A								
DCRA for Wor	rks at Portion C (I-3)															
01R00DCRC2	Prepare/submit DCRA for works at I-3	14	14	14OCT08A	03JUN09A	100	14OCT08A	03JUN09A								
01R00DCRC4	DC review & certify DCRA for works at I-3	21	21	310CT08A	10JUN09A		310CT08A	10JUN09A								
01R00DCRC6	SOR review & accept DCRA at works at I-3	49	49	07NOV08A	24JUN09A	100	07NOV08A	24JUN09A								

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total Float	ΔΩ	012 O N D J F M A M 05 66 67 68 69 70 71 72	2013 201 J J A S O N D J F M A M J J 73 74 75 76 77 78 79 80 81 82 83 84 85 8	I A S O N D I E M A
DCRA for Wor	rks at Portion D/E (O-1)												
01R00DCRD2	Prepare/submit DCRA for works at O-1	14	14	03NOV08A	03JUN09A	100	03NOV08A	03JUN09A					
01R00DCRD4	DC review & certify DCRA for works at O-1	21	21	15NOV08A	10JUN09A	100	15NOV08A	10JUN09A					
01R00DCRD6	SOR review & accept DCRA at works at O-1	285	285	15NOV08A	10NOV09A	100	15NOV08A	10NOV09A					
DCRA for Wor	rks at Portion F/J (Main Tunnel)	-	'		<u>'</u>				-				
01R00DCRF2	Prepare/submit DCRA for main tunnel works	142	142	14MAR09A	11AUG09A	100	14MAR09A	11AUG09A					
01R00DCRF4	DC review & certify DCRA for main tunnel works	21	21	11AUG09A	13AUG09A	100	11AUG09A	13AUG09A					
01R00DCRF6	SOR review & accept DCRA for main tunnel works	49	49	12AUG09A	22APR10A	100	12AUG09A	22APR10A					
Physical Mo	odels & Other Material Display												
	adolo di Canor matoriai Diopiaj												
01R0002302	Prepare/submit a physical models	255	255	15FEB08A	27NOV08A	100	15FEB08A	27NOV08A	T				
01R0002304	Prepare/submit a 3-D animation model	308		15FEB08A				27FEB09A					
l l	bsite as per ER 4.4.7												
miternet we	usite as per ER 4.4.7												
0450000400	Decree the decimal final page	20	20	00050074	00550004	400	00050074	09FEB08A	1				
01R0002402	Propose the design of web page	30		28DEC07A	09FEB08A		28DEC07A						
01R0002404	Produce the web page for approval of SO	211	211				10MAR08A 02JUN08A						
01R0002406	SO's approval of web page	30	30		24FEB09A			24FEB09A					until the even
01R0002408	Submit updated web pages monthly	1,890	1,890	25FEB09A	06NOV14	65	25FEB09A	29APR14	0				until the expi
Schedule of	Milestones for Cost Centre No. 1R												
01R0002501	1R 1; On provision of SO's Accommodation	0	0		13SEP08A	100		13SEP08A					
01R0002502	1R 2; On providing documents of effected CWI	0	0		03JAN08A	100		03JAN08A					
01R0002503	1R 3; On providing documents of effected TPI	0	0		03JAN08A	100		03JAN08A					
01R0002504	1R 4; On Pproviding documents of effected PII	0	0		03JAN08A	100		03JAN08A					
01R0002505	1R 5; On delivery of all Land Transport for SO	0	0		02MAY08A	100		02MAY08A					
01R0002506	1R 6; On install. of computer facilities for SO	0	0		13SEP08A	100		13SEP08A					
01R0002507	1R 7; On accept. of detailed CRA incl. PCS	0	0		22APR10A	100		22APR10A					
01R0002508	1R 8; On acceptance of Physical Model by the SO	0	0		27NOV08A	100		27NOV08A					
01R0002509	1R 9; On acceptance of 3-D Animation Model	0	0		27FEB09A	100		27FEB09A					
01R0002510	1R 10; On satisf. operation of CCTV for 3 mth	0	0		17JUN09A	100		17JUN09A					
01R0002511	1R 11; On acceptance of O&MM	0	0		08SEP12	0		27MAY12	917	<b>♦</b> C	0&MM completed a	-	
01R0002512	1R 12; On acceptance of as-built drwgs.	0	0		28MAR14	0		28JUL13	351		built drwgs. com	pleted as per ER 4.4.12	
01R0002513	1R 13; On acceptance of T.R/Video/Brouchure	0	0		27APR14	0		29MAY13	321			DER 4.4.13 ♦ tunne	el report & vedeo & bro
01R0002514	1R 14; On complete all wks for 3 mth frm DOC	0	0		27MAR08A			27MAR08A					
01R0002515	1R 15; On complete all wks for 6 mth frm DOC	0	0		27JUN08A			27JUN08A					
01R0002516	1R 16; On complete all wks for 9 mth frm DOC	0	0		25SEP08A	100		25SEP08A	$\perp$				
01R0002517	1R 17; On complete all wks for 12 mth frm DOC	0	0		27DEC08A			27DEC08A					
01R0002518	1R 18; On complete all wks for 15 mth frm DOC	0	0		27MAR09A			27MAR09A	$\perp$				
01R0002519	1R 19; On complete all wks for 18 mth frm DOC	0	0		26JUN09A	100		26JUN09A	$\perp$				
01R0002520	1R 20; On complete all wks for 21 mth frm DOC	0	0		27SEP09A	100		27SEP09A	$\perp$				
01R0002521	1R 21; On complete all wks for 24 mth frm DOC	0	0		26DEC09A			26DEC09A					
01R0002522	1R 22; On complete all wks for 27 mth frm DOC	0	0		27MAR10A	100		27MAR10A					

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total Float	2012 A S O N D J F M 3 64 65 66 67 68 69 70	2013 A M J J A 71 72 73 74 75	2014 S O N D J F M A M J J 76 77 78 79 80 81 82 83 84 85 86 8	2015 A S O N D J F M A 87 88 89 90 91 92 93 94 95
01R0002523	1R 23; On complete all wks for 30 mth frm DOC	0	0		26JUN10A	100		26JUN10A					
01R0002524	1R 24; On complete all wks for 33 mth frm DOC	0	0		25SEP10A	100		25SEP10A					
01R0002525	1R 25; On complete all wks for 36 mth frm DOC	0	0		27DEC10A	100		27DEC10A					
01R0002526	1R 26; On complete all wks for 39 mth frm DOC	0	0		27MAR11A	100		27MAR11A					
01R0002527	1R 27; On complete all wks for 42 mth frm DOC	0	0		26JUN11A	100		26JUN11A					
01R0002528	1R 28; On complete all wks for 45 mth frm DOC	0	0		25SEP11A	100		25SEP11A					
01R0002529	1R 29; On issuance of completion certificates	0	0		28MAR14	0		27FEB12	351	of	completion ex	cept Section 7	
01R0002530	1R 30; On complete all wks for 3 mth frm CMP	0	0		13JUN14	0		29JUL13	274	/////////		frm DOM excl. Sec. 7	
01R0002531	1R 31; On complete all wks for 6 mth frm CMP	0	0		12SEP14	0		28OCT13	183	of a	1	6 mths frm DOM excl. Sec.	· · · · · · · · · · · · · · · · · · ·
01R0002532	1R 32; On complete all wks for 9 mth frm CMP	0	0		12DEC14	0		27JAN14	92		of all oblig	ations 9 inthis frm DOM exc	cl. Sec. 7
01R0002533	1R 33; On issuance of maintenance certificate	0	0		14MAR15	0		29MAY14	0			•	certificate
Schedule of	Milestones for Cost Centre No. 16R												
16R7003001	16R 1; On completion of landscape wks; Portion A	0	0		17JAN13	0		10NOV12	786				
16R7003002	16R 2; On completion of landscape wks; Portion B	0	0		21MAY13	0		22MAR13	662		<b>\Q</b>		
16R7003003	16R 3; On completion of landscape wks; Portion C	0	0		04OCT12	0		14AUG12	891	• 🔷			
16R7003004	16R 4; On completion of landscape wks; Portion D	0	0		21MAR13	0		11DEC12	723	•			
16R7003005	16R 5; On completion of establish wks; Portion A	0	0		17JAN14	0		10NOV13	421			• •	
16R7003006	16R 6; On completion of establish wks; Portion B	0	0		21MAY14	0		22MAR14	297			( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )	
16R7003007	16R 7; On completion of establish wks; Portion C	0	0		19APR14	0		08MAR14	329			*	
16R7003008	16R 8; On completion of establish wks; Portion D	0	0		06NOV14	0		29APR14	128			•	<b>♦</b>
Schedule of	Milestones for Cost Centre No. 17R												
17R0003101	17R 1; On complet of all wks for 3 mth frm DOC	0	0		27MAR08A	100		27MAR08A					
17R0003102	17R 2; On complet of all wks for 6 mth frm DOC	0	0		27JUN08A	100		27JUN08A					
17R0003103	17R 3; On complet of all wks for 9 mth frm DOC	0	0		26SEP08A	100		26SEP08A					
17R0003104	17R 4; On complet of all wks for 12 mth frm DOC	0	0		27DEC08A	100		27DEC08A					
17R0003105	17R 5; On complet of all wks for 15 mth frm DOC	0	0		27MAR09A	100		27MAR09A					
17R0003106	17R 6; On complet of all wks for 18 mth frm DOC	0	0		15JUL09A	100		15JUL09A					
17R0003107	17R 7; On complet of all wks for 21 mth frm DOC	0	0		27SEP09A	100		27SEP09A					
17R0003108	17R 8; On complet of all wks for 24 mth frm DOC	0	0		26DEC09A	100		26DEC09A					
17R0003109	17R 9; On complet of all wks for 27 mth frm DOC	0	0		13MAY10A	100		13MAY10A					
17R0003110	17R 10; On complet all wks for 30 mth frm DOC	0	0		12AUG10A	100		12AUG10A					
17R0003111	17R 11; On complet all wks for 33 mth frm DOC	0	0		02OCT10A	100		02OCT10A					
17R0003112	17R 12; On complet all wks for 36 mth frm DOC	0	0		27DEC10A	100		27DEC10A					
17R0003113	17R 13; On complet all wks for 39 mth frm DOC	0	0		02APR11A	100		02APR11A					
17R0003114	17R 14; On complet all wks for 42 mth frm DOC	0	0		02JUL11A	100		02JUL11A					
17R0003115	17R 15; On complet all wks for 45 mth frm DOC	0	0		30SEP11A	100		30SEP11A					
17R0003116	17R 16; On complet all wks for 48 mth frm DOC	0	0		28FEB12A	100		27FEB12					
17R0003117	17R 17; On complet of all wks for 3 mth frm CMP	0	0		13JUN14	0		29JUL13	274		•	excl. Section 7♦of a	
17R0003118	17R 18; On complet of all wks for 6 mth frm CMP	0	0		12SEP14	0		28OCT13	183			V/V/V/X/Y/X-	7 <b>♦</b> of all safety & en
17R0003119	17R 19; On complet of all wks for 9 mth frm CMP	0	0		13DEC14	0		28JAN14	91	of all safety & env	obligations 9	mths frm DOMexcluding S	
17R0003120	17R 20; On issuance of maintenance certificate	0	0		14MAR15	0		29MAY14	0			•	certificate <b>◆</b>

ID	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total	20	12		2013			201	4	201
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish	Float	A S C 63 64 6	0 N D 6	J F M A	M J J A 72 73 74 75	S O N D	9 80 81 82	A M J 83 84 85 8	J A S O 86 87 88 89	N D J F 90 91 92 93
Design/Des	ign Check for Permanent Works													1//				
Project -wid																1		
Project Design																		
02L10D0102	Employ Independent Designer	7	7	14DEC07A	20DEC07A	100	14DEC07A	20DEC07A										
02L10D0104	Prepare & submit Project Design Plan (PDP)	28	28	14DEC07A			14DEC07A	26FEB08A										
02L10D0106	SO's review & comment on PDP	28			18MAR08A		27FEB08A	18MAR08A										
02L10D0108	Provide further information of (PDP)	28	28	19MAR08A			19MAR08A	21AUG08A										
02L10D0110	SO approves PDP	14	14	14MAY08A			14MAY08A	04SEP08A										
02L10D0112	Employ Independent Design Checker	14		28DEC07A			28DEC07A	01FEB08A										
02L10D0114	Approval of Design Checker by the SO	28					02FEB08A	28FEB08A										
	mmunication System			02. 2200/ (	20. 2200/1		02: 2200: 1	20. 2200, 1										
02L1FE0002	Receive VO# 180 for Digital Comm. Sys	0	n	15NOV11A		100	15NOV11A											
02L1FE0012	AIP (Digital); Submit/approve from ICE & SOR	121	121	310CT11A	11.II.IN12A		310CT11A	27APR12										
02L1FE0102	Design preparation for the AIP submission	15		23NOV09A	10DEC09A		23NOV09A	10DEC09A										
02L1FE0103	Design (AIP) submission for the DC's approval	1	13	11DEC09A	11DEC09A		11DEC09A	11DEC09A										
02L1FE0104	Design (AIP) certification by the Design Checker	28	28	12DEC09A	26JAN10A		12DEC09A	26JAN10A										
02L1FE0106	Design (AIP) submission for the SO's approval	1	1	27JAN10A	27JAN10A		27JAN10A	27JAN10A										
02L1FE0108	Design (AIP) review by the SO	60	60	28JAN10A	24JUN10A		28JAN10A	24JUN10A										
02L1FE0110	AIP submission for rel. authorities' approval	1	1	05APR12A	17APR12A		30APR12	30APR12										
02L1FE0112	Design (AIP) review by the rel. authorities	28	28	06APR12A	11JUN12A		01MAY12	28MAY12										
02L1FE0114	Obtain rel. authorities's approval for AIP	0	1	00/11/11/2/1	11JUN12A		29MAY12	29MAY12										
02L1FE0116	Obtain SO's consent for design (AIP)	0	0		11JUN12A	100		24JUN10A										
02L1FE0118	Design preparation for the DDA submission	30	30	28AUG12	26SEP12		28APR12	27MAY12	-406									
02L1FE0119	Design (DDA) submission for the DC's approval	1	1	27SEP12	27SEP12		28MAY12	28MAY12	-331									
02L1FE0120	Design (DDA) certification by the Design Checker	28	28	28SEP12	25OCT12		29MAY12	25JUN12	-406									
02L1FE0122	Design (DDA) submission for the SO's approval	1	1	27SEP12	27SEP12		28MAY12	28MAY12	-325									
02L1FE0124	Design (DDA) review by the SO	60	60	05OCT12	03DEC12		05JUN12	03AUG12	-406									
02L1FE0126	DDA submission for rel. authorities' approval	1	1	27SEP12	27SEP12		28MAY12	28MAY12	-299									
02L1FE0128	Design (DDA) review by the rel. authorities	28	28	05OCT12	01NOV12		05JUN12	02JUL12	-374									
02L1FE0130	Obtain rel. authorities's approval for DDA	1	1	02NOV12	02NOV12		03JUL12	03JUL12	-305									
02L1FE0132	Obtain SO's consent for design (DDA)	0	0	02110112	04DEC12	0		04AUG12	-406									
		0	0		04DLC12	0		04A0G12	-400									
	ages for Works in Portion A																	
	ecking Design Over Shing Mun Nullah			00555	4 11 11 12 12 12		0055555	4 = 1 4 4 1 1 2 2 2							X/X///			
02L1AA0102	Design preparation by the Designer	14	14		15MAY08A		22FEB08A	15MAY08A										
02L1AA0104	Design certification by the Design Checker	14	14		26MAY08A		16MAY08A		$\perp$									
02L1AA0106	Design submission for the SO's approval	1	1		26MAY08A			26MAY08A										
02L1AA0108	Design review by the SO	21		27MAY08A				30JUN08A										
02L1AA0110	Obtain design approval from the SO	0	0		30JUN08A	100		30JUN08A										
	r Spiral Ramp/Cascade/Box Culvert																	
02L1AA0202	Design preparation for the DDA submission	158		02MAY08A			02MAY08A	16FEB09A										
02L1AA0203	Design submission for the DC's approval	2	2	10JUL08A	17FEB09A		10JUL08A	17FEB09A										
02L1AA0204	Design (DDA) certification by the Design Checker	30	30	11JUL08A	17FEB09A	100	11JUL08A	17FEB09A							<u> </u>			

ID	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total	201			2013			2014			2015
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish		A S O 63 64 65	N D J	F M A 69 70 71	M J J A 72 73 74 75	S O N 76 77 78 7	D J F M 79 80 81 82	A M J J 83 84 85 86	A S O 88 89	N D J	J F M A 92 93 94 95
02L1AA0206	Design (DDA) submission for the SO's approval	2	2	12AUG08A	17FEB09A	100	12AUG08A	17FEB09A											
02L1AA0208	Design (DDA) review by the SO	68	68	13AUG08A	14MAR09A	100	13AUG08A	14MAR09A											
02L1AA0216	SO submit design (DDA) for review of GEO	1	1	03FEB09A	03MAR09A	100	03FEB09A	03MAR09A											
02L1AA0218	Design (DDA) review by the GEO	28	28	04MAR09A	28OCT09A	100	04MAR09A	28OCT09A											
02L1AA0238	Obtain SO's consent for design (DDA)	0	0		24MAR09A	100		24MAR09A											
Temp. Platform	Design for H-Piling							'											
02L1AA0302	Design preparation by the Designer	15	15	01FEB11A	19FEB11A	100	01FEB11A	19FEB11A											
02L1AA0303	Design submission for the DC's approval	1	1	21FEB11A	21FEB11A	100	21FEB11A	21FEB11A											
02L1AA0304	Design certification by the Design Checker	28	28	21FEB11A	24MAR11A	100	21FEB11A	24MAR11A											
02L1AA0306	Design submission for the SO's approval	1	1	21FEB11A	25MAR11A	100	21FEB11A	25MAR11A											
02L1AA0308	Design review by the SO	42	42	21FEB11A	01APR11A	100	21FEB11A	01APR11A											
02L1AA0310	Obtain design approval from the SO	0	0		06APR11A	100		06APR11A											
Cascade & Box	Culver Design for Portion A																		
02L1AA0402	Design preparation for the AIP submission	30	30	02JUN08A	28FEB09A	100	02JUN08A	28FEB09A											
02L1AA0403	Design (AIP) submission for the DC's approval	3	3	12JUL08A	02MAR09A	100	12JUL08A	02MAR09A											
02L1AA0404	Design (AIP) certification by the Design Checker	243	243	14JUL08A	18MAR09A	100	14JUL08A	18MAR09A											
02L1AA0406	Design (AIP) submission for the SO's approval	2	2	15JUL08A	19MAR09A	100	15JUL08A	19MAR09A											
02L1AA0408	Design (AIP) review by the SO	66	66	16JUL08A	20MAR09A	100	16JUL08A	20MAR09A											
02L1AA0410	AIP submission for rel. authorities' approval	1	1	14JUL08A	19AUG08A	100	14JUL08A	19AUG08A											
02L1AA0412	Design (AIP) review by the rel. authorities	28	28	15JUL08A	18NOV08A	100	15JUL08A	18NOV08A											
02L1AA0414	Obtain rel. authorities's approval for AIP	1	1	03NOV08A	18NOV08A	100	03NOV08A	18NOV08A											
02L1AA0420	Obtain SO's consent for design (AIP)	0	0		20MAR09A	100		20MAR09A											
02L1AA0422	Design preparation for the DDA submission	141	141	21MAR09A	30SEP10A	100	21MAR09A	30SEP10A											
02L1AA0423	Design (DDA) submission for the DC's approval	2	2	02SEP09A	01SEP10A	100	02SEP09A	01SEP10A											
02L1AA0424	Design (DDA) certification by the Design Checker	28	28	03SEP09A	18NOV10A	100	03SEP09A	18NOV10A											
02L1AA0426	Design (DDA) submission for the SO's approval	2	2	07SEP09A	19NOV10A	100	07SEP09A	19NOV10A											
02L1AA0428	Design (DDA) review by the SO	66	66	08SEP09A	24NOV10A	100	08SEP09A	24NOV10A											
02L1AA0430	DDA submission for rel. authorities' approval	1	1	06DEC10A	06DEC10A	100	06DEC10A	06DEC10A											
02L1AA0432	Design (DDA) review by the rel. authorities	28	28	06DEC10A	03JAN11A	100	06DEC10A	03JAN11A											
02L1AA0434	Obtain rel. authorities's approval for DDA	1	1	03JAN11A	03JAN11A	100	03JAN11A	03JAN11A											
02L1AA0440	Obtain SO's consent for design (DDA)	0	0		24NOV10A	100		24NOV10A											
Impact Assess	ment on WSD Wo Yip Hop V. S. P. H.																		
02L1AA0502	Design preparation for the DDA submission	30	30	02MAY08A	26FEB09A	100	02MAY08A	26FEB09A											
02L1AA0503	Design (DDA) submission for the DC's approval	1	1	26JUN08A	27FEB09A	100	26JUN08A	27FEB09A											
02L1AA0504	Design (DDA) certification by the Design Checker	60	60	27JUN08A	11MAR09A	100	27JUN08A	11MAR09A											
02L1AA0506	Design (DDA) submission for the SO's approval	2	2	14JUL08A	24MAR09A	100	14JUL08A	24MAR09A											
02L1AA0508	Design (DDA) review by the SO	66	66	15JUL08A	31MAR09A	100	15JUL08A	31MAR09A											
02L1AA0510	DDA submission for rel. authorities' approval	2	2	10JUL08A	14MAR09A	100	10JUL08A	14MAR09A											
02L1AA0512	Design (DDA) review by the rel. authorities	385	385	14JUL08A	02NOV09A	100	14JUL08A	02NOV09A											
02L1AA0514	Obtain rel. authorities's approval for DDA	1	1	03NOV09A	03NOV09A	100	03NOV09A	03NOV09A											
02L1AA0520	Obtain SO's consent for design (DDA)	0	0		31MAR09A	100		31MAR09A											
Temporary Plat	form for Pipe Piling																		
	Design preparation by the Designer	11	11	21JUL08A	23AUG08A	100	21JUL08A	23AUG08A								1			
	, , ,		I .				1	1			11/1/1/	1/1/1		<u> </u>		M		<u></u>	

ID	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total	201			2013			2014			2015
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish		A S O 63 64 65	N D J 66 67 68	F M A M 69 70 71 7	M J J A S 2 73 74 75 7	S O N D J 6 77 78 79 8	F M A N	1 J J A S 4 85 86 87 8	S O N I	D J F 91 92 9	= M A 3 94 95
02L1AA0603	Design submission for the DC's approval	1	1	01AUG08A	25AUG08A	100	01AUG08A	25AUG08A											
02L1AA0604	Design certification by the Design Checker	21	21	02AUG08A	26SEP08A	100	02AUG08A	26SEP08A											
02L1AA0606	Design submission for the SO's approval	1	1	08AUG08A	27SEP08A	100	08AUG08A	27SEP08A											
02L1AA0608	Design review by the SO	28	28	09AUG08A	17OCT08A	100	09AUG08A	17OCT08A											
02L1AA0610	Obtain design approval from the SO	0	0		17OCT08A	100		17OCT08A											
Temporary Wo	rks Design for Retrieval of TBM						<u> </u>												
02L1AA0702	Design preparation by the Designer	162	162	28FEB09A	12JAN11A	100	28FEB09A	12JAN11A											
02L1AA0703	Design submission for the DC's approval	1	1	13JAN11A	13JAN11A		13JAN11A	13JAN11A											
02L1AA0704	Design certification by the Design Checker	28	28	18AUG09A	22MAR11A			22MAR11A											
02L1AA0706	Design submission for the SO's approval	1	1	13JAN11A	23MAR11A			23MAR11A											
02L1AA0708	Design review by the SO	42	42	14JAN11A	20JUN11A			20JUN11A											
02L1AA0710	Obtain design approval from the SO	0	0	1 107 11 17 1	20JUN11A	100		20JUN11A											
					2000111111	100		200011171											
02L1AA0802	inage Management Plan for Portion A  TDMP preparation by the Designer	208	208	18AUG08A	23MAY09A	100	18AUG08A	23MAY09A											
02L1AA0802 02L1AA0804	TDMP submission for the DC's approval	200	200		25MAY09A			25MAY09A											
	• • • • • • • • • • • • • • • • • • • •		2					02DEC09A											
02L1AA0806	TDMP certification by the Design Checker	80	80		02DEC09A														
02L1AA0808	TDMP submission for the SO's approval	5	5		03DEC09A			03DEC09A											
02L1AA0810	TDMP review by the SO	284	284		05DEC09A			05DEC09A											
02L1AA0812	TDMP submission for DSD's approval	1	1	03DEC09A	03DEC09A			03DEC09A											
02L1AA0814	TDMP review by the DSD	60	60		05DEC09A			05DEC09A											
02L1AA0816	Obtain DSD's approval for DDA	1	1	07DEC09A	07DEC09A			07DEC09A											
02L1AA0818	Obtain SO's consent for TDMP	0	0		07DEC09A	100		07DEC09A											
	For Exit. Channel Modification						ı												
02L1AA0902	Design preparation	25	25		27OCT09A	100		27OCT09A											
02L1AA0912	Design submission to Design Checker	1	1	28OCT09A	28OCT09A	100	28OCT09A	28OCT09A											
02L1AA0922	Design certification by Design Checker	18	18	29OCT09A	15NOV09A	100	29OCT09A	15NOV09A											
02L1AA0932	Design submission to SO	1	1	16NOV09A	16NOV09A	100	16NOV09A	16NOV09A											
02L1AA0942	Design revew by SO	21	21	17NOV09A	07DEC09A	100	17NOV09A	07DEC09A											
02L1AA0952	Obtain design approval from SO	0	0		07DEC09A	100		07DEC09A											
Temp. Design f	or TBM Portal Strengtheing at I-1																		
02L1AA1002	Design preparation	18	18	02DEC09A	10JAN11A	100	02DEC09A	10JAN11A											
02L1AA1012	Design submission to Design Checker	1	1	11JAN11A	11JAN11A	100	11JAN11A	11JAN11A											
02L1AA1022	Design certification by Design Checker	7	7	12JAN11A	22MAR11A	100	12JAN11A	22MAR11A											
02L1AA1032	Design submission to SO	1	1	11JAN11A	23MAR11A	100	11JAN11A	23MAR11A											
02L1AA1042	Design review by SO	21	21	12JAN11A	01APR11A	100	12JAN11A	01APR11A											
02L1AA1052	Obtain design approval from SO	0	0		01APR11A	100		01APR11A											
Geotechnical I	nstrumentation Stg 1 for GL Works		·																
3DL1AAG102	Design preparation by the Designer	14	14	22FEB08A	28APR08A	100	22FEB08A	28APR08A											
3DL1AAG104	Design certification by the Design Checker	7	7	29APR08A				16JUN08A											
3DL1AAG106	Design submission for the SO's approval	1	1	10MAY08A				10MAY08A											
3DL1AAG108	Design review by the SO	14	14	12MAY08A				28AUG08A						- W.X.					
3DL1AAG110	Obtain design approval from the SO	0	0		28AUG08A	100		28AUG08A											
3DL1AAG112	Install Geotechnical Instruments	6	_	26MAY08A			26MAY08A											+	
ODE IT INCOME	motan Cootcomical motiuments				_01V11 (1 00/A	100	2017/11/00/4	-51VII/ (100/A							WWA	<u> ———</u>		$\perp$	$\perp$

ID	Activity	1	WP09	WP10	WP10	%	WP09	WP09	Total		012 O N	D J	F M A	201 M J	3 J A S	0 N	D J F	MA	2014 M J J	ASC	N D		015 M A
3DL1AAG114	Description  Baseline Monitoring	Dur 14	Dur 14	Start 27MAY08A	Finish 31MAY08A	Comp 100	Start 27MAY08A	Finish 31MAY08A	Float	63 64	65 66	67 68	59 70 71	72 73 7	74 75 76	77 78	79 80 8	1 82 83	84 85 86	87 88 89	90 91	92 93	94 95
	Instrumentation Stg 2 for Deep Exc.	1 17	1-7	2710071	011111/11/00/1	100	271017 (1007 (	0 11017 (1 007 (													+	+	+
3DL1AAG202	Design preparation by the Designer	14	14	01DEC08A	24FEB09A	100	01DEC08A	24FEB09A															
3DL1AAG204	Design certification by the Design Checker	7	7	15DEC08A	25FEB09A		15DEC08A	25FEB09A														+	++
3DL1AAG206	Design submission for the SO's approval	1	1	07JAN09A	25FEB09A		07JAN09A	25FEB09A													+++	+	+++
3DL1AAG208	Design review by the SO	28	28	08JAN09A	24MAR09A		08JAN09A	24MAR09A														+	+++
3DL1AAG210	Obtain design approval from the SO	0	0	00071110071	24MAR09A	100		24MAR09A														+	+++
3DL1AAG212	Install Geotechnical Instruments	28	28	09FEB09A	03NOV09A		09FEB09A	03NOV09A														+	++
3DL1AAG214	Baseline Monitoring	6	6	18FEB09A	25MAR09A		18FEB09A	25MAR09A														1	
3DL1AAG216	Monitor/report Geotechnical Instrumentation	1,908	1,908		30NOV13		02JUN08A	22AUG13	0	+	4												
<u> </u>	kages for Works in Portion B	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, , , ,																				
	n to Construct H-pile Wall																						
02L1BB0202	Design preparation by the Designer	15	15	24MAR08A		100	24MAR08A	09MAY08A															$  \   \  $
02L1BB0202	Design certification by the Design Checker	14	14	10MAY08A			10MAY08A	08AUG08A												+++	++	+	++
02L1BB0204	Design submission for the SO's approval	1	1 1				21MAY08A	08AUG08A														-	+++
02L1BB0208	Design review by the SO	21	21	22MAY08A	25SEP08A		22MAY08A	25SEP08A														-	+++
02L1BB0200	Obtain design approval from the SO	0	0	ZZIVIATOOA	25SEP08A	100		25SEP08A														-	+++
	m to Construct Drop Shafts	1 0	<u> </u>		230LI 00A	100		ZJOLI OUA														+-	++
02L1BB0302	Design preparation by the Designer	22	22	04AUG08A	11DEC08A	100	04AUG08A	11DEC08A															
02L1BB0302	Design submission for the DC's approval	2	22	11DEC08A	12FEB09A		11DEC08A	12FEB09A			-1/											+	
02L1BB0303	Design certification by the Design Checker	14	14	12DEC08A	25FEB09A		12DEC08A	25FEB09A													-	+	+++
02L1BB0306	Design submission for the SO's approval	2	2	12DEC08A	25FEB09A		12DEC08A	25FEB09A													-	+	+
02L1BB0308	Design review by the SO	21	21	13DEC08A	11MAR09A		13DEC08A	11MAR09A														+	+++
02L1BB0310	Obtain design approval from the SO	0	0	100200071	11MAR09A	100		11MAR09A															
	ainage Management Plan		-																				++
02L1BB0402	TDMP preparation by the Designer	313	313	05MAY08A	21MAR09A	100	05MAY08A	21MAR09A															
02L1BB0403	TDMP submission for the DC's approval	2	2	05AUG08A	23MAR09A		05AUG08A	23MAR09A															++
02L1BB0404	TDMP certification by the Design Checker	213	213	06AUG08A	13APR09A		06AUG08A	13APR09A															
02L1BB0406	TDMP submission for the SO's approval	2	2	24SEP08A	14APR09A		24SEP08A	14APR09A															
02L1BB0408	TDMP review by the SO	90	90	25SEP08A	28OCT09A		25SEP08A	28OCT09A															
02L1BB0410	TDMP submission for DSD's approval	1	1	23SEP08A	23SEP08A	100	23SEP08A	23SEP08A															
02L1BB0412	TDMP review by the DSD	90	90	24SEP08A	02NOV09A		24SEP08A	02NOV09A															
02L1BB0414	Obtain DSD's approval for DDA	1	1	03NOV09A	03NOV09A	100	03NOV09A	03NOV09A															
02L1BB0416	Obtain SO's consent for TDMP	0	0		03NOV09A	100		03NOV09A															
Temp. Suppo	rt Design for MAA/MAS/VDS/DC							1															Ш
02L1BB0502	Design preparation for the AIP submission	272	272	02JUN08A	19MAR09A	100	02JUN08A	19MAR09A															
02L1BB0503	Design (AIP) submission for the DC's approval	2	2	11JUL08A	20MAR09A	100	11JUL08A	20MAR09A															
02L1BB0504	Design (AIP) certification by the Design Checker	60	60	12JUL08A	04APR09A	100	12JUL08A	04APR09A															
02L1BB0506	Design (AIP) submission for the SO's approval	2	2	24JUL08A	06APR09A	100	24JUL08A	06APR09A															
02L1BB0508	Design (AIP) review by the SO	66	66	25JUL08A	06JUN09A	100	25JUL08A	06JUN09A															
02L1BB0510	AIP submission for rel. authorities' approval	1	1	12JUL08A	12JUL08A	100	12JUL08A	12JUL08A															
02L1BB0512	Design (AIP) review by the rel. authorities	28	28	14JUL08A	10NOV08A	100	14JUL08A	10NOV08A															
02L1BB0514	Obtain rel. authorities's approval for AIP	1	1	11NOV08A	11NOV08A	100	11NOV08A	11NOV08A															

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% WP09 Comp Start	WP09 Finish	Total	2012 A S O N D J	F M A N	2013 1 J J A S O N D J F M	AMILIASONDI	2015
02L1BB0516	SO submit design (AIP) for review of GEO	1	1	29MAY09A	29MAY09A	100 29MAY09A		1 lout	63 64 65 66 67 68	9//0//1//	2 73 74 75 76 77 78 79 80 81 82	33 84 85 86 87 88 89 90 91 92	2 93 94 95
02L1BB0518	Design (AIP) review by the GEO	28	28		26AUG09A	100 30MAY09A	26AUG09A						
02L1BB0520	Obtain SO's consent for design (AIP)	0	0		06JUN09A	100	06JUN09A						
02L1BB0522	Design preparation for the DDA submission	30	30	04MAY09A	28MAY09A	100 04MAY09A	28MAY09A						
02L1BB0523	Design (DDA) submission for the DC's approval	1	1	01JUN09A	16JUL09A	100 01JUN09A	16JUL09A						
02L1BB0524	Design (DDA) certification by the Design Checker	80	80	02JUN09A	28DEC09A	100 02JUN09A	28DEC09A						
02L1BB0526	Design (DDA) submission for the SO's approval	2	2	07JUL09A	28DEC09A	100 07JUL09A	28DEC09A						
02L1BB0528	Design (DDA) review by the SO	66	66	08JUL09A	16DEC09A	100 08JUL09A	16DEC09A						
02L1BB0530	DDA submission for rel. authorities' approval	1	1	07NOV09A	07NOV09A	100 07NOV09A	07NOV09A						
02L1BB0532	Design (DDA) review by the rel. authorities	28	28	09NOV09A	06DEC09A	100 09NOV09A	06DEC09A						
02L1BB0534	Obtain rel. authorities's approval for DDA	1	1	07DEC09A	07DEC09A	100 07DEC09A	07DEC09A						
02L1BB0536	SO submit design (DDA) for review of GEO	1	1	05DEC09A	05DEC09A	100 05DEC09A	05DEC09A						
02L1BB0538	Design (DDA) review by the GEO	28	28	06DEC09A	09JAN10A	100 06DEC09A	09JAN10A						
02L1BB0540	Obtain SO's consent for design (DDA)	0	0		16DEC09A	100	16DEC09A						
Temp, Support	Design for MA and MA/MT Connection			<u> </u>			<u> </u>						
02L1BB0602	Design preparation for the AIP submission	110	110	09JUN08A	08NOV09A	100 09JUN08A	08NOV09A						
02L1BB0603	Design (AIP) submission for the DC's approval	2	2	18MAY09A	09NOV09A	100 18MAY09A	09NOV09A						
02L1BB0604	Design (AIP) certification by the Design Checker	28	28	19MAY09A	25NOV09A	100 19MAY09A	25NOV09A						
02L1BB0606	Design (AIP) submission for the SO's approval	1	1	09NOV09A	09NOV09A	100 09NOV09A	09NOV09A						
02L1BB0608	Design (AIP) review by the SO	66	66	10NOV09A	10MAY10A	100 10NOV09A	10MAY10A						
02L1BB0616	SO submit design (AIP) for review of GEO	1	1	11MAY10A	11MAY10A	100 11MAY10A	11MAY10A						
02L1BB0618	Design (AIP) review by the GEO	28	28	12MAY10A	28JUN10A	100 12MAY10A	28JUN10A						
02L1BB0620	Obtain SO's consent for design (AIP)	0	0		10JUN10A	100	10JUN10A						
02L1BB0622	Design preparation for the DDA submission	30	30	28JUN10A	24AUG10A	100 28JUN10A	24AUG10A						
02L1BB0623	Design (DDA) submission for the DC's approval	1	1	25AUG10A	06DEC10A	100 25AUG10A	06DEC10A						
02L1BB0624	Design (DDA) certification by the Design Checker	28	28	26AUG10A	20DEC10A	100 26AUG10A	20DEC10A						
02L1BB0626	Design (DDA) submission for the SO's approval	1	1	25AUG10A	20DEC10A	100 25AUG10A	20DEC10A						
02L1BB0628	Design (DDA) review by the SO	66	66	26AUG10A	05JAN11A	100 26AUG10A	05JAN11A						
Permanent Des	ign for MAA/MAS/VDS/DC					1							
02L1BB0702	Design preparation for the AIP submission	285	285	02JUN08A	02JUN09A	100 02JUN08A	02JUN09A						
02L1BB0703	Design submission for the DC's approval	2	2	03JUL08A	06JUL09A	100 03JUL08A	06JUL09A						
02L1BB0704	Design (AIP) certification by the Design Checker	60	60	24JUL08A	21JUL09A	100 24JUL08A	21JUL09A						
02L1BB0706	Design (AIP) submission for the SO's approval	2	2	04JUL08A	22JUL09A	100 04JUL08A	22JUL09A						
02L1BB0708	Design (AIP) review by the SO	66	66	05JUL08A	09DEC09A	100 05JUL08A	09DEC09A						
02L1BB0710	AIP submission for rel. authorities' approval	1	1	03JUL08A	03JUL08A	100 03JUL08A	03JUL08A						
02L1BB0712	Design (AIP) review by the rel. authorities	28	28	04JUL08A	28OCT09A	100 04JUL08A	28OCT09A						
02L1BB0714	Obtain rel. authorities's approval for AIP	1	1		10DEC09A	100	10DEC09A						
02L1BB0720	Obtain SO's consent for design (AIP)	0	0		10DEC09A	100	10DEC09A						
02L1BB0722	Design preparation for the DDA submission	30	30	04JAN10A	11AUG11A	100 04JAN10A	11AUG11A						
02L1BB0723	Design submission for the DC's approval	1	1	14MAY10A	24MAR11A	100 14MAY10A	24MAR11A						
02L1BB0724	Design (DDA) certification by the Design Checker	28	28	15MAY10A	11AUG11A	100 15MAY10A	11AUG11A						
02L1BB0726	Design (DDA) submission for the SO's approval	1	1	24MAY10A	11AUG11A	100 24MAY10A							
02L1BB0728	Design (DDA) review by the SO	66	66	25MAY10A	02JAN12A	100 25MAY10A	02JAN12A						

ID	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total	2012			2013	NIS VEN	20		2015
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish	Float 6	3 64 65 66	D J F F 6 6 6 6 7	0 71 72	J J A S O 73 74 75 76 77	N D J F M 78 79 80 81 82	A M J 83 84 85	J A S O N 86 87 88 89 9	0 91 92 93 94
02L1BB0730	DDA submission for rel. authorities' approval	1	1	19JAN12A	19JAN12A	100	19JAN12A	19JAN12A									
02L1BB0732	Design (DDA) review by the rel. authorities	28	28	20JAN12A	29FEB12A	100	20JAN12A	18MAR12									
02L1BB0734	Obtain rel. authorities's approval for DDA	0	1		29FEB12A	100	19MAR12	19MAR12									
02L1BB0740	Obtain SO's consent for design (DDA)	0	0		29FEB12A	100		19MAR12									
Permanent Des	sign for MA and MA/MT Connection																
02L1BB0802	Design preparation for AIP submission	90	90	09JUN08A	14NOV09A	100	09JUN08A	14NOV09A									
02L1BB0803	Design (AIP) submission for the DC's approval	2	2	30JUN08A	16NOV09A	100	30JUN08A	16NOV09A									
02L1BB0804	Design (AIP) certification by the Design Checker	28	28	24JUL08A	02DEC09A	100	24JUL08A	02DEC09A									
02L1BB0806	Design (AIP) submission for the SO's approval	2	2	25JUL08A	03DEC09A	100	25JUL08A	03DEC09A									
02L1BB0808	Design (AIP) review by the SO	66	66	26JUL08A	28JUN10A	100	26JUL08A	28JUN10A									
02L1BB0810	AIP submission for rel. authorities' approval	1	1	20OCT08A	17JUN10A	100	200CT08A	17JUN10A									
02L1BB0820	Obtain SO's consent for design (AIP)	0	0		28JUN10A	100		28JUN10A									
02L1BB0822	Design preparation for the DDA submission	30	30	28JUN10A	12APR12A	100	28JUN10A	01MAR12									
02L1BB0823	Design (DDA) submission for the DC's approval	1	1	31MAY11A	13APR12A	100	31MAY11A	02MAR12									
02L1BB0824	Design (DDA) certification by the Design Checker	28	28	01JUN11A	20APR12A	100	01JUN11A	12MAR12									
02L1BB0826	Design (DDA) submission for the SO's approval	1	1	31MAY11A	13APR12A	100	31MAY11A	13MAR12									
02L1BB0828	Design (DDA) review by the SO	66	66	01JUN11A	21APR12A	100	01JUN11A	11APR12									
02L1BB0830	DDA submission for rel. authorities' approval	1	1	05MAY12A	05MAY12A	100	12APR12	12APR12									
02L1BB0832	Design (DDA) review by the rel. authorities	28	28	07MAY12A	07JUN12A	100	13APR12	10MAY12									
02L1BB0834	Obtain rel. authorities's approval for DDA	0	1		08JUN12A	100	11MAY12	11MAY12									
02L1BB0840	Obtain SO's consent for design (DDA)	0	0		08JUN12A	100		11MAY12									
ELS for L-shap	pped Retaining Wall																
02L1BB0902	Design preparation by the Designer	14	14	05JUL10A	31AUG10A	100	05JUL10A	31AUG10A									
02L1BB0903	Design submission for the DC's approval	1	1	01SEP10A	01SEP10A	100	01SEP10A	01SEP10A									
02L1BB0904	Design certification by the Design Checker	28	28	02SEP10A	04NOV10A	100	02SEP10A	04NOV10A									
02L1BB0906	Design submission for the SO's approval	1	1	05OCT10A	05OCT10A	100	05OCT10A	05OCT10A									
02L1BB0908	Design review by the SO	42	42	06OCT10A	17NOV10A	100	06OCT10A	17NOV10A									
02L1BB0910	Obtain design approval from the SO	0	0		17NOV10A	100		17NOV10A									
Platform for R	CD Operation (Air Vent Shaft)																
02L1BB1602	Prepare design/method statement	6	6	22NOV08A	01DEC08A	100	22NOV08A	01DEC08A									
02L1BB1604	Submit design/method statement to Design Checker	1	1	02DEC08A	23DEC08A	100	02DEC08A	23DEC08A									
02L1BB1606	Certify design/m.s. by Design Checker	7	7	03DEC08A	24DEC08A	100	03DEC08A	24DEC08A									
02L1BB1608	Submit design/m.s. to SO	1	1	24DEC08A	24DEC08A	100	24DEC08A	24DEC08A									
02L1BB1610	Design/m.s. review by SO	14	14	25DEC08A	11MAR09A	100	25DEC08A	11MAR09A									
02L1BB1612	Obtain design/m.s. approval from the SO	0	0		11MAR09A	100		11MAR09A									
Temporary Wo	rks for Air Vent Shaft Construction																
02L1BB1702	Prepare design/method statement	21	21	03NOV08A	16DEC08A	100	03NOV08A	16DEC08A									
02L1BB1704	Submit design/method statement to Design Checker	1	1		17DEC08A		17DEC08A	17DEC08A									
02L1BB1706	Certify design/m.s. by Design Checker	14	14	18DEC08A		100	18DEC08A	23JAN09A									
02L1BB1708	Submit design/m.s. to SO	1	1	23JAN09A			23JAN09A	23JAN09A									
02L1BB1710	Design/m.s. review by SO	7	7	24JAN09A	23MAR09A		24JAN09A	23MAR09A									
02L1BB1712	Obtain design/m.s. approval from the SO	0	0		23MAR09A	100		23MAR09A									
02L1BB1710	Design/m.s. review by SO	7	7		23MAR09A	100	24JAN09A	23MAR09A									

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total	2012 S O I	N D J I	F M A I	2013 M J J	ASON	I D J F	20 M A M J	14 J A S O 86 87 88 89	N D J	2015 J F M A
Permanet Des	ign for Air Vent Shaft	1 24.	241		1		- Start	1	1 1000	04 05 0	00 07 00 0	9 70 7 1 7	2 13 14 1	13 110 11 11	9 7 9 60 6 1 6	2 03 04 03	00 07 00 09	90 91 92	1 93 94 93
02L1BB1802	Prepare design/method statement	60	60	05NOV08A	24NOV09A	100	05NOV08A	24NOV09A											
02L1BB1804	Submit design/method statement to Design Checker	2	2	12DEC08A	25NOV09A		12DEC08A	25NOV09A											
02L1BB1806	Certify design/m.s. by Design Checker	28	28	13DEC08A	02DEC09A		13DEC08A	02DEC09A								4			
02L1BB1808	Submit design/m.s. to SO	2	2	17DEC08A	03DEC09A		17DEC08A	03DEC09A								4			
02L1BB1810	Design/m.s. review by SO	42	42	18DEC08A	04FEB10A	100	18DEC08A	04FEB10A											
02L1BB1812	Submit design to rel. authorities	1	1	25MAR09A	25MAR09A	100	25MAR09A	25MAR09A											
02L1BB1814	Obtain design approval from rel. authorities	28	28	01MAR09A	08DEC09A	100	01MAR09A	08DEC09A											
02L1BB1816	Obtain design/m.s. approval from the SO	0	0		04FEB10A	100		04FEB10A											
ELS Design fo	or Construction of Vortex Shaft						<u> </u>												
02L1BB1902	Design preparation by the Designer	25	25	23FEB09A	02JUN09A	100	23FEB09A	02JUN09A											
02L1BB1904	Design submission for the DC's approval	1	1	03JUN09A	03JUN09A	100	03JUN09A	03JUN09A											
02L1BB1906	Design certification by the Design Checker	28	28	04JUN09A	10NOV09A	100	04JUN09A	10NOV09A											
02L1BB1908	Design submission for the SO's approval	1	1	12JUN09A	12JUN09A	100	12JUN09A	12JUN09A											
02L1BB1910	Design review by the SO	42	42	13JUN09A	09DEC09A	100	13JUN09A	09DEC09A											
02L1BB1912	Obtain design approval from the SO	0	0		09DEC09A	100		09DEC09A											
Blasting Asse	ssment Report (BAR)		'																
02L1BBAR02	Prepare submit BAR Feasibiliti Study Report	31	31	03MAY10A	08JUN10A	100	03MAY10A	08JUN10A											
02L1BBAR12	Prepare/submit BAR to SOR	83	83	09JUN10A	15SEP10A	100	09JUN10A	15SEP10A											
02L1BBAR22	Prepare/submit BAR to CEDD	94	94	09JUN10A	29SEP10A	100	09JUN10A	29SEP10A											
02L1BBAR32	Obtain Blasting Permit From Rel. Authorities	183	183	30SEP10A	22JUL11A	100	30SEP10A	22JUL11A											
Geotechnical	Instrumentation Stg 1 for GL Works	'																	
3DL1BBG102	Design preparation by the Designer	14	14	22FEB08A	05MAY08A	100	22FEB08A	05MAY08A											
3DL1BBG104	Design certification by the Design Checker	7	7	06MAY08A	29AUG08A	100	06MAY08A	29AUG08A											
3DL1BBG106	Design submission for the SO's approval	1	1	10MAY08A	10MAY08A	100	10MAY08A	10MAY08A											
3DL1BBG108	Design review by the SO	14	14	12MAY08A	14JUL08A	100	12MAY08A	14JUL08A											
3DL1BBG110	Obtain design approval from the SO	0	0		14JUL08A	100		14JUL08A											
3DL1BBG112	Install Geotechnical Instruments	6	6	11JUN08A	19JUL08A	100	11JUN08A	19JUL08A											
3DL1BBG114	Baseline Monitoring	14	14	21JUL08A	26JUL08A	100	21JUL08A	26JUL08A											
Geotechnical	Instrumentation Stg 2 for Deep Exc.																		
3DL1BBG202	Design preparation by the Designer	40	40	31AUG08A	24OCT08A	100	31AUG08A	24OCT08A											
3DL1BBG204	Design certification by the Design Checker	14	14	24OCT08A	22JUL09A	100	24OCT08A	22JUL09A											
3DL1BBG206	Design submission for the SO's approval	1	1	05NOV08A	23JUL09A	100	05NOV08A	23JUL09A											
3DL1BBG208	Design review by the SO	28	28	06NOV08A	04AUG09A	100	06NOV08A	04AUG09A											
3DL1BBG210	Obtain design approval from the SO	0	0		04AUG09A	100		04AUG09A											
3DL1BBG212	Install Geotechnical Instruments	12	12	14MAR09A		100		27MAR09A											
3DL1BBG214	Baseline Monitoring	14		11JUN09A				24JUN09A											
3DL1BBG216	Monitor/report Geotechnical Instrumentation	2,040	2,040	28JUL08A	01APR14	73	28JUL08A	28FEB14	0										
Design Pack	kages for Works in Portion C																		
	n for H-pile Wall A										/////								
02L1CC0002	Design preparation by the Designer	15	15	12MAY08A				27JUN08A											
02L1CC0004	Design certification by the Design Checker	14	14	22MAY08A			22MAY08A	03JUL08A			XXX.								
02L1CC0006	Design submission for the SO's approval	1	1	04JUL08A	04JUL08A	100	04JUL08A	04JUL08A			XXX								

O2L1CC0008 Design review by the SO  02L1CC0010 Obtain design approval from the SO  Temporary Works for Formation of Access Road  02L1CC0102 Design preparation by the Designer  02L1CC0103 Design submission for the DC's approval  02L1CC0104 Design certification by the Design Checker  02L1CC0106 Design submission for the SO's approval  02L1CC0108 Design review by the SO  02L1CC0110 Obtain design approval from the SO  Piling Platform for H-pile Wall B  02L1CC0202 Design preparation by the Designer  02L1CC0203 Design submission for the DC's approval  02L1CC0204 Design certification by the Design Checker  02L1CC0206 Design submission for the SO's approval  02L1CC0208 Design review by the SO  02L1CC0210 Obtain design approval from the SO'	14 0 40 1 14 1 28 0 30 1 28 2 42	14 0 40 1 1 14 1 28 0 0 30 1 1 28	02DEC08A 03DEC08A 09DEC08A 10DEC08A 01SEP09A	9JUL08A 29JUL08A 29JUL08A 01DEC08A 02DEC08A 08DEC08A 09DEC08A 23MAR09A 23MAR09A	100 2 100 ( 100 ( 100 ( 100 )	29SEP08A 02DEC08A 03DEC08A 09DEC08A	Finish 29JUL08A 29JUL08A 01DEC08A 02DEC08A 08DEC08A 09DEC08A	3 64 63 66 67	68 69 / 1	71 72 73 74 75 76 7	7 (8 / 9 80 81 82 83	89 89 87 86 8	9 90 91 6	92 93 94 9
O2L1CC010 Obtain design approval from the SO  Temporary Works for Formation of Access Road  O2L1CC0102 Design preparation by the Designer  O2L1CC0103 Design submission for the DC's approval  O2L1CC0104 Design certification by the Design Checker  O2L1CC0106 Design submission for the SO's approval  O2L1CC0108 Design review by the SO  O2L1CC0110 Obtain design approval from the SO  Piling Platform for H-pile Wall B  O2L1CC0202 Design preparation by the Designer  O2L1CC0203 Design submission for the DC's approval  O2L1CC0204 Design certification by the Design Checker  O2L1CC0206 Design submission for the SO's approval  O2L1CC0208 Design review by the SO  O2L1CC0210 Obtain design approval from the SO	0 40 1 14 1 28 0 30 1 28 2	0 40 1 14 1 28 0	29SEP08A 02DEC08A 03DEC08A 09DEC08A 10DEC08A	01DEC08A 02DEC08A 08DEC08A 09DEC08A 23MAR09A 23MAR09A	100 2 100 ( 100 ( 100 ( 100 )	29SEP08A 02DEC08A 03DEC08A 09DEC08A	29JUL08A 01DEC08A 02DEC08A 08DEC08A 09DEC08A 23MAR09A							
Temporary Works for Formation of Access Road  02L1CC0102 Design preparation by the Designer  02L1CC0103 Design submission for the DC's approval  02L1CC0104 Design certification by the Design Checker  02L1CC0106 Design submission for the SO's approval  02L1CC0108 Design review by the SO  02L1CC0110 Obtain design approval from the SO  Piling Platform for H-pile Wall B  02L1CC0202 Design preparation by the Designer  02L1CC0203 Design submission for the DC's approval  02L1CC0204 Design certification by the Design Checker  02L1CC0206 Design submission for the SO's approval  02L1CC0208 Design review by the SO  02L1CC0210 Obtain design approval from the SO	1 14 1 28 0 30 1 28 2	1 14 1 28 0	02DEC08A 03DEC08A 09DEC08A 10DEC08A 01SEP09A	01DEC08A 02DEC08A 08DEC08A 09DEC08A 23MAR09A 23MAR09A	100 ( 100 ( 100 ( 100 (	02DEC08A 03DEC08A 09DEC08A	02DEC08A 08DEC08A 09DEC08A 23MAR09A							
02L1CC0102 Design preparation by the Designer 02L1CC0103 Design submission for the DC's approval 02L1CC0104 Design certification by the Design Checker 02L1CC0106 Design submission for the SO's approval 02L1CC0108 Design review by the SO 02L1CC0110 Obtain design approval from the SO  Piling Platform for H-pile Wall B 02L1CC0202 Design preparation by the Designer 02L1CC0203 Design submission for the DC's approval 02L1CC0204 Design certification by the Design Checker 02L1CC0206 Design submission for the SO's approval 02L1CC0208 Design review by the SO 02L1CC0210 Obtain design approval from the SO	1 14 1 28 0 30 1 28 2	1 14 1 28 0	02DEC08A 03DEC08A 09DEC08A 10DEC08A 01SEP09A	02DEC08A 08DEC08A 09DEC08A 23MAR09A 23MAR09A	100 ( 100 ( 100 ( 100 (	02DEC08A 03DEC08A 09DEC08A	02DEC08A 08DEC08A 09DEC08A 23MAR09A							
02L1CC0103 Design submission for the DC's approval 02L1CC0104 Design certification by the Design Checker 02L1CC0106 Design submission for the SO's approval 02L1CC0108 Design review by the SO 02L1CC0110 Obtain design approval from the SO  Piling Platform for H-pile Wall B 02L1CC0202 Design preparation by the Designer 02L1CC0203 Design submission for the DC's approval 02L1CC0204 Design certification by the Design Checker 02L1CC0206 Design submission for the SO's approval 02L1CC0208 Design review by the SO 02L1CC0210 Obtain design approval from the SO	1 14 1 28 0 30 1 28 2	1 14 1 28 0	02DEC08A 03DEC08A 09DEC08A 10DEC08A 01SEP09A	02DEC08A 08DEC08A 09DEC08A 23MAR09A 23MAR09A	100 ( 100 ( 100 ( 100 (	02DEC08A 03DEC08A 09DEC08A	02DEC08A 08DEC08A 09DEC08A 23MAR09A							
02L1CC0104 Design certification by the Design Checker 02L1CC0106 Design submission for the SO's approval 02L1CC0108 Design review by the SO 02L1CC0110 Obtain design approval from the SO  Piling Platform for H-pile Wall B 02L1CC0202 Design preparation by the Designer 02L1CC0203 Design submission for the DC's approval 02L1CC0204 Design certification by the Design Checker 02L1CC0206 Design submission for the SO's approval 02L1CC0208 Design review by the SO 02L1CC0210 Obtain design approval from the SO	1 28 0 30 1 28 2	1 28 0 30 1	03DEC08A 09DEC08A 10DEC08A 01SEP09A	08DEC08A 09DEC08A 23MAR09A 23MAR09A	100 ( 100 ( 100 )	03DEC08A 09DEC08A	08DEC08A 09DEC08A 23MAR09A							
02L1CC0106 Design submission for the SO's approval 02L1CC0108 Design review by the SO 02L1CC0110 Obtain design approval from the SO  Piling Platform for H-pile Wall B 02L1CC0202 Design preparation by the Designer 02L1CC0203 Design submission for the DC's approval 02L1CC0204 Design certification by the Design Checker 02L1CC0206 Design submission for the SO's approval 02L1CC0208 Design review by the SO 02L1CC0210 Obtain design approval from the SO	28 0 30 1 28 2	30	10DEC08A 01SEP09A	23MAR09A 23MAR09A	100		23MAR09A							
02L1CC0108 Design review by the SO 02L1CC0110 Obtain design approval from the SO  Piling Platform for H-pile Wall B  02L1CC0202 Design preparation by the Designer 02L1CC0203 Design submission for the DC's approval 02L1CC0204 Design certification by the Design Checker 02L1CC0206 Design submission for the SO's approval 02L1CC0208 Design review by the SO 02L1CC0210 Obtain design approval from the SO	30 1 28 2	30	01SEP09A	23MAR09A	100	10DEC08A								
Piling Platform for H-pile Wall B  02L1CC0202 Design preparation by the Designer  02L1CC0203 Design submission for the DC's approval  02L1CC0204 Design certification by the Design Checker  02L1CC0206 Design submission for the SO's approval  02L1CC0208 Design review by the SO  02L1CC0210 Obtain design approval from the SO	30 1 28 2	30	01SEP09A				00144 0004			74				
Piling Platform for H-pile Wall B  02L1CC0202 Design preparation by the Designer  02L1CC0203 Design submission for the DC's approval  02L1CC0204 Design certification by the Design Checker  02L1CC0206 Design submission for the SO's approval  02L1CC0208 Design review by the SO  02L1CC0210 Obtain design approval from the SO	1 28 2	1		02NOV09A			23MAR09A							
02L1CC0202     Design preparation by the Designer       02L1CC0203     Design submission for the DC's approval       02L1CC0204     Design certification by the Design Checker       02L1CC0206     Design submission for the SO's approval       02L1CC0208     Design review by the SO       02L1CC0210     Obtain design approval from the SO	1 28 2	1		02NOV09A										
02L1CC0204 Design certification by the Design Checker 02L1CC0206 Design submission for the SO's approval 02L1CC0208 Design review by the SO 02L1CC0210 Obtain design approval from the SO	28	1 28	03NOV09A		100 0	01SEP09A	02NOV09A							
02L1CC0206 Design submission for the SO's approval 02L1CC0208 Design review by the SO 02L1CC0210 Obtain design approval from the SO	2	28		03NOV09A	100 (	03NOV09A	03NOV09A							
02L1CC0208 Design review by the SO 02L1CC0210 Obtain design approval from the SO			04NOV09A	01DEC09A	100 (	04NOV09A	01DEC09A							
02L1CC0208 Design review by the SO 02L1CC0210 Obtain design approval from the SO	42	2	03NOV09A	03NOV09A	100 (	03NOV09A	03NOV09A							
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		42	04NOV09A	06MAR10A			06MAR10A							
	0	0		06MAR10A	100		06MAR10A							
Temp. Support Design for MAA/MAS/VDS/DC/AVS														
02L1CC0302 Design preparation for the AIP submission	103	103	26JUN08A	09MAY09A	100	26JUN08A	09MAY09A							
02L1CC0303 Design (AIP) submission for the DC's approval	2	2	23DEC08A	15MAY09A	100 2	23DEC08A	15MAY09A							
02L1CC0304 Design (AIP) certification by the Design Checker	28	28	24DEC08A	19MAY09A	100	24DEC08A	19MAY09A							
02L1CC0306 Design (AIP) submission for the SO's approval	2	2	23DEC08A	19MAY09A	100	23DEC08A	19MAY09A							
02L1CC0308 Design (AIP) review by the SO	66	66	24DEC08A	05JUN09A	100	24DEC08A	05JUN09A							
02L1CC0310 AIP submission for rel. authorities' approval	1	1	16JUN09A	16JUN09A	100	16JUN09A	16JUN09A							
02L1CC0312 Design (AIP) review by the rel. authorities	28	28	17JUN09A	14NOV09A	100	17JUN09A	14NOV09A							
02L1CC0314 Obtain rel. authorities's approval for AIP	1	1	16NOV09A	16NOV09A	100	16NOV09A	16NOV09A							
02L1CC0316 SO submit design (AIP) for review of GEO	1	1	28OCT09A	28OCT09A	100 2	28OCT09A	28OCT09A							
02L1CC0318 Design (AIP) review by the GEO	28	28	29OCT09A	25NOV09A	100	29OCT09A	25NOV09A							
02L1CC0320 Obtain SO's consent for design (AIP)	0	0		05JUN09A	100		05JUN09A							
02L1CC0322 Design preparation for the DDA submission	30	30	07JUN09A	24NOV09A	100 (	07JUN09A	24NOV09A							
02L1CC0323 Design (DDA) submission for the DC's approval	2	2	07JUL09A	25NOV09A	100	07JUL09A	25NOV09A							
02L1CC0324 Design (DDA) certification by the Design Checker	28	28	08JUL09A	02DEC09A	100	08JUL09A	02DEC09A							
02L1CC0326 Design (DDA) submission for the SO's approval	1	1	07JUL09A	03DEC09A	100	07JUL09A	03DEC09A							
02L1CC0328 Design (DDA) review by the SO	66	66	08JUL09A	22FEB10A	100	08JUL09A	22FEB10A							
02L1CC0330 DDA submission for rel. authorities' approval	1	1		07JUL09A	100		07JUL09A							
02L1CC0332 Design (DDA) review by the rel. authorities	28	28	25NOV09A	22FEB10A	100	25NOV09A	22FEB10A							
02L1CC0334 Obtain rel. authorities's approval for DDA	1	1	22FEB10A	22FEB10A	100	22FEB10A	22FEB10A							
02L1CC0336 SO submit design (DDA) for review of GEO	1	1	10DEC09A				10DEC09A							
02L1CC0338 Design (DDA) review by the GEO	28	28	11DEC09A				22FEB10A							
02L1CC0340 Obtain SO's consent for design (DDA)	0	0		22FEB10A	100		22FEB10A							
Temp. Support Design for MA and MA/MT Connection														
02L1CC0402 Design preparation for the AIP submission	110		18AUG08A				20OCT09A							
02L1CC0403 Design (AIP) submission for the DC's approval	2		05MAY09A				21OCT09A							
02L1CC0404 Design (AIP) certification by the Design Checker	28	28	06MAY09A	27OCT09A	100	06MAY09A	27OCT09A							

ID	Activity	WP10	WP09	WP10	WP10	% WP09	WP09	Total	2012		2013	2014		2015
	Description	Dur	Dur	Start	Finish	Comp Start	Finish		A S O N D J 63 64 65 66 67 68 6	F M A M	1 J J A S O N D J F M 2 73 74 75 76 77 78 79 80 81 82	1 A M J J A S 2 83 84 85 86 87 88	O N D 89 90 91 9	J F M A 92 93 94 95
02L1CC0406	Design (AIP) submission for the SO's approval	1	1	27OCT09A	27OCT09A	100 27OCT09A	27OCT09A							
02L1CC0408	Design (AIP) review by the SO	66	66	28OCT09A	10MAY10A	100 28OCT09A	10MAY10A							
02L1CC0416	SO submit design (AIP) for review of GEO	1	1	11MAY10A	11MAY10A	100 11MAY10A	11MAY10A							
02L1CC0418	Design (AIP) review by the GEO	28	28	12MAY10A	28JUN10A	100 12MAY10A	28JUN10A							
02L1CC0420	Obtain SO's consent for design (AIP)	0	0		28JUN10A	100	28JUN10A							
02L1CC0422	Design preparation for the DDA submission	30	30	29JUN10A	30NOV10A	100 29JUN10A	30NOV10A							
02L1CC0423	Design submission for the DC's approval	1	1	01DEC10A	01DEC10A	100 01DEC10A	01DEC10A							
02L1CC0424	Design (DDA) certification by the Design Checker	28	28	02DEC10A	21DEC10A	100 02DEC10A	21DEC10A							
02L1CC0426	Design (DDA) submission for the SO's approval	1	1	22DEC10A	22DEC10A	100 22DEC10A	22DEC10A							
02L1CC0428	Design (DDA) review by the SO	66	66	23DEC10A	05JAN11A	100 23DEC10A	05JAN11A							
Permanent Des	ign for MAA/MAS/VDS/DC/AVS													
02L1CC0502	Design preparation for the AIP submission	103	103	26JUN08A	04MAY09A	100 26JUN08A	04MAY09A							
02L1CC0503	Design submission for the DC's approval	2	2	110CT08A	05MAY09A	100 11OCT08A	05MAY09A							
02L1CC0504	Design (AIP) certification by the Design Checker	28	28	13OCT08A	19MAY09A	100 13OCT08A	19MAY09A							
02L1CC0506	Design (AIP) submission for the SO's approval	4	4	05NOV08A	20JUL09A	100 05NOV08A	20JUL09A							
02L1CC0508	Design (AIP) review by the SO	66	66	06NOV08A	23DEC09A	100 06NOV08A	23DEC09A							
02L1CC0510	AIP submission for rel. authorities' approval	1	1	28FEB09A	28FEB09A	100 28FEB09A	28FEB09A							
02L1CC0512	Design (AIP) review by the rel. authorities	28	28	01MAR09A	28MAY09A	100 01MAR09A	28MAY09A							
02L1CC0514	Obtain rel. authorities's approval for AIP	1	1		29MAY09A	100 29MAY09A	29MAY09A							
02L1CC0516	SO submit design (AIP) for review of GEO	1	1	28FEB09A	28FEB09A	100 28FEB09A	28FEB09A							
02L1CC0518	Design (AIP) review by the GEO	28	28	01MAR09A	28MAY09A	100 01MAR09A	28MAY09A							
02L1CC0520	Obtain SO's consent for design (AIP)	0	0		23DEC09A	100	23DEC09A							
02L1CC0522	Design preparation for the DDA submission	60	60	09MAR09A	11AUG11A	100 09MAR09A	11AUG11A							
02L1CC0523	Design submission for the DC's approval	1	1	08JUN11A	11AUG11A	100 08JUN11A	11AUG11A							
02L1CC0524	Design (DDA) certification by the Design Checker	28	28	19JUN10A	11AUG11A	100 19JUN10A	11AUG11A							
02L1CC0526	Design (DDA) submission for the SO's approval	1	1	18JUN10A	11AUG11A	100 18JUN10A	11AUG11A							
02L1CC0528	Design (DDA) review by the SO	66	66	19JUN10A	28DEC11A	100 19JUN10A	28DEC11A							
02L1CC0530	DDA submission for rel. authorities' approval	1	1	14JAN12A	14JAN12A	100 14JAN12A	14JAN12A							
02L1CC0532	Design (DDA) review by the rel. authorities	28	28	15JAN12A	29FEB12A	100 15JAN12A	13MAR12							
02L1CC0534	Obtain rel. authorities's approval for DDA	0	1		29FEB12A	100 14MAR12	14MAR12							
02L1CC0540	Obtain SO's consent for design (DDA)	0	0		29FEB12A	100	14MAR12							
Permanent Des	ign for MA and MA/MT Connection													
02L1CC0602	Design preparation for the AIP submission	84	84	01JUL08A	20OCT09A	100 01JUL08A	200CT09A							
02L1CC0603	Design (AIP) submission for the DC's approval	2	2		210CT09A	100 25JUL08A	210CT09A							
02L1CC0604	Design (AIP) certification by the Design Checker	28	28			100 26JUL08A	27OCT09A							
02L1CC0606	Design (AIP) submission for the SO's approval	2	2	26JUL08A		100 26JUL08A	28OCT09A							
02L1CC0608	Design (AIP) review by the SO	66	66		14JUL10A	100 28JUL08A	14JUL10A							
02L1CC0620	Obtain SO's consent for design (AIP)	0	0		14JUL10A	100	14JUL10A							
02L1CC0622	Design preparation for the DDA submission	30	30			100 15JUL10A	06AUG11A							
02L1CC0623	Design (DDA) submission for the DC's approval	1	1	08AUG11A		100 08AUG11A								
02L1CC0624	Design (DDA) certification by the Design Checker	28	28	09AUG11A		100 09AUG11A								
02L1CC0626	Design (DDA) submission for the SO's approval	1	1	09AUG11A		100 05/KGC17/K	05MAR12	+						
02L1CC0628	Design (DDA) review by the SO	66	66	09AUG11A		100 09AUG11A		+						+++
522.555525	3 (-2)	1 30		35.1501170	=	.55 55 155 171								

	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total _	2012	ND	LEM	A M I	)13		LEN	4 0 04	2014 J J A S	SON	201	MA
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish	Float 63	64 65 6	66 67 6	8 69 70	1 72 73	74 75 76	77 78 79	80 81 8	2 83 84 8	5 86 87 8	8 89 90 9	1 92 93	4 95
<u> </u>	DDA submission for rel. authorities' approval	1		05MAY12A	05MAY12A		12APR12	12APR12													
	Design (DDA) review by the rel. authorities	28	28	07MAY12A	07JUN12A		13APR12	10MAY12													
	Obtain rel. authorities's approval for DDA	0	1		08JUN12A		11MAY12	11MAY12													
02L1CC0640	Obtain SO's consent for design (DDA)	0	0		08JUN12A	100		11MAY12													
Boulder Assess	sment & Design for Stabili. Measure																				
<u> </u>	Boulder Surevey	30		02JUN08A	15AUG08A		02JUN08A	15AUG08A													
<u> </u>	Prepare/submit boulder surevey report	25	25	14JUL08A	05SEP08A		14JUL08A	05SEP08A													
02L1CC0706	SO review boulder survey report	14	14	06SEP08A	19SEP08A	100	06SEP08A	19SEP08A													
Temporary Dra	inage Management Plan																				
	TDMP preparation by the Designer	14	14		03SEP08A		04AUG08A	03SEP08A													
	TDMP submission for the DC's approval	1	1		08SEP08A		08SEP08A	08SEP08A													
02L1CC0804	TDMP certification by the Design Checker	28	28	09SEP08A	10DEC08A	100	09SEP08A	10DEC08A													
02L1CC0806	TDMP submission for the SO's approval	2	2	20OCT08A	11DEC08A	100	20OCT08A	11DEC08A													
	TDMP review by the SO	90	90		08JAN09A	100	21OCT08A	08JAN09A													
02L1CC0810	TDMP submission for DSD's approval	1	1	21OCT08A	21OCT08A	100	21OCT08A	21OCT08A													
	TDMP review by the DSD	90	90	22OCT08A	08JAN09A	100	22OCT08A	08JAN09A													
02L1CC0814	Obtain DSD's approval for DDA	1	1	08JAN09A	08JAN09A	100	08JAN09A	08JAN09A													
02L1CC0816	Obtain SO's consent for TDMP	0	0		08JAN09A	100		08JAN09A													
Geotechnical Ir	nstrumentation Stg 1 for GL Works																				
3DL1CCG102	Design preparation by the Designer	14	14	22FEB08A	29APR08A	100	22FEB08A	29APR08A													
3DL1CCG104	Design certification by the Design Checker	7	7	30APR08A	26MAY08A	100	30APR08A	26MAY08A													
3DL1CCG106	Design submission for the SO's approval	1	1	10MAY08A	26MAY08A		10MAY08A	26MAY08A													
3DL1CCG108	Design review by the SO	14	14	12MAY08A	14JUL08A	100	12MAY08A	14JUL08A													
3DL1CCG110	Obtain design approval from the SO	0	0		14JUL08A	100		14JUL08A													
3DL1CCG112	Install Geotechnical Instruments	19	19		09AUG08A	100	24JUN08A	09AUG08A													
3DL1CCG114	Baseline Monitoring	14	14	26JUL08A	16AUG08A	100	26JUL08A	16AUG08A													
Geotechnical Ir	nstrumentation Stg 2 for Deep Exc.																				
3DL1CCG202	Design preparation by the Designer	60	60	28AUG08A	04NOV08A	100	28AUG08A	04NOV08A													
3DL1CCG204	Design certification by the Design Checker	14	14	11NOV08A	01DEC08A	100	11NOV08A	01DEC08A													
3DL1CCG206	Design submission for the SO's approval	2	2	04NOV08A	02DEC08A	100	04NOV08A	02DEC08A								XXX					
3DL1CCG210	Design review by the SO	28	28	05NOV08A	24NOV09A	100	05NOV08A	24NOV09A													
3DL1CCG212	Obtain design approval from the SO	0	0		24NOV09A	100		24NOV09A													
3DL1CCG214	Install Geotechnical Instruments	18	18	14MAR09A	18JUN09A	100	14MAR09A	18JUN09A													
3DL1CCG215	Install additional Geotechnical instruments	30	30	06OCT09A	10NOV09A	100	06OCT09A	10NOV09A													
3DL1CCG216	Baseline Monitoring	14		19JUN09A			19JUN09A	13NOV09A													
3DL1CCG218	Monitor/report Geotechnical Instrumentation	2,014	2,014	18AUG08A	28APR14	73	18AUG08A	22FEB14	0		27/2				7.7.7.	<u> </u>					
Design Pack	ages for Works in Portion D															<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>					
Temp. Access	Rd Design at P. D; +14mPD to +69mPD															X/X/					
	Design preparation by the Designer	14	14	17JAN08A	16APR08A	100	17JAN08A	16APR08A								X/X/					
	Design certification by the Design Checker	150			13SEP08A		17APR08A	13SEP08A								<b>X</b> ////					$\top$
	Design submission for the SO's approval	2	2				25APR08A	24SEP08A								<b>X</b> ////					$\top$
	Design review by the SO	90	90	26APR08A			26APR08A	04FEB09A													$\top$
	Design review by GEO	28		23JUN08A				29NOV08A													$\top$

	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total	2012 A S O	N D I	F M A I	2013 M J J A S (	D N D J F M 7 78 79 80 81 82	2014 A M J J A S	0 N D	J F M A
02L1DD0112	Obtain design approval from the SO	0	0	Otart	04FEB09A	100		04FEB09A	1 lout	03 04 00	00 07 08	9/10/71/	2 13 14 15 16 1	7   7   7   9   80   8   82	53 64 63 66 67 6	5 69 90 91	92 93 94 9
Boulder Assess	ment & Design for Stabili. Measure				1												
	Boulder Surevey	14	14	03APR08A	11APR08A	100	03APR08A	11APR08A									
02L1DD0304	Prepare/submit boulder surevey report	25	25	12APR08A	26MAY08A	100	12APR08A	26MAY08A									
02L1DD0306	SO review boulder survey report	14	14	27MAY08A	16JUN08A	100	27MAY08A	16JUN08A									
Site Formation I	Design; +69mPD to +40mPD																
	Design preparation by the Designer	14	14	17JAN08A	16APR08A	100	17JAN08A	16APR08A									
02L1DD0404	Design certification by the Design Checker	150	150	17APR08A	14NOV08A		17APR08A	14NOV08A									
02L1DD0406	Design submission for the SO's approval	2	2	25APR08A	14NOV08A	100	25APR08A	14NOV08A									
02L1DD0408	Design review by the SO	90	90	26APR08A	04DEC08A			04DEC08A									
02L1DD0412	Obtain design approval from the SO	0	0		04DEC08A	100		04DEC08A									
Site Formation I	Design; +40mPD to +24mPD																
	Design preparation by the Designer	120	120	14APR08A	09MAY09A	100	14APR08A	09MAY09A									
	Design certification by the Design Checker	145	145	05MAY08A	15MAY09A		05MAY08A	15MAY09A									
	Design submission for the SO's approval	2	2	10MAY08A	29MAY09A		10MAY08A	29MAY09A									
	Design review by the SO	90	90	12MAY08A	14AUG09A			14AUG09A									
	Obtain design approval from the SO	0	0		14AUG09A	100		14AUG09A									
	Design; +24mPD to 14mPD																
	Design preparation by the Designer	60	60	28AUG08A	23APR09A	100	28AUG08A	23APR09A									
02L1DD0603	Design submission for the DC's approval	2	2	16JAN09A	24APR09A	100	16JAN09A	24APR09A									
02L1DD0604	Design certification by the Design Checker	28	28	19JAN09A	03AUG09A	100	19JAN09A	03AUG09A									
02L1DD0606	Design submission for the SO's approval	2	2	02FEB09A	04AUG09A	100	02FEB09A	04AUG09A									
02L1DD0608	Design review by the SO	63	63	03FEB09A	24JUN09A	100	03FEB09A	24JUN09A									
02L1DD0612	Obtain design approval from the SO	0	0		24JUN09A	100		24JUN09A									
TBM Launching	Chamber Design																
	Design (AIP) preparation by the Designer	381	381	21APR08A	11MAY09A	100	21APR08A	11MAY09A									
02L1DD0703	Design (AIP) submission for the DC's approval	3	3	28JUL08A	12MAY09A	100	28JUL08A	12MAY09A									
02L1DD0704	Design (AIP) certification by the Design Checker	37	37	21AUG08A	13MAY09A	100	21AUG08A	13MAY09A									
02L1DD0706	Design (AIP) submission for the SO's approval	3	3	28JUL08A	13MAY09A	100	28JUL08A	13MAY09A									
02L1DD0708	Design (AIP) review by the SO	280	280	29JUL08A	19MAY09A	100	29JUL08A	19MAY09A									
02L1DD0710	AIP submission for rel. authorities' approval	1	1	28AUG08A	28AUG08A	100	28AUG08A	28AUG08A									
02L1DD0712	Design (AIP) review by the rel. authorities	28	28	28FEB09A	27MAR09A	100	28FEB09A	27MAR09A									
02L1DD0714	Obtain rel. authorities's approval for AIP	0	0		19MAY09A	100		19MAY09A									
02L1DD0716	SO submit Design (AIP) for review of GEO	1	1	28FEB09A	28FEB09A	100	28FEB09A	28FEB09A									
02L1DD0718	Design (AIP) review by the GEO	28	28	01MAR09A	28MAY09A	100	01MAR09A	28MAY09A									
02L1DD0720	Obtain SO's consent for design (AIP)	0	0		19MAY09A	100		19MAY09A									
02L1DD0722	Design preparation for the DDA submission	30	30	07MAR09A	05JUN09A	100	07MAR09A	05JUN09A									
02L1DD0723	Design (DDA) submission for the DC's approval	1	1	06JUN09A		100		06JUN09A									
02L1DD0724	Design (DDA) certification by the Design Checker	28	28	07JUN09A		100	07JUN09A	04AUG09A									
	Design (DDA) submission for the SO's approval	2	2	06JUN09A		100		28OCT09A									
	Design (DDA) review by the SO	66	66	07JUN09A				03NOV09A									
	DDA submission for rel. authorities' approval	1	1	28OCT09A				28OCT09A									
02L1DD0732	Design (DDA) review by the rel. authorities	28	28	29OCT09A	25NOV09A	100	29OCT09A	25NOV09A									

ID	Activity			WP09	Total	201:	NDI	E M A	2013	SONDI	EMAN	2014 M J J A S O		ПП	2015 F M A				
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish	Float	63 64 65	66 67 68	69 70 71	72 73 74 75	76 77 78 79 80	81 82 83 84	85 86 87	88 89 90	91 92	93 94 95
02L1DD0734	Obtain rel. authorities's approval for DDA	1	1	26NOV09A	26NOV09A		26NOV09A	26NOV09A											
02L1DD0736	SO submit design (DDA) for review of GEO	0	0	27OCT09A	27OCT09A			27OCT09A											
02L1DD0738	Design (DDA) review by the GEO	28	28	28OCT09A	24NOV09A	100	28OCT09A	24NOV09A											
02L1DD0740	Obtain SO's consent for design (DDA)	0	0		04NOV09A	100		04NOV09A											
Hopper Design																			
02L1DD0802	Design preparation by the Designer	119	119	28FEB09A	13AUG09A	100	28FEB09A	13AUG09A											
02L1DD0803	Design submission for the DC's approval	1	1	14AUG09A	14AUG09A	100	14AUG09A	14AUG09A											
02L1DD0804	Design certification by the Design Checker	28	28	17AUG09A	13NOV09A	100	17AUG09A	13NOV09A											
02L1DD0806	Design submission for the SO's approval	1	1	14AUG09A	14NOV09A	100	14AUG09A	14NOV09A											
02L1DD0808	Design review by the SO	42	42	15AUG09A	01DEC09A	100	15AUG09A	01DEC09A											
02L1DD0810	Obtain design approval from the SO	0	0		01DEC09A	100		01DEC09A											
Steel Platform	Design																		
02L1DD0902	Design preparation by the Designer	82	82	02JAN09A	24MAR09A	100	02JAN09A	24MAR09A											
02L1DD0903	Design submission for the DC's approval	1	1	25MAR09A	25MAR09A	100	25MAR09A	25MAR09A											
02L1DD0904	Design certification by the Design Checker	28	28	26MAR09A	18JUL09A	100	26MAR09A	18JUL09A											
02L1DD0906	Design submission for the SO's approval	1	1	23JUN09A	18JUL09A	100	23JUN09A	18JUL09A											
02L1DD0908	Design review by the SO	42	42	24JUN09A	24JUL09A	100	24JUN09A	24JUL09A											
02L1DD0910	Obtain design approval from the SO	0	0		24JUL09A	100		24JUL09A											
Overhead Gant	ry Support & Noise Enclosure Design																		
02L1DD1002	Design preparation by the Designer	82	82	02JAN09A	02NOV09A	100	02JAN09A	02NOV09A											
02L1DD1003	Design submission for the DC's approval	2	2	15JUN09A	03NOV09A	100	15JUN09A	03NOV09A											
02L1DD1004	Design certification by the Design Checker	28	28	16JUN09A	13OCT09A	100	16JUN09A	13OCT09A											
02L1DD1006	Design submission for the SO's approval	2	2	15JUN09A	13OCT09A	100	15JUN09A	13OCT09A											
02L1DD1008	Design review by the SO	42	42	16JUN09A	17NOV09A	100	16JUN09A	17NOV09A											
02L1DD1010	Obtain design approval from the SO	0	0		17NOV09A	100		17NOV09A											
ELS Design for	Spiral Ramp																		
02L1DD1102	Design preparation for the AIP submission	30	30	28MAY09A	16SEP09A	100	28MAY09A	16SEP09A											
02L1DD1103	Design (DDA) submission for the DC's approval	1	1	22JUN09A	16SEP09A	100	22JUN09A	16SEP09A											
02L1DD1104	Design (DDA) certification by the Design Checker	28	28	23JUN09A	07OCT09A	100	23JUN09A	07OCT09A											
02L1DD1106	Design (DDA) submission for the SO's approval	1	1	08OCT09A	08OCT09A	100	08OCT09A	08OCT09A											
02L1DD1108	Design (DDA) review by the SO	66	66	09OCT09A	07JUN10A	100	09OCT09A	07JUN10A											
02L1DD1114	Obtain rel. authorities's approval for DDA	1	1	26NOV09A	26NOV09A	100	26NOV09A	26NOV09A											
02L1DD1116	SO submit design (DDA) for review of GEO	0	0		12MAY10A	100		12MAY10A											
02L1DD1118	Design (DDA) review by the GEO	28	28	13MAY10A	04JUN10A	100	13MAY10A	04JUN10A											
02L1DD1120	Obtain SO's consent for design (DDA)	0	0		07JUN10A	100		07JUN10A											
Temp. Design f	or Box Culvert Opon Cut	-	-																
02L1DD1202	Design preparation for the DDA submission	80	80	27JUN09A	28FEB10A	100	27JUN09A	28FEB10A											
02L1DD1203	Design (DDA) submission for the DC's approval	1	1	01MAR10A			01MAR10A												
02L1DD1204	Design (DDA) certification by the Design Checker	28	28	02MAR10A			02MAR10A												
02L1DD1206	Design (DDA) submission for the SO's approval	1	1		07DEC10A		19MAR10A												
02L1DD1208	Design (DDA) review by the SO	66	66	20MAR10A				16DEC10A											
02L1DD1220	Obtain SO's consent for design (DDA)	0	0		16DEC10A	100		16DEC10A											
	<u> </u>		1	1	1			1	1 1		V4/4/	1/1/11		V/V/V/	* / Y / M				

ID	Activity	WP10		WP10	WP10	%	WP09	WP09	Total	2012 S O N	I D J F M	A M .	2013 20 1 J A S O N D J F M A M J 3 74 75 76 77 78 79 80 81 82 83 84 85	14 2015 J A S O N D J F M A
Tomporory Dr	Description	Dur	Dur	Start	Finish	Comp	Start	Finish	Float 6	64 65 66	6 67 68 69 70	71 72 7	3 74 75 76 77 78 79 80 81 82 83 84 85	86 87 88 89 90 91 92 93 94 95
02L1DD1302	ainage Management Plan  TDMP preparation by the Designer	225	225	05MAY08A	27MAP09A	100	05MAY08A	27MAR09A						
02L1DD1302	TDMP submission for the DC's approval	2		08AUG08A			08AUG08A	29MAY09A						
02L1DD1303	TDMP certification by the Design Checker	28		09AUG08A				06JUN09A						
02L1DD1304	, ,	20					08AUG08A	08JUN09A						
	TDMP submission for the SO's approval													
02L1DD1308	TDMP review by the SO	90		08AUG08A	16AUG11A		08AUG08A	16AUG11A						
02L1DD1316	Obtain SO's consent for TDMP	0	0		16AUG11A	100		16AUG11A						
	Instrumentation Stg 1 for GL Works													
3DL1DDG102	Design preparation by the Designer	14	14	22FEB08A	24APR08A		22FEB08A	24APR08A						
3DL1DDG104	Design certification by the Design Checker	7	7	25APR08A	16JUN08A		25APR08A	16JUN08A						
3DL1DDG106	Design submission for the SO's approval	1	1	25APR08A	16JUN08A		25APR08A	16JUN08A						
3DL1DDG108	Design review by the SO	14	14	26APR08A	14JUL08A		26APR08A	14JUL08A						
3DL1DDG110	Obtain design approval from the SO	0	0		14JUL08A	100		14JUL08A						
3DL1DDG112	Install Geotechnical Instruments	10	10	04JUN08A	05JUL08A			05JUL08A						
3DL1DDG114	Initial reading	14	14	18JUN08A	09JUL08A	100	18JUN08A	09JUL08A						
Geotechnical	Instrumentation Stg 2 for Deep Exc.													
3DL1DDG202	Design preparation by the Designer	14	14	28MAY09A	310CT09A	100	28MAY09A	31OCT09A						
3DL1DDG204	Design certification by the Design Checker	14	14	11JUN09A	04DEC09A	100	11JUN09A	04DEC09A						
3DL1DDG206	Design submission for the SO's approval	2	2	11JUN09A	04DEC09A	100	11JUN09A	04DEC09A						
3DL1DDG208	Design review by the SO	28	28	12JUN09A	16DEC10A	100	12JUN09A	16DEC10A						
3DL1DDG210	Obtain design approval from the SO	0	0		16DEC10A	100		16DEC10A						
3DL1DDG212	Install Geotechnical Instruments	18	18	09MAR10A	25MAR11A	100	09MAR10A	25MAR11A						
3DL1DDG214	Baseline Monitoring	14	14	24MAR10A	26MAR11A	100	24MAR10A	26MAR11A						
3DL1DDG216	Monitor/report Geotechnical Insturmentatation	2,098	2,098	10JUL08A	22OCT14	69	10JUL08A	10APR14	0					
Design Pack	kages for Works in Portion F	,	,											
Main Tunnel D														
02L1FF0102	Design preparation for the AIP submission	414	414	08FEB08A	27MAP00A	100	08FEB08A	27MAR09A						
02L1FF0102	Design (AIP) submission for the DC's approval	2	414	02MAY08A				27MAR09A						
02L1FF0103		28	20					27MAR09A						
	Design (AIP) certification by the Design Checker		28	03MAY08A										
02L1FF0106	Design (AIP) submission for the SO's approval	1	1	10JUL08A	27MAR09A		10JUL08A	27MAR09A						
02L1FF0108	Design (AIP) review by the SO	66	66	11JUL08A	16JUN09A		11JUL08A	16JUN09A						
02L1FF0110	AIP submission for rel. authorities' approval	1	1	08JUL08A	08JUL08A		08JUL08A	08JUL08A						
02L1FF0112	Design (AIP) review by the rel. authorities	28	28	09JUL08A	05MAR09A		09JUL08A	05MAR09A						
02L1FF0114	Obtain rel. authorities's approval for AIP	1	1	06MAR09A			06MAR09A	06MAR09A						
02L1FF0116	SO submit design (AIP) for review of GEO	1	1	16MAY09A				16JUN09A						
02L1FF0118	Design (AIP) review by the GEO	28		30MAY09A				03NOV09A						
02L1FF0120	Obtain SO's consent for design (AIP)	0	0		16JUN09A	100		16JUN09A						
02L1FF0122	Design preparation for the DDA submission	30	30				04NOV08A	10SEP09A						
02L1FF0123	Design (DDA) submission for the DC's approval	2	2	08JUN09A			08JUN09A	11SEP09A						
02L1FF0124	Design (DDA) certification by the Design Checker	28	28	09JUN09A			09JUN09A	17SEP09A						
02L1FF0126	Design (DDA) submission for the SO's approval	2	2	30JUN09A			30JUN09A	18SEP09A						
02L1FF0128	Design (DDA) review by the SO	56	56	02JUL09A	10NOV09A		02JUL09A	10NOV09A						
02L1FF0130	DDA submission for rel. authorities' approval	1	1	25SEP09A	25SEP09A	100	25SEP09A	25SEP09A			<u> </u>			

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total A	2012 S O N	D J F M A	2013 M J J A S O	NDIEMAM	2015 J J A S O N D J F M 7 5 86 87 88 89 90 91 92 93 94 9
02L1FF0132	Design (DDA) review by the rel. authorities	28	28	26SEP09A	22NOV09A	100	26SEP09A	22NOV09A		04 00 00		12 10 14 10 10 11		0 00 01 00 00 00 01 02 00 04 0
02L1FF0134	Obtain rel. authorities's approval for DDA	1	1	23NOV09A	23NOV09A	100	23NOV09A	23NOV09A						
02L1FF0136	SO submit design (DDA) for review of GEO	1	1	28OCT09A	28OCT09A	100	28OCT09A	28OCT09A						
02L1FF0138	Design (DDA) review by the GEO	28	28	29OCT09A	25NOV09A	100	29OCT09A	25NOV09A						
02L1FF0140	Obtain SO's consent for design (DDA)	0	0		27NOV09A	100		27NOV09A						
Impact Asses	sment on WSD Yau Kam Tau WTW						<u> </u>	1						
02L1FF0202	Design preparation for the DDA submission	60	60	29APR08A	30JUN08A	100	29APR08A	30JUN08A						
02L1FF0203	Design (DDA) submission for the DC's approval	1	1	03JUL08A	03JUL08A	100	03JUL08A	03JUL08A						
02L1FF0204	Design (DDA) certification by the Design Checker	260	260	04JUL08A	18MAR09A	100	04JUL08A	18MAR09A						
02L1FF0206	Design (DDA) submission for the SO's approval	1	1	15JUL08A	18MAR09A		15JUL08A	18MAR09A						
02L1FF0208	Design (DDA) review by the SO	66	66	16JUL08A	31MAR09A	100	16JUL08A	31MAR09A						
02L1FF0210	DDA submission for rel. authorities' approval	1	1	10JUL08A	02APR09A	100	10JUL08A	02APR09A						
02L1FF0212	Design (DDA) review by the rel. authorities	28	28	11JUL08A	30OCT09A	100	11JUL08A	30OCT09A						
02L1FF0214	Obtain rel. authorities's approval for DDA	1	1	31OCT09A	310CT09A	100	310CT09A	31OCT09A						
02L1FF0220	Obtain SO's consent for design (DDA)	0	0		31MAR09A	100		31MAR09A						
Impact Asses	sment on WSD Tai Lam Chung WT No. 3						<u> </u>	1						
02L1FF0302	Design preparation for the DDA submission	32	32	14APR08A	27JUN08A	100	14APR08A	27JUN08A						
02L1FF0303	Design submission for the DC's approval	1	1	27JUN08A	27JUN08A	100	27JUN08A	27JUN08A						
02L1FF0304	Design (DDA) certification by the Design Checker	285	285	28JUN08A	30MAY09A		28JUN08A	30MAY09A						
02L1FF0306	Design (DDA) submission for the SO's approval	1	1	15JUL08A	01JUN09A		15JUL08A	01JUN09A						
02L1FF0308	Design (DDA) review by the SO	66	66	16JUL08A	04DEC10A		16JUL08A	04DEC10A						
02L1FF0310	DDA submission for rel. authorities' approval	1	1	28OCT09A	28OCT09A		28OCT09A	28OCT09A						
02L1FF0312	Design (DDA) review by the rel. authorities	28	28	29OCT09A	11DEC10A		29OCT09A	11DEC10A						
02L1FF0314	Obtain rel. authorities's approval for DDA	0	0		11DEC10A	100		11DEC10A						
02L1FF0320	Obtain SO's consent for design (DDA)	0	0		11DEC10A	100		11DEC10A						
Impact Asses	sment on KCRC West Rail Tunnel	1												
02L1FF0402	Design preparation for the DDA submission	30	30	28APR08A	26JUN08A	100	28APR08A	26JUN08A						
02L1FF0403	Design submission for the DC's approval	1	1		26JUN08A		26JUN08A	26JUN08A						
02L1FF0404	Design (DDA) certification by the Design Checker	90	90	27JUN08A	02APR09A		27JUN08A	02APR09A						
02L1FF0406	Design (DDA) submission for the SO's approval	2	2	15JUL08A	03APR09A		15JUL08A	03APR09A						
02L1FF0408	Design (DDA) review by the SO	267	267	16JUL08A	04JAN10A		16JUL08A	04JAN10A						
02L1FF0410	DDA submission for rel. authorities' approval	1	1	14JUL08A	14JUL08A		14JUL08A	14JUL08A						
02L1FF0412	Design (DDA) review by the rel. authorities	28	28	15JUL08A	23DEC09A		15JUL08A	23DEC09A						
02L1FF0414	Obtain rel. authorities's approval for DDA	1	1	23DEC09A	23DEC09A		23DEC09A	23DEC09A						
02L1FF0420	Obtain SO's consent for design (DDA)	0	0		05JAN10A	100		05JAN10A						
	sment on WSD Tsuen Wan Reservoir G.													
02L1FF0502	Design preparation for the DDA submission	30	30	05MAY08A	02JUL08A	100	05MAY08A	02JUL08A						
02L1FF0503	Design submission for the DC's approval	1	1	03JUL08A			03JUL08A	03JUL08A						
02L1FF0504	Design (DDA) certification by the Design Checker	260	260				04JUL08A	24AUG09A						
02L1FF0506	Design (DDA) submission for the SO's approval	2	2	15JUL08A	15SEP09A		15JUL08A	15SEP09A						
02L1FF0508	Design (DDA) review by the SO	60	60				16JUL08A	02OCT09A						
02L1FF0510	DDA submission for rel. authorities' approval	1	1	10JUL08A	10JUL08A		10JUL08A	10JUL08A						
02L1FF0512	Design (DDA) review by the rel. authorities	28	28	11JUL08A			11JUL08A	11NOV09A						
3221 33.12	=g (= 2.1, 101.01.01.01.00.001.000							1						

ID	Activity Description	WP10	WP09	WP10	WP10	%	WP09	WP09	Total	20				2013		)14	2015
.5		Dur	Dur	Start	Finish	Comp	Start	Finish		A S C	N E	J F 7 68 69	M A 70 71 7	M J J A S O N D J F 72 73 74 75 76 77 78 79 80 81	M A M J 82 83 84 85	J A S O	N D J F M 90 91 92 93 94
02L1FF0514	Obtain rel. authorities's approval for DDA	1	1	12NOV09A	12NOV09A	100	12NOV09A	12NOV09A			1//						
02L1FF0520	Obtain SO's consent for design (DDA)	0	0		02OCT09A	100		02OCT09A									
<b>Grout Trial at</b>	Foult Zone F1				<u> </u>			<u>'</u>									
02L1FF0602	MS preparation for the DDA submission	12	12	02MAY08A	20MAY08A	100	02MAY08A	20MAY08A									
02L1FF0606	Ms (DDA) submission for the SO's approval	1	1	21MAY08A	21MAY08A	100	21MAY08A	21MAY08A									
02L1FF0608	MS (DDA) review by the SO	24	24	22MAY08A	17JUL08A	100	22MAY08A	17JUL08A									
02L1FF0620	Obtain SO's consent for MS (DDA)	0	0		17JUL08A	100		17JUL08A									
Geotechniuca	al Instrumentation																
3DL1FFGI02	Design preparation by the Designer	60	60	28AUG08A	23JAN09A	100	28AUG08A	23JAN09A									
3DL1FFGI04	Design certification by the Design Checker	14	14	24JAN09A	310CT09A	100	24JAN09A	310CT09A									
3DL1FFGI06	Design submission for the SO's approval	2	2	24JAN09A	28NOV09A	100	24JAN09A	28NOV09A									
3DL1FFGI08	Design review by the SO	56	56	24JAN09A	08APR10A	100	24JAN09A	08APR10A									
3DL1FFGI10	DDA submission for rel. authorities' approval	1	1	14MAR09A	14MAR09A	100	14MAR09A	14MAR09A									
3DL1FFGI12	Design (DDA) review by the rel. authorities	56	56	15MAR09A	11DEC09A	100	15MAR09A	11DEC09A									
3DL1FFGI14	Obtain rel. authorities's approval for DDA	1	1	12DEC09A	12DEC09A	100	12DEC09A	12DEC09A									
3DL1FFGI16	Obtain design approval from the SO	0	0		08APR10A	100		08APR10A									
3DL1FFGI18	Install geotechnical instrumentsation	90	90	03MAR10A	31JAN11A	100	03MAR10A	31JAN11A									
3DL1FFGI20	Baseline Monitoring	14	14	06MAR10A	05FEB11A	100	06MAR10A	05FEB11A									
3DL1FT0208	Maintain/monitor geotechnical instrumentation	1,196	1,196	28APR10A	17OCT13	66	28APR10A	06AUG13	-328								
Design Pacl	kages for Works in Portion G																
Drainage Impa	act Assessment																
02L1GG0115	Information for catchment area by SOR	21	21	09OCT09A	03NOV09A	100	09OCT09A	03NOV09A									
02L1GG0125	Prepare DIA report	32	32	09OCT09A	24NOV09A	100	09OCT09A	24NOV09A									
02L1GG0135	Submission of DIA report to SOR/DSD	1	1	25NOV09A	25NOV09A	100	25NOV09A	25NOV09A									
02L1GG0145	SOR/DSD review/comment DIA report	28	28	25NOV09A	24DEC09A	100	25NOV09A	24DEC09A									
02L1GG0155	Revise DIA incorporating comments	12	12	28DEC09A	29JAN10A	100	28DEC09A	29JAN10A									
02L1GG0165	SOR/DSD review/approve DIA report	28	28	30JAN10A	16SEP11A	100	30JAN10A	16SEP11A									
02L1GG0175	Obtain consent from SOR and DSD	0	0		16SEP11A	100		16SEP11A									
Temp. Platfor	m Design for H-Piling at Portion G																
02L1GG0202	Design preparation for the DDA submission	53	53	05OCT09A	03DEC09A	100	05OCT09A	03DEC09A									
02L1GG0203	Design (DDA) submission for the DC's approval	1	1	15DEC09A	15DEC09A	100	15DEC09A	15DEC09A									
02L1GG0204	Design (DDA) certification by the Design Checker	14	14	16DEC09A	14JAN10A	100	16DEC09A	14JAN10A									
02L1GG0206	Design (DDA) submission for the SO's approval	1	1	15JAN10A	15JAN10A	100	15JAN10A	15JAN10A									
02L1GG0208	Design (DDA) review by the SO	40	40	16JAN10A	23JUN10A	100	16JAN10A	23JUN10A									
02L1GG0228	Obtain design (DDA) approval from the SO	0	0		23JUN10A	100		23JUN10A									
ELS Design fo	or Pipe Jacking at Portion G																
02L1GG0302	Design preparation for the DDA submission	15	15	21NOV09A	23JAN10A	100	21NOV09A	23JAN10A									
02L1GG0303	Design (DDA) submission for the DC's approval	1	1	25JAN10A	25JAN10A	100	25JAN10A	25JAN10A									
02L1GG0304	Design (DDA) certification by the Design Checker	14	14	26JAN10A	28APR10A	100	26JAN10A	28APR10A									
02L1GG0306	Design (DDA) submission for the SO's approval	1	1	29APR10A	29APR10A	100	29APR10A	29APR10A									
02L1GG0308	Design (DDA) review by the SO	28	28	30APR10A	04JUN10A	100	30APR10A	04JUN10A									
02L1GG0318	Obtain design (DDA) approval from the SO	0	0		04JUN10A	100		04JUN10A									

ID	Activity	1	WP09	WP10	WP10	%	WP09	WP09	Total	201 A S O	NDI	FMA	201	IAS	ONE	JFM	A M I	)14   J   A   S	OND	2015 ) J F N	ΙΔ
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish	Float	63 64 65	66 67 68	69 70 71	72 73 7	74 75 76	77 78 7	9 80 81 82	83 84 85	86 87 88	89 90 91	92 93 9	95
Schedule of	Milestones for Cost Centre No. 2L																				
																	1				
02L10D1002	2L 1; On submission of PDP to the SO	0	0		10JAN08A	100		10JAN08A													L
02L10D1004	2L 2; On acception of PDP by the SO	0	0		04SEP08A	100		04SEP08A													
02L10D1006	2L 3; On submission of AIP to the SO; Portion A	0	0		12MAY09A	100		12MAY09A													
02L10D1008	2L 4; On acceptance of AIP by the SO; Portion A	0	0		25JUL09A	100		25JUL09A													
02L10D1010	2L 5; On subumission of DDA to the SO; Portion A	0	0		19NOV10A	100		28MAY12													
02L10D1012	2L 6; On acceptance of DDA by the SO; Portion A	0	0		24NOV10A	100		04AUG12													
02L10D1014	2L 7; On submission of AIP to the SO; Portion B	0	0		07JUL09A	100		07JUL09A													
02L10D1016	2L 8; On acceptance of AIP by the SO; Portion B	0	0		06OCT10A	100		06OCT10A													
02L10D1018	2L 9; On submission of DDA to the SO; Portion B	0	0		13APR12A	100		28MAY12													
02L10D1020	2L 10; On acceptance of DDA by the SO; Portion B	0	0		08JUN12A	100		11MAY12													
02L10D1022	2L 11; On submission of AIP to the SO; Portion C	0	0		25JUL09A	100		25JUL09A													
02L10D1024	2L 12; On acceptance of AIP by the SO; Portion C	0	0		06OCT10A	100		06OCT10A													
02L10D1026	2L 13; On submission of DDA to the SO; Portion C	0	0		13APR12A	100		28MAY12													
02L10D1028	2L 14; On acceptance of DDA by the SO; Portion C	0	0		08JUN12A	100		11MAY12													
02L10D1030	2L 15; On acceptance of AIP by the SO; Portion D	0	0		25JUL09A	100		25JUL09A													
02L10D1032	2L 16; On acceptance of DDA by the SO; Portion D	0	0		30JUL11A	100		30JUL11A													
02L10D1034	2L 17; On submission of AIP to the SO; Portion F	0	0		13JUL09A	100		13JUL09A													
02L10D1036	2L 18; On acceptance of AIP by the SO; Portion F	0	0		24JUN10A	100		24JUN10A													
02L10D1038	2L 19; On submission of DDA to the SO; Portion F	0	0		31JUL09A	100		28MAY12													
02L10D1040	2L 20; On acceptance of DDA by the SO; Portion F	0	0		28OCT09A	100		04AUG12	•												
02L10D1042	2L 21; On acceptance of AIP by the SO; Portion G	0	0		11JAN10A	100		11JAN10A													
02L10D1044	2L 22; On acceptance of DDA by the SO; Portion G	0	0		16SEP11A	100		27FEB12													
02L10D1046	2L 23; On completion of all works under this CC	0	0		08JUN12A	100		27FEB12													
Construction	on of Main Tunnel																1				
Trial Grout	at Fault Zone F1																1				
THE STOCK																	1				
3AL1FT0002	HvD issue XP	0	0		23JUL08A	100		23JUL08A									1				
3AL1FT0004	Adavance notice to HyD/Road advice	6	_	24JUL08A	30JUL08A		24JUL08A	30JUL08A									1			+++	+
3AL1FT0006	Trial pit excavation	4	4	31JUL08A	04AUG08A		31JUL08A	04AUG08A									1			+++	+
3AL1FT0010	Scaffolding, mobilize & set up	7	7	05AUG08A				13AUG08A									1			+++	+
3AL1FT0012	Drill & test for 2m Arrangement Test	45		14AUG08A				15NOV08A									1			+++	+
3AL1FT0014	Backfill drilled holes, demobilization & Tidy up	6			22NOV08A			22NOV08A									1			+++	+
3AL1FT0016	Drill & test for single hole arrangement test	17			04SEP08A			04SEP08A									1			+++	+
3AL1FT0018	Backfill drilled hole, demobilization & tidy up	1	17		05SEP08A			05SEP08A									1			+	+
		'	1	033LI 00A	033LI 00A	100 0	JJJLI UOA	UJJEI UUA									1			+	+
	acture/Testing/Delivery																1				
	of TBM & Back-ups						:										1				
3AL1FT0302	TBM & Excavation Sys Procurement	30			12JAN08A			12JAN08A									1			1	1
3AL1FT0304	TBM design & manufacturing	252			28SEP08A			28SEP08A									1			1	1
3AL1FT0306	TBM workshop tests	7			08OCT08A			08OCT08A									1			1	1
3AL1FT0308	TBM dismounting & packing	21	21	09OCT08A	24DEC08A	100 0	9OCT08A	24DEC08A				XXX				X/X///	1			$\perp \perp \perp$	

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total	201 A S O	NDI	F M A	2013 M J J A S	O N D J F M A	2014 M J J A S O	N D .	2015 J F M A
Delivery of TBN	***	Dui	Dui	Start	1 1111311	Comp	Start	1 1111511	1 loat	63 64 65	66 67 68	69 70 71	72 73 74 75 76	77 78 79 80 81 82 83	84 85 86 87 88 89	90 91 92	2 93 94 95
3AL1FT0105	TBM shipment to Hong Kong	30	30	06JUL09A	10AUG09A	100	06JUL09A	10AUG09A									
3AL1FT0110	TBM arriving Portion I	3	3	10AUG09A	12AUG09A		10AUG09A	12AUG09A									
3AL1FT0115	Destuffing Containers/Cleaning & lubrication	24	24	08SEP09A	10OCT09A		08SEP09A	100CT09A									
	nbly/Test & Commis. at Portion I				100000000000000000000000000000000000000	1 1 1 1		1000000								++	
3AL1FT0215	Backup # 1	12	12	09SEP09A	22SEP09A	100	09SEP09A	22SEP09A									
3AL1FT0220	Backup # 2	8	8	15SEP09A	23SEP09A		15SEP09A	23SEP09A									
3AL1FT0225	Backup # 3	4	4	21SEP09A	24SEP09A		21SEP09A	24SEP09A									
3AL1FT0230	Backup # 4	3	3	24SEP09A	26SEP09A		24SEP09A	26SEP09A									
3AL1FT0240	Baackup # 5	2	2	28SEP09A	29SEP09A		28SEP09A	29SEP09A									
3AL1FT0245	Backup # 6	3	3	29SEP09A	02OCT09A		29SEP09A	02OCT09A									
3AL1FT0250	Backup # 7	3	3	30SEP09A	05OCT09A		30SEP09A	05OCT09A									
3AL1FT0255	Backup # 8	4	4	05OCT09A	08OCT09A		05OCT09A	08OCT09A									
3AL1FT0260	Backup # 9	5	5	07OCT09A	15OCT09A		07OCT09A	15OCT09A									
3AL1FT0365	Backup # 10	6	6	09OCT09A	15OCT09A		09OCT09A	15OCT09A									
3AL1FT0370	Backup # 11	6	6	100CT09A	15OCT09A		100CT09A	15OCT09A								+++	
3AL1FT0375	Backup # 12	6	6	13OCT09A	15OCT09A		13OCT09A	15OCT09A									
3AL1FT0377	Backup conveyor	5	5	17OCT09A	16JAN10A		17OCT09A	16JAN10A									
3AL1FT0379	Ventilation duct into cassette and scaffolding	3	3	04NOV09A	26JAN10A		04NOV09A	26JAN10A									
3AL1FT0381	Wheels	5	5	16OCT09A	11JAN10A		16OCT09A	11JAN10A									
3AL1FT0383	Testing for compressor	3	3	16OCT09A	19JAN10A		16OCT09A	19JAN10A									
3AL1FT0385	Testing for hosereels	3	3	28OCT09A	19JAN10A		280CT09A	19JAN10A									
3AL1FT0387	Testing for peagravel system	3	3	12NOV09A	19JAN10A		12NOV09A	19JAN10A									
3AL1FT0389	Erector	4	4	22OCT09A	20JAN10A			20JAN10A									
3AL1FT0391	Segment hoisting crane	3	3	22OCT09A	27NOV09A			27NOV09A									
3AL1FT0393	Shields	7	7	29OCT09A	07JAN10A			07JAN10A								+++	
3AL1FT0395	Pre-testing for hydraulic & electric system	4	4	22SEP09A	23JAN10A			23JAN10A									
3AL1FT0397	Holding cylinder heads	8	8	16NOV09A	23NOV09A		16NOV09A	23NOV09A								+++	
3AL1FT0399	Walkways	12	12	22SEP09A	23JAN10A			23JAN10A								+++	
3AL1FT0401	Ventilation pipes supports	16	16	05NOV09A	02JAN10A			02JAN10A									
3AL1FT0403	Cutterhead, welding & testing	37	37	30OCT09A				22JAN10A									
	from Portion I to Outfall	1 01	01	0000100/1	220/ ((110/)	100	0000100/1	2207 (1 1 1 0 7 1								+++	
	Bottm shield 1 piece	1	1	19FEB10A	19FEB10A	100	19FEB10A	19FEB10A									
3AL1FT0415	Outer telescopic shield bottom	0	0	TOT ED TOT	22FEB10A	100		22FEB10A									
3AL1FT0425	Main bearing	0	0		19FEB10A	100		19FEB10A								+++	
3AL1FT0435	Side shield balance 2 pieces	1	1	22FEB10A			22FEB10A									+++	
3AL1FT0455	Bottom inner telescopic shield	1	1	22FEB10A				22FEB10A								+++	
3AL1FT0465	Main thrust rams	1	1	23FEB10A				23FEB10A	+							+++	
3AL1FT0475	Side gripper shield balance 2 pieces	1	1	22FEB10A				22FEB10A	+							+++	
3AL1FT0495	Electric motors for maindrive	1	1	25FEB10A				25FEB10A	+							+++	
3AL1FT0505	Cutterhead centre	1	1	02MAR10A			02MAR10A		+							+++	
3AL1FT0515	Cutterhead balance 4 pieces	1	1	02MAR10A			02MAR10A									+++	
3AL1FT0525	Gripper cylinders	1	1	22FEB10A			22FEB10A		+							++	
U 07 (E 11 10020	Chipper dyninació		<u> </u>	ZZI LDIVA	221 20 107	100	LEILBIOA							K/X/X/X/X/X			$\perp$

ID	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total	2012			2013 J J A S O N D J F N	20	14	2015
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish	Float	3 64 65 66	67 68 69 7	71 72 7	73 74 75 76 77 78 79 80 81 8	2 83 84 85	86 87 88 89 90	91 92 93 94 9
3AL1FT0535	Tail shield	1	1	20MAR10A	20MAR10A	100	20MAR10A	20MAR10A								
3AL1FT0545	Erector	1	1	22FEB10A	22FEB10A	100	22FEB10A	22FEB10A								
3AL1FT0555	TBM conveyor	1	1	25FEB10A	25FEB10A	100	25FEB10A	25FEB10A								
3AL1FT0565	Probe drill	1	1	25FEB10A	25FEB10A	100	25FEB10A	25FEB10A								
3AL1FT0604	Backup # 1	1	1	09MAR10A	09MAR10A		09MAR10A	09MAR10A								
3AL1FT0606	Backup # 2	1	1	09MAR10A	09MAR10A	100	09MAR10A	09MAR10A								
3AL1FT0608	Backup # 3	1	1	22MAR10A	22MAR10A	100	22MAR10A	22MAR10A								
3AL1FT0610	Backup # 4	1	1	16MAR10A	16MAR10A	100	16MAR10A	16MAR10A								
3AL1FT0612	Backup # 5	1	1	16MAR10A	16MAR10A		16MAR10A	16MAR10A								
3AL1FT0614	Backup # 6	1	1	22MAR10A	22MAR10A		22MAR10A	22MAR10A								
3AL1FT0616	Backup # 7	1	1	19MAY10A			19MAY10A									
3AL1FT0618	Backup # 8	1	1	19MAY10A	19MAY10A	100	19MAY10A	19MAY10A								
3AL1FT0620	Backup # 9	1	1	08JUN10A	08JUN10A		08JUN10A	08JUN10A								
3AL1FT0622	Backup # 10	1	1	08JUN10A	08JUN10A		08JUN10A	08JUN10A								
3AL1FT0624	Backup # 11	1	1	24JUN10A	24JUN10A		24JUN10A	24JUN10A								
3AL1FT0628	Backup # 12	1	1	24JUN10A	24JUN10A	100	24JUN10A	24JUN10A								
Manufacture	Pre-cast Lining/Delivery															
Segmental Lir	ning Mould															
3AL1FTSM02	Procure sub-contract for segmental mould	0	0		21JUL08A	100		21JUL08A								
3AL1FTSM04	Prepare shop drwgs for segmental mould	60	60	02FEB09A	05MAR09A	100	02FEB09A	05MAR09A								
3AL1FTSM06	Fabrication of segmental mould	90	90	06MAR09A	16MAY09A	100	06MAR09A	16MAY09A								
3AL1FTSM08	Inspection in Korea	7	7	18MAY09A	20MAY09A	100	18MAY09A	20MAY09A								
3AL1FTSM10	Painting & packing	7	7	21MAY09A	27MAY09A	100	21MAY09A	27MAY09A								
3AL1FTSM12	Delivery of segmental moulds to HKG	7	7	28MAY09A	03JUN09A	100	28MAY09A	03JUN09A								
Pre-cast Segn	nental Lining															
3AL1FT0404	Prepare/submit QA/QC System	30	30	12JAN09A	04MAR09A	100	12JAN09A	04MAR09A								
3AL1FT0410	SO approve QA/QC system	28	28	05MAR09A	06JUN09A	100	05MAR09A	06JUN09A								
3AL1FT0412	Approval of Tunnel Linig Design	0	0		25NOV09A	100		25NOV09A								
3AL1FT0416	Manufactur of segments	330	330	30NOV09A	04MAY11A	100	30NOV09A	04MAY11A								
3AL1FT0418	Delivery of Segments	813	813	05MAR10A	26NOV11A	100	05MAR10A	26NOV11A								
3AL1FTSL02	Procure sub-contract for segment lining	0	0		05JAN09A	100		05JAN09A								
Geotechnic	al Instrumetation at WSD Tunnel															
	ment to Install G.I. Works															
3AL1FTMS02	Prepare method statement	69	69	12MAR09A	26MAR09A	100	12MAR09A	26MAR09A								
3AL1FTMS04		30		29MAY09A			29MAY09A									
3AL1FTMS06	Method statement endorsement by SOR	60		30JUN09A				24NOV09A								
3AL1FTMS14	Method statement endorsement by WSD	24	24		11AUG10A		16JUL10A	11AUG10A								
Air Sampling	& Pre-construction Condition Survey															
3AL1WT3A02	Prepare method statement for air sampling	12	12	02NOV09A	14NOV09A	100	02NOV09A	14NOV09A								
3AL1WT3A04	Submit method statement for air sampling	1	1		16NOV09A		16NOV09A	16NOV09A								
3AL1WT3A06	Approval of method statement for air sampling	29	29	17NOV09A			17NOV09A	19DEC09A								
3AL1WT3A08	WSD Tunnel Shutdown for Air Sample/Cond'n Survey	2	2		22DEC09A		15DEC09A	22DEC09A								
	1 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1									1/1/1/1/					

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total	2012 A S O	NDI	F M A N	2013	O N D J F 77 78 79 80 81	20 M A M J	1 4 5 0	N D .	2015 J F M A
3AL1WT3A10	Carry out air sampling & condition survey	9		21DEC09A	22DEC09A	•		22DEC09A	1 lout	03 64 65	06 67 68	9/10/11/1	2 13 14 15 16	77 78 79 80 81	82 83 84 85	36 87 88 89	90 91 92	2 93 94 9
	Commence for 2nd intervantion of WSD Tunnel	1	1		25FEB10A			25FEB10A										
	Carry out air sampling & condition survey	8	8	27FEB10A				02MAR10A										
	rks at Ting Kau Air Valve House															+++		
	Arrange WSD to open the valve house	1	1	30JUL10A	30JUL10A	100 30	0JUL10A	30JUL10A										
	Set up exhaust fans & arrange temp. electricity	3	3	03AUG10A				03AUG10A										
	Remove the air vent pipe (DN250)	2	2	14AUG10A	14AUG10A	100 14	4AUG10A	14AUG10A								+++		
3AL1WT3B42	Remove connection flange (DN900)	1	1	14AUG10A	14AUG10A	100 14	4AUG10A	14AUG10A										
3AL1WT3B52	Connect exhaust fan to valve shaft	5	5	17AUG10A	17AUG10A	100 1	7AUG10A	17AUG10A										
Preparation Wo	rks at Chai Wan Kok Shaft																	
	Install electricity take off, switch board &	5	5	12AUG10A	12AUG10A	100 12	2AUG10A	12AUG10A										
	Install toilet and shower	3	3		12AUG10A			12AUG10A										
3AL1FTCT32	Set up generatior and two water pumps	2	2	12AUG10A	12AUG10A	100 12	2AUG10A	12AUG10A										
	WSD Tunnel Shut Down Period	112*	112*	12AUG10A	23DEC10A	100 12	2AUG10A	23DEC10A										
3AL1FTCW18	WSD Tunnel #3 commences shut down	1	1		12AUG10A			12AUG10A										
3AL1FTCW22	Plug DN1200 pipe at the face near valve house	1	1	23AUG10A	23AUG10A	100 23	3AUG10A	23AUG10A										
Works in Aqued																		
	Install instruments	26	26	26AUG10A	03SEP10A	100 20	6AUG10A	03SEP10A										
3AL1FTAD06	Inspection	2	2	27SEP10A	27SEP10A	100 2	7SEP10A	27SEP10A										
3AL1FTAD08	TBM crossing affected 210m section	16	16	30NOV10A	16DEC10A	100 30	0NOV10A	16DEC10A										
	De-install instruments	3	3	17DEC10A	19DEC10A	100 1	7DEC10A	19DEC10A										
Demobilisation																		
3AL1FTAE04	Remove dewatering system	1	1	20DEC10A	22DEC10A	100 20	0DEC10A	22DEC10A										
	Remove the plug at Chai Wan Kok	1	1	20DEC10A	20DEC10A	100 20	0DEC10A	20DEC10A										
	Reinstate vent pipe Y falange at T.K.	1	1	21DEC10A	21DEC10A	100 2	1DEC10A	21DEC10A										
3AL1FTAE34	Remove ventilation fan	1	1	23DEC10A	23DEC10A	100 23	3DEC10A	23DEC10A										
Reinstatement V	Works																	
3AL1FTRS02	Reinstate opening at Chai Wan Kok	1	1	22DEC10A	22DEC10A	100 2	2DEC10A	22DEC10A										
3AL1FTRS04	WSD Tunnel #3 re-operates	1	1	23DEC10A	23DEC10A	100 23	3DEC10A	23DEC10A										
TBM Assemb	ly & Initial Driving; Day Time Work																	
	Test & Commiss. at Outfall																	
	Mobilization & setup 300 ton crane	1	1	22FEB10A	22FEB10A	100 2	2FEB10A	22FEB10A										
	Bottom fornt shield	1	1		22FEB10A			22FEB10A								+++		
	Outer telescopic shield bottom	1	1		13MAR10A			13MAR10A								++++		
	Main bearing	2	2		23FEB10A			23FEB10A										
	Side shield balance (2 pieces)	2	2		24FEB10A		3FEB10A											
	Bottom gripper shield	1	1	22FEB10A			2FEB10A									+++		
	Inner telescopic shield	1	1		09MAR10A			09MAR10A								+++	+	
	Main thrust rams	2	2		02MAR10A			02MAR10A										
	Side gripper shield balance (2 pieces)	2	2		25FEB10A		3FEB10A											
	Cutterhead centre	2	2		04MAR10A			04MAR10A										
	Electric motors for maindrive	3	3		02MAR10A			02MAR10A										
	Cutterhead balance (4 pieces)	3	3	03MAR10A	12MAR10A			12MAR10A										

ID	Activity Description		WP09	WP10	WP10 Finish	% WP09 Comp Start	WP09 Finish	Total	2012 A S O N D	J F M A	2013 M J J A S C	D N D J F M A	2014 M J J A S O I	ND LE	015 M A
3AL1FT0629	Gripper cylinders	Dur 2	Dur	Start 23FEB10A	27FEB10A	Comp Start 100 23FEB10A	27FEB10A	Float	63 64 65 66 67	68 69 70 71	72 73 74 75 76 7	7 78 79 80 81 82 83	84 85 86 87 88 89 9	0 91 92 93	94 95
3AL1FT0631	Tail shield	2	2	22FEB10A	23FEB10A	100 23FEB10A	23FEB10A								
3AL1FT0633	Erector	1	1	22FEB10A	02MAR10A	100 22FEB10A	02MAR10A								
3AL1FT0635	TBM conveyor	2	2	25FEB10A	15MAR10A	100 25FEB10A	15MAR10A								
3AL1FT0637	Probe drill	1	1	26FEB10A	08MAR10A	100 26FEB10A	08MAR10A								
3AL1FT0649	Connect hydraulic & electric for main shield	6	6	27FEB10A	10APR10A	100 23FEB10A	10APR10A								
3AL1FT0651	Back-up #1	2	2			100 277 EB1070	27MAR10A								
3AL1FT0653	TBM launch to excavation face (30m)	3	3			100 06MAR10A	12APR10A								
3AL1FT0655	Backup # 2	2	2	12MAR10A		100 12MAR10A									++
3AL1FT0657	Backup # 4; put aside & connect	2	2	20MAR10A	13APR10A	100 20MAR10A	13APR10A								++
3AL1FT0659	Backup # 5; put aside & connect	3	3	20MAR10A		100 20MAR10A	14APR10A								
3AL1FT0661	Backup # 6; put aside & connect	3	3	23MAR10A	15APR10A	100 23MAR10A	15APR10A								
3AL1FT0663	Backup # 3	2	2	23MAR10A	10APR10A	100 23MAR10A	10APR10A								++
3AL1FT0665	Complete balance electric & hydraulic/test 1	6	6			100 07APR10A	24APR10A								++
3AL1FT0669	TBM advances 36m into tunnel (Ch. 5084 to 5048)	12	12		02JUN10A	100 27APR10A	02JUN10A								++
3AL1FT0671	Install Backup # 4	2	2	19MAY10A		100 27/1 1(16/1	22MAY10A								++
3AL1FT0673	Install Bakcup # 5	2	2	24MAY10A		100 24MAY10A	25MAY10A								
3AL1FT0675	Install Backup # 6	3	3	26MAY10A		100 24MAY10A	28MAY10A								
3AL1FT0677	Backup #7	2	2			100 25WAT 10A	08JUN10A								+
3AL1FT0679	Backup #8	2	2		08JUN10A	100 08JUN10A	08JUN10A								
3AL1FT0681	Backup #9	2	2	14JUN10A	17JUN10A	100 0000N10A	17JUN10A								
3AL1FT0683	Backup #10	2	2	14JUN10A	17JUN10A	100 143UN10A	17JUN10A								
3AL1FT0685	Backup #11	2	2	25JUN10A		100 1430N10A	26JUN10A								
3AL1FT0687	Backup #11	2	2	26JUN10A		100 2530N10A	28JUN10A								
3AL1FT0689	Complete balance electric & hydraulic/ test 2	3	3	27AUG10A		100 2000N10A									
		J	3	ZIAUGIUA	ZIAUGIUA	100 27 A O G 10 A	ZIAUGIUA								
3AL1FT0708	racing; Day Time Work	42	42	03JUN10A	23JUL10A	100 03JUN10A	23JUL10A	I							
3AL1FT0708 3AL1FT0720	TBM advances; CH5048-4957	42	42 35	24JUL10A		100 03JUNT0A 100 24JUL10A	02SEP10A								
	TBM stop to install rem. items	35	35	24JUL IUA	025EP 10A	100 24JUL 10A	025EP10A								-
	Works; Day & Night Work														
	g upto Crossing WSD Tunnel # 3														
3AL1FT0816	TBM advances; CH4957-4460 (to WSD Tunnel # 3)	72	72	03SEP10A	29NOV10A	100 03SEP10A	29NOV10A								
3AL1FT0818	TBM crossing WSD Tunnel # 3; CH4460- 4250	15	15	30NOV10A	16DEC10A	100 30NOV10A	16DEC10A								
TBM Advancin	g upto Breakthrough														
3AL1FT0819	TBM advances; P6 CH4250-4220	3	3	20DEC10A	22DEC10A	100 20DEC10A	22DEC10A								
3AL1FT0820	TBM advances; CH4220-3940	23	23	22DEC10A	20JAN11A	100 22DEC10A	20JAN11A								
3AL1FT0821	TBM advances; CH3940-3560	25	25	20JAN11A	21FEB11A	100 20JAN11A	21FEB11A								
3AL1FT0822	TBM advances CH3560-2970	48	48	21FEB11A	18APR11A	100 21FEB11A	18APR11A								
3AL1FT0823	TBM advances; WSD T.W.S. R. G. CH2970-2860	8	8	18APR11A	29APR11A	100 18APR11A	29APR11A								
3AL1FT0824	TBM advances; CH2860-1827	64	64	29APR11A	15JUL11A	100 29APR11A	15JUL11A								
3AL1FT0825	TBM advances; CH1827-1564	16	16	15JUL11A	02AUG11A	100 15JUL11A	02AUG11A								
3AL1FT0826	TBM advances; CH1564-1449	7	7	02AUG11A	11AUG11A	100 02AUG11A	11AUG11A								
3AL1FT0827	TBM advances; CH1449-1295 (Intake I-2)	13	13	11AUG11A	24AUG11A	100 11AUG11A	24AUG11A								
3AL1FT0828	TBM advances; CH1295-955	19	19	24AUG11A	20SEP11A	100 24AUG11A	20SEP11A								

ID	Activity		WP09	WP10	WP10	%	WP09	WP09	Total	2012 A S O N D J	F M	2013 2014 2015 A M J J A S O N D J F M A M J J A S O N D J F M A 11 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
M 0.44 4570000	Description	Dur	Dur	Start	Finish	Comp		Finish	Float 6	3 64 65 66 67 68	69 70 7	71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
3AL1FT0829	TBM advances; CH955-250	36	36		16NOV11A		20SEP11A	16NOV11A				
3AL1FT0831	TBM advances; Faoult F1 CH250-150	10	10					21NOV11A				
3AL1FT0832	TBM advances; Fault F1 CH150-0	82		21NOV11A				28FEB12				
3AL1FT0890	Remov framework/demobilization of TBM& BU	47*	48*	29FEB12A			29FEB12	30APR12				
3AL1FT0891	Removal of TBM services from tunnel	24		02MAR12A			02MAR12	29MAR12				
3AL1FT0892	Back grouting; CH5100-00	562		20APR10A	30APR12A		20APR10A	29MAY12				
3AL1FT0893	Secondary grouting	231	231	26AUG11A	26OCT12		26AUG11A	16AUG12	-324			
3AL1FT0894	Segment bolt pocket filling/repair segment crack	200	200	16APR12A	15DEC12		02APR12	01DEC12	-324			
3AL1FT0895	Install kerb for dry weathe channel	60	60	06OCT12	15DEC12		21SEP12	01DEC12	-324		4/1/4	II Chainage Marker Plates
3AL1FT0896	Install anchorages for radio comm. system	42	60	04OCT12	22NOV12		21SEP12	01DEC12	-322	nclu	de for	I-1 & O-1
3AL1FT0897	Lay cable for radio comm. system	18	0	05DEC12	27DEC12	0			-332			
3AL1FT0898	Testing & Commissioning	28	28	01MAR14	28MAR14		10FEB13	09MAR13	-836			
3AL1FT0904	Handover of Portion F	0	0		28MAR14	0		09MAR13	-677			
Schedule of	Milestones for Cost Centre No. 6aR											
6AR1FT0902	6aR 1; On completion of grouting at P7	0	0		20JUL10A	100		20JUL10A				
6AR1FT0904	6aR 2; On completion of grouting at F6c	0	0		30SEP10A	100		30SEP10A				
6AR1FT0906	6aR 3; On completion of grouting at F6b	0	0		09OCT10A	100		09OCT10A				
6AR1FT0908	6aR 4; On completion of grouting at F6a	0	0		24NOV10A	100		24NOV10A				
6AR1FT0910	6aR 5; On completion of grouting at WSD T. 3	0	0		14DEC10A	100		14DEC10A				
6AR1FT0912	6aR 6; On completion of 20% grout by Ith at P6	0	0		20DEC10A	100		20DEC10A				
6AR1FT0914	6aR 7; On completion of 40% grout by Ith at P6	0	0		20DEC10A	100		20DEC10A				
6AR1FT0916	6aR 8; On completion of 60% grout by Ith at P6	0	0		21DEC10A	100		21DEC10A				
6AR1FT0918	6aR 9; On completion of 80% grout by Ith at P6	0	0		21DEC10A	100		21DEC10A				
6AR1FT0920	6aR 10; On completion of grouting works at P6	0	0		22DEC10A	100		22DEC10A				
6AR1FT0922	6aR 11; On completion of grouting wks at P5	0	0		29JAN11A	100		29JAN11A				
6AR1FT0924	6aR 12; On completion of grouting wks at P4	0	0		21FEB11A	100		21FEB11A				
6AR1FT0926	6aR 13; On completion of grouting wks at P3	0	0		04APR11A	100		04APR11A				
6AR1FT0928	6aR 14; On completion of grouting wks at WSD's	0	0		29APR11A	100		29APR11A				
6AR1FT0930	6aR 15; On completion of grouting wks at F5	0	0		11MAY11A	100		11MAY11A				
6AR1FT0932	6aR 16; On completion of grouting wks at F4	0	0		20MAY11A	100		20MAY11A				
6AR1FT0934	6aR 17; On completion of grouting wks at F3	0	0		13JUN11A	100		13JUN11A				
6AR1FT0936	6aR 18; On completion of grouting wks at F2	0	0		29AUG11A	100		29AUG11A				
6AR1FT0938	6aR 19; On completion of grouting wks at P2	0	0		04OCT11A	100		04OCT11A				
6AR1FT0940	6aR 20; On completion of grouting wks at P1	0	0		24OCT11A	100		240CT11A				
6AR1FT0942	6aR 21; On completion of 10% grout by lth at F1	0	0		21NOV11A	100		21NOV11A				
6AR1FT0944	6aR 22; On completion of 20% grout by lth at F1	0	0		22NOV11A	100		22NOV11A				
6AR1FT0946	6aR 23; On completion of 30% grout by lth at F1	0	0		22NOV11A	100		22NOV11A				
6AR1FT0948	6aR 24; On completion of 40% grout by lth at F1	0	0		23NOV11A	100		23NOV11A				
6AR1FT0950	6aR 25; On completion of 50% grout by Ith at F1	0	0		24NOV11A	100		24NOV11A				
6AR1FT0952	6aR 26; On completion of 60% grout by lth at F1	0	0		10JAN12A	100		10JAN12A				
6AR1FT0954	6aR 27; On completion of 70% grout by Ith at F1	0	0		30JAN12A	100		30JAN12A				
6AR1FT0956	6aR 28; On completion of 80% grout by lth at F1	0	0		14FEB12A	100		14FEB12A				

ID	Activity	WP10	WP09	WP10	WP10	%	WP09 WP09	Total	2012 4 S O N D J E M A	2013 2014 : : : : : : : : : : : : : : : : : : :
	Description	Dur	Dur	Start	Finish	Comp	Start Finish	Float 6	3 64 65 66 67 68 69 70 71	M J J A S O N D J F M A M J J A S O N D J 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92
6AR1FT0958	6aR 29; On completion of 90% grout by Ith at F1	0	0		16FEB12A	100	16FEB12A			
6AR1FT0960	6aR 30; On completion of grouting works at F1	0	0		20FEB12A	100	20FEB12A			
6AR1FT0970	6aR 31; On completion of all works under this CC	0	0		28FEB12A	100	06MAR12			
Schedule of	f Milestones for Cost Centre No. 3aL									
3AL1FT1002	3aL 1; On providing evidence of procuring TBM	0	0		19JAN08A	100	19JAN08A			
BAL1FT1004	3aL 2; On providing evidence of TBM Factory Test	0	0		08OCT08A	100	08OCT08A			
3AL1FT1006	3aL 3; On delivery of all parts of TBM to the Si	0	0		12AUG09A	100	12AUG09A			
3AL1FT1008	3aL 4; On completion of site comm. & test. of TB	0	0		27SEP10A	100	27SEP10A			
BAL1FT1010	3aL 5; On completion of 5% perm. tunnel lining	0	0		02OCT10A	100	02OCT10A			
3AL1FT1012	3aL 6; On completion of 10% perm. tunnel lining	0	0		03NOV10A	100	03NOV10A			
3AL1FT1014	3aL 7; On completion of 15% perm. tunnel lining	0	0		26NOV10A	100	26NOV10A			
3AL1FT1016	3aL 8; On completion of 20% perm. tunnel lining	0	0		08JAN11A	100	08JAN11A			
3AL1FT1018	3aL 9; On completion of 25% perm. tunnel lining	0	0		27JAN11A	100	27JAN11A			
3AL1FT1020	3aL 10; On completion of 30% perm. tunnel lining	0	0		21FEB11A	100	21FEB11A			
3AL1FT1022	3aL 11; On completion of 35% perm. tunnel lining	0	0		12MAR11A	100	12MAR11A			
3AL1FT1024	3aL 12; On completion of 40% perm. tunnel lining	0	0		11APR11A	100	11APR11A			
3AL1FT1026	3aL 13; On completion of 45% perm. tunnel lining	0	0		05MAY11A	100	05MAY11A			
BAL1FT1028	3aL 14; On completion of 50% perm. tunnel lining	0	0		23MAY11A	100	23MAY11A			
BAL1FT1030	3aL 15; On completion of 55% perm. tunnel lining	0	0		08JUN11A	100	08JUN11A			
3AL1FT1032	3aL 16; On completion of 60% perm. tunnel lining	0	0		27JUN11A	100	27JUN11A			
3AL1FT1034	3aL 17; On completion of 65% perm. tunnel lining	0	0		11JUL11A	100	11JUL11A			
3AL1FT1036	3aL 18; On completion of 70% perm. tunnel lining	0	0		08AUG11A	100	08AUG11A			
BAL1FT1038	3aL 19; On completion of 75% perm. tunnel lining	0	0		25AUG11A	100	25AUG11A			
BAL1FT1040	3aL 20; On completion of 80% perm. tunnel lining	0	0		16SEP11A	100	16SEP11A			
3AL1FT1042	3aL 21; On completion of 85% perm. tunnel lining	0	0		05OCT11A	100	05OCT11A			
BAL1FT1044	3aL 22; On completion of 90% perm. tunnel lining	0	0		270CT11A	100	27OCT11A			
BAL1FT1046	3aL 23; On completion of 95% perm. tunnel lining	0	0		16NOV11A	100	16NOV11A			
BAL1FT1048	3aL 24; On completion of perm. tunnel lining	0	0		08MAR12A		06MAR12			
3AL1FT1050	3aL 25; On completion of maint. access/flow chan	0	0		15DEC12	0	01DEC12	819	dry weathe	er flow channe
3AL1FT1052	3aL 26; On completion of provision of communic.	0	0		22NOV12	0	01DEC12	842		
3AL1FT1054	3aL 27; On completion of all works under this CC	0	0		28MAR14	0	09MAR13	351	<b>1</b>	within this cost centre
	f Milestones for Cost Centre No. 3dL									
3DL10T1202	3dL 1; On complet. of install geo instrrument.	0	0		27MAY11A	100	27MAY11A			
3DL10T1204	3dL 2; Maint./monit. geo. inst. for 12 mth	0	0		27DEC08A	100	27DEC08A			
3DL10T1206	3dL 3; Maint./monitor geo. inst. for 24	0	0		26DEC09A		26DEC09A			
3DL10T1208	3dL 4; Maint./monitor geo. inst. for 36	0	0		27DEC10A		27DEC10A			
3DL10T1210	3dL 5; Maint./monitor geo. inst. for 48	0	0		26DEC11A		26DEC11A			
3DL10T1212	3dL 6; On completion of maint. & monit. of geo.	0	0		17OCT13	0	06AUG13	513		<ul> <li>monitoring for installed instruments</li> </ul>
3DL10T1224	3dL 12; On completion of all works under this CC	0	0		17OCT13	0	06AUG13	513		◆ under this Cost Centre

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total	201 A S O	ND	I F M A	201 A M J	ΙΔΙ	0 N [	JFN	Λ Δ Μ	2014 J J A	S O N	ППП	2015 F M A
Construction	on of Intake I-1	Dui	Dui	Start	FilliSil	Comp	Start	FIIIISII	Float	63 64 65	6 66 67 6	8 69 70 7	1 72 73	74   75   76	77 78 7	9   80   81   8	2 83 84 8	5   86   87	88 89 90	0 91 92	93 94 9
Preliminary																					
	perant Hoarding at I-1																				
VO007-02	Receive VO7 for transparent hoarding	0	0		19MAY08A	100		19MAY08A													
VO007-04	Procure/prepare/install transparent hoarding	70			11AUG08A		20MAY08A														
V 3007 04	1 room of preparofitation transparone room unity	10	10	2017// (100/(	1171000071	100	2011/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1/1	1171000071													+
01R1AI1102	Possession of site	0	0	19MAR08A		100	19MAR08A														
01R1AI1104	Obtain TTA (ingress & egress) approval	0	0	19APR08A			19APR08A									XXX					
01R1AI1106	Site clearance	30	30		26MAY08A			26MAY08A								XXX					
01R1AI1108	Obtain tree	6	6	13MAY08A	31JUL08A			31JUL08A								XXX					
01R1AI1110	Hoarding erection enclosing the Site	18	18		11AUG08A			11AUG08A								X////					
01R1AI1112	Site entrance construction	6	6	23JUN08A	25JUL08A			25JUL08A								XXX					
01R1AI1114	Install wheel wahing facilities	7	7	03JUN08A	07JUN08A			07JUN08A								X////					
01R1AI1116	Erect SOR's secondary site office	6	6	28AUG08A	03SEP08A			03SEP08A								XXX					
01R1AI1118	Footing for temp. bridge span over Shing M. Nul.	26	26		16JUL08A		10JUN08A	16JUL08A								X////					
01R1AI1120	Decking for temp. bridge span over Shing M. Nul.	13	13		01AUG08A			01AUG08A								X////					
01R1AI1122	Install remote control CCTV as per ER 4.4.10	12	12		18SEP08A		04SEP08A	18SEP08A								X////					
16R1AI1101	Tree Identification & Report	14	14	14MAR08A	01APR08A			01APR08A								X////					
16R7AI1102	1st tree pruning for small 3 nos. trees	1	1	03JUN08A	03JUN08A			03JUN08A								XXX					
16R7AI1104	2nd tree pruning for small 3 nos. trees	1	1	04JUL08A	04JUL08A			04JUL08A								XXX					
16R7AI1106	Final pruning & uplifting of 3 nos. small trees	2	2	08SEP08A	09SEP08A			09SEP08A								XXX					
16R7AI1108	Confirm location for trees to be transplanted	51	51		27AUG08A			27AUG08A								X////					
16R7AI1114	One stg transplant for big 4 nos. big trees	9	9		19FEB09A			19FEB09A								X////					
Lance Control	Soil Nailing Works																				
remanent	Son Naming Works																				
11R2AI1302	Erect working platform 9 mobilization	8		17MAY08A	24MAY08A	100	17MAY08A	24144 V094													
11R2AI1302 11R2AI1304	Erect working platform & mobilization  Install test nails & proof loading test; 2 nos.	8	8		08JUL08A			08JUL08A													
11R2AI1304 11R2AI1306	Soil nailing for A to C rows; 69 nos.		16		14JUL08A		02JUL08A	14JUL08A									4				
11R2AI1308		16 29	29		05SEP08A			05SEP08A									4				
11R2AI1308 11R2AI1310	Soil nailing for D to F rows; 71 nos.  Constrcut soil nail heads: 140 nos.	29	29	19JUL08A	06SEP08A			06SEP08A													
11R2AI1310 11R2AI1312	Demobilization	3	3	08SEP08A	10SEP08A			10SEP08A													
L.		3	3	UUSEFUUA	103EF06A	100	UUSEFUUA	IUSEFUOA													_
	n of Spiral Ramp & Cascade																				
	Woks to Fnalize Design																				
AGIA-02	Drill for 5 nos. additional GI works	21	21	09SEP08A	04OCT08A	100	09SEP08A	04OCT08A									4				
Temp. Pipe-pi	1																				
04L1AI1202	Erect piling platform	43	43	22OCT08A			22OCT08A														Ш
04L1AI1203	Mobilization & set up piling rig	3	3	30OCT08A				01NOV08A													Ш
04L1AI1204	Install 273 mm dia. temp. pipe piles; 144 nos.	43	43				A80VON80														Ш
04L1AI1226	Demobilize all plant and materials	6	6	06JAN09A	13JAN09A	100	06JAN09A	13JAN09A													
Excavate +104	I.0 to +100.5mPD; Row 7															XXX.					
04L1AI1402	Mobilization	1	1	23FEB09A	23FEB09A	100	23FEB09A	23FEB09A								<i>XXX</i>					
04L1AI1404	Bulk excavation; soil (155m3)	4	4	24FEB09A	27FEB09A	100	24FEB09A	27FEB09A								XXX					

04L1AI1408 Insta  Excavate +100.5 to 04L1AI1410 Bulk 04L1AI1412 Insta  Excavate +99.0 to + 04L1AI1414 Bulk 04L1AI1416 Insta 04L1AI1418 Insta  Excavate +96.5 to + 04L1AI1420 Bulk 04L1AI1422 Insta  Excavate +95.0 to + 04L1AI1424 Bulk 04L1AI1426 Insta  Excavate +95.0 to + 04L1AI1426 Insta	Description  all test tie-back & proof load test  all tie backs/wailing & shortcrete  +99.0mPD; Rows 1 & 8  « excavation; soil (219m3)  all tie backs/wailing & shorcrete  +96.5mPD; Rows 2, 9 & 18  « excavation; soil (710m3)  all test tie-back & proof load test  all tie backs/wailing & shortcrete  +95.0mPD; Rows 3, 10 & 19  « excavation; soil (721m3)  all tie backs/wailing & shortcrete  +94.0 mPD; Rows 4, 11 & 20  « excavation; soil (701m3)  all tie backs/wailing & shorcrete	2 6 3 4 6	3 4 6	07MAR09A 10MAR09A 17MAR09A 26MAR09A 23MAR09A 30MAR09A	28MAR09A	. 100 . 100 . 100	07MAR09A 10MAR09A 17MAR09A 26MAR09A	9MAR09A 09MAR09A 09MAR09A 16MAR09A 19MAR09A 01APR09A	Float 63	64 65 66 6	7 68 69 70 7	A M J J A S O N D J F M A M J J A S O N D J F M A 11 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 8
04L1AI1408 Insta  Excavate +100.5 to 04L1AI1410 Bulk 04L1AI1412 Insta  Excavate +99.0 to + 04L1AI1414 Bulk 04L1AI1416 Insta 04L1AI1418 Insta  Excavate +96.5 to + 04L1AI1420 Bulk 04L1AI1422 Insta  Excavate +95.0 to + 04L1AI1424 Bulk 04L1AI1426 Insta  Excavate +95.0 to + 04L1AI1426 Insta	all tie backs/wailing & shortcrete  +99.0mPD; Rows 1 & 8  k excavation; soil (219m3)  all tie backs/wailing & shorcrete  +96.5mPD; Rows 2, 9 & 18  k excavation; soil (710m3)  all test tie-back & proof load test  all tie backs/wailing & shortcrete  +95.0mPD; Rows 3, 10 & 19  k excavation; soil (721m3)  all tie backs/wailing & shortcrete  +94.0 mPD; Rows 4, 11 & 20  k excavation; soil (701m3)  all tie backs/wailing & shorcrete	3 4 6	3 4 6	03MAR09A 07MAR09A 10MAR09A 17MAR09A 26MAR09A 23MAR09A	09MAR09A 16MAR09A 19MAR09A 01APR09A 28MAR09A	. 100 . 100 . 100	03MAR09A 07MAR09A 10MAR09A 17MAR09A 26MAR09A	06MAR09A 09MAR09A 16MAR09A				
Excavate +100.5 to  04L1Al1410 Bulk  04L1Al1412 Insta  Excavate +99.0 to +  04L1Al1414 Bulk  04L1Al1416 Insta  04L1Al1418 Insta  Excavate +96.5 to +  04L1Al1420 Bulk  04L1Al1422 Insta  Excavate +95.0 to +  04L1Al1424 Bulk  04L1Al1424 Bulk  04L1Al1426 Insta	+99.0mPD; Rows 1 & 8  (a excavation; soil (219m3)  all tie backs/wailing & shorcrete  +96.5mPD; Rows 2, 9 & 18  (a excavation; soil (710m3)  all test tie-back & proof load test  all tie backs/wailing & shortcrete  +95.0mPD; Rows 3, 10 & 19  (a excavation; soil (721m3)  all tie backs/wailing & shortcrete  +94.0 mPD; Rows 4, 11 & 20  (a excavation; soil (701m3)  all tie backs/wailing & shorcrete	2 6 3 4 6	3 4 6	07MAR09A 10MAR09A 17MAR09A 26MAR09A 23MAR09A 30MAR09A	09MAR09A 16MAR09A 19MAR09A 01APR09A 28MAR09A	100	07MAR09A 10MAR09A 17MAR09A 26MAR09A	09MAR09A 16MAR09A 19MAR09A				
04L1AI1410 Bulk 04L1AI1412 Insta  Excavate +99.0 to + 04L1AI1414 Bulk 04L1AI1416 Insta 04L1AI1418 Insta  Excavate +96.5 to + 04L1AI1420 Bulk 04L1AI1422 Insta  Excavate +95.0 to + 04L1AI1424 Bulk 04L1AI1424 Bulk 04L1AI1426 Insta  Excavate +94.0 to +	c excavation; soil (219m3)  all tie backs/wailing & shorcrete  196.5mPD; Rows 2, 9 & 18  c excavation; soil (710m3)  all test tie-back & proof load test  all tie backs/wailing & shortcrete  195.0mPD; Rows 3, 10 & 19  c excavation; soil (721m3)  all tie backs/wailing & shortcrete  194.0 mPD; Rows 4, 11 & 20  c excavation; soil (701m3)  all tie backs/wailing & shorcrete	3 4 6	3 4 6	10MAR09A 17MAR09A 26MAR09A 23MAR09A 30MAR09A	16MAR09A 19MAR09A 01APR09A 28MAR09A	100	10MAR09A 17MAR09A 26MAR09A	16MAR09A 19MAR09A				
04L1Al1412 Insta  Excavate +99.0 to +  04L1Al1414 Bulk  04L1Al1416 Insta  04L1Al1418 Insta  Excavate +96.5 to +  04L1Al1420 Bulk  04L1Al1422 Insta  Excavate +95.0 to +  04L1Al1424 Bulk  04L1Al1426 Insta  Excavate +94.0 to +	all tie backs/wailing & shorcrete  296.5mPD; Rows 2, 9 & 18  (x excavation; soil (710m3)  all test tie-back & proof load test  all tie backs/wailing & shortcrete  295.0mPD; Rows3, 10 & 19  (x excavation; soil (721m3)  all tie backs/wailing & shortcrete  294.0 mPD; Rows 4, 11 & 20  (x excavation; soil (701m3)  all tie backs/wailing & shorcrete	3 4 6	3 4 6	10MAR09A 17MAR09A 26MAR09A 23MAR09A 30MAR09A	16MAR09A 19MAR09A 01APR09A 28MAR09A	100	10MAR09A 17MAR09A 26MAR09A	16MAR09A 19MAR09A				
Excavate +99.0 to + 04L1Al1414 Bulk 04L1Al1416 Insta 04L1Al1418 Insta Excavate +96.5 to + 04L1Al1420 Bulk 04L1Al1422 Insta Excavate +95.0 to + 04L1Al1424 Bulk 04L1Al1424 Insta Excavate +94.0 to +	r96.5mPD; Rows 2, 9 & 18 c excavation; soil (710m3) all test tie-back & proof load test all tie backs/wailing & shortcrete r95.0mPD; Rows3, 10 & 19 c excavation; soil (721m3) all tie backs/wailing & shortcrete r94.0 mPD; Rows 4, 11 & 20 c excavation; soil (701m3) all tie backs/wailing & shorcrete	3 4 6	3 4 6	17MAR09A 26MAR09A 23MAR09A 30MAR09A	19MAR09A 01APR09A 28MAR09A	100	17MAR09A 26MAR09A	19MAR09A				
04L1AI1414 Bulk 04L1AI1416 Insta 04L1AI1418 Insta  Excavate +96.5 to + 04L1AI1420 Bulk 04L1AI1422 Insta  Excavate +95.0 to + 04L1AI1424 Bulk 04L1AI1424 Insta  Excavate +94.0 to +	c excavation; soil (710m3)  all test tie-back & proof load test all tie backs/wailing & shortcrete  P95.0mPD; Rows3, 10 & 19 c excavation; soil (721m3)  all tie backs/wailing & shortcrete  P94.0 mPD; Rows 4, 11 & 20 c excavation; soil (701m3)  all tie backs/wailing & shorcrete	4 6 3 4	6	26MAR09A 23MAR09A 30MAR09A	01APR09A 28MAR09A	100	26MAR09A					
04L1Al1416 Insta 04L1Al1418 Insta  Excavate +96.5 to + 04L1Al1420 Bulk 04L1Al1422 Insta  Excavate +95.0 to + 04L1Al1424 Bulk 04L1Al1426 Insta  Excavate +94.0 to +	all test tie-back & proof load test all tie backs/wailing & shortcrete  P95.0mPD; Rows3, 10 & 19  « excavation; soil (721m3) all tie backs/wailing & shortcrete  P94.0 mPD; Rows 4, 11 & 20  « excavation; soil (701m3) all tie backs/wailing & shorcrete	4 6 3 4	6	26MAR09A 23MAR09A 30MAR09A	01APR09A 28MAR09A	100	26MAR09A					
04L1AI1418 Insta  Excavate +96.5 to +  04L1AI1420 Bulk  04L1AI1422 Insta  Excavate +95.0 to +  04L1AI1424 Bulk  04L1AI1426 Insta  Excavate +94.0 to +	all tie backs/wailing & shortcrete  195.0mPD; Rows3, 10 & 19  x excavation; soil (721m3)  all tie backs/wailing & shortcrete  194.0 mPD; Rows 4, 11 & 20  x excavation; soil (701m3)  all tie backs/wailing & shorcrete	3 4		23MAR09A 30MAR09A	28MAR09A			01APR09A				
Excavate +96.5 to + 04L1Al1420 Bulk 04L1Al1422 Insta Excavate +95.0 to + 04L1Al1424 Bulk 04L1Al1426 Insta Excavate +94.0 to +	r95.0mPD; Rows3, 10 & 19  ( excavation; soil (721m3)  all tie backs/wailing & shortcrete  r94.0 mPD; Rows 4, 11 & 20  ( excavation; soil (701m3)  all tie backs/wailing & shorcrete	3 4		30MAR09A		100	23MAR09A					
04L1AI1420 Bulk 04L1AI1422 Insta  Excavate +95.0 to + 04L1AI1424 Bulk 04L1AI1426 Insta  Excavate +94.0 to +	c excavation; soil (721m3) all tie backs/wailing & shortcrete  194.0 mPD; Rows 4, 11 & 20 c excavation; soil (701m3) all tie backs/wailing & shorcrete	4	3 4					28MAR09A				
04L1Al1422 Insta Excavate +95.0 to + 04L1Al1424 Bulk 04L1Al1426 Insta Excavate +94.0 to +	all tie backs/wailing & shortcrete  194.0 mPD; Rows 4, 11 & 20  1 excavation; soil (701m3)  1 all tie backs/wailing & shorcrete	4	3 4									
Excavate +95.0 to +  04L1Al1424 Bulk  04L1Al1426 Insta  Excavate +94.0 to +	r94.0 mPD; Rows 4, 11 & 20 x excavation; soil (701m3) all tie backs/wailing & shorcrete		4	02400004	04APR09A	100	30MAR09A	04APR09A				
04L1AI1424 Bulk 04L1AI1426 Insta Excavate +94.0 to +	c excavation; soil (701m3) all tie backs/wailing & shorcrete	3		UZAPRUSA	20APR09A	100	02APR09A	20APR09A				
04L1Al1426 Insta Excavate +94.0 to +	all tie backs/wailing & shorcrete	3										
Excavate +94.0 to +			3	06APR09A	18APR09A	100	06APR09A	18APR09A				
		5	5	03APR09A	30APR09A	100	03APR09A	30APR09A				
	93.0mPD; Rows 5,12,16,21&24		'									
04L1AI1428 Bulk	excavation; soil (818m3)	4	4	20APR09A	27APR09A	100	20APR09A	27APR09A				
04L1AI1430 Insta	all test tie-back & proof load test	4	4	21APR09A	16MAY09A		21APR09A	16MAY09A				
	all tie backs/wailing & shorcrete	5	5	21APR09A	16MAY09A	100	21APR09A	16MAY09A				
Excavate +93.0 to +												
	excavation; soil (423m3) & rock (52m3)	3	3	04MAY09A	18MAY09A	100	04MAY09A	18MAY09A				
	all tie backs/wailing & shorcrete	2	2	19MAY09A			19MAY09A					
	01.1mPD; Rows 6,13,16,17&23	_										
	excavation; soil (1002m3) & rock (342m3)	8	8	06MAY09A	23MAY09A	100	06MAY09A	23MAY09A				
	all test tie-back & proof load test	4	4	08MAY09A				25MAY09A				
	all tie backs/wailing & shorcrete	4	4	18MAY09A			18MAY09A					
	89.5mPD; Rows 14, 17 & 25	, T	-	TOWATOSA	ZTWATOSA	100	TOWATOSA	ZTWATOSA				
	c excavation; soil (724m3) & rock (811m3)	12	12	18MAY09A	01 ILINI00A	100	18MAY09A	01 II INI00A				
		4	12	02JUN09A				05JUN09A				
	all tie backs/wailing & shorcrete	4	4	UZJUNUSA	OSJUNUSA	100	02301109A	USSUNUSA				
	88.5mPD; Rows 15 & 26			06JUN09A	16JUN09A	400	06JUN09A	16JUN09A				
	c excavation; soil (269m3) & rock (690m3)	9	9		19JUN09A							
	all tie backs/wailing & shorcrete	3	3	17JUN09A	IBJUNUBA	100	17JUN09A	19JUN09A				
	71.5mPD; Rows 27 to 31			00 11 12 100 1	00 11 15 100 1	460	00 11 11 100 1	00 11 11 100 1				
	up for dewatering	8	8	20JUN09A			20JUN09A					
	k excavation/mucking out/temp. support	168	168	30JUN09A	30JAN10A	100	30JUN09A	30JAN10A				
Ground Treatment f												
	ction of scaffolding platform	8	8				24JUN10A					
	oilization & setup of horizontal drilling rig	11	11		16JUL10A		05JUL10A	16JUL10A				
	& grout hoizontally	87	87	17JUL10A		_		01FEB11A				
	vater, dismantle & re-erection of platform	46	46	23JUL10A				02OCT10A				
07R1Al1G10 Repa	pair of drilling rig & re-setting up	45	45	23AUG10A	15OCT10A	100	23AUG10A	15OCT10A				

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total A	2012 S O N	D J F M A	2013 M J J A S O N D J F M A M 72 73 74 75 76 77 78 79 80 81 82 83 84	2014 2015 1 J J A S O N D J F M A
Strengthening	g of Portal for TBM Breakthrough				1 1 1111011			1 1 111011	1: ::::::::::::::::::::::::::::::::::::	04 03 00	07 00 09 70 7 1	72 73 74 73 70 77 76 79 60 61 62 63 6-	05 05 07 05 05 50 51 52 55 54 55
07R1AI1452	Form working platform	5	5	25FEB11A	05MAR11A	100	25FEB11A	05MAR11A	T				
07R1AI1462	Mobilization & setup plants	1	1	07MAR11A			07MAR11A	09MAR11A					
07R1AI1472	strengthening of portal	25	25	10MAR11A			10MAR11A	24MAY11A					
07R1AI1492	Demobilization/remove working platform	2	-	25MAY11A				27MAY11A					
Construcion	of Vehiucular Access												
04L1AI1452	Cast base slab	6	6	05MAR11A	16MAR11A	100	05MAR11A	16MAR11A	T				
04L1AI1456	Cast wall & roof slab	24	-	17MAR11A			17MAR11A						
Base for Spira						133							
07R1AI1402	Cast base slab	14	14	24FEB10A	11MAR10A	100	24FEB10A	11MAR10A					
	rom +73.56mPD to 76.65mPD	1		2 22 .0, 1		.00	2 11 22 10/1	111111111111111111111111111111111111111					
07R1AI1S02	Cast spiral ramp; pour 1	12	12	12MAR10A	08APR10A	100	12MAR10A	08APR10A					
	rom 76.65mPD to 80.95mPD	12	12	121017 (1 (10) (	00/11/11/0/1	100	121017 (1 ( 1 0 / 1	00/11/11/0/1					
07R1AI1S04	Cast spiral ramp; pour 2	20	20	09APR10A	03MAV10A	100	09APR10A	03MAY10A					
07R1AI1S04	Cast spiral ramp; pour 2  Cast spiral ramp; pour 3	13		26APR10A			26APR10A	11MAY10A					
07R1AI1S08	Cast spiral ramp; pour 3  Cast spiral ramp; pour 4	10	-	08MAY10A			08MAY10A	-					
		10	10	UOIVIAT TUA	19WAT TOA	100	UOIVIAT TUA	THINATIOA					
07R1AI1S10	rom +80.95 to +85.25mPD  Cast spiral ramp; pour 5	12	12	13MAY10A	27MAV40A	100	121111111	27MAY10A	T				
	Cast spiral ramp; pour 6	12		20MAY10A									
07R1AI1S12 07R1AI1S14	1 171	12					20MAY10A						
	Cast spiral ramp; pour 7	15	15	24MAY10A	U9JUNTUA	100	Z4IVIA I TUA	09JUN10A					
	rom 85.25mPD to 89.55mPD	40	10	0014114	45 11 15 14 0 4	100	0014114	45 11 15 14 0 4	1				
07R1AI1S16	Cast spiral ramp; pour 8	16		28MAY10A	1		28MAY10A						
07R1AI1S18	Cast spiral ramp; pour 9	16		04JUN10A	1		04JUN10A	23JUN10A					
07R1AI1S20	Cast spiral ramp; pour 10	14	14	14JUN10A	30JUN10A	100	14JUN10A	30JUN10A					
	rom 89.55 to 93.85mPD	T		.=									
07R1AI1S24	Cast spiral ramp; pour 11	18		17JUN10A	08JUL10A		17JUN10A	08JUL10A					
07R1AI1S26	Cast spiral ramp; pour 12	16		25JUN10A			25JUN10A	14JUL10A					
07R1AI1S28	Cast spiral ramp; pour 13	16	16	02JUL10A	20JUL10A	100	02JUL10A	20JUL10A					
	rom +93.85mPD to 98.15mPD	1			T			T					
07R1AI1S30	Cast spiral ramp; pour 14	19	19	09JUL10A	06SEP10A		09JUL10A	06SEP10A					
07R1Al1S32	Cast spiral ramp; pour 15	14	14	02SEP10A	17SEP10A		02SEP10A	17SEP10A					
07R1AI1S34	Cast spiral ramp; pour 16	8	8	20SEP10A	29SEP10A	100	20SEP10A	29SEP10A					
	rom 98.15mPD to 102.45mPD	T			T								
07R1AI1S36	Cast spiral ramp; pour 17	11		22SEP10A			22SEP10A	06OCT10A					
07R1AI1S38	Cast spiral ramp; pour 18	11		02OCT10A				14OCT10A					
07R1AI1S40	Cast spiral ramp; pour 19	11	11	12OCT10A	25OCT10A	100	12OCT10A	25OCT10A					
	rom 102.45mPD to 108.50mPD												
07R1AI1S42	Cast spiral ramp; pour 20	10		22OCT10A			22OCT10A						
07R1AI1S44	Cast spiral ramp; pour 21	11		29OCT10A	-		29OCT10A	10NOV10A					
07R1AI1S46	Cast spiral ramp; pour 22	14		08NOV10A			08NOV10A						
07R1AI1S48	Cast spiral ramp; pour 23	14		20NOV10A	-		20NOV10A	06DEC10A					
07R1AI1S50	Preparation & fill for central void; 2700m3	18	_	07DEC10A			07DEC10A	19FEB11A					
07R1AI1S52	Cast spiral ramp roof	8	8	26FEB11A	07MAR11A	100	26FEB11A	07MAR11A					

ID	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total	20		I E M	Δ M	.013		LEM	20	14	N D	2015
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish	Float	3 64 6	66 67	68 69 70	71 72 7	3 74 75 7	6 77 78 79	80 81 82	83 84 85	J A S O 86 87 88 89	90 91 9	2 93 94 9
	of Cascade Structure																			
04L1AI1472	Cast base slabs	12	12				21JAN11A	21MAR11A												
04L1AI1474	Cast walls 1st lift	18		22MAR11A	_		22MAR11A	20APR11A												
04L1AI1476	Cast walls 2nd lift, 200mm down from soffit	18		21APR11A			21APR11A	27MAY11A												
04L1AI1478	Cast roof slabs	18		28MAY11A			28MAY11A													
04L1AI1488	Cast side walls	18	18	13JUN11A	08JUL11A	100	13JUN11A	08JUL11A				444								
	Removal of TBM																			
04L1AI1D02	Form cranage platform	52		27JUN11A			27JUN11A	24AUG11A					1							
04L1AI1D03	Mobilization & setup- piling rig	6		24AUG11A																
04L1AI1D04	Construct 2# temporary H-piles	6	6	29AUG11A			29AUG11A													
04L1AI1D05	Demobilze piling rig	6	6	06SEP11A			06SEP11A	08SEP11A												
04L1AI1D06	Install H-beam frameworks	24	24	09SEP11A			09SEP11A	07OCT11A												
04L1AI1D08	Construct cradle	12	12	08OCT11A		100	08OCT11A	150CT11A												
04L1AI1D09	Obtain CNP for TBM dismantle	0	0		16NOV11A	100		16NOV11A												
04L1AI1D12	Remove debris/steel frame & TBM push to cradle	5	5		05MAR12A	100	29FEB12	05MAR12												
04L1AI1D13	Mobilization & setup 400t crane	4		07MAR12A			07MAR12	10MAR12												
04L1AI1D14	Dissembly & demobiliseTBM/BU	38	38	12MAR12A			12MAR12	30APR12												
04L1AI1D16	Remove H-beam frame & cradle	12	12	18APR12A	21JUL12A	100	02MAY12	15MAY12												
Construction	of Box Culvert Structure																			
04L1AI1463	Cast base	6	6	23JUL12A	04AUG12A	100	16MAY12	22MAY12												
04L1AI1464	Cast walls	24	18	06AUG12A	05SEP12	67	23MAY12	12JUN12	-428	•										
04L1AI1468	Cast roof slabs	18	18	06SEP12	26SEP12	0	13JUN12	05JUL12	-428											
04L1AI1470	Backfill & compation, 1st 13m; 4000m3	26	26	12OCT12	12NOV12	0	06JUL12	04AUG12	-428	E										
Slope Reinsta	tement																			
04L1AI1S10	Prepare slope reinstatement report	42	42	28JUL11A	19AUG11A	100	28JUL11A	19AUG11A												
04L1AI1S20	Obtain consent from SOR & GEO	170	170	20DEC11A	26MAY12A	100	20DEC11A	17APR12												
04L1AI1S30	Backfill & compaction, remain. 8m; 900m3	24	24	13NOV12	10DEC12	0	06AUG12	01SEP12	-428	†										
Modification	n of Existing Channel in Dry Season																			
Channel Mod	ification (Varied)Works (Civil Works)																			
07R1AI1502	Demolish WYHN wall, weir and SMN weir	10	10	08DEC09A	28DEC09A	100	08DEC09A	28DEC09A												
07R1AI1504	Demolish WYHN slab	4	4	29DEC09A	28JAN10A	100	29DEC09A	28JAN10A												
07R1AI1506	Excavation for WYH channel wall under slab	18	18	30DEC09A	12FEB10A	100	30DEC09A	12FEB10A												
07R1AI1508	Construct WYHN wall under slab;1st layer wall	5	5	29MAR10A	08APR10A	100	29MAR10A	08APR10A												
07R1AI1510	Construct WYHN wall under slab; 2nd layer wall	5	5	09APR10A	22APR10A	100	09APR10A	22APR10A				/XXI.								
07R1AI1512	Install 26# 11m pipe piles	7	7	22DEC09A	13JAN10A	100	22DEC09A	13JAN10A				/XXI.								
07R1AI1514	Demolish WYHN interface wall and SMN	23		14JAN10A			14JAN10A	12FEB10A				/////.								
07R1AI1518	Construct WYHN and SMN slab	4	4	01MAR10A	13MAR10A	100	01MAR10A	13MAR10A				/XXI.								
07R1AI1520	Construct SMN wall (1st)	9	9	15MAR10A	30MAR10A	100	15MAR10A	30MAR10A				/XXI.								
07R1AI1522	Construct SMN wall (2nd) and weir	8	8	01APR10A	20APR10A	100	01APR10A	20APR10A												
07R1AI1524	Construct WYHN wall	8	8	21APR10A	28APR10A	100	21APR10A	28APR10A				/////.								
Channel Mod	ification Works (Steel Works)											//////								
07R1AI1628	Construct WYH clolumn	9	9	04NOV11A	09DEC11A	100	04NOV11A	09DEC11A				/////					1			
07R1AI1638	Construct R.C. frame for stop log	18		04NOV11A				09DEC11A				/XXI.								
OLIVIALI090	Construct IX.O. Irainic for stop log	10	10	OTINOVIIA	OSDECTIA	100	DTIVOVIIA	JUDECTIA				<u> </u>				V/V/V/	1			

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total Float 6	2012 N S O N	D J F M A	2013 M M J J A S O N D J F M 1 72 73 74 75 76 77 78 79 80 81 82	2014 A M J J A S O N	D J F N
07R1AI1648	Install stop log A	12	12	29NOV13*	12DEC13	•	01NOV12*	14NOV12	-629	3 64 65 66	67 68 69 70 7	1 72 73 74 75 76 77 78 79 80 81 82	83 84 85 86 87 88 89 90	91 92 93 9
07R1AI1658	Install trash grill	72	18	29NOV13	28FEB14		15NOV12	05DEC12	-677					
07R1AI1668	Remove TDMP	24	12		28NOV13		170CT12	310CT12	-677					
07R1AI1608	Install stop log B	12		14DEC13*	30DEC13		01NOV12*	14NOV12	-629					
	. 0	12	12	14DLC13	JUDEC 13	٥١٥	TINOVIZ	14110112	-029	/				
Piling Work														
	Along Crest Plarform													
11R2AI1000	Implement TTA at Shing Mun Road	0	0		01APR11A	100		01APR11A						
11R2AI1010	Implement XP	0	0		01APR11A	100		01APR11A						
11R2AI1200	Erect piling platform for upper piles	24	24	02APR11A	05MAY11A			05MAY11A						
11R2AI1204	Mobilize piling rig & set up	6	6	11MAY11A				16MAY11A						
11R2AI1206	350mm dia. pre-bored H-piles (upper); 36 nos.	54	54	17MAY11A				01JUN11A						
11R2AI1208	Demobilize piling rig	3	3	02JUN11A	04JUN11A	100	02JUN11A	04JUN11A		2,				
Skin Wall & C	Crest Platform													
11R2AI1210	Remove piling platform/Excavate & hack off grout	18	18	07JUN11A	05JUL11A	100	7JUN11A	05JUL11A						
11R2AI1212	Construct abutment	18	18	06JUL11A	26JUL11A	100	06JUL11A	26JUL11A						
11R2AI1214	Construct skin wall & capping beam	12	12	27JUL11A	09AUG11A	100 2	27JUL11A	09AUG11A						
11R2AI1216	Relocation of gully & construct catchpit; VO#067	14	14	10AUG11A	15AUG11A	100 1	10AUG11A	15AUG11A						
11R2AI1217	Construct run-in	7	7	15AUG11A	17AUG11A	100 1	15AUG11A	17AUG11A						
11R2AI1218	Reinstatement of masonry wall	14	14	18AUG11A	19SEP11A	100 1	18AUG11A	19SEP11A						
11R2AI1219	Reinstatement of carriageway	6	6	20SEP11A	18OCT11A	100 2	20SEP11A	180CT11A						
<b>Piling Works</b>	Above Inclined Access Ramp													
11R2AI1220	Mobilize piling rig & set up	6	6	170CT11A	200CT11A	100 1	170CT11A	200CT11A						
11R2AI1222	350mm dia. pre-bored H-piles (lower); 22 nos.	22	22	200CT11A	04NOV11A	100 2	200CT11A	04NOV11A						
11R2AI1224	Demobilize piling rig	3	3	05NOV11A	08NOV11A	100 0	05NOV11A	08NOV11A						
Skin Wall & I	nclined Access Ramp	'								2				
11R2AI1226	Excavate & hack off grout	16	6	07AUG12A	24AUG12A	100 0	03SEP12	08SEP12		•				
11R2AI1228	Construct skin wall & ramp	18	30	24AUG12A	13SEP12	50 1	10SEP12	15OCT12	-288	<u> </u>				
11R2AI1232	Temporary backfill with pre-cast conc. blocks	4	4	14SEP12	18SEP12	0 1	16OCT12	19OCT12	-288					
11R2AI1242	Remove pre-cast concrete block	6	0	11DEC12	17DEC12	0			-348		<b>9</b>			
11R2AI1252	Construct ramp & additiona drainage works	21	0	18DEC12	14JAN13	0			-348					
Remaining	Works Prior to Handover									1				
Finishing Wo														
07R1AI1F02	Water proofing work at Spiral Ramp	105	24	22MAY12A	24SEP12	72 (	)2MAY12	29MAY12	-345					
07R1AI1F12	Tiling works; stage 1	28		15AUG12A			30MAY12	26JUL12						
07R1AI1F22		16		02MAY12A			27JUL12	14AUG12	-343					
07R1AI1F22	Install hand rails at Spiral Ramp Install GRP	29	29	27DEC12	30JAN13		15AUG12	17SEP12	-428					
07R1AI1F32	Reinstate retaining wall	29	29	04DEC12	03JAN13		27AUG12	22SEP12	-339					
07R1AI1F42 07R1AI1F52	Construct drainage	18	18	11DEC12	03JAN13		200CT12	10NOV12	-339					
07R1AI1F52 07R1AI1F62			12	11DEC12	24DEC12		03SEP12	15SEP12	-428					
	Tiling works; stage 2	12												
07R1AI1F72	Remove temp. bridge	12 48	12		28JAN13 03APR13		12NOV12	24NOV12	-348					
PVO-TR-30	Vertical greening & water points at Spiral Ramp	48	0	31JAN13	USAPKIS	0			-428				1	

ID	Activity	WP10	WP09	WP10	WP10	% W	/P09	WP09	Total	2012		2013	S O N D	2014 J   F   M   A   M   J   J	ALSIONID	2015 J F M A
	Description	Dur	Dur	Start	Finish	Comp S	Start	Finish	Float	63 64 65	66 67 68 69 70 7	72 73 74 75	76 77 78 79 8	0 81 82 83 84 85 86 B	87 88 89 90 91	92 93 94 9
07R1AI1608	Pre-handover inspections and remedial works	30	30	29JAN14	07MAR14	0 08NC	OV12	12DEC12	-673							
16R7AI1602	Landscaping works at Portion A	30	30	11DEC12	17JAN13	0 0600	CT12	10NOV12		woo <del>die</del>	nd=63nos	trees, 2072	2nos shrub	s, 3670nos. grou	ınd c	
16R7AI1604	Establishment Works at Portion A	365	365	18JAN13	17JAN14	0 11NC	OV12	10NOV13	-452							
Schedule of	Milestones for Cost Center No. 4L															
04L1AI1802	4L 1; On completion of 50% excavation	0	0		29JUN09A	100	:	29JUN09A								
04L1AI1804	4L 2; On completion of excavation	0	0		30JAN10A	100		30JAN10A								
04L1AI1806	4L 3; On completion of 25% concreting	0	0		20APR11A	100		20APR11A								
04L1AI1808	4L 4; On completion of 50% concreting	0	0		27MAY11A	100		27MAY11A								
04L1AI1810	4L 5; On completion of 75% concreting	0	0		11JUN11A	100		11JUN11A								
04L1AI1812	4L 6; On completion of Cascade	0	0		26SEP12	0		05JUL12	899	♦at	Intake I-1					
04L1AI1814	4L 7; On completion of connecting BC	0	0		26SEP12	0		05JUL12	899	♦bo	x culvert at li	ntake I-1				
04L1AI1816	4L 8; On completion of all works under this CC	0	0		07MAR14	0		12DEC12	372		<b>(</b>			within this (	Cost Centre	
Schedule of	Milestones for Cost Centre No. 7R															
07R1AI1902	7R 1; On completion of trash grills	0	0		28FEB14	0	- 1	05DEC12	379					and stop log	at Intake I-	1
07R1AI1904	7R 2; On completion of 25% excavation	0	0		29JUN09A	100		29JUN09A							, , , , , ,	
07R1AI1906	7R 3; On completion of 50% excavation	0	0		27JUL09A	100		27JUL09A								
07R1AI1908	7R 4; On completion of 75% excavation	0	0		24OCT09A	100		240CT09A								
07R1AI1910	7R 5; On completion of all excavation	0	0		26DEC09A	100		26DEC09A								
07R1AI1912	7R 6; On completion of spiral ramp to +80mPD	0	0		19MAY10A	100		19MAY10A								
07R1AI1914	7R 7; On completion of spiral ramp to +90mPD	0	0		30JUN10A	100		30JUN10A								
07R1AI1916	7R 8; On completion of spiral ramp to +100mPD	0	0		29SEP10A	100		29SEP10A								
07R1AI1918	7R 9; On completion of spiral access ramp	0	0		07MAR11A	100		07MAR11A								
07R1AI1920	7R 10; On completion of all works under this CC	0	0		07MAR14	0		12DEC12	372					under this (	Cost Centre	
Schedule of	Milestones for Cost Centre No. 11R															
Octricadic of	initiation cost ochire ito. Tit															
11R2AI1R02	11R 1; On completion of soil nailing works	0	0		06SEP08A	100	- I	06SEP08A	Т							
11R2AI1R04	11R 2; On completion of piling at platform	0	0		01JUN11A	100		01JUN11A								
11R2AI1R06	11R 3; On completion of piling at branch access	0	0		04NOV11A			04NOV11A								
11R2AI1R08	11R 4; On completion of all works under this CC	0	0		13SEP12	0		150CT12	912	<b>⇔</b> uma	ler this Cost	Centre				
<u> </u>	on of Intake I-2				100EI IE			1000112	012	V C						
Preliminary																
	Works to Finalize Design															
AGIB-02	Erect platform/mibilization & set up GI rig	3	3	12SEP08A		100 12SE		16SEP08A								
AGIB-04	Drill 3 nos. GI holes for Intake Structures	22			03NOV08A	100 17SE		03NOV08A								
AGIB-06	Drill 1 hole for Intersection with Main Tunnel	12	12	11NOV08A	24NOV08A	100 11NC	A80VC	24NOV08A								
Diversion of 0	CLP Overhead Cable															
01R1BU0102	Temporary diversion of CLP overhead cable	30	30	02SEP08A	17OCT08A	100 02SE	EP08A	17OCT08A								
Dievrsion of 1	00mm Watermain															
01R1BU0202	Temporary Diversion of 100mm dia. Watermain	64*	64*	03OCT08A	05DEC08A	100 0300	CT08A	05DEC08A								

01R1BU0204 Issue VO35 for temp. diversion 01R1BU0206 Preparation works 01R1BU0208 Install steel support 01R1BU0210 Lay new watermain 01R1BU0212 Obtain ICE certificate for temp. support 01R1BU0214 Pressure test 01R1BU0216 Sterilise new pipe & take water sampl 01R1BU0218 Watermain connection by WSD  VO #11; Transperant Hoarding at I-2 VO011-02 Receive VO11 for transparent hoarding VO011-04 Procure/prepare/install transparent hoarding VO032-I202 Receive VO-32 for replacing hoarding VO032-I204 Procure/prepare/install transparent hoarding VO032-I204 Procure/prepare/install transparent hoarding 01R1BI2102 Possession of Portion B -90d of DOC 01R1BI2104 Obtain TTA (ingress & egress) approx 01R1BI2105 Site clearance 01R1BI2112 Erect hoarding 01R1BI2116 Install remote contorl CCTV as per Effect hoarding 01R1BI2116 Install remote contorl CCTV as per Effect hoarding 01R1BI2109 Tree transplanting; 1 no.  Stream Diversion/Approach Channel/H-IRevised Layout of Pile Wall at I-2 VO022-02 Received VO22 for revised layout of pile Vo022-04 SOR confirmed to demolish exit. ret. November 150 dia. H-pile Wall 12R3BI2204 Additional SI & engineering works 12R3BI2204 Additional SI & engineering works 12R3BI2206 Mobilize piling rig & set up 12R3BI2210 Piling works stopped by the SOR 12R3BI2211 Piling works stopped by the SOR 12R3BI2212 Construct piles 1 to 18 12R3BI2214 SOR's instruction to delet pile 59 12R3BI2216 Demobilize piling rig	2	6	1 03OCT0 26 04OCT0 3 05NOV0 2 08NOV0	8A 04NOV08A	100	930CT08A 040CT08A	03OCT08A	rioat 63	64 65 66	67 68 69 70	71 72 73	74 75 76 77 78 79 80 81 82 83 84 85	86 87 88 89 90 91 92 93 94 9
01R1BU0206 Preparation works 01R1BU0208 Install steel support 01R1BU0210 Lay new watermain 01R1BU0212 Obtain ICE certificate for temp. support 01R1BU0214 Pressure test 01R1BU0216 Sterilise new pipe & take water sample 01R1BU0218 Watermain connection by WSD  VO#11; Transperant Hoarding at I-2 VO011-02 Receive VO11 for transparent hoarding VO011-04 Procure/prepare/install transparent hoarding VO032-I202 Receive VO-32 for replacing hoarding VO032-I204 Procure/prepare/install transparent hoarding VO032-I204 Obtain TTA (ingress & egress) approved VO1R1BI2110 Install remote contorl CCTV as per Effect hoarding VORTHBI2110 Install remote contorl CCTV as per Effect hoarding VORTHBI2110 Install remote contorl CCTV as per Effect hoarding VO022-02 Received VO22 for revised layout of perform the performance of the perform	20 3 2 ort 0 2 e 3	6	26 04OCT0 3 05NOV0	8A 04NOV08A	100								
01R1BU0218 Install steel support 01R1BU0210 Lay new watermain 01R1BU0212 Obtain ICE certificate for temp. support 01R1BU0214 Pressure test 01R1BU0216 Sterilise new pipe & take water sample 01R1BU0218 Watermain connection by WSD  VO #11; Transperant Hoarding at I-2  VO011-02 Receive VO11 for transparent hoarding VO011-04 Procure/prepare/install transparent hoarding VO032-I202 Receive VO-32 for replacing hoarding VO032-I202 Receive VO-32 for replacing hoarding VO032-I204 Procure/prepare/install transparent hoarding VO032-I204 Procure/prepare/install transparent hoarding VO032-I204 Procure/prepare/install transparent hoarding VO032-I204 Procure/prepare/install transparent hoarding VO032-I205 Receive VO-32 for replacing hoarding VO032-I206 Distance 01R1BI2108 Site clearance 01R1BI2112 Erect hoarding 01R1BI2116 Install remote contorl CCTV as per Effect transplanting; 1 no.  Stream Diversion/Approach Channel/H-I Revised Layout of Pile Wall at I-2 VO022-02 Received VO22 for revised layout of pile Vo022-04 SOR confirmed to demolish exit. ret. vice vice vice vice vice vice vice vice	3 2 2 ort 0 2 2 e 3	} !	3 05NOV				04NOV08A				M + 1 + 1		
01R1BU0210 Lay new watermain 01R1BU0212 Obtain ICE certificate for temp. support of the pressure test 01R1BU0214 Pressure test 01R1BU0216 Sterilise new pipe & take water sample of the pressure test 01R1BU0218 Watermain connection by WSD  VO #11; Transperant Hoarding at I-2 VO011-02 Receive VO11 for transparent hoarding voon to voon the procure/prepare/install transparent hoarding voo	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	)		0, 1 0, 110 100,	100	05NOV08A	07NOV08A						
01R1BU0212 Obtain ICE certificate for temp. support of R1BU0214 Pressure test 01R1BU0216 Sterilise new pipe & take water sample of R1BU0218 Watermain connection by WSD  VO #11; Transperant Hoarding at I-2  VO011-02 Receive VO11 for transparent hoarding voon Procure/prepare/install transparent ho	ort 0 2 e 3	)	_ 00.1011	8A 18NOV08A		08NOV08A	18NOV08A						
01R1BU0214 Pressure test 01R1BU0216 Sterilise new pipe & take water sampl 01R1BU0218 Watermain connection by WSD  VO #11; Transperant Hoarding at I-2  VO011-02 Receive VO11 for transparent hoarding VO011-04 Procure/prepare/install transparent hoarding VO032-I202 Receive VO-32 for replacing hoarding VO032-I204 Procure/prepare/install transparent hoarding O1R1BI2102 Possession of Portion B -90d of DOC O1R1BI2108 Site clearance O1R1BI2110 Install remote contorl CCTV as per Eff 16R7BI2002 Tree transplanting; 1 no.  Stream Diversion/Approach Channel/H-I Revised Layout of Pile Wall at I-2 VO022-02 Received VO22 for revised layout of pile Wall at I-2 VO022-04 SOR confirmed to demolish exit. ret. of VO022-06 Demolish existing retaining wall VO022-16 Reinstate piling platform  Phase 1; Construct 550 dia. H-pile Wall 12R3BI2202 Form temp. access ramp along west some some plans and process ramp along west some some plans and plans are set up 12R3BI2204 Additional SI & engineering works 12R3BI2205 Mobilize piling rig & set up 12R3BI2206 Mobilize piling rig & set up 12R3BI2207 Piling works stopped by the SOR 12R3BI2210 Piling works stopped by the SOR	e 3	_	0	19NOV08A			19NOV08A						
01R1BU0216 Sterilise new pipe & take water sample 01R1BU0218 Watermain connection by WSD  VO #11; Transperant Hoarding at I-2  VO011-02 Receive VO11 for transparent hoarding VO011-04 Procure/prepare/install transparent hoarding VO032-I202 Receive VO-32 for replacing hoarding VO032-I204 Procure/prepare/install transparent hoarding VO1R1BI2108 Site clearance  01R1BI2102 Possession of Portion B -90d of DOC VO1R1BI2112 Erect hoarding VO1R1BI2116 Install remote contorl CCTV as per Effective to the procure of t	e 3		2 20NOV				21NOV08A						
O1R1BU0218 Watermain connection by WSD  VO #11; Transperant Hoarding at I-2  VO011-02 Receive VO11 for transparent hoarding VO011-04 Procure/prepare/install transparent hoarding VO032; Replace Hoarding by Chain Link Fence VO032-I202 Receive VO-32 for replacing hoarding VO032-I204 Procure/prepare/install transparent hoarding VO032-I104 Procure/prepare/install trans			3 22NOV				25NOV08A						
VO #11; Transperant Hoarding at I-2  VO011-02 Receive VO11 for transparent hoarding VO011-04 Procure/prepare/install transparent hoarding VO32; Replace Hoarding by Chain Link Fence VO032-I202 Receive VO-32 for replacing hoarding VO032-I204 Procure/prepare/install transparent hoarding VO032-I204 Site clearance U1R1BI2108 Site clearance VO1R1BI2108 Site clearance VO1R1BI2112 Erect hoarding VO1R1BI2116 Install remote contorl CCTV as per English Install Procured VO22 for revised layout of procured VO22 for revised VO22 for revised VO22 f				8A 05DEC08A			05DEC08A						
VO011-02 Receive VO11 for transparent hoarding VO011-04 Procure/prepare/install transparent how VO#32; Replace Hoarding by Chain Link Fence VO032-I202 Receive VO-32 for replacing hoarding VO032-I204 Procure/prepare/install transparent how VO#32-I204 Procure/prepare/install transparent how VO032-I204 Procure/prepare/install transparent how VO032-I204 Procure/prepare/install transparent how VO032-I204 Procure/prepare/install transparent how VO01R1BI2102 Possession of Portion B -90d of DOC 01R1BI2104 Obtain TTA (ingress & egress) approx 01R1BI2108 Site clearance 01R1BI2112 Erect hoarding 01R1BI2116 Install remote contorl CCTV as per Efform 16R7BI2002 Tree transplanting; 1 no.  Stream Diversion/Approach Channel/H-IRevised Layout of Pile Wall at I-2 VO022-02 Received VO22 for revised layout of Pile VO022-04 SOR confirmed to demolish exit. ret. VO022-06 Demolish existing retaining wall VO022-16 Reinstate piling platform Phase 1; Construct 550 dia. H-pile Wall 12R3BI2202 Form temp. access ramp along west standard 12R3BI2204 Additional SI & engineering works 12R3BI2206 Mobilize piling rig & set up 12R3BI2208 Construct piles 1 to 18 12R3BI2210 Piling works stopped by the SOR 12R3BI2211 Construct piles 19-58 12R3BI2214 SOR's instruction to delet pile 59		•	10 2011011	o. (   0022000.		20.10.100,1	00220001						
VO011-04 Procure/prepare/install transparent for VO#32; Replace Hoarding by Chain Link Fence VO032-I202 Receive VO-32 for replacing hoarding VO032-I204 Procure/prepare/install transparent hore O1R1BI2102 Possession of Portion B -90d of DOC O1R1BI2104 Obtain TTA (ingress & egress) approx O1R1BI2108 Site clearance O1R1BI2112 Erect hoarding O1R1BI2116 Install remote contorl CCTV as per Eff 16R7BI2002 Tree transplanting; 1 no.  Stream Diversion/Approach Channel/H-I Revised Layout of Pile Wall at I-2 VO022-02 Received VO22 for revised layout of pile VO022-04 SOR confirmed to demolish exit. ret. of VO022-06 Demolish existing retaining wall VO022-16 Reinstate piling platform  Phase 1; Construct 550 dia. H-pile Wall 12R3BI2202 Form temp. access ramp along west some service of the pile Sor of the Sor	ng 0	)	0	14JUL08A	100		14JUL08A						
VO#32; Replace Hoarding by Chain Link Fence VO032-I202 Receive VO-32 for replacing hoarding VO032-I204 Procure/prepare/install transparent ho  01R1BI2102 Possession of Portion B -90d of DOC 01R1BI2104 Obtain TTA (ingress & egress) approx 01R1BI2108 Site clearance 01R1BI2112 Erect hoarding 01R1BI2116 Install remote contorl CCTV as per Eff 16R7BI2002 Tree transplanting; 1 no.  Stream Diversion/Approach Channel/H-I Revised Layout of Pile Wall at I-2  VO022-02 Received VO22 for revised layout of pile VO022-04 SOR confirmed to demolish exit. ret. of VO022-06 Demolish existing retaining wall  VO022-16 Reinstate piling platform  Phase 1; Construct 550 dia. H-pile Wall  12R3BI2202 Form temp. access ramp along west silensing rig & set up 12R3BI2204 Additional SI & engineering works 12R3BI2206 Mobilize piling rig & set up 12R3BI2208 Construct piles 1 to 18 12R3BI2210 Piling works stopped by the SOR 12R3BI2211 Construct piles 19-58 12R3BI2212 Construct piles 19-58 12R3BI2214 SOR's instruction to delet pile 59			51 15JUL0			15JUL08A	13SEP08A						
VO032-I202 Receive VO-32 for replacing hoarding VO032-I204 Procure/prepare/install transparent homogeneous Procure Pro	arang	•	01 100020	70021 007	100	100020071	10021 00/1						
VO032-I204 Procure/prepare/install transparent hours of the control of the contro	by CLF 0		0	16SEP08A	100		16SEP08A						
01R1BI2102 Possession of Portion B -90d of DOC 01R1BI2104 Obtain TTA (ingress & egress) approx 01R1BI2108 Site clearance 01R1BI2112 Erect hoarding 01R1BI2116 Install remote contorl CCTV as per EF 16R7BI2002 Tree transplanting; 1 no.  Stream Diversion/Approach Channel/H-F Revised Layout of Pile Wall at I-2 VO022-02 Received VO22 for revised layout of PVO022-04 SOR confirmed to demolish exit. ret. vVO022-06 Demolish existing retaining wall VO022-16 Reinstate piling platform  Phase 1; Construct 550 dia. H-pile Wall 12R3BI2202 Form temp. access ramp along west standard 12R3BI2204 Additional SI & engineering works 12R3BI2206 Mobilize piling rig & set up 12R3BI2208 Construct piles 1 to 18 12R3BI2210 Piling works stopped by the SOR 12R3BI2212 Construct piles 19-58 12R3BI2214 SOR's instruction to delet pile 59	•		51 17SEP0			17SEP08A	17NOV08A						
01R1BI2104 Obtain TTA (ingress & egress) approx 01R1BI2108 Site clearance 01R1BI2112 Erect hoarding 01R1BI2116 Install remote contorl CCTV as per Eff 16R7BI2002 Tree transplanting; 1 no.  Stream Diversion/Approach Channel/H-I Revised Layout of Pile Wall at I-2  VO022-02 Received VO22 for revised layout of pile VO022-04 SOR confirmed to demolish exit. ret. of VO022-06 Demolish existing retaining wall vO022-16 Reinstate piling platform  Phase 1; Construct 550 dia. H-pile Wall 12R3BI2202 Form temp. access ramp along west silensialized Additional SI & engineering works 12R3BI2204 Additional SI & engineering works 12R3BI2206 Mobilize piling rig & set up 12R3BI2208 Construct piles 1 to 18 12R3BI2210 Piling works stopped by the SOR 12R3BI2212 Construct piles 19-58 12R3BI2214 SOR's instruction to delet pile 59	arding 3	'	31 173L1 C	BA TINOVOBA	100	173LI OOA	THOVOOA						
01R1BI2104 Obtain TTA (ingress & egress) approx 01R1BI2108 Site clearance 01R1BI2112 Erect hoarding 01R1BI2116 Install remote contorl CCTV as per Eff 16R7BI2002 Tree transplanting; 1 no.  Stream Diversion/Approach Channel/H-I Revised Layout of Pile Wall at I-2  VO022-02 Received VO22 for revised layout of pile VO022-04 SOR confirmed to demolish exit. ret. of VO022-06 Demolish existing retaining wall vO022-16 Reinstate piling platform  Phase 1; Construct 550 dia. H-pile Wall 12R3BI2202 Form temp. access ramp along west silensialized Additional SI & engineering works 12R3BI2204 Additional SI & engineering works 12R3BI2206 Mobilize piling rig & set up 12R3BI2208 Construct piles 1 to 18 12R3BI2210 Piling works stopped by the SOR 12R3BI2212 Construct piles 19-58 12R3BI2214 SOR's instruction to delet pile 59	0		0 26MAR	ο Δ	100	26MAR08A		I					
01R1BI2108 Site clearance 01R1BI2112 Erect hoarding 01R1BI2116 Install remote contorl CCTV as per Eff 16R7BI2002 Tree transplanting; 1 no.  Stream Diversion/Approach Channel/H-I Revised Layout of Pile Wall at I-2 VO022-02 Received VO22 for revised layout of pile VO022-04 SOR confirmed to demolish exit. ret. victorial vool of pile VO022-06 Demolish existing retaining wall vool of pile VO022-16 Reinstate piling platform  Phase 1; Construct 550 dia. H-pile Wall 12R3BI2202 Form temp. access ramp along west of pile vool of p		_	0 20101AR	19APR08A			19APR08A						
01R1BI2112 Erect hoarding 01R1BI2116 Install remote contorl CCTV as per EF 16R7BI2002 Tree transplanting; 1 no.  Stream Diversion/Approach Channel/H-F Revised Layout of Pile Wall at I-2  VO022-02 Received VO22 for revised layout of pile VO022-04 SOR confirmed to demolish exit. ret. of voolube		_	-										
01R1BI2116 Install remote contorl CCTV as per ER 16R7BI2002 Tree transplanting; 1 no.  Stream Diversion/Approach Channel/H-I Revised Layout of Pile Wall at I-2 VO022-02 Received VO22 for revised layout of pile VO022-04 SOR confirmed to demolish exit. ret. victorial vool of pile VO022-06 Demolish existing retaining wall vool of pile VO022-16 Reinstate piling platform  Phase 1; Construct 550 dia. H-pile Wall 12R3BI2202 Form temp. access ramp along west of pile vool of pi	30	_	30 02MAY0			02MAY08A	05SEP08A						
Tree transplanting; 1 no.  Stream Diversion/Approach Channel/H-I Revised Layout of Pile Wall at I-2  VO022-02 Received VO22 for revised layout of pile VO022-04 SOR confirmed to demolish exit. ret. of voologe-06 Demolish existing retaining wall voologe-16 Reinstate piling platform  Phase 1; Construct 550 dia. H-pile Wall 12R3BI2202 Form temp. access ramp along west significant 12R3BI2204 Additional SI & engineering works 12R3BI2206 Mobilize piling rig & set up 12R3BI2208 Construct piles 1 to 18 12R3BI2210 Piling works stopped by the SOR 12R3BI2212 Construct piles 19-58 12R3BI2214 SOR's instruction to delet pile 59	30	_	30 05JUN0			05JUN08A	16MAR09A						
Stream Diversion/Approach Channel/H-I Revised Layout of Pile Wall at I-2  VO022-02 Received VO22 for revised layout of pile VO022-04 SOR confirmed to demolish exit. ret. of voo22-06 Demolish existing retaining wall voo22-16 Reinstate piling platform  Phase 1; Construct 550 dia. H-pile Wall  12R3B12202 Form temp. access ramp along west silenged and pilengering works silengering works sile			12 28FEB0			28FEB09A	13MAR09A						
Revised Layout of Pile Wall at I-2  VO022-02 Received VO22 for revised layout of pile VO022-04 SOR confirmed to demolish exit. ret. vile VO022-06 Demolish existing retaining wall vo022-16 Reinstate piling platform  Phase 1; Construct 550 dia. H-pile Wall  12R3BI2202 Form temp. access ramp along west sile 12R3BI2204 Additional SI & engineering works sile 12R3BI2206 Mobilize piling rig & set up sile 12R3BI2208 Construct piles 1 to 18  12R3BI2210 Piling works stopped by the SOR sile 12R3BI2212 Construct piles 19-58  12R3BI2214 SOR's instruction to delet pile 59	72	2	72 10DEC	8A 23APR09A	100	10DEC08A	23APR09A						
VO022-02 Received VO22 for revised layout of p VO022-04 SOR confirmed to demolish exit. ret. v VO022-06 Demolish existing retaining wall VO022-16 Reinstate piling platform  Phase 1; Construct 550 dia. H-pile Wall 12R3BI2202 Form temp. access ramp along west s 12R3BI2204 Additional SI & engineering works 12R3BI2206 Mobilize piling rig & set up 12R3BI2208 Construct piles 1 to 18 12R3BI2210 Piling works stopped by the SOR 12R3BI2212 Construct piles 19-58 12R3BI2214 SOR's instruction to delet pile 59	ile Wall												
VO022-04 SOR confirmed to demolish exit. ret. v VO022-06 Demolish existing retaining wall VO022-16 Reinstate piling platform  Phase 1; Construct 550 dia. H-pile Wall 12R3BI2202 Form temp. access ramp along west s 12R3BI2204 Additional SI & engineering works 12R3BI2206 Mobilize piling rig & set up 12R3BI2208 Construct piles 1 to 18 12R3BI2210 Piling works stopped by the SOR 12R3BI2212 Construct piles 19-58 12R3BI2214 SOR's instruction to delet pile 59													
VO022-06 Demolish existing retaining wall VO022-16 Reinstate piling platform  Phase 1; Construct 550 dia. H-pile Wall  12R3BI2202 Form temp. access ramp along west s 12R3BI2204 Additional SI & engineering works 12R3BI2206 Mobilize piling rig & set up 12R3BI2208 Construct piles 1 to 18 12R3BI2210 Piling works stopped by the SOR 12R3BI2212 Construct piles 19-58 12R3BI2214 SOR's instruction to delet pile 59			0	10JUL08A	100		10JUL08A						
VO022-16 Reinstate piling platform  Phase 1; Construct 550 dia. H-pile Wall  12R3BI2202 Form temp. access ramp along west s 12R3BI2204 Additional SI & engineering works  12R3BI2206 Mobilize piling rig & set up  12R3BI2208 Construct piles 1 to 18  12R3BI2210 Piling works stopped by the SOR  12R3BI2212 Construct piles 19-58  12R3BI2214 SOR's instruction to delet pile 59	wall 38	8	38 11JUL0			11JUL08A	21AUG08A						
Phase 1; Construct 550 dia. H-pile Wall  12R3BI2202 Form temp. access ramp along west services 12R3BI2204 Additional SI & engineering works  12R3BI2206 Mobilize piling rig & set up  12R3BI2208 Construct piles 1 to 18  12R3BI2210 Piling works stopped by the SOR  12R3BI2212 Construct piles 19-58  12R3BI2214 SOR's instruction to delet pile 59	1		1 13SEP0			13SEP08A	13SEP08A						
12R3BI2202 Form temp. access ramp along west s 12R3BI2204 Additional SI & engineering works 12R3BI2206 Mobilize piling rig & set up 12R3BI2208 Construct piles 1 to 18 12R3BI2210 Piling works stopped by the SOR 12R3BI2212 Construct piles 19-58 12R3BI2214 SOR's instruction to delet pile 59	2	2	2 16SEP0	8A   17SEP08A	100	16SEP08A	17SEP08A						
12R3BI2204 Additional SI & engineering works 12R3BI2206 Mobilize piling rig & set up 12R3BI2208 Construct piles 1 to 18 12R3BI2210 Piling works stopped by the SOR 12R3BI2212 Construct piles 19-58 12R3BI2214 SOR's instruction to delet pile 59													
12R3BI2206 Mobilize piling rig & set up 12R3BI2208 Construct piles 1 to 18 12R3BI2210 Piling works stopped by the SOR 12R3BI2212 Construct piles 19-58 12R3BI2214 SOR's instruction to delet pile 59	side of stream 44	4	44 10JUN0		100	10JUN08A	31JUL08A						
12R3BI2208 Construct piles 1 to 18 12R3BI2210 Piling works stopped by the SOR 12R3BI2212 Construct piles 19-58 12R3BI2214 SOR's instruction to delet pile 59	26	6	26 25AUG	8A 24SEP08A	100	25AUG08A	24SEP08A						
12R3BI2210 Piling works stopped by the SOR 12R3BI2212 Construct piles 19-58 12R3BI2214 SOR's instruction to delet pile 59	5	5	5 25SEP0	8A 30SEP08A	100	25SEP08A	30SEP08A						
12R3BI2212 Construct piles 19-58 12R3BI2214 SOR's instruction to delet pile 59	1;	3	13 02OCT0	8A 17OCT08A	100	02OCT08A	17OCT08A						
12R3Bl2214 SOR's instruction to delet pile 59	8	3	8 18OCT	8A 27OCT08A	100	18OCT08A	27OCT08A						
	28	8	28 28OCT	8A 26NOV08A	100	28OCT08A	26NOV08A						
12R3RI2216 Demobilize niling rig	0	)	0	02DEC08A	100		02DEC08A						
121 (ODI22 10 Delliobilize pilling lig	4		4 03DEC	8A 06DEC08A	100	03DEC08A	06DEC08A						
12R3BI2218 Construct skin wall/caping beam/u-ch	annel 15	5* 1	155* 27JUL0	9A 29JAN10A	100	27JUL09A	29JAN10A						
12R3Bl2220 Excavate for skin wall; 4 bays	18	8	18 27JUL0	9A 27AUG09A	100	27JUL09A	27AUG09A						
12R3Bl2222 Construct for skin wall; 4 bays	24	4	24 05OCT0	9A 12NOV09A	100	05OCT09A	12NOV09A						
12R3BI2224 Construct capping beam	16	6	16 13NOV	9A 01DEC09A	100	13NOV09A	01DEC09A						
12R3BI2226 Construct drainage	1	2	12 02DEC	9A 29JAN10A	100	02DEC09A	29JAN10A						
Phase 1; Construct Dry Weather Flow Channel	1,			· ·									
08R1BI2202 Excavate for new low flow channel	'										41		

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total A	2012 S O N	D J F M A I	2013 2013 2013 2014 2015 2014 2015 2015 2015 2015 2015 2015 2015 2015	014 2015 J A S O N D J F M A
08R1BI2204	Construct new low flow channel	6	6	11JUN09A	17JUN09A	•	11JUN09A	17JUN09A	0.5	04 03 00	07 00 09 70 71 7	2/3/14/13/10/11/10/19/00/01/02/03/04/03	00 07 00 09 90 91 92 93 94 93
08R3BI2208	Remove blcock wall/excavate for gantry footing	12	12	18JUN09A	22JUL09A			22JUL09A					
08R3BI2212	Construct PC bund wall to protect gantry footing	6	6	23JUL09A		100		27JUL09A					
Phase 2: Cons	struct Approach Channel West												
08R1BI2218	Construct temp. concrete block bund	12	12	16DEC09A	11JAN10A	100	16DEC09A	11JAN10A					
08R1BI2220	Excavate for western portion guide wall & slab	12	12	16DEC09A	20JAN10A		16DEC09A	20JAN10A					
08R1BI2222	Construct western portion of guide wall & slab	50	50	21JAN10A	13APR10A	100	21JAN10A	13APR10A					
08R1BI2224	Remove concrete block bund	6	6	14APR10A	17APR10A	100	14APR10A	17APR10A					
Phase 3: Cons	struct Approach Channel North												
08R1BI2226	Construct temp. concrete block bund	6	6	01NOV11A	05NOV11A	100	01NOV11A	05NOV11A					
08R1BI2228	Excavate for L-shaped retaining wall; VO#113	50		01NOV10A			01NOV10A	07JAN12A					
08R1BI2229	Formation & place blinding layer	11	11	19JAN12A	03FEB12A	100	19JAN12A	03FEB12A					
08R1BI2230	Construct L-shaped retaining wall; VO#113	26	26	04FEB12A	05MAR12A	100	04FEB12A	05MAR12					
08R1BI2234	Construct H piles 7# for boulder trap	12	12	09JAN12A	18JAN12A	100	09JAN12A	18JAN12A					
08R1BI2236	Construct eastern portion of guide wall & slab	16	16	06MAR12A	31MAR12A	100	06MAR12	23MAR12					
08R1BI2240	Construct temp. concrete blcok bund	6	6	26MAR12A	31MAR12A	100	24MAR12	30MAR12					
Phase 3a: Sto	ne Pitching Works												
08R1BI2260	Channel modification & stone pitching	24	24	01NOV12*	28NOV12	0	01NOV12*	28NOV12	-341				
08R1BI2270	Stone Pitching to Guide Wall	24	24	29NOV12	28DEC12		29NOV12	28DEC12	-341				
08R1BI2280	Stone pitching to closing guide wall	12	12	08APR13	20APR13	0	02MAR13	15MAR13	-418				
Phase 4 - Con	struct Remaining Appr. Channel												
08R1BI2238	Boulder traps; 7 nos.	12	12	28FEB13	13MAR13	0	16JAN13	29JAN13	-443				
08R1BI2242	Remove noise enclosure/gantry crane/steel deck	25	25	130CT12	12NOV12	0	30NOV12	31DEC12	-466				
08R1BI2244	Excavation for remaining approach channel	25	12	13NOV12	11DEC12	0	02JAN13	15JAN13	-466	É			
08R1BI2246	Construct Vortex & remaining approach channel	84	30	12DEC12	26MAR13		16JAN13	22FEB13	-466				
08R1BI2248	Close out last section of guide wall	12	12	27MAR13	13APR13	0	23FEB13	08MAR13	-466		-		
08R1BI2249	Removal of TDMP	24	0	01NOV13*	28NOV13	0			-679				
08R1BI2250	Construct trash grill	72	18	29NOV13	28FEB14	0	16JAN13	05FEB13	-679				
PVOABT2-10	Additional boulder traps	48	0	29DEC12	27FEB13	0			-443				
PVOMLRW-10	Modif. to L-shap ret. wall & ground profile	48	0	01NOV12*	28DEC12	0			-443				
Excavate &	Construct Vortex/Drop Shaft									7			
	Gantry Crane/Noise Enclosure												
05L1BI2300	Construct 8 nos. mini piles	24	24	20JAN09A	21FEB09A	100	20JAN09A	21FEB09A					
05L1BI2301	Erect timber platform for mini piling	4	4					26FEB09A					
05L1BI2301	Construct 6 nos. mini piles	12	12		12MAR09A		27FEB09A	12MAR09A					
05L1BI2303	Excavation for footing/pile caps	12			26MAR09A		13MAR09A						
05L1BI2304	Construction of footing/pile caps	12		27MAR09A			27MAR09A						
05L1BI2305	Install steel deck	25		04MAY09A			04MAY09A						
05L1BI2316	Construct footing for gantry crane	12		09SEP09A				15OCT09A					
05L1BI2318	Install gantry crane	42		28OCT09A				01MAR10A					
05L1BI2328	Install noise enclosure	24			27MAY10A		22MAR10A						
	ment Works for Vortex Shaft	<del></del>				100							
05L1BI2306	Setting up	2	2	16.IUI 09A	16JUL09A	100	16JUL09A	16JUL09A					
001 1012000	Octaing up			IOOOLOGA	1000E03A	100	IJJULUJA	IOOOLOGA					

ID	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total	201		l l E		2013			2014	INID	2015
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish	Float	3 64 65	66 67	68 69	70 71 72	J J A S 2 73 74 75 76	77 78 79 80 8	31 82 83 84 8	5 86 87 88 89	90 91	92 93 94 95
05L1BI2308	Probing & curtain grouting around shaft	37	37	17JUL09A	08SEP09A	100	17JUL09A	08SEP09A											
Excavation a	nd Construction of Vortex Shaft																		
05L1BI2319	Construct collar	6	6		13MAR10A	100	02MAR10A	13MAR10A											
05L1BI2320	Excavate by conventional method; +99~+68mPD	337	337	30MAR10A	01AUG11A	100	30MAR10A	01AUG11A											
05L1BI2321	Set up for lining construction	6	6	06OCT12	120CT12	0	09OCT12	15OCT12	-466	þ									
05L1BI2322	Construct permanent lining; 30m @ 6m/ 5days	30	38	13OCT12	17NOV12	0	16OCT12	29NOV12	-466	Ē									
Excavate &	Construct Air Vent Shaft																		
05L1BI2418	Enlarge the platform for RCD operation	15	15	08DEC08A	27DEC08A	100	08DEC08A	27DEC08A											
05L1BI2420	Mobilize & set up RCD for excavation	6	6	29DEC08A	06JAN09A	100	29DEC08A	06JAN09A											
05L1BI2422	Bore shaft with RCD; 37.5m @1m/day	54	54	07JAN09A	13MAR09A	100	07JAN09A	13MAR09A											
05L1BI2424	Demobilize RCD rig	5	5	14MAR09A	19MAR09A	100	14MAR09A	19MAR09A											
05L1BI2426	Install permanent steel liner	3	3	20MAR09A	23MAR09A	100	20MAR09A	23MAR09A											
05L1BI2427	Preparation works for casting concrete	1	1	21MAR09A	25APR09A	100	21MAR09A	25APR09A											
05L1BI2428	Damage found on installed steel liner	0	0		25APR09A	100		25APR09A											
05L1BI2429	Removal of steel liner	31	31	27APR09A	04JUN09A	100	27APR09A	04JUN09A											
05L1BI2430	Remove RCD platform	17	17	05JUN09A	24JUN09A	100	05JUN09A	24JUN09A											
05L1BI2432	Construct PC bund wall	12	12	25JUN09A	15JUL09A	100	25JUN09A	15JUL09A											
05L1BI2434	Divert channel to West	0	0		15JUL09A	100		15JUL09A											
05L1BI2436	Footing for lifting frame	12	12	22JAN10A	12FEB10A	100	22JAN10A	12FEB10A											
05L1BI2438	Erection of lifting frame	18	18	09FEB10A	05MAR10A	100	09FEB10A	05MAR10A											
05L1BI2446	Install steel casing	36	36	09MAR10A	22MAR10A	100	09MAR10A	22MAR10A											
05L1BI2448	Survey checking & capping concrete	3	3	23MAR10A	29MAR10A	100	23MAR10A	29MAR10A											
05L1BI2450	Preparation & concreting	3	3	30MAR10A	19APR10A	100	30MAR10A	19APR10A											
05L1BI2452	Construct upstand wall	24	24	12DEC12	11JAN13	0	02JAN13	29JAN13	-376										
Excavate &	Construct Man Access Shaft																		
	ment for Man Access Shaft																		
05L1BI2502	Probing & curtain grouting around shaft	31	31	12AUG09A	15SEP09A	100	12AUG09A	15SEP09A											
	& Noise Enclosure at M. A. Shaft																		
05L1BI2504	Excavate & construct 4 nos. gantry footings	12	12	30SEP09A	19NOV09A	100	30SEP09A	19NOV09A											
05L1BI2505	Install gantry crane	18	18		24MAR10A		08JAN10A	24MAR10A											
05L1BI2515	Install noise enclosure	18	-	06MAY10A															
FLS and Exca	avation upto Rock Head Level at M.A.						1												
05L1BI2503	Install sheet piles	6	6	28OCT09A	03NOV09A	100	280CT09A	03NOV09A											
05L1BI2506	Excavation/wailing to rock head level	36	_	04NOV09A			04NOV09A												
	Construction of Man Access Shaft	1 12			1 111211			1			1//								
05L1BI2508	Excavate by conventional method; +102~ +70mPD	356	356	12JAN10A	16JUI 11A	100	12JAN10A	16JUL11A				<b>X</b> ///							
05L1BI2510	Obtain Blasting Permit	0	000	0	22JUL11A	100		22JUL11A											
05L1BI2511	Preparation works prior to 1st blast	13	13	18JUL11A				01AUG11A											
05L1BI2518	Excavate;+70~68.0mPD	12	12	10AUG11A															
05L1BI2516	Cleaning, blinding & base construction	11	6	18JUN12A			05JUL12	11JUL12											
05L1BI2524	Set up for 37m shaft construction (wall only)	6	6	03JUL12A			05JUL12	11JUL12											
002.512021		"		30001111	3.002121		1-000212			1	11/1/	<u>V///</u>	V/VI		<u> </u>	///			

Description	ID	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total	2012		2013 2014 2015
05.1192287   Construct stains: Precast & institu sich concret   30   54   08.0CT12   12.0VV12   0   08.0VV12   12.0AN13   3.15     1.0   05.1192287   0.0										Float 6	3 64 65	N D J F M 66 67 68 69 70	1 A M J J A S O N D J F M A M J J A S O N D J F M A D D J F M A M J J A S O N D J F M A D D D D D D D D D D D D D D D D D D
	05L1BI2526	Construct wall & dismante mould; 3.6m/4day	61	48	09JUL12A	17SEP12	67	12JUL12	05SEP12				
Dec.   1925/30   Construct wall above ground level   9   9   12NOV12   22NOV12   0   14AN13   23AN13   315   9   15   15   15   15   15   15   1	05L1BI2527	Construct stairs; Precast & insitu stich concret	30	54	08OCT12	12NOV12	0	08NOV12	12JAN13	-315	=	10tal 27 la	indings
	05L1BI2528	Removal of noise enclosure & gantry crane	16	16	18SEP12	06OCT12	0	22DEC12	12JAN13	-315	Ħ		
Secretaries	05L1BI2530	Construct wall above ground level	9	9	13NOV12	22NOV12	0	14JAN13	23JAN13	-315			
Construction   Cons	05L1BI2532	Construct shaft roof	15	15	23NOV12	10DEC12	0	24JAN13	09FEB13	-315		/X/X/X/X/	
DSL1812802   Excavate by drill & biasting   148   148   08AUG11A   23MAR12A   100   03AUG11A   14MAR12   105   1	05L1BI2542	Install steel handrailing incl. at MAA	18	18	28JAN13	20FEB13	0	29DEC12	19JAN13	-377			
Doct   1812/2007   Wall between Chamber & MA Adit; 20m3   14   14   2JULI 12A   5AUG12A   100   2 FAUG12   10   2 FAUG12   1	Excavate &	Construct Deaeration Chamber											
Sol.1812808   Wall/Crown Inclined section	05L1BI2602	Excavate by drill & blasting	148	148	08AUG11A	23MAR12A	100	08AUG11A	14MAR12				
OSLIBI2612   Walk/Crown beneath Vortex	05L1BI2607	-	14	14	24JUL12A	15AUG12A	100	21AUG12	05SEP12		<u> </u>		
Sel-1812814   Wall/Crown middle section	05L1BI2608	Wall/Crown inclined section	17	14	30AUG12	18SEP12	0	06SEP12	21SEP12	-466	<b>=</b>		
OSI, IBI, R002   Obtain Blasting Permit   O   O	05L1BI2612	Wall/Crown beneath Vortex	14	19	13AUG12A	29AUG12	86	22SEP12	15OCT12	-466	_		
DSL 1BLR012   Cleaning & blinding   6	05L1BI2614	Wall/Crown middle section	14	43	19SEP12	05OCT12	0	08OCT12	27NOV12	-466	-		
SEL IBERO12   Cleaning & blinding   6   6   28MAR12A   11APR12A   100   09MAY12   15MAY12   100   15MAY12   100	05L1BLR002	Obtain Blasting Permit	0	0		22JUL11A	100		22JUL11A				
OSL 1BLR022   Construct base slab	05L1BLR012	Cleaning & blinding	6	6	28MAR12A	11APR12A	100	09MAY12	15MAY12				
SBL1Bl2101   Initial 4 # heading blast   19   19   03FEB12A   24FEB12A   100   03FEB12A   24FEB12A   38L1Bl2102   Excavate by drill & blasting   110   110   28FEB12A   07JUL12A   100   28FEB12   13JUL12   38L1Bl2104   Mucking out cleaning & blinding   6   6   27SEP12   04OCT12   0   14JUL12   20JUL12   383   38L1Bl2110   Construct invert, 6mx8 bays (3 pours)   21   21   15OCT12   08NOV12   0   21JUL12   14AUG12   363   38L1Bl2114   Construct wall & crown; 8 bays   39   98NOV12   24DEC12   0   15AUG12   28SEP12   363	05L1BLR022		41	12	16APR12A	05JUN12A	100	16MAY12	29MAY12				
SBL1Bl2101   Initial 4 # heading blast   19   19   03FEB12A   24FEB12A   100   03FEB12A   24FEB12A   38L1Bl2102   Excavate by drill & blasting   110   110   28FEB12A   07JUL12A   100   28FEB12   13JUL12   38.1Bl2104   Mucking out cleaning & blinding   6   6   27SEP12   04OCT12   0   14JUL12   20JUL12   38.3   38L1Bl2110   Construct invert; 6mx6 bays   60pours)   21   21   15OCT12   08NOV12   0   21JUL12   14AUG12   -363   38L1Bl2114   Construct wall & crown; 8 bays   39   99NOV12   24DEC12   0   15AUG12   28SEP12   -363   38L1Bl2104   Construct wall & crown; 8 bays   39   99NOV12   24DEC12   0   15AUG12   28SEP12   -363   38L1Bl2104   Construct wall & crown; 8 bays   39   99NOV12   24DEC12   0   15AUG12   28SEP12   -363   38L1Bl2104   Construct wall & crown; 8 bays   39   99NOV12   24DEC12   0   15AUG12   28SEP12   -363   38L1Bl2104   Construct wall & crown; 8 bays   39   99NOV12   24DEC12   0   15AUG12   28SEP12   -363   38L1Bl2104   Construct wall & crown; 8 bays   39   99NOV12   24DEC12   0   15AUG12   28SEP12   -363   38L1Bl2104   Construct wall & crown; 8 bays   2   2   2   2   2   2   2   2   2	05L1BLR032	Construct walls up 7m	38	26	06JUN12A	23JUL12A	100	30MAY12	29JUN12				
38L1812101   Initial 4 # heading blast   19   19   03FE812A   24FEB12A   100   03FEB12A   24FEB12A   38L1812102   Excavate by drill & blasting   110   110   28FEB12A   07JUL12A   100   28FEB12   13JUL12   28JUL12	Fycavate &												
3BL1Bl2102 Excavate by drill & blasting 110 110 28FEB12A 07JUL12A 100 28FEB12 13JUL12 3BL1Bl2104 Mucking out cleaning & blinding 6 6 6 275EP12 04OCT12 0 14JUL12 20JUL12 363 3BL1Bl2110 Construct invert; 6mx8 bays (3 pours) 21 21 15OCT12 08NOV12 0 2JJUL12 14JUL12 20JUL12 363 3BL1Bl2114 Construct wall & crown; 8 bays 39 39 09NOV12 24DEC12 0 15AUG12 28SEP12 363 3BL1Bl2114 Construct wall & crown; 8 bays 39 09NOV12 24DEC12 0 15AUG12 28SEP12 363 3BL1Bl210 Excavate by drill & blasting 102 102 02AUG11A 05DEC11A 100 02AUG11A 05DEC11A 100 15MAR12 21MAR12 100 15MAR12 100 15MAR12 21MAR12 100 15MAR12 100	LACAVATE &	Construct main Adit runner											
3BL1Bi2102 Excavate by drill & blasting 110 110 28FEB12A 07JUL12A 100 28FEB12 13JUL12 38 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3BI 1BI2101	Initial 4 # heading blast	10	10	03EEB12A	24EEB12A	100	03EEB12A	24EEB12A				
3BL1Bi2104 Mucking out cleaning & blinding 6 6 6 27SEP12 04OCT12 0 14JUL12 20JUL12 -363 3BL1Bi2110 Construct invert; 6mx8 bays (3 pours) 21 21 15OCT12 08NOV12 0 21JUL12 14AUG12 -363 3BL1Bi2114 Construct wall & crown; 8 bays 39 39 09NOV12 24DEC12 0 15AUG12 28SEP12 -363  Excavate & Construct Man Access Adit  Upper Horizontal Section 05L1Bi2806 Excavate by drill & blasting 102 102 02AUG11A 05DEC11A 100 02AUG11A 05DEC11A 05L1Bi2807 Cleaning & blinding incl. MAS 6 6 6 15MAR12A 21MAR12A 100 15MAR12 21MAR12 05L1Bi2808 Construct invert; 4 bays; 2 pourx6days 12 12 22MAR12A 21APR12A 100 12APR12 20APR12 05L1Bi2834 Construct wall & crown 24 24 07MAY12A 16JUN12A 100 10APR12 20APR12 05L1Bi2834 Construct wall & crown 24 07MAY12A 16JUN12A 100 21APR12 21MAY12  Vertical Section  05L1Bi2826 Construct wall & siasting 84 84 01DEC11A 14MAR12A 100 01DEC11A 14MAR12 05L1Bi2826 Construct base & junction of raise shaft 18 18 27OCT12 16NOV12 0 24DIL12 15AUG12 -377 05L1Bi2826 Construct wall only; 28 28 17NOV12 19DEC12 0 16AUG12 15AUG12 15AUG12 -377 05L1Bi2826 Dismantle remove moulds 6 6 20DEC12 28DEC12 0 18SEP12 24SEP12 -377 05L1Bi2826 Insitu stairs (6 pours) @ 6 days/pour 36 36 29DEC12 09FEB13 0 25SEP12 07NOV12 -377		-		-									
3BL1Bl2110 Construct invert; 6mx8 bays (3 pours) 21 21 15OCT12 08NOV12 0 21JUL12 14AUG12 -363   3BL1Bl2114 Construct wall & crown; 8 bays 39 39 09NOV12 24DEC12 0 15AUG12 28SEP12 -363    Exacavate & Construct Man Access Adit  Upper Horizontal Section  05L1Bl2806 Excavate by drill & blasting 102 102 02AUG11A 05DEC11A 100 02AUG11A 05DEC11A 100 05L1Bl2806 Excavate by drill & blasting 102 112 112 05L1Bl2806 Excavate by drill & blasting 102 112 112 05L1Bl2806 Excavate by drill & blasting 102 112 112 05L1Bl2806 Excavate by drill & blasting 102 112 112 05L1Bl2806 Excavate by drill & blasting 102 112 112 05L1Bl2806 Excavate by drill & blasting 102 112 112 05L1Bl2806 Excavate by drill & blasting 102 112 112 05L1Bl2806 Excavate by drill & blasting 102 112 112 05L1Bl2806 Excavate by drill & blasting 103 114 114 114 114 114 115 115 115 115 115		· · · · · · · · · · · · · · · · · · ·		6						363			
3BL1Bl2114 Construct wall & crown; 8 bays 39 99NOV12 24DEC12 0 15AUG12 28SEP12 -363    Excavate & Construct Man Access Adit  Upper Horizontal Section  05L1Bl2806				21									
Discription													
Upper Horizontal Section	u u		33	33	03110112	ZADEO1Z	U	13/10/01/2	200LI 12	-303			
D5L1Bl2806   Excavate by drill & blasting   102   102   02AUG11A   05DEC11A   100   02AUG11A   1													
05L1BI2807         Cleaning & blinding incl. MAS         6         6         15MAR12A         21MAR12A         100         15MAR12         21MAR12           05L1BI2808         Construct invert; 4 bays; 2 pourx6days         12         12         22MAR12A         21APR12A         100         22MAR12         05APR12           05L1BI2830         Set up steel mould fwk         10         10         23APR12A         05MAY12A         100         10APR12         20APR12           05L1BI2834         Construct wall & crown         24         24         07MAY12A         16JUN12A         100         21APR12         21MAY12           Vertical Section           05L1BI2810         Excavate by drill & blasting         84         84         01DEC11A         14MAR12A         100         01DEC11A         14MAR12           05L1BI2822         Construct base & junction of raise shaft         18         18         27OCT12         16NOV12         0         26JUL12         15AUG12         -377         -37           05L1BI2824         Set up for raise stairway const. (wall only)         6         6         10NOV12         0         09AUG12         15AUG12         -377         -37           05L1BI2836         Dismantle remove moulds         6         6			1			1			T				
OSL1BI2808   Construct invert; 4 bays; 2 pourx6days   12   12   22MAR12A   21APR12A   100   22MAR12   05APR12   05APR12   05APR12   05L1BI2830   Set up steel mould fwk   10   10   23APR12A   05MAY12A   100   10APR12   20APR12   05APR12   05L1BI2834   Construct wall & crown   24   24   07MAY12A   16JUN12A   100   21APR12   21MAY12   05L1BI2810   Excavate by drill & blasting   84   84   01DEC11A   14MAR12A   100   01DEC11A   14MAR12   05L1BI2822   Construct base & junction of raise shaft   18   18   27OCT12   16NOV12   0   26JUL12   15AUG12   -377   05L1BI2824   Set up for raise stairway const. (wall only)   6   6   10NOV12   16NOV12   0   09AUG12   15AUG12   -377   05L1BI2826   Construct wall only;   28   28   17NOV12   19DEC12   0   16AUG12   17SEP12   -377   05L1BI2836   Dismantle remove moulds   6   6   20DEC12   28DEC12   0   18SEP12   24SEP12   -377   05L1BI2846   Insitu stairs (6 pours) @ 6 days/pour   36   36   29DEC12   09FEB13   0   25SEP12   07NOV12   -377   05DEC12   -377   05DEC13   05DEC13   0		-		102									
05L1Bl2830 Set up steel mould fwk 10 10 23APR12A 05MAY12A 100 10APR12 20APR12   05L1Bl2834 Construct wall & crown 24 24 07MAY12A 16JUN12A 100 21APR12 21MAY12    Vertical Section		<u> </u>		6									
05L1Bl2834         Construct wall & crown         24         24         07MAY12A         16JUN12A         100         21APR12         21MAY12           Vertical Section           05L1Bl2810         Excavate by drill & blasting         84         84         01DEC11A         14MAR12A         100         01DEC11A         14MAR12           05L1Bl2822         Construct base & junction of raise shaft         18         18         27OCT12         16NOV12         0 26JUL12         15AUG12         -377           05L1Bl2824         Set up for raise stairway const. (wall only)         6         6         10NOV12         16NOV12         0 9AUG12         15AUG12         -377           05L1Bl2826         Construct wall only;         28         28         17NOV12         19DEC12         0 16AUG12         17SEP12         -377           05L1Bl2836         Dismantle remove moulds         6         6         20DEC12         28DEC12         0 18SEP12         24SEP12         -377           05L1Bl2846         Insitu stairs (6 pours) @ 6 days/pour         36         36         29DEC12         09FEB13         0 25SEP12         07NOV12         -377				-									
Vertical Section           05L1BI2810         Excavate by drill & blasting         84         84         01DEC11A         14MAR12A         100         01DEC11A         14MAR12           05L1BI2822         Construct base & junction of raise shaft         18         18         27OCT12         16NOV12         0 26JUL12         15AUG12         -377         05L1BI2824         Set up for raise stairway const. (wall only)         6         6         10NOV12         16NOV12         0 99AUG12         15AUG12         -377         05L1BI2826         Construct wall only;         28         28         17NOV12         19DEC12         0 16AUG12         17SEP12         -377         05L1BI2836         Dismantle remove moulds         6         6         20DEC12         28DEC12         0 18SEP12         24SEP12         -377         05L1BI2846         Insitu stairs (6 pours) @ 6 days/pour         36         36         29DEC12         09FEB13         0 25SEP12         07NOV12         -377         07		-											
05L1Bl2810       Excavate by drill & blasting       84       84       01DEC11A       14MAR12A       100       01DEC11A       14MAR12         05L1Bl2822       Construct base & junction of raise shaft       18       18       27OCT12       16NOV12       0 26JUL12       15AUG12       -377         05L1Bl2824       Set up for raise stairway const. (wall only)       6       6       10NOV12       16NOV12       0 09AUG12       15AUG12       -377         05L1Bl2826       Construct wall only;       28       28       17NOV12       19DEC12       0 16AUG12       17SEP12       -377         05L1Bl2836       Dismantle remove moulds       6       6       20DEC12       28DEC12       0 18SEP12       24SEP12       -377         05L1Bl2846       Insitu stairs (6 pours) @ 6 days/pour       36       36       29DEC12       09FEB13       0 25SEP12       07NOV12       -377			24	24	07MAY12A	16JUN12A	100	21APR12	21MAY12				
05L1Bl2822 Construct base & junction of raise shaft 18 18 27OCT12 16NOV12 0 26JUL12 15AUG12 -377 05L1Bl2824 Set up for raise stairway const. (wall only) 6 6 10NOV12 16NOV12 0 09AUG12 15AUG12 -377 0 05L1Bl2826 Construct wall only; 28 28 17NOV12 19DEC12 0 16AUG12 17SEP12 -377 05L1Bl2836 Dismantle remove moulds 6 6 20DEC12 28DEC12 0 18SEP12 24SEP12 -377 05L1Bl2846 Insitu stairs (6 pours) @ 6 days/pour 36 36 29DEC12 09FEB13 0 25SEP12 07NOV12 -377						1		1					
05L1BI2824       Set up for raise stairway const. (wall only)       6       6       10NOV12       16NOV12       0 09AUG12       15AUG12       -377       -377         05L1BI2826       Construct wall only;       28       28       17NOV12       19DEC12       0 16AUG12       17SEP12       -377       -377         05L1BI2836       Dismantle remove moulds       6       6       20DEC12       28DEC12       0 18SEP12       24SEP12       -377       -377         05L1BI2846       Insitu stairs (6 pours) @ 6 days/pour       36       36       29DEC12       09FEB13       0 25SEP12       07NOV12       -377       -377		· · · · · · · · · · · · · · · · · · ·								$\perp$			
05L1Bl2826 Construct wall only; 28 28 17NOV12 19DEC12 0 16AUG12 17SEP12 -377 05L1Bl2836 Dismantle remove moulds 6 6 20DEC12 28DEC12 0 18SEP12 24SEP12 -377 05L1Bl2846 Insitu stairs (6 pours) @ 6 days/pour 36 36 29DEC12 09FEB13 0 25SEP12 07NOV12 -377		,		-									
05L1BI2836         Dismantle remove moulds         6         6         20DEC12         28DEC12         0         18SEP12         24SEP12         -377         -377           05L1BI2846         Insitu stairs (6 pours) @ 6 days/pour         36         36         29DEC12         09FEB13         0         25SEP12         07NOV12         -377         -377		, , , , , , , , , , , , , , , , , , , ,											
05L1Bl2846 Insitu stairs (6 pours) @ 6 days/pour 36 36 29DEC12 09FEB13 0 25SEP12 07NOV12 -377		37	_								T		
				-							•		
			36	36	29DEC12	09FEB13	0	25SEP12	07NOV12	-377			
Lower Horizontal Section													
05L1BI2814 Excavate by blasting; 4 # blasts 18 18 07FEB12A 02MAY12A 100 14JUL12 03AUG12				18					03AUG12				
05L1BI2815 Excavate rem. (0.5m) by mech./clean & blinding 18 0 04SEP12 24SEP12 0 -377		, , ,		0									
05L1Bl2816   Construct invert   6   6   25SEP12   02OCT12   0   04AUG12   10AUG12   -377   1   1   1   1   1   1   1   1   1	05L1BI2816	Construct invert	6	6	25SEP12	02OCT12	0	04AUG12	10AUG12	-377		XXXXX	

ID	Activity		WP09	WP10	WP10	%	WP09	WP09	Total	2012 S O	: N D J I	F M A	2013 M J J A	SOND	J F M A I	2014 M J J <i>A</i>	NSON	2015 D J F M
05L1BI2818	Description Construct wall & crown	Dur 20	Dur	Start	Finish	Comp	Start	Finish 03SEP12	-377	64 65	66 67 68 6	9 70 71	72 73 74 75	76 77 78 79	J F M A 1 80 81 82 83 8	85 86 8	7 88 89 90	91 92 93 94
		20	20	03OCT12	26OCT12	U	11AUG12	03SEP12	-3//									
Junction Be	etween Main Tunnel & Adit Tunnel																	
					1 1			1										
3BL1BI2100	Remove TBM services/delivery of steel arches	0	0		24APR12A	100		03MAY12										
3BL1BI2106	Install steel arches from main tunnel	19		25APR12A	18MAY12A		04MAY12	31MAY12										
3BL1BI2107	Excavate (breathrough);2m	69	32	09JUL12A	26SEP12		14JUL12	20AUG12	-377									
3BL1BI2108	Construct invert	8	8	05OCT12	13OCT12		21AUG12	29AUG12	-363									
3BL1BI2118	Construct wall & crown	34	34	15OCT12	23NOV12		30AUG12	09OCT12	-343									
3BL1BI2128	Remove steel arches	6	6	24NOV12	30NOV12	0	100CT12	16OCT12	-343	•								
Remaining '	Works Prior to Handover																	
Radio Commi	unication System																	
VO180I205	Construct equipment room	18	18	20NOV12	10DEC12	0	03DEC12	22DEC12	-345									
VO180I210	Lay tiles on equipment room	12	12	11DEC12	24DEC12	0	24DEC12	09JAN13	-345									
VO180I215	Install radio comminication system	18	18	27DEC12	17JAN13	0	10JAN13	30JAN13	-345									
08R1BI2102	Finishing & reinstatement works; Portion B	36	36	22JAN14	07MAR14	0	30JAN13	15MAR13	-679									
08R1BI2103	Pre-handover inspections and remedial works	30	30	08FEB14	14MAR14	0	16FEB13	22MAR13	-679									
16R7BI2102	Landscaping works at Portion B	30	30	15APR13	21MAY13	0	16FEB13	22MAR13	-466			<del></del>	=					
16R7BI2104	Establishment Works at Portion B	365	365	22MAY13	21MAY14	0	23MAR13	22MAR14	-576									
Schedule of	f Milestones for Cost Centre No. 3bL																	
3BL1BI2A02	3bL 1; On establishing tunnelling equipments	0	0		20FEB12A	100		20FEB12A										
3BL1BI2A04	3bL 2; On completion of 12.5% perm. tunnel linin	0	0		200CT12	0		27JUL12	875	<b></b>	for Adit	Tunne	at Intake	I-2				
3BL1BI2A06	3bL 3; On completion of 25% perm. tunnel lining	0	0		29OCT12	0		03AUG12	866	<b>4</b>	for Adit	Tunne	el at Intake	∍ I-2				
3BL1BI2A08	3bL 4; On completion of 37.5% perm. tunnel linin	0	0		05NOV12	0		10AUG12	859 •				el at Intak	////				
3BL1BI2A10	3bL 5; On completion of 50% perm. tunnel lining	0	0		12NOV12	0		17AUG12	852	•	for Ad	it Tunr	el at Intak	ce I-2				
3BL1BI2A12	3bL 6; On completion of 62.5% perm. tunnel linin	0	0		19NOV12	0		24AUG12	845	•	of Ac	dit Tun	nel at Inta	ke I-2				
3BL1BI2A14	3bL 7; On completion of 75% perm. tunnel lining	0	0		26NOV12	0		31AUG12	838	<b>&gt;</b>			nel at Inta	- (///				
3BL1BI2A16	3bL 8; On completion of 87.5% perm. tunnel linin	0	0		03DEC12	0		07SEP12	831	<b>*</b>	<b>♦</b> for A	dit Tu	nnel at Int	ake I-2				
3BL1BI2A18	3bL 9; On completion of perm. tunnel lining	0	0		24DEC12	0		28SEP12	810	۰	offor	Adit T	unnel at li	ntake 1-2				
3BL1BI2A20	3bL 10; On completion of all works under this CC	0	0		24DEC12	0		16OCT12	810	٠	oun	der thi	s Cost Ce	ntre				
Schedule of	f Milestones for Cost Centre No. 5L																	
ochedule of	i illinestories for Gost Gentile No. GE																	
05L1BI2M02	5L 1; On completion of 25% of excavation	0	0		27MAY11A	100		27MAY11A										
05L1BI2M04	5L 2; On completion of 50% of excavation	0	0		27DEC11A	100		27MATTIA 27DEC11A										
05L1BI2M04	5L 3; On completion of 75% of excavation	0	0		14MAR12A	100		14MAR12										
05L1BI2M08	5L 4: On completion of all excavation	0	0		26SEP12	0		20AUG12	899	<b>♦</b> he	low C V	evro	nt for Adit	Intake 1-2				
05L1BI2M08	5L 5; On completion of drop shaft & vortex shaft	0	0		17NOV12	0		29NOV12	847				at Intake	////				
05L1BI2M10	5L 6; On completion of de-aeration chamber	0	0		05OCT12	0		27NOV12	890		hamber							
05L1BI2M14	5L 7; On completion of air vent shaft	0	0		11JAN13	0		29JAN13	792	•			Intake I-2					
05L1BI2M14 05L1BI2M16	5L 8; On completion of man access shaft	0	0		10DEC12	0		09FEB13	824				take I-2					
05L1BI2M18	5L 9; On completion of man access shart	0	0		09FEB13	0		21MAY12	763		/ / / / / / /	/X/X	t Intake I-	2				
USE I BIZIVI I O	JE 9, On completion of mail access aut	U	0		OSECDIO	U		ZIIVIATIZ	103	<u> </u>		aun a	t intake I-					

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total Float 6	2012 2013 2014 20 A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J S O N D J F M A M S O N D S O N D S O N D S O N D S O N D D S O
05L1BI2M20	5L 10; On completion of all works under this CC	0	0		14MAR14	0		22MAR13	365	under this Cost Centre
Schedule o	f Milestones for Cost Centre No. 8R									
08R1BI2R02	8R 1; On completion of approach channel	0	0		13APR13	0		08MAR13	700	5 channel and assiciated decking at Intake I-2
08R1BI2R04	8R 2; On completion of trash grill	0	0		28FEB14	0		05FEB13	379	◆ at Intake I-2
08R1BI2R06	8R 3; On completion of all works under this CC	0	0		14MAR14	0		22MAR13	365	under this Cost Centre
Schedule o	f Milestones for Cost Centre No. 12R									
12R3BI2S02	12R 1; On completion of 50% pile retain. wall	0	0		06NOV08A	100		06NOV08A		
12R3BI2S04	12R 2; On completion of pile retain. wall	0	0		26NOV08A	100		26NOV08A		
12R3BI2S06	12R 3; On completion of boulder traps	0	0		13MAR13	0		29JAN13	731	♦ traps at Intake I-2
12R3BI2S08	12R 4; On completion of all works under this CC	0	0		14MAR14	0		22MAR13	365	
Constructi	on of Intake I-3									
Preliminary										
	Works To Finalize Design									
AGIC-02	Erect platform/mibilization & set up GI rig	3	3	03NO\/08A	05NOV08A	100	03NOV08A	05NOV08A	T	
AGIC-02 AGIC-04	Drill 3 nos. GI holes for Intake Structures	12	-		19NOV08A					
	ace Hoarding by Chain Link Fence	1.2		0011010011	10110 70071	100	0011010071	1011010011		
VO032-I302	Received VO-32 for replacing hoarding by CLF	0	0		16SEP08A	100		16SEP08A	T	
VO032-I304	Procure/prepare/install transparent hoarding	80	80	17SEP08A	06MAR09A		17SEP08A	06MAR09A		
	3							111		
01R1Cl3102	Possession of Portion C -90d of DOC	0	0	26MAR08A		100	26MAR08A		T	
01R1Cl3104	Site clearance	40	40	22APR08A	20SEP08A	100	22APR08A	20SEP08A		
01R1Cl3106	Haording at slope crest	48	48	03JUN08A	30JUL08A	100	03JUN08A	30JUL08A		
01R1Cl3110	Set-up wheel washing facilities	6	6	30JUN08A	03JUL08A	100	30JUN08A	03JUL08A		
01R1Cl3118	Install remote contorl CCTV as per ER 4.4.10	12	12	28OCT08A	10NOV08A	100	28OCT08A	10NOV08A		
Tree Transi	olanting Works									
	3									
16R7Cl3202	Tree inspection & report	7	7	01APR08A	26APR08A	100	01APR08A	26APR08A		
16R7Cl3204	Tree transplant for upper parts; 8 nos.	86*	86*	04JUN08A	13SEP08A	100	04JUN08A	13SEP08A		
16R7Cl3206	1st stg tree pruning	2	2	04JUN08A	21JUN08A	100	04JUN08A	21JUN08A		
16R7Cl3208	2nd stg tree pruning	2	2	04JUL08A	04JUL08A	100	04JUL08A	04JUL08A		
16R7Cl3210	Final stg. tree pruning & tree uplifting	6	6	08SEP08A	13SEP08A	100	08SEP08A	13SEP08A		
16R7Cl3212	Tree transplanting at Ch250-Ch200); 20 nos.	214*	214*	21JUN08A	09MAR09A	100	21JUN08A	09MAR09A		
16R7Cl3214	1st stg tree pruning	3	3	21JUN08A	15JUL08A	100	21JUN08A	15JUL08A		
16R7Cl3216	2nd stg tree pruning	3		15JUL08A		100	15JUL08A	12SEP08A		
16R7Cl3218	Final stg tree pruning & tree uplifting	8			09MAR09A		28FEB09A	09MAR09A		
16R7Cl3220	Tree transplanting at Ch100-Ch0	437*			07DEC09A		21JUN08A	07DEC09A		
16R7Cl3222	1st stg tree pruning	4			01DEC08A		21JUN08A	01DEC08A		
16R7Cl3224	2nd stg tree pruning	4			28OCT09A		05JAN09A	28OCT09A		
16R7Cl3226	Final stg tree pruning & tree uplifting	10	10	10FEB09A	07DEC09A	100	10FEB09A	07DEC09A		

ID	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total	2012		IE[M]	201			2014	NID I	2015
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish	Float 6	3 64 65	66 67 68	3 69 70 7	1 72 73 7	J A S O N D J 4 75 76 77 78 79 80	81 82 83 84 8	5 86 87 88 89 9	0 91 92	2 93 94 95
H-Pile Retai	ining Wall for Wall A																	
Piling Works																		
13R4Cl3400	Mobilize & set up piling rig	6	6	11AUG08A	16AUG08A	100	11AUG08A	16AUG08A										
13R4Cl3401	Drill 28 nos. grout (partially) 11 nos. piles	1	1	18AUG08A	28AUG08A	100	18AUG08A	28AUG08A										
13R4Cl3402	Piling stopped due to accessive grout loss	1	1	29AUG08A	22OCT08A	100	29AUG08A	22OCT08A										
13R4Cl3403	Piling resumed date	1	1	26NOV08A	26NOV08A	100	26NOV08A	26NOV08A										
13R4Cl3405	Complete all H-piles, Wall A; 347nos.	70	70	18AUG08A	21JAN09A	100	18AUG08A	21JAN09A										
Skin Wall																		
13R4Cl3406	Excavate for skin wall construction; 2130m3	60	60	14JAN09A	02MAR09A	100	14JAN09A	02MAR09A										
13R4Cl3408	Hack off piles; piles 1 to 347	48	48	04FEB09A	02APR09A	100	04FEB09A	02APR09A										
13R4Cl3410	Construct skin wall;	60	60	28FEB09A	19MAY09A	100	28FEB09A	19MAY09A										
13R4Cl3414	Construct for capping beams;	24	24	14APR09A	04JUN09A	100	14APR09A	04JUN09A										
13R4Cl3416	Construct U-channels	37	37	06MAY09A	18JUN09A	100	06MAY09A	18JUN09A										
Soil Nailing	Works																	
	Outside Excavation Area																	
13R1Cl3502	Scaffolding platform for soil nailing	18	18	08SEP08A	28OCT08A	100	08SEP08A	28OCT08A	T									
13R1Cl3504	Mobilize & set up drilling & grouting plants	4	4	12SEP08A			12SEP08A	17SEP08A										
13R1Cl3506	Install & grout soil nails; 193 nos. + 8 Test N.	69	69	18SEP08A			18SEP08A	09DEC08A										
	Within Excavation; Ch. 270-210				100000000		100210011	100000-1								-		
13R1Cl3508	Install & grout soil nails	89*	89*	03AUG09A	17NOV09A	100	03AUG09A	17NOV09A										
	Vithin Excavation; Ch. 210-130		00	00/10/00/1	1111010011		00/10/00/1										+	
13R1Cl3510	Install & grout soil nails	117*	117*	12DEC08A	11MAY09A	100	12DEC08A	11MAY09A										
	Within Excavation; Ch.130-0	1		12020071	111111111111111111111111111111111111111	100	12B2GGG/t	1 11007 (1 007 (							#//		+	
13R1Cl3512	Install & grout soil nails	644*	644*	27OCT09A	24DEC11A	100	27OCT094	24DEC11A										
	iling Outside Excavation	044	044	2100103A	ZTDLOTIA	100	2100103A	Z-IDLOTTA							##		+	
13R1Cl3522	Scoffolding platform for soil nailing	12	12	09JUL09A	03NOV09A	100	09JUL09A	03NOV09A										
13R1Cl3532	Install & grout soil nails; 261 no.s + 3 Test N.	100			12DEC09A		21JUL09A	12DEC09A										
·		100	100	2100L03A	IZDLOUSA	100	Z 100L00A	12DL003A							#		+	
	ad Construction																	
	vement; Ch. 0-20						I	T										
09R1Cl3706	Concrete pavement; Ch. 0 to 20 (6 bays)	18	0	18SEP12	09OCT12	0			-333	=							+	
	vement; Ch. 20-160				T		I	T					.					
09R1Cl3714	Road formation	14	11	03APR13	19APR13		21JAN13	01FEB13	-473								$\perp \perp$	
09R1Cl3724	Lay sub-base & kerb	7	11	20APR13	27APR13		02FEB13	18FEB13	-473								$\perp \perp$	
09R1Cl3734	Concrete paving	7	11	29APR13	07MAY13	0	19FEB13	02MAR13	-473				ii.			+	$+\!\!+\!\!\!+$	$\perp \perp \perp$
	vement; Ch. 160-300																	
09R1Cl3647	Road formation	11		08MAY13*	21MAY13		01NOV12*	14NOV12	-473				-				$\perp \perp$	
09R1Cl3648	Lay sub-base and kerb	6	12		28MAY13		15NOV12	28NOV12	-473								$\perp \perp$	
09R1Cl3654	Concrete paving	5	12	29MAY13	03JUN13	0	04MAR13	16MAR13	-473								+	
	vement; Ch. 300-420																	
09R1Cl3674	Road formation	8	16	04JUN13	13JUN13		15NOV12	03DEC12	-473				I I				$\perp \! \! \perp$	
09R1Cl3684	Lay sub-base and kerb	5	16	14JUN13	19JUN13		04JAN13	22JAN13	-473								$\perp \perp$	
09R1Cl3694	Concrete paving; 190m @ 12m/day	7	16	20JUN13	27JUN13	0	18MAR13	09APR13	-473	<u> </u>	<u> </u>						<u></u>	

ID	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total	2012	20	13	2014	2015
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish		A S O N D J 63 64 65 66 67 68	F M A M J	J A S O N D J F M A M 74 75 76 77 78 79 80 81 82 83 84	J J A S O N D 85 86 87 88 89 90 9	) J F M A 1 92 93 94 95
VO-095-02	Green slope arrangement as per VO# 095	24	24	15MAY13	13JUN13	0	04DEC12	03JAN13	-473					
Preliminary Wo	rks for Works included VO#043						1							
VO043-010	Receive VO for revising design	0	0		02FEB09A	100		02FEB09A						
VO043-020	Recieve amendment to VO#043	0	0		05MAY09A	100		05MAY09A						
VO043-030	Procurement of lean mix concrete	12	12	06MAY09A	14MAY09A	100	06MAY09A	14MAY09A						
VO043-040	Testing & approval of lean mix concrete	18	18	15MAY09A	06JUN09A	100	15MAY09A	06JUN09A						
Mass Wall to P	rotect Retained Trees; VO #043													
VO043-120	Setting out at site	69	69	03FEB09A	28APR09A	100	03FEB09A	28APR09A						
VO043-130	Excavate & muck out manually; 50m @ 4m/day	2	2	29APR09A	30APR09A	100	29APR09A	30APR09A						
VO043-140	Erect formwork; 70m2 @ 14m2/day	5	5	04MAY09A	08MAY09A	100	04MAY09A	08MAY09A						
VO043-150	Set up for conreting	2	2	08MAY09A	09MAY09A	100	08MAY09A	09MAY09A						
VO043-160	Pour concrete & removal of formwork	2	2	09MAY09A	11MAY09A	100	09MAY09A	11MAY09A						
Ch.460 to 370;	VO# 043													
VO043-060	Bulk excavation for benching;1061 @ 45m3/day	12	12	29MAY09A	09JUL09A	100	29MAY09A	09JUL09A						
VO043-070	Fill & compaction; 39 layers @ 1 day/layer	39	39	08JUN09A	09JUL09A	100	08JUN09A	09JUL09A						
Ch. 370 to Ch. 2	270; VO #043													
VO043-090	Excavation for access road Ch. 370 to 310	4	4	07AUG09A	15AUG09A	100	07AUG09A	15AUG09A						
VO043-100	Bulk excavation for benching; Ch. 310 to 270	7	7	28AUG09A	05SEP09A	100	28AUG09A	05SEP09A						
VO043-110	Fill & compaction lean mix concerete; 15 layers	7	7	07SEP09A	09SEP09A	100	07SEP09A	09SEP09A						
Works On & Ab	ove Access Road; Ch. 460-270													
09R1Cl3610	Temporary concrete paving & curing	16	16	21AUG09A	11SEP09A	100	21AUG09A	11SEP09A						
09R1Cl3620	Excavation of slope batter above access road	135	135	13JUL09A	19DEC09A	100	13JUL09A	19DEC09A						
Ch. 270 to Ch.	210													
09R1Cl3624	Excavation & soil nailing	54	54	03AUG09A	17NOV09A	100	03AUG09A	17NOV09A						
09R1Cl3626	Backfill (grade 200) & compaction	3	3	18NOV09A	20NOV09A	100	18NOV09A	20NOV09A						
Ch. 210 to Ch.	130													
09R1Cl3630	Excavation as per conforming design	48	48	12DEC08A	11MAY09A	100	12DEC08A	11MAY09A						
09R1Cl3632	Temporary road paving from Ch. 270 to 100	7	7	11MAR10A	12MAR10A	100	11MAR10A	12MAR10A						
VO-084-02	VO#084 revising the design received	0	0	12MAY09A		100	12MAY09A							
VO-084-12	Works resumed as per VO #084	0	0	16MAY09A		100	16MAY09A							
VO-084-22	Excavate slope profile as per VO#084	34	34	16MAY09A	25JUN09A	100	16MAY09A	25JUN09A						
VO-084-26	Remove excavated material off site; 6000m3	18	18	07OCT09A	29OCT09A	100	07OCT09A	29OCT09A						
VO-084-32	Soil nailing at Ch. 198 to 210	4	4	13NOV09A	17NOV09A	100	13NOV09A	17NOV09A						
VO-084-42	Excavate to access road formation	26	26	23NOV09A	10MAR10A	100	23NOV09A	10MAR10A						
VO-127-02	VO#127 received	0	0		26NOV09A	100		26NOV09A						
VO-127-12	Excavation & formation	24	24	30NOV09A	29DEC09A	100	30NOV09A	29DEC09A						
VO-127-22	Permanent soil nailing #24	18	18	30DEC09A			30DEC09A	22JAN10A						
VO-127-32	Placing grade 200 rockfill	6	6	23JAN10A	26JAN10A	100	23JAN10A	26JAN10A						
Ch. 130 to Ch.	0; up to Temp. Access to Wall PB													
09R1Cl3634	55 deg. cut slope & soil nailing	62	62	27OCT09A	27MAR10A	100	27OCT09A	27MAR10A						
09R1Cl3636	Temporary access to wall PB	15	15	22JAN10A	27MAR10A	100	22JAN10A	27MAR10A						
09R1Cl3646	10# additional soil nails instructed by SOR	0	0		25JAN10A	100		25JAN10A						
						_								

Col.	ID	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total	2012	2013 2014 2015
Ch. 1980 Ch. 19. below Ferga, Access to Wall PB  ORTICISSES 39 Seq. ut stope & 10 anilaring 1 41 (12VOV11A 24DEC11A 100   12ROV11A 24DEC11A 24DEC11A 100   12ROV11A 24DEC11A 24DEC11A 24DEC11A 24DEC11A 24DEC11A 24DEC11A 24DE		•								Float	A S O N D J F M A	N M J J A S O N D J F M A M J J A S O N D J F M A 172 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
DRFICIDISSIS   50 669, Out slope 4 sold nailing   41   41   1240/1142   2002-1141   100   1240/1141   2002-1141	Ch. 100 to Ch	i. 0; below Temp. Access to Wall PB										
DRIT CIDEN   Construct 97 PMS   Fig.   Construct 97 PMS   Construct	Name of the latest terms and the latest terms are the latest terms and the latest terms are the latest terms and the latest terms are t		41	41	12NOV11A	24DEC11A	100	12NOV11A	24DEC11A			
Record Drainage: Ch. 460 to Ch. 270   Co. Ch. 100   Co.	09R1Cl3640	80 deg cut slope +68.5 to +63mPD; 1900m3	100	100	28DEC11A	07JUL12A	100	28DEC11A	03MAY12			
Search   S	09R1Cl3642	Rock excavation around edge of MAS; 100m3	10	10	17MAR12A	18JUL12A	100	04MAY12	15MAY12			
Search   S	Road Drainag	ge; Ch. 460 to Ch. 270										
ORRICIDASE   Construct 379UC; along plane part   44   44   23NOV11A   24MARIZA   300   23NOV11A   24MARIZA   300   23NOV11A   24MARIZA   300   24MARIZA   30MIZA			50	50	26MAR12A	03JUN13	90	03APR12	06JUN12	-473		<del></del>
ORRICIDASE   Construct 379UC; along plane part   44   44   23NOV11A   24MARIZA   300   23NOV11A   24MARIZA   300   23NOV11A   24MARIZA   300   24MARIZA   30MIZA	Road Drainac	ne: Ch. 270 to Ch. 100										
Construct 375UC; along inner rurve   44   44   01JUN12A   17SEP12   59   07JUN12   32ULI   2   325   1   1   1   1   1   1   1   1   1			44	44	23NOV11A	24MAR12A	100	23NOV11A	02APR12			
Record Formarge   Ch. 10 to Ch. 0   ORICIGATO  Construct 900mm dia. & UC inner side   100   100   28MAR12A   17SEP12   82   18MAY12   11SEP12   -347	09R1Cl3645		44						30JUL12	-325		
ORTICIZION   Construct 900mm dia, & Liu (Inner side   100   100   28MARTIA   17SEPIZ   32   15MAYIZ   17SEPIZ   3.7	Road Drainac	-										
### H-Pile Retaining Wall for Wall B Additional land for Construction of Wall PB 13R4CISP02   Possession of additional land   0 0 0   01DEC09A   100   01DEC09A   13R4CISP12   Internal transplant for 11# frees   55   55   50   20DEC09A   04MAR10A   100   02DEC09A   04MAR10A   13R4CISP18   Form piling platform for Wall B   80   80   11MAR10A   19JUN10A   100   11MAR10A   100   10MAR10A   100   10MAR10A   100   10MAR10A   100   10MAR10A   100   10MAR10A   100   10MAR10A   10MAR1			100	100	26MAR12A	17SEP12	82	16MAY12	11SEP12	-347		
### Pile Retaining Wall for Wall B Additional land for Construction of Wall PB  18R4CISP02 Possession of additional land 0 0 0 01DEC09A 100 01DEC09A 101 01DEC09A	09R1Cl3710	Construct 450mm dia. drainage & outer UC	18	60	19MAR13	12APR13	0	12SEP12	22NOV12	-473		
Additional land for Construction of Wall P8	H-Pile Retai											
1984G39P2   Possession of additional land												
13R4Ci3P12   Internal transplant for 11#1 frees   55   65   02DEC09A   OMMAR10A   100   02DEC09A   OMMAR10A   100   02DEC09A   OMMAR10A   100   13R4Ci3P16   Form pilling platform for Wall B   80   80   11MAR10A   13JUN10A   13JUN10A   13JUN10A   13R4Ci3P2A   Reconstruct pilling platform   77   72   23JUN10A   27SEP10A   100   23JUN10A   27SEP10A   13R4Ci3P2A   Removal of pilling platform   93   93   93   94MAR11A   27OCT11A   100   24MAR11A   27OCT11A   100   24MAR1A   27OCT11A   100   24MAR1A   27OCT11A   100   24MAR1A   27OCT11A   100   24MAR1A   27OCT11A   100   13R4Ci3P2A   Planting 13# frees   4   4   10NOV11A   12NOV11A   100   10NOV11A   12NOV11A   12NOV			0	0		01DEC004	100		01DEC004			
13R4Ci3P18   Form piling platform for Wall B   80   80   11MAR10A   19JUN10A   100   11MAR10A   13JUN10A   13R4Ci3P2O   Reconstruct piling platform   77   77   28JUN10A   27SEP10A   100   28JUN10A   27SEP10A   27SEP10A   100   28JUN10A   27SEP10A				-								
13R4Cl3P20   Reconstruct pilling platform		·										
13R4Cl3P22   Removal of pilling platform												
13R4Cl3P32   Slope reinstament   93   93   01APR11A   09NOV11A   100   01APR11A   09NOV11A   13R4Cl3P32   Plainting 13# trees   4   4   10NOV11A   12NOV11A   100   10NOV11A   12NOV11A									1			
13R4Cl3P42   Planting 13# trees									1			
VO#188; Internal Transplant of Tree T765   Issue VO #188		·		95					1			
13R4Cl3726   Issue VO #188			1 7		TONOVITA	IZNOVIIA	100	TONOVITA	IZNOVIIA			
13R4CI3736 Construct planter wall 28 28 25MAY11A 27JUN11A 100 25MAY11A 27JUN11A 101			10			24140 V 110	100	1	24MAV11A			
1				_	25MAV11A							
1   1   03AUG11A   0		•		20								
Piling Works			_	1								
13R4Cl3700   Demolish existing ret. wall/slope protection   28   28   15SEP10A   20OCT10A   100   15SEP10A   20OCT10A   20OCT10A   13R4Cl3702   Mobilize & set up piling rig   6   6   22OCT10A   29OCT10A   100   22OCT10A   29OCT10A   29OCT10	l l	Tiee removal	'	' '	USAUGTIA	USAUGTTA	100	USAUGTIA	USAUGTIA			
13R4Cl3702   Mobilize & set up piling rig   6   6   22OCT10A   29OCT10A   2		Domolich existing ret, well/alone protection	20	20	150ED104	200CT10A	100	150ED104	200CT10A			
13R4Cl3704       350mm dia. pre-bored H-piles, Wall B; 93 nos.       49       49       30OCT10A       11DEC10A       100       30OCT10A       11DEC10A         13R4Cl3705       Demobilize piling rig       6       6       13DEC10A       18DEC10A       18DEC10A       18DEC10A         Skin Wall         13R4Cl3706       Extension of piles       18       18       20DEC10A       08JAN11A       100       20DEC10A       08JAN11A         13R4Cl3708       Excavate & hack off piles       24       24       10JAN11A       22JAN11A       100       10JAN11A       22JAN11A         13R4Cl3710       Construct skin wall & capping beams; 6 bays       24       24       24JAN11A       08MAR11A       100       24JAN11A       08MAR11A         13R4Cl3714       Construct end walls       6       6       09MAR11A       15MAR11A       100       09MAR11A       15MAR11A         13R4Cl3716       Backfill/reinstatement/U-channel       18       18       18 MAR11A       31JUL12A       100       16MAR11A       07MAR12         Channel Modification Works (Dry Season)         River Diversion for Underground Works         09R1Cl3804       Break boulders       78       78       05FEB09A       04FEB09A       <				20								
13R4C13705   Demobilize piling rig   6   6   13DEC10A   18DEC10A   100   13DEC10A   18DEC10A   18				40								
Skin Wall           13R4Cl3706         Extension of piles         18         18         20DEC10A         08JAN11A         100         20DEC10A         08JAN11A         13R4Cl3708         Excavate & hack off piles         24         24         10JAN11A         22JAN11A         100         10JAN11A         100         10JAN11A		·										
13R4Cl3706   Extension of piles   18   18   20DEC10A   08JAN11A   100   20DEC10A   08JAN11A   100   20DEC10A   08JAN11A   13R4Cl3708   Excavate & hack off piles   24   24   10JAN11A   22JAN11A   100   10JAN11A   22JAN11A   100   10JAN11A   13R4Cl3710   Construct skin wall & capping beams; 6 bays   24   24   24JAN11A   08MAR11A   100   24JAN11A   08MAR11A   15MAR11A   15		Demobilize plining rig	1 0	0	IDDLCTOA	TODECTOA	100	IJDECTOA	TODECTOA			
13R4Cl3708 Excavate & hack off piles 24 24 10JAN11A 22JAN11A 100 10JAN11A 22JAN11A 100 10JAN11A 22JAN11A 13R4Cl3710 Construct skin wall & capping beams; 6 bays 24 24 24JAN11A 08MAR11A 100 24JAN11A 08MAR11A 13R4Cl3714 Construct end walls 6 6 6 09MAR11A 15MAR11A 100 09MAR11A 15MAR11A 13R4Cl3716 Backfill/reinstatement/U-channel 18 18 16MAR11A 31JUL12A 100 16MAR11A 07MAR12  Channel Modification Works (Dry Season)  River Diversion for Underground Works  09R1Cl3802 Form a temporary plant access to stream 60 60 12DEC08A 04FEB09A 100 05FEB09A 24FEB09A 100 05FEB09A 24FEB09A		Extension of pilos	10	10	20050104	00 10 111 1	100	20050104	00 10 111 1			
13R4Cl3710   Construct skin wall & capping beams; 6 bays   24   24   24JAN11A   08MAR11A   100   24JAN11A   08MAR11A   13R4Cl3714   Construct end walls   6   6   09MAR11A   15MAR11A   100   09MAR11A   15MAR11A   13R4Cl3716   Backfill/reinstatement/U-channel   18   18   16MAR11A   31JUL12A   100   16MAR11A   07MAR12	10111010101	·										
13R4Cl3714   Construct end walls   6   6   09MAR11A   15MAR11A   100   09MAR11A   15MAR11A   100   09MAR11A   15MAR11A   13R4Cl3716   Backfill/reinstatement/U-channel   18   18   16MAR11A   31JUL12A   100   16MAR11A   07MAR12		·	_	24								
13R4Cl3716   Backfill/reinstatement/U-channel   18   18   16MAR11A   31JUL12A   100   16MAR11A   07MAR12				24								
Channel Modification Works (Dry Season)           River Diversion for Underground Works           09R1Cl3802         Form a temporay plant access to stream         60         60         12DEC08A         04FEB09A         04FEB09A           09R1Cl3804         Break boulders         78         78         05FEB09A         24FEB09A         24FEB09A										·		
River Diversion for Underground Works           09R1Cl3802         Form a temporary plant access to stream         60         60         12DEC08A         04FEB09A         04FEB09A         04FEB09A           09R1Cl3804         Break boulders         78         78         05FEB09A         24FEB09A         24FEB09A         24FEB09A	·		10	10	IOIVIANTIA	J IJUL IZA	100	OWNARTIA	OT IVIAN IZ			
09R1Cl3802         Form a temporary plant access to stream         60         60         12DEC08A         04FEB09A         100         12DEC08A         04FEB09A           09R1Cl3804         Break boulders         78         78         05FEB09A         24FEB09A         100         05FEB09A         24FEB09A												
09R1Cl3804 Break boulders 78 78 05FEB09A 24FEB09A 100 05FEB09A 24FEB09A						I		1	T			
09R1Cl3806   Concrete bedding for bund wall (gabion)   11   11   25FEB09A   09MAR09A   100   25FEB09A   09MAR09A									-			
	09R1Cl3806	Concrete bedding for bund wall (gabion)	11	11	25FEB09A	U9MAR09A	100	25FEB09A	U9MAR09A			

ID	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total	20			· India	2013	ONE	2	014		2015
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish	Float 6	3 64 6	5 66 6	57 68 6	M A 9 70 71	M J J A S 72 73 74 75 76	77 78 79 80 81	M A M J 82 83 84 8	J A S 5 86 87 88	89 90 9	1 92 93 94
09R1Cl3808	Construct bund wall (gabion)	22	22	10MAR09A	30APR09A	100	10MAR09A	30APR09A											
09R1Cl3810	Divert channel to south west	0	0		30APR09A	100		30APR09A				<u> </u>							
Channel Modi	ification Works																		
09R1Cl3812	Breaking of large boulders	54	54	02NOV09A	24MAR10A	100	02NOV09A	24MAR10A											
09R1Cl3814	Excavate stream bed & make good upper part	24	24	25JAN10A	24MAR10A	100	25JAN10A	24MAR10A											
09R1Cl3816	Laying of rock armour	24		07DEC09A	15DEC09A		07DEC09A	15DEC09A											
09R1Cl3818	Construct bund wall for approch channel const.	14	14	22MAR10A	17APR10A		22MAR10A	17APR10A											
09R1Cl3820	Divert channel to south west	0	0		17APR10A	100		17APR10A			- 1/4								
Boulder Traps								T											
09R1C22002	Mobilization setup	6		23FEB11A				28FEB11A											
09R1C22012	Construction of boulder trap; 7 nos.	24	24	29MAR11A	12APR11A	100	29MAR11A	12APR11A			4								
	g & Trash Grill																		
09R1C3T010	Remove concrete bund wall	24	4	01110110	28NOV13		10NOV12*	14NOV12	-679										
09R1C3T020	Stone pitching to channel bed & wall	72	36	29NOV13	28FEB14		15NOV12	28DEC12	-679		7								
09R1C3T040	Install trash grill & adjustable wire	72	36		28FEB14		15NOV12	28DEC12	-679		7								
PVOABT3-10	Additional boulder traps	48	0	01NOV12*	28DEC12	0			-407		7								
Excavation	for AVS/VS/DC/MAS/MAA																		
Open Excavat	tion for Underground Structures																		
06L1Cl3906	Mobilize drilling rig, backhoes	1	1	11DEC09A	11DEC09A	100	11DEC09A	11DEC09A											
06L1Cl3908	Excavation	571	571	04JAN10A	24DEC11A	100	04JAN10A	24DEC11A											
Excavation	& Construction of Main Adit																		
3CL1Cl3101	Probe drill	6	6	09SEP11A	10SEP11A	100	09SEP11A	10SEP11A											
3CL1Cl3102	Excavation for 2m buffer zone	62	30	29JUN12A	05SEP12	87	14JUL12	17AUG12	-473										
3CL1Cl3103	Cleaning & place blinding	4	4	06SEP12	10SEP12	0	18AUG12	22AUG12	-473	8									
3CL1Cl3104	Construct wall & crown (1 bay)	14	8	12OCT12	29OCT12	0	120CT12	20OCT12	-473	Į									
3CL1Cl3105	Construct wall & crown (2 bays)	18	14	30OCT12	19NOV12	0	22OCT12	07NOV12	-473		#								
3CL1Cl3111	Trial excavation (2m)	60	60	03DEC11A	27FEB12A	100	03DEC11A	27FEB12A											
3CL1Cl3121	Excavation (11m)	110	110	28FEB12A	28JUN12A	100	28FEB12	13JUL12											
Constructio	n of Man Access Adit (MAA)																		
06L1Cl3112	Construct invert;	7	7	01FEB12A	10FEB12A	100	01FEB12A	10FEB12A											
06L1Cl3116	Construct wall & crown	19	19	24FEB12A	21MAR12A	100	24FEB12A	16MAR12											
Constructio	on of Man Access Shaft (MAS)																		
												XX							
06L1Cl3122	Construct base	9	9	14JAN12A	19JAN12A	100	14JAN12A	19JAN12A				XX							
06L1Cl3124	Set up formworks	6	6	23MAR12A			17MAR12	23MAR12											
06L1Cl3126	Construct wall; 5 lifts, 3.6m per lift	36	36		06JUN12A		24MAR12	11MAY12											
06L1Cl3127	Install pre-cast stair with insitu stitch	27	40	07JUN12A			27JUL12	11SEP12	-	<b>+</b>	1								
06L1Cl3129	Construct shaft roof	15	15		29SEP12		22SEP12	100CT12	-304	-									
06L1Cl3139	Install steel hadraining	12	12		24OCT12		110CT12	25OCT12	-311										
	-	1			1		I	1	1 1	•	r_/_		Z Z Z A		<u> </u>	Z4I			+

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total	201 A S O	N D J	F M A	2013 M J J A S O N D J F M A	2014 A M J J A S O N	2015 N D J F M A
Construction	n of Deaerarion Chamber (DC)	Dui	Dui	Otart	Tillion	Comp	Otart	1 1111311	1 loat	63 64 65	66 67 68	69 70 71	72 73 74 75 76 77 78 79 80 81 82 83	184 85 86 87 88 89 9	0 91 92 93 94 95
	und Drop Shaft														
06L1Cl3E02	Clean & place blinding for all area	6	6	28DEC11A	03.JAN12A	100	28DEC11A	03JAN12A							
06L1Cl3E12	Construct base: 95m3	8		30MAR12A			17MAR12	26MAR12							
06L1Cl3E22	Construct walls; 100m3	13	13		10MAY12A		27MAR12	14APR12							
06L1Cl3E32	Construct crown; 150m3	25		11MAY12A			16APR12	16MAY12							
	nnecting to Main Adit				10000111		141 11112	1						-	
06L1Cl3W12	Construct base; 95m3	6	9	16JUN12A	22JUN12A	100	23AUG12	01SEP12		Ļ					
06L1Cl3W22	Construct walls	20	11	18SEP12	110CT12		03SEP12	14SEP12	-469						
06L1Cl3W32	Construct crown stage 1	14	22		29OCT12		15SEP12	110CT12	-469	-					
06L1Cl3W42	Construct crown stage 2	22	0	15NOV12	10DEC12	0			-473						
	n of Vortex Shaft (VS)														
Vortex; East S															
06L1CIE010	Construct Vortex; base	12	11	03NOV12	16NOV12	0	22OCT12	03NOV12	-469						
06L1CIE020	Construct Vortex; wall stg 1	23	11	17NOV12	13DEC12		05NOV12	16NOV12	-469						
06L1CIE030	Construct Vortex; wall stg 2 with roof	18	11		07JAN13		17NOV12	29NOV12	-469						
06L1CIE040	Construct Vortex; planter wall	11	0	08JAN13	19JAN13	0			-383		1				
	Side				1001 0110										
06L1CIW010	Construct Vortex; base	12	11	06AUG12A	18AUG12A	100	12JUN12	25JUN12	1						
06L1CIW020	Construct Vortex; wall stg 1	23	11	20AUG12A	14SEP12		26JUN12	09JUL12	-419	•					
06L1CIW030	Construct Vortex; wall stg 2 with roof	18	11	15SEP12	06OCT12	0	10JUL12	21JUL12	-419						
06L1CIW040	Construct Vortex; planter wall	11	0	08OCT12	190CT12	0			-319						
	71	1													
06L1Cl3142	Construct drop shaft	12	12	16JUN12A	14JUL12A	100	17MAY12	30MAY12							
Construction	n of Air Vent Shaft Shaft (AVS)														
06L1Cl3152	Install pre-cast #1 & construct collar ring	4	8	30OCT12	02NOV12	0	120CT12	20OCT12	-469	-					
06L1Cl3514	Temp. works & granular fill	8	8	03NOV12	12NOV12		22OCT12	310CT12	-445						
06L1Cl3515	Install pre-cast #2 & granular fill	8	8	13NOV12	21NOV12	0	01NOV12	09NOV12	-445		•				
06L1Cl3516	Install pre-cast #3 to #6 & granular fill	12	2	27DEC12	10JAN13	0	10NOV12	12NOV12	-472						
06L1Cl3526	Construct insitu (top of AVS)	8	0	11JAN13	19JAN13	0			-383		3				
Backfill Arou	ind Structure														
06L1Cl3162	Granular fill at east of DC up to base of Vortex	10	10	17JUL12A	04AUG12A	100	31MAY12	11JUN12							
06L1Cl3164	Granular fill at west of AVS below bay 6 of A.C.	12	6	11DEC12	24DEC12	0	23JUL12	28JUL12	-473						
06L1Cl3174	Granular fill for bay 7 of A.C.	12	13	11JAN13	24JAN13	0	18JAN13	01FEB13	-472						
Construction	n of Approach Channel														
Excavation &															
09R1Cl3172	Excavation for Approach Channel	40	40	28SEP10A	21FEB11A	100	28SEP10A	21FEB11A							
Tower Crane															
09R1C17002	Construction of base for tower crane	10	10	21DEC10A	24DEC10A	100	21DEC10A	24DEC10A							
	1										<u> </u>	<u> </u>			

ID	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total	2012	2013 2014 2015
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish	Float	A S O N D J F M 63 64 65 66 67 68 69 70 7	A M J J J A S O N D J F M A M J J A S O N D J F M A 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
09R1C17012	Erection and T&C of tower crane	6	6	03JAN11A	05JAN11A	100	03JAN11A	05JAN11A			
09R1C17022	Removal of tower crane	4	4	28FEB13	04MAR13	0	18JAN13	22JAN13	-473	•	
09R1C17032	Construct approach channel at TC location	24	24	05MAR13	05APR13	0	23JAN13	22FEB13	-473		
Bays 1-4; Bas	se and 1st Lift Wall	<u> </u>	'					<u>'</u>			
09R1C18002	Construction of Approach Channel	32	32	02FEB11A	25MAR11A	100	02FEB11A	25MAR11A			
09R1C18012	Modification of temporary bund wall	18	18	15MAR11A	12APR11A	100	15MAR11A	12APR11A			
09R1C18022	Nullah widening works	32	32	14FEB11A	26MAR11A	100	14FEB11A	26MAR11A			
Bays 1-4 (rem	naining) & bay 5										
09R1C19002	Remove concrete bund wall	10	10	12NOV11A	19NOV11A	100	12NOV11A	19NOV11A			
09R1C19004	Construct remaining sections of bays 1-4	66	66	21NOV11A	18JAN12A	100	21NOV11A	18JAN12A			
09R1C19006	Construct base, walls & roof of bay 5	36	36	19JAN12A	17MAR12A	100	19JAN12A	09MAR12			
09R1C19008	Erect concrete bund wall	12	12	19MAR12A	31MAR12A	100	10MAR12	23MAR12			
Bays 6 & 7											
09R1C2102	Construct bay 6	25	50	27DEC12	25JAN13	0	17NOV12	17JAN13	-473		
09R1C2112	Construct bay 7	25	0	26JAN13	27FEB13	0			-473		
lunction Be	etween Main Tunnel & Adit Tunnel										
ounction Be	tween main runner a Aut runner										
3CL1Cl3100	Install steel arches at I-2 Junction	0	0		18MAY12A	100		29MAR12			
3CL1Cl3106	Install steel arches from main tunnel	24	24	19MAY12A	16JUN12A		30MAR12	03MAY12			
3CL1Cl3108	Construct invert including for main adit	12	8	11SEP12	24SEP12		03OCT12	110CT12	-473		
3CL1Cl3108	Construct wall & crown	14	34	25SEP12	110CT12		220CT12	30NOV12	-473		
3CL1Cl3118	Remove steel arches	6	6	120CT12	18OCT12		01DEC12	07DEC12	-367		
			J	1200112	1000112	U	OIDLOIL	010012	007		
	Works Prior to Handover to Client										
	unication System							1			
VO180CI305	Lay CLP power cable	36	36	13NOV12	24DEC12		01AUG12	11SEP12	-361		
VO180CI310	Construct equipment room	18	18	27DEC12	17JAN13		12SEP12	03OCT12	-361		
VO180CI315	Lay tiles on equipment room	12	12	18JAN13	31JAN13		04OCT12	17OCT12	-361		
VO180CI340	Install radio communicaition system	18	18	01FEB13	25FEB13	0	18OCT12	08NOV12	-361		
227 / 2/2 / / /									1		
09R1Cl3142	Finishing & reinstatement works; Portion C	36	36	22JAN14	07MAR14		22FEB13	09APR13	-679		
09R1Cl3143	Pre-handover inspections and remedial works	30	30	08FEB14	14MAR14		08MAR13	16APR13	-679		
16R7Cl3142	Landscaping works	108	108	14MAY12A	04OCT12		02APR12	14AUG12	-283		
16R7Cl3143	Planting works at Aprroach Channel	12	12	06APR13	19APR13		23FEB13	08MAR13	-441		
16R7Cl3144	Establishment Works at Portion C	365	365	20APR13	19APR14	0	09MAR13	08MAR14	-544		
Schedule of	f Milestones for Cost Centre No. 3cL										
3CL1Cl3A02	3cL 1; On establishing tunnelling equipments	0	0		27JUN12A	100		20JUL12			
3CL1Cl3A04	3cL 2; On completion of 12.5% perm. tunnel linin	0	0		27AUG12	0		30JUL12	929	Adit Tunnel at In	take I-3
3CL1Cl3A06	3cL 3; On completion of 25% perm. tunnel lining	0	0		27AUG12	0		08AUG12	929	Adit Tunnel at In	
3CL1Cl3A08	3cL 4; On completion of 37.5 perm. tunnel lining	0	0		27AUG12	0		17AUG12		Adit Tunnel at In	1
3CL1Cl3A10	3cL 5; On completion of 50% perm. tunnel lining	0	0		27AUG12	0		27AUG12	929		1
3CL1Cl3A12	3cL 6; On completion of 62.5% perm. tunnel linin	0	0		18OCT12	0		18OCT12	877	Adit Tunnel a	at Intake I-3

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total Float 6	2012 A S O N D J F M A 3 64 65 66 67 68 69 70 71	2013 M J J A S C	2014 D N D J F M A M J J A 7 78 79 80 81 82 83 84 85 86 87	2015 S O N D J F M A 88 89 90 91 92 93 94 9
3CL1Cl3A14	3cL 7; On completion of 75% perm. tunnel lining	0	0		29OCT12	0		29OCT12	866	◆ Adit Tunnel at			
3CL1Cl3A16	3cL 8; On completion of 87.5% perm. tunnel linin	0	0		29OCT12	0		20OCT12	866	◆Adit Tunnel at	Intake I-3		
3CL1Cl3A18	3cL 9; On completion of perm. tunnel lining	0	0		110CT12	0		30NOV12	884	♦ Adit Tunnel at I	ntake I-3		
3CL1Cl3A20	3cL 10; On completion of all works under this CC	0	0		110CT12	0		30NOV12	884	under this Cost	Centre		
Schedule of	Milestones for Cost Centre No. 6L												
06L1Cl3M02	6L 1; On completion of 50% of excavation	0	0		27MAY10A	100		27MAY10A					
06L1Cl3M04	6L 2; On completion of excavation works	0	0		24DEC11A	100		24DEC11A					
06L1Cl3M08	6L 3; On completion of vortex shaft	0	0		06OCT12	0		21JUL12	889	♦at Intake I-3			
06L1Cl3M10	6L 4; On completion of de-aeration chamber	0	0		29OCT12	0		110CT12	866	chamber at In	take I-3		
06L1Cl3M12	6L 5; On completion of vent shaft	0	0		10JAN13	0		12NOV12	793	• at Intak	e I-3		
06L1Cl3M14	6L 6; On completion of man access shaft	0	0		29SEP12	0		10OCT12	896	♦shaft at Intake I	-3		
06L1Cl3M16	6L 7; On completion of man access adit	0	0		21MAR12A	100		16MAR12					
06L1Cl3M18	6L 8; On completion of all works under this CC	0	0		06OCT12	0		21JUL12	889	under this Cost	Centre		
Schedule of	Milestone for Cost Centre No. 9R												
09R1Cl3R02	9R 1; On completion of access road	0	0		27JUN13	0		09APR13	625		◆at Intake	e 1-3	
09R1Cl3R04	9R 2; On completion of 25% of excavation at G.L	0	0		11JUN09A	100		11JUN09A					
09R1Cl3R06	9R 3; On completion of 50% of excavation at G.L	0	0		15AUG09A	100		15AUG09A					
09R1Cl3R08	9R 4; On completion of 75% of excavation at G.L	0	0		27MAR10A	100		27MAR10A					
09R1Cl3R10	9R 5; On completion of excavation at G.L.	0	0		07JUL12A	100		03MAY12					
09R1Cl3R12	9R 6; On completion of 50% of approach channel	0	0		18JAN12A	100		18JAN12A					
09R1Cl3R14	9R 7; On completion of approach channel	0	0		25JAN13	0		17JAN13	778	channe	el and associa	ated decking at Intake I-3	
09R1Cl3R16	9R 8; On completion of trash grill	0	0		28FEB14	0		28DEC12	379			at Intake I-3	
09R1Cl3R18	9R 9; On completion of all works under this CC	0	0		14MAR14	0		16APR13	365	•		under this C	ost Centre
Schedule of	Milestones for Cost Centre No. 13R												
13R4Cl3S01	13R 1; On completion of 30% soil nailing	0	0		26SEP09A	100		26SEP09A					
13R4Cl3S02	13R 2; On completion of 60% soil nailing	0	0		12DEC09A	100		12DEC09A					
13R4Cl3S03	13R 3; On completion of all soil naing works	0	0		24DEC11A	100		24DEC11A					
13R4Cl3S04	13R 4; On completion of 10% piles by number	0	0		05DEC08A	100		05DEC08A					
13R4Cl3S05	13R 5; On completion of 20% piles by number	0	0		13DEC08A	100		13DEC08A					
13R4Cl3S06	13R 6; On completion of 30% piles by number	0	0		18DEC08A	100		18DEC08A					
13R4Cl3S07	13R 7; On completion of 40% piles by number	0	0		23DEC08A	100		23DEC08A					
13R4Cl3S08	13R 8; On completion of 50% piles by number	0	0		02JAN09A	100		02JAN09A					
13R4Cl3S09	13R 9; On completion of 60% piles by number	0	0		09JAN09A	100		09JAN09A					
13R4Cl3S10	13R 10; On completion of 70% piles by number	0	0		16JAN09A	100		16JAN09A					
13R4Cl3S11	13R 11; On completion of 80% piles by number	0	0		21JAN09A	100		21JAN09A					
13R4Cl3S12	13R 12; On completion of 90% piles by number	0	0		04DEC10A	100		04DEC10A					
13R4Cl3S13	13R 13; On completion of all piling works	0	0		11DEC10A	100		11DEC10A					
13R4Cl3S14	13R 14; On completion of boulder traps	0	0		12APR11A	100		12APR11A					
13R4Cl3S15	13R 15; On completion of all work under this CC	0	0		24DEC11A	100		24DEC11A					

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total	2012 A S O	и п і	F M A	20: M J	1 4 9	0 N I	D J F	M A M	2014 1 J J	A S O	N D	2015 J F M	
Construction	on of Outfall O-1	Bui	Dui	Otare	Tillion	Comp	Otart	Tillion	Float	03 04 05 0	06 67 6	3 09 70 7	1 /2 /3	/4 /5 /6	0 77 78 7	9 80 81	82 83 84	4 85 86	37   88   89	90 91	92 93 94	95
Preliminary																						
	sperant Hoarding at Outfall																					
01R1DO0106	Receive VO6 for transperant hoarding	0	0		16APR08A	100		16APR08A														
01R1DO0108	Procurement for transperent hoarding	21	21	17APR08A	20MAY08A	100	17APR08A	20MAY08A														
01R1DO0110	Erect hoarding	18	18	21APR08A	02JUL08A	100	21APR08A	02JUL08A														Т
VO #16: Chair	Link Fence at O-1							1														Т
V01602	Issue VO16 for chain link fence	0	0		02JUL08A	100		02JUL08A														
V01612	Preparation works for chain link fence	1	1	03JUL08A	18AUG08A	100	03JUL08A	18AUG08A														T
V01622	Erect chain link fence; 460m	38	38	19AUG08A	19SEP08A	100	19AUG08A	19SEP08A														Т
Temporary CL	P Power Supply for TBM Operation																					Т
01R1DCLP02	Application/approval for temp. CLP Power Supply	200	200	07MAR08A	01AUG08A	100	07MAR08A	01AUG08A														
01R1DCLP14	Appoint sub-contractor for design & build TX Rm	67	67	14JUL08A			14JUL08A	07NOV08A														
01R1DCLP24	Design for transformer room	24	24	A80VOR80			08NOV08A	11MAR09A														T
01R1DCLP34	Constuct transformer room	60	60	12MAR09A	14MAY09A		12MAR09A	14MAY09A														
01R1DCLP44	CLP inspection & defect rectification	14	14	15MAY09A	10JUN09A	100	15MAY09A	10JUN09A														T
01R1DCLP54	CLP cabling to TX room & commissioning	32	32	11JUN09A	30OCT09A		11JUN09A	30OCT09A														Т
01R1DCLP74	CLPE cabling from TX room to 24mPD platform	18	18	28OCT09A	17NOV09A	100	28OCT09A	17NOV09A														Т
VO#25: Revise	ed Fencig Details at O-1 Next to GVT							1														Т
V025-02	Receive VO16 for revised details next to GVT	0	0		17SEP08A	100		17SEP08A														
V025-12	Preparation works	24	24	22JAN09A	07FEB09A	100	22JAN09A	07FEB09A														П
V025-22	Erect proposed transparent hoarding	4	4	09FEB09A	02MAR09A	100	09FEB09A	02MAR09A														П
V055-02	Receive VO#55 in lieu of VO#25	0	0		21JAN09A	100		21JAN09A														
																						Т
01R1DO0102	Obtain TTA (ingress & egress) approval	0	0		18APR08A	100		18APR08A														
01R1DO0103	Implment TTA for diverting footpath	1	1	19APR08A	19APR08A	100	19APR08A	19APR08A														Т
01R1DO0104	Obtain excavation permit	0	0		29MAY08A	100		29MAY08A														Т
01R1DO0112	Erect catch fencing	10	10	26MAY08A	02JUL08A	100	26MAY08A	02JUL08A														
01R1DO0114	Site establishment	30	30	21APR08A	15JUL08A	100	21APR08A	15JUL08A														Т
01R1DO0116	Site clearance	30	30	21APR08A	05SEP08A	100	21APR08A	05SEP08A														
01R1DO0118	Install remote contorl CCTV as per ER 4.4.10	12	12	28OCT08A	10NOV08A	100	28OCT08A	10NOV08A														
16R1DO0110	Tree inspection & report	7	7	13MAR08A	28MAR08A	100	13MAR08A	28MAR08A														
Form Tempo	orary Access/Tree Felling																					Г
	nsion Due to Obstruct. from Villagers																					
WSO02	Works suspension due to obstruct. frm villagers	24	24	19JUL08A	10AUG08A	100	19JUL08A	10AUG08A								XXX						
																						Н
10R1DO0202	Form temp. access road from +14mPD to +69mPD	158*	158*	19JUN08A	24DEC08A	100	19JUN08A	24DEC08A														
10R1DOAR04	Const. temp. steel decking over exist Outfall W	11		26AUG08A				06SEP08A														H
10R1DOAR08	Form temp. access road from 14mPD to 28mPD	12	12	19JUN08A			19JUN08A	18JUL08A								X///						T
10R1DOAR12	Preparation works for transplanting T160	53		11AUG08A				25OCT08A								XXII						t
10R1DOAR42	Mobilze & set up crane for tree transplant	1	1	27OCT08A				27OCT08A								XXII						t
10R1DOAR44	Crown pruning for T160	2	2	28OCT08A				29OCT08A								X///						T
	1 2 2				1			1			r/V/V/	Y/V/V			L 1///		1//1	$\perp$		$\perp$		_

ID	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total	2012	2013 2014 2015
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish	Float	A S O N D J F M A 63 64 65 66 67 68 69 70 71	M J J A S O N D J F M A M J J A S O N D J F M 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 9
10R1DOAR46	Cut root & uplift T160	1	1	30OCT08A	30OCT08A	100	30OCT08A	30OCT08A			
10R1DOAR54	Crown pruning/Cut root & uplift T142	10	10	21FEB09A	21FEB09A	100	21FEB09A	21FEB09A			
10R1DOAR56	Construct access road from +43 to +55mPD	30	30	31OCT08A	24DEC08A	100	310CT08A	24DEC08A			
16R7DO0202	Tree transplant at Outfall O-1	105	105	02JUN08A	06MAR09A	100	02JUN08A	06MAR09A			
16R7DO0204	Tree transplant above +62mPD	11	11	31OCT08A	12NOV08A	100	310CT08A	12NOV08A			
Form Tempo	orary Launching Platform										
	oil Nailing; +71mPD to +40mPD										
10R1DO030	+71 to +40mPD (rows to A to P)	217*	217*	13NOV08A	08AUG09A	100	13NOV08A	08AUG09A			
10R1DO031	Remove boulder/Cut slope for rows A to D	9	9	13NOV08A	06DEC08A	100	13NOV08A	06DEC08A			
10R1DO032	Erect scaffold & Drill/install/grout/P1at row C	12	12	02DEC08A	16DEC08A	100	02DEC08A	16DEC08A			
10R1DO033	Drill/install/grout rows B to C; 18 nos.	14	14	17DEC08A	06JAN09A	100	17DEC08A	06JAN09A			
10R1DO034	Drill/install/grout/testing for P2 at row D	8	8	30DEC08A	06JAN09A	100	30DEC08A	06JAN09A			
10R1DO035	Drill/install/grout D1 to D11	7	7	07JAN09A	16JAN09A	100	07JAN09A	16JAN09A			
10R1DO036	Cut slope for E1 to G20; soil 620m3	2	2	15JAN09A	20JAN09A	100	15JAN09A	20JAN09A			
10R1DO037	Drill/install/grout E1 to G20: 51 nos.	19	19	20JAN09A	11FEB09A	100	20JAN09A	11FEB09A			
10R1DO038	Construct nail heads/remove platform; rows B-G	10	10	02FEB09A	17FEB09A	100	02FEB09A	17FEB09A			
10R1DO039	Erosion mat, wire mesh & hydroseed; rows B-G	10	10	21FEB09A	24FEB09A	100	21FEB09A	24FEB09A			
10R1DO040	Cut slope for H1 to I25; soil 1819m3	12	12	02FEB09A	17FEB09A	100	02FEB09A	17FEB09A			
10R1DO041	Drill/install/grout H1 to I25; 47 nos.	13	13	18FEB09A	04MAR09A	100	18FEB09A	04MAR09A			
10R1DO042	Cut slope for J1 to M37; soil 5834m3	20	20	19FEB09A	13MAR09A	100	19FEB09A	13MAR09A			
10R1DO043	Erect working platform for rows J to M	14	14	28FEB09A	16MAR09A	100	28FEB09A	16MAR09A			
10R1DO044	Test nails for P3, P4, P5 & P10	12	12	05MAR09A	07APR09A	100	05MAR09A	07APR09A			
10R1DO045	Drill/install/grout J1 to M37; 134 nos.	20	20	12MAR09A	07APR09A	100	12MAR09A	07APR09A			
10R1DO047	Construct nail heads/remove platform; rows H-M	20	20	14MAR09A	18APR09A	100	14MAR09A	18APR09A			
10R1DO048	Erosion mat, wire mesh & hydroseed; rows H-M	6	6	29MAY09A	04JUN09A	100	29MAY09A	04JUN09A			
10R1DO049	Excavate soil 5600m3 & boulde 229m3; Rows N to P	22	22	14MAR09A	18APR09A	100	14MAR09A	18APR09A			
10R1DO050	Erect working platform for rows N to P	10	10	20APR09A	24APR09A	100	20APR09A	24APR09A			
10R1DO051	Drill/install/grout N1 to P31; 111 nos.	20	20	23APR09A	13MAY09A	100	23APR09A	13MAY09A			
10R1DO053	Construct nail heads/remove platform; row N to P	14	14	14MAY09A	02JUN09A	100	14MAY09A	02JUN09A			
10R1DO054	Erosion mat, wire mesh & hydroseed; rows N to P	6	6	03JUN09A	09JUN09A	100	03JUN09A	09JUN09A			
Slope Cut & S	oil Nailing; +40mPD to +24mPD										
10R1DO130	+40 to +24mPD (rows Q to X)	180*	180*	20APR09A	23NOV09A	100	20APR09A	23NOV09A			
10R1DO131	Excavation; 40 to 30mPD; soil 8291m3/rock 2778m3	43	43	20APR09A	18AUG09A	100	20APR09A	18AUG09A			
10R1DO132	Reinstate temp. access	30	30	21APR09A	27MAY09A	100	21APR09A	27MAY09A			
10R1DO133	Erect working platfrom for rows Q to U	22	22	11MAY09A	15AUG09A	100	11MAY09A	15AUG09A			
10R1DO134	Test nails for P4, P5, P6 and P12	12	12	21MAY09A	25AUG09A	100	21MAY09A	25AUG09A			
10R1DO135	Drill/install/grout Q1 to U7; 96 nos.	13	13	12MAY09A	25AUG09A	100	12MAY09A	25AUG09A			
10R1DO136	Excavation; 30 to 24mPD; soil 4197m3/rock 7592m3	95	95	27MAY09A	23NOV09A	100	27MAY09A	23NOV09A			
TBM Launchir	g Chamber										
10R1DO1305	Pipe pile roof support	9	9	08SEP09A	30SEP09A	100	08SEP09A	30SEP09A			
10R1DO1310	Excavate/construct TBM launching chamber	63	63	17OCT09A	11JAN10A	100	17OCT09A	11JAN10A			
10R1DO1315	Form launching chamber cradle	12	12	13JAN10A	27FEB10A	100	13JAN10A	27FEB10A			

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total	201 A S O	NDI	F M A	2013 M J J A S	SONDJFM	2014 A M J J A	SOND	2015 J F M A
Slope Cut & TR	M Access Road; +24 to +14mPD	Dui	Dui	Start	FIIIISII	Comp	Start	FIIIISII	Fluat	63 64 65	66 67 68	69 70 71 7	2 73 74 75 7	6 77 78 79 80 81 82	8   83   84   85   86   87	88 89 90 91	92 93 94 9
10R1DO230	+24 to +14mPD	252*	252*	08JUN09A	13APR10A	100	08JUN09A	13APR10A	Τ								
10R1DO240	Relocate sedimentation tank	0	0	0000110071	06JUN09A	100	0000110071	06JUN09A									
	Form access for big breaker	12	12	08JUN09A	20JUN09A		08JUN09A	20JUN09A									
	Mobilization of big breaker	0	0	000011007	20JUN09A	100	000011007	20JUN09A									
	Form new TBM access western section	40	40	08SEP09A	19NOV09A		08SEP09A	19NOV09A									
10R1DO270	Form new TBM access eastern section (bend)	32	32	09NOV09A	23DEC09A		09NOV09A	23DEC09A									
10R1DO272	From TBM access remaining section incl. paving	18	18	09DEC09A	16JAN10A		09DEC09A	16JAN10A									
	Demobilze 300T mobile crane	0	0	UJDEOUJA	100AN10A		OSDLOOSA	10MAR10A									
	Demolish masonry & ret. wall at +14mPD	45	45	20JUL09A	13APR10A		20JUL09A	13APR10A									
	•	45	45	2030L03A	IJAI KIUA	100	20301037	IJAI KIUA									+
	Area at +24mPD	6	6	24NOV09A	30NOV09A	100	24NOV09A	30NOV09A									
	Construct drainage & slab at west	1 -	10														
10R1DO195	Construct drainage & slab at east & middle	12	12		20FEB10A			20FEB10A									
	Commence TBM initial assembly	0	0	22FEB10A		100	22FEB10A										+++
Tower Crane					T			I									
	Foundation	40	40		25FEB10A			25FEB10A									
3AL1DO2010	Erection	3	3	26FEB10A				01MAR10A									
3AL1DO2015	Test & commissioning	1	1	01MAR10A	02MAR10A	100	01MAR10A	02MAR10A									
TBM Platform																	
3AL1DO2505	Pre-fabrication	40	40	18JUN09A	04NOV09A	100	18JUN09A	04NOV09A									
3AL1DO2515	Foundation	24	24	20NOV09A	24DEC09A	100	20NOV09A	24DEC09A									
3AL1DO2525	Erect steel framework	18	18	28DEC09A	18FEB10A	100	28DEC09A	18FEB10A									
3AL1DO2535	Install platform	9	9	20JAN10A	23APR10A	100	20JAN10A	23APR10A									
3AL1DO2545	ICE certification	3	3	19FEB10A	19FEB10A	100	19FEB10A	19FEB10A									
Noise Enclosur	re																
3AL1DO3005	Pre-fabrication	42	42	22JUN09A	27OCT09A	100	22JUN09A	27OCT09A									
3AL1DO3015	Foundation	12	12	210CT09A	17NOV09A	100	210CT09A	17NOV09A									
3AL1DO3025	Erect steel framework	18	18	01DEC09A	10FEB10A	100	01DEC09A	10FEB10A									
3AL1DO3035	Cladding	22	22	12MAY10A	27SEP10A	100	12MAY10A	27SEP10A									
3AL1DO3045	-	1	0	210CT09A	27SEP10A	100											
3AL1FT0802	Apply to EPD for CNP for 24 hrs. tunnel work	11	11	190CT10A	25OCT10A	100	19OCT10A	25OCT10A									
	EPD process/approve CNP application	12	12	20OCT10A		100	200CT10A	29NOV10A									
3AL1FT0812	•	1	0	190CT10A	-												
105 Ton Gantry	Crane																
	Manufacture	99	99	29MAY09A	03SEP09A	100	29MAY09A	03SEP09A									
	Shipping to Hong Kong	6	6	14SEP09A			14SEP09A										
3AL1DO3525	Assembly	8	8	29DEC09A				23JAN10A	+								
3AL1DO3535	Install rails	4	4	05JAN10A				12FEB10A									
3AL1DO3545	Test & commission	3	3	17FEB10A				19FEB10A									
3AL1DO3555	Receive initial segments and stock	6	6	06MAR10A			06MAR10A		+								+++
Muck Hopper	. 1000.10 miliar obgritorito and otook		5	JOHN WITOA		100	551111 (1107)										+++
	Pre-fabrication	75	75	22JUN09A	13MAD10A	100	22JUN09A	13MAD10A									
	Foundation incl. piles for steel platform			15MAR10A			15MAR10A		+								
3AL 1DO4015	roundation inci. piles for steel platform	31	31	AULANIME	AUI TAIVICE	100	13IVIAR IUA	AUI TAIVICE									

ID	Activity	WP10	WP09	WP10	WP10	% WP09	WP09	Total	2012		2013		2014		2015
	Description	Dur	Dur	Start	Finish	Comp Start	Finish	Float	A S O N D C	F M A	M J J A S 72 73 74 75 76	O N D J F M A I	И J J A S (	O N D	J F M A 92 93 94 95
3AL1DO4025	Erect steelwork	18	18	26MAY10A	19JUN10A	100 26MAY10A	19JUN10A								
3AL1DO4035	Erect hopper	18	18	21JUN10A	29JUL10A	100 21JUN10A	29JUL10A								
3AL1DO4045	Install transfer conveyor	4	4	30JUL10A	04AUG10A	100 30JUL10A	04AUG10A								
3AL1DO4055	M&E works	6	6	05AUG10A	21AUG10A	100 05AUG10A	21AUG10A								
3AL1DO4065	Test & commissioning	3	3	23AUG10A	02OCT10A	100 23AUG10A	02OCT10A								
Marti Conveyor	•						<u>'</u>								
	Engineering	50	50	29MAY09A	24OCT09A	100 29MAY09A	24OCT09A								!
3AL1DO4515	Pre-fabrication	60	60	17AUG09A	30NOV09A	100 17AUG09A	30NOV09A								
3AL1DO4525	Delivery to Hong Kong	25	25	01DEC09A	17DEC09A	100 01DEC09A	17DEC09A								
3AL1DO4535	Pre-assembly at Portion I	6	6	11JAN10A	16JAN10A	100 11JAN10A	16JAN10A								
3AL1DO4555	Install winch & extension towers	24	24	29MAY10A	24JUN10A	100 29MAY10A	24JUN10A								
3AL1DO4565	Install transfer conveyor	1	1	29JUL10A	29JUL10A	100 29JUL10A	29JUL10A								
3AL1DO4575	Install belt conveyor stage 2	16	16	09AUG10A	24AUG10A	100 09AUG10A	24AUG10A								
3AL1DO4585	M&E works	2	2	25AUG10A	27AUG10A	100 25AUG10A	27AUG10A								
3AL1DO4595	Test & commission	1	1	28AUG10A	28AUG10A	100 28AUG10A	28AUG10A								
LV Station		<u> </u>				, , , , , , , , , , , , , , , , , , ,									
3AL1DO5005	Delivery & install containers 1/2/3	4	4	08DEC09A	11DEC09A	100 08DEC09A	11DEC09A								
3AL1DO5015	M&E works	12	12	12DEC09A	14JAN10A	100 12DEC09A	14JAN10A								
3AL1DO5025	Test & commision	12	12	15JAN10A	25JAN10A	100 15JAN10A	25JAN10A								
Cooling Water															
	Pre-fabrication	53	53	18JUL09A	07DEC09A	100 18JUL09A	07DEC09A								
3AL1DO5515	Foundation	10	10	08DEC09A			31DEC09A								
3AL1DO5525	Erect cooling system	12	12		20FEB10A	100 09JAN10A	20FEB10A								
3AL1DO5535	M&E works	4	4	22FEB10A			27FEB10A								
3AL1DO5545	Test & commission	2	2	26APR10A	28APR10A	100 26APR10A	28APR10A								
Grout System		1													
	Pre-fabrication	90	90	22JUN09A	12DEC09A	100 22JUN09A	12DEC09A								
3AL1DO6015	Erect system	6	6	02AUG10A	10AUG10A	100 02AUG10A	10AUG10A								
3AL1DO6025	M&E works	3	3	11AUG10A	13AUG10A	100 11AUG10A	13AUG10A								
3AL1DO6035	Test & commission	1	1	14AUG10A		100 14AUG10A	14AUG10A								
Pea Gravel Pla	nt	1													
	Pre-fabrication	36	36	22JUN09A	29APR10A	100 22JUN09A	29APR10A								
3AL1D07515	Install hopper	4	4		04SEP10A		04SEP10A								
3AL1D07525	Erect conveyor	2	2	07AUG10A		100 07AUG10A									
	M&E works	4	4	25AUG10A		100 25AUG10A									
3AL1DO7545	Test & commission	0	0		04SEP10A	100	04SEP10A								
3AL1DO7555	Install conveyor connecting to TBM	4	4	18AUG10A		100 18AUG10A									
Ventilation Sys	-														-
3AL1DO8005	Pre-fabrication	72	72	29MAY09A	27AUG09A	100 29MAY09A	27AUG09A								
3AL1DO8015	Erect system	2	2	24JUL10A		100 24JUL10A									
3AL1DO8025	M&E works	1	1	07AUG10A		100 07AUG10A									
3AL1DO8035	Test & commission	1	1		09AUG10A	100 09AUG10A									
		1						1		A/A/AL		<u> </u>			

3AL1DO8512 Remov 3AL1DO8522 Make g 3AL1DO8532 Install r VO # 49 & 53; Addition VO-04910 Receive VO-04920 Prepara VO-04930 Constru VO-04950 Constru VO-04960 Constru VO-04960 Receive VO-088000 Receive VO-088010 Procure VO-088015 SOR co VO-088020 Drill/ins	Description  I transformer & hormonic filter  Inve invert segments  good slab  I rail switch  I	2 2 3 1 1 0 14 60 27 40 60	2 3 1 0 14 60 27 40	06AUG10A 23AUG10A 27FEB09A 16MAR09A	10JUL10A 06AUG10A 07AUG10A	100 100 100 100 100	07JUN10A 24JUL10A 06AUG10A 23AUG10A	10JUL10A 06AUG10A 07AUG10A 24AUG10A 26FEB09A	Pioat 6	8 64 65 66	8 67 68 69	70 71 72	73 74 75 76 7	7 78 79 80 81	82 83 84 85	86 87 88 89 9	N D J F M M 10 91 92 93 94 S
3AL1DO8502 Install to 3AL1DO8512 Remove 3AL1DO8512 Make go 3AL1DO8532 Install rows and provided the second of the	ove invert segments good slab  rail switch  conal Drainage & Stairway  ved Variation orders  rration works for varied works  rruct u-channel & stairway; +71mPD to +55mPD  rruct u-channel & stairway; +55mPD to +41mPD  rruct u-channel & stairway at middle portion  evised Slope Design  ved VO #088	2 3 1 0 14 60 27 40	2 3 1 0 14 60 27 40	24JUL10A 06AUG10A 23AUG10A 27FEB09A 16MAR09A 05JUN09A	06AUG10A 07AUG10A 24AUG10A 26FEB09A 14MAR09A 29MAY09A	100 100 100 100 100	24JUL10A 06AUG10A 23AUG10A	06AUG10A 07AUG10A 24AUG10A 26FEB09A									
3AL1DO8512 Remov 3AL1DO8522 Make g 3AL1DO8532 Install r  VO # 49 & 53; Addition  VO-04910 Receive  VO-04920 Prepara  VO-04930 Constru  VO-04940 Constru  VO-04960 Constru  VO-04960 Constru  VO-088000 Receive  VO-088010 Procure  VO-088015 SOR co  VO-088020 Drill/ins	ove invert segments good slab  rail switch  conal Drainage & Stairway  ved Variation orders  rration works for varied works  rruct u-channel & stairway; +71mPD to +55mPD  rruct u-channel & stairway; +55mPD to +41mPD  rruct u-channel & stairway at middle portion  evised Slope Design  ved VO #088	2 3 1 0 14 60 27 40	2 3 1 0 14 60 27 40	24JUL10A 06AUG10A 23AUG10A 27FEB09A 16MAR09A 05JUN09A	06AUG10A 07AUG10A 24AUG10A 26FEB09A 14MAR09A 29MAY09A	100 100 100 100 100	24JUL10A 06AUG10A 23AUG10A	06AUG10A 07AUG10A 24AUG10A 26FEB09A									
3AL1DO8522 Make g 3AL1DO8532 Install r  VO # 49 & 53; Addition  VO-04910 Receive  VO-04920 Prepara  VO-04930 Constru  VO-04940 Constru  VO-04960 Constru  VO-04960 Constru  VO-088000 Receive  VO-088010 Procure  VO-088015 SOR cc  VO-088020 Drill/ins	good slab  I rail switch  Conal Drainage & Stairway  ved Variation orders  Irration works for varied works  Irruct u-channel & stairway; +71mPD to +55mPD  Irruct u-channel & stairway; +55mPD to +47mPD  Irruct u-channel & stairway; +47mPD to +41mPD  Irruct u-channel & stairway at middle portion  evised Slope Design  ved VO #088	3 1 0 14 60 27 40	0 14 60 27 40	06AUG10A 23AUG10A 27FEB09A 16MAR09A 05JUN09A	07AUG10A 24AUG10A 26FEB09A 14MAR09A 29MAY09A	100 100 100 100	06AUG10A 23AUG10A	07AUG10A 24AUG10A 26FEB09A									
3AL1DO8532 Install r  VO # 49 & 53; Addition  VO-04910 Receive  VO-04920 Prepara  VO-04930 Constru  VO-04950 Constru  VO-04960 Constru  VO-04960 Receive  VO-088000 Receive  VO-088010 Procure  VO-088015 SOR co  VO-088020 Drill/ins	rail switch  conal Drainage & Stairway  ved Variation orders  ration works for varied works  rruct u-channel & stairway; +71mPD to +55mPD  rruct u-channel & stairway; +55mPD to +47mPD  rruct u-channel & stairway; +47mPD to +41mPD  rruct u-channel & stairway at middle portion  evised Slope Design  ved VO #088	1 0 14 60 27 40	0 14 60 27 40	23AUG10A 27FEB09A 16MAR09A 05JUN09A	24AUG10A 26FEB09A 14MAR09A 29MAY09A	100 100 100	23AUG10A	24AUG10A 26FEB09A									
VO # 49 & 53; Addition VO-04910 Receive VO-04920 Prepara VO-04930 Constru VO-04940 Constru VO-04950 Constru VO-04960 Constru VO-04960 Receive VO-088000 Receive VO-088010 Procure VO-088015 SOR co VO-088020 Drill/ins	ved Variation orders rration works for varied works rruct u-channel & stairway; +71mPD to +55mPD rruct u-channel & stairway; +55mPD to +47mPD rruct u-channel & stairway; +47mPD to +41mPD rruct u-channel & stairway at middle portion evised Slope Design ved VO #088	0 14 60 27 40	14 60 27 40	27FEB09A 16MAR09A 05JUN09A	26FEB09A 14MAR09A 29MAY09A	100 100		26FEB09A									
VO-04910 Received VO-04920 Prepara VO-04920 Prepara VO-04930 Construction VO-04940 Construction VO-04960 Construction VO-04960 Construction VO-088000 Received VO-088005 Excavation VO-088015 SOR convolution VO-088020 Drill/ins	ved Variation orders  variation works for varied works  variet u-channel & stairway; +71mPD to +55mPD  variet u-channel & stairway; +55mPD to +47mPD  variet u-channel & stairway; +47mPD to +41mPD  variet u-channel & stairway at middle portion  evised Slope Design  ved VO #088	14 60 27 40	14 60 27 40	16MAR09A 05JUN09A	14MAR09A 29MAY09A	100											
VO-04920 Prepara VO-04930 Constru VO-04940 Constru VO-04950 Constru VO-04960 Constru VO-04960 Receive VO-088000 Receive VO-088010 Procure VO-088015 SOR co VO-088020 Drill/ins	tration works for varied works truct u-channel & stairway; +71mPD to +55mPD truct u-channel & stairway; +55mPD to +47mPD truct u-channel & stairway; +47mPD to +41mPD truct u-channel & stairway at middle portion truct u-channel & stairway;	14 60 27 40	14 60 27 40	16MAR09A 05JUN09A	14MAR09A 29MAY09A	100											
VO-04930 Constru VO-04940 Constru VO-04950 Constru VO-04960 Constru VO-088000 Receive VO-088005 Excava VO-088010 Procure VO-088015 SOR co VO-088020 Drill/ins	truct u-channel & stairway; +71mPD to +55mPD truct u-channel & stairway; +55mPD to +47mPD truct u-channel & stairway; +47mPD to +41mPD truct u-channel & stairway at middle portion evised Slope Design ved VO #088	60 27 40	60 27 40	16MAR09A 05JUN09A	29MAY09A		L L L L L L L L L L L L L L L L L L L	14MAR09A			X/X/X/	7/1					
VO-04940 Constru VO-04950 Constru VO-04960 Constru VO #88/#094/#103; Rev VO-088000 Receive VO-088005 Excava VO-088010 Procure VO-088015 SOR co VO-088020 Drill/ins	truct u-channel & stairway;+55mPD to +47mPD truct u-channel & stairway; +47mPD to +41mPD truct u-channel & stairway at middle portion  evised Slope Design ved VO #088	27 40	27 40	05JUN09A			16MAR09A	29MAY09A									
VO-04950 Constru VO-04960 Constru VO #88/#094/#103; Re VO-088000 Receive VO-088005 Excava VO-088010 Procure VO-088015 SOR co VO-088020 Drill/ins	rruct u-channel & stairway; +47mPD to +41mPD rruct u-channel & stairway at middle portion evised Slope Design ved VO #088	40	40				05JUN09A	07JUL09A									
VO-04960 Constru VO #88/#094/#103; Rev VO-088000 Receive VO-088005 Excava VO-088010 Procure VO-088015 SOR co VO-088020 Drill/ins	ruct u-channel & stairway at middle portion  evised Slope Design  ved VO #088		-		08AUG09A		08JUL09A	08AUG09A									
VO #88/#094/#103; Revive VO-088000 Receive VO-088005 Excavar VO-088010 Procure VO-088015 SOR cover VO-088020 Drill/ins	evised Slope Design ved VO #088	1 30	"	01NOV12*	12JAN13		30MAR12	14JUN12	-365								
VO-088000 Received VO-088005 Excava VO-088010 Procure VO-088015 SOR co VO-088020 Drill/ins	ved VO #088			0.1101.12	1207 11110		00111111111		333								
VO-088005 Excava VO-088010 Procure VO-088015 SOR co VO-088020 Drill/ins		0	0		27MAY09A	100		27MAY09A									
VO-088010 Procure VO-088015 SOR co VO-088020 Drill/ins		6	-		04JUN09A			04JUN09A									
VO-088015 SOR co VO-088020 Drill/ins	re and prepare materials	9	9		08JUN09A			08JUN09A									
VO-088020 Drill/ins	confirm soil nails location	2	2		06JUN09A		05JUN09A	06JUN09A									
	nstall/grout soil nails; rows AA-AB	7	7	09JUN09A	16JUN09A		09JUN09A	16JUN09A									
	wire mesh & shorcrete 150mm	3	3	17JUN09A	19JUN09A		17JUN09A	19JUN09A									
VO-088030 Excava	vate from +36.5 mPD to 34.5mPD	6	6		26JUN09A		20JUN09A	26JUN09A									
	confirm soil nails location	2	2		29JUN09A		27JUN09A	29JUN09A									
	nstall/grout soil nails; rows AC-AD	7	7	30JUN09A	08JUL09A		30JUN09A	08JUL09A									
	wire mesh & shorcrete 150mm	3	3	09JUL09A	11JUL09A		09JUL09A	11JUL09A									
	vate from +34.5 mPD to 32.5mPD	6	6	13JUL09A	18JUL09A		13JUL09A	18JUL09A									
	confirm soil nails location	2	2	20JUL09A	21JUL09A		20JUL09A	21JUL09A									
	nstall/grout soil nails; rows AE-AF	7	7	22JUL09A	29JUL09A		22JUL09A	29JUL09A									
	wire mesh & shorcrete 150mm	3	3		01AUG09A		30JUL09A	01AUG09A									
	vate from +34.5 mPD to 32.5mPD	6	6	03AUG09A	18AUG09A		03AUG09A	18AUG09A									
	confirm soil nails location	2	2	17AUG09A	18AUG09A		17AUG09A	18AUG09A									
VO-088080 Drill/ins	nstall/grout soil nails; row AG	5	5		24AUG09A		19AUG09A	24AUG09A									
VO-088085 Install v	wire mesh & shorcrete 150mm	3	3	25AUG09A	28AUG09A		25AUG09A	28AUG09A									
VO-10302 Drill & i	install rock dowels below +30 to 24mPD	6	6	06OCT09A	19NOV09A	100	06OCT09A	19NOV09A									
Instruction from SOR/	R/VO#093 Add. Noise Barriers																
	ension of rock drilling & breaking	1	1	20JUN09A	20JUN09A	100	20JUN09A	20JUN09A									
	on/relocation of noise bearriers	30	30	22JUN09A			22JUN09A	10NOV09A									
Construct Spiral R																	
ELS & Excavation for	-																
la la companya di companya	pipe piles/slope trim & protection works	104	104	01JUN10A	04OCT10A	100	01JUN10A	04OCT10A									
	rilling for rock breaking & splitting	26					20AUG10A	18SEP10A									
	vate to +13.5mPD & construct capping beam	24		20SEP10A			20SEP10A	26OCT10A									
	vate/rock dowels/ring beam/shotcete; 11.5mPD	30		270CT10A			270CT10A	06DEC10A									
	vate/rock dowels/ring beam/shotcrete; 9.5mPD	33		07DEC10A			07DEC10A	13JAN11A									
	vate/rock dowels/ring beam/shotcrete; 7.5mPD	37		14JAN11A				01MAR11A									

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10 Finish	% Comp	WP09 Start	WP09 Finish	Total A	2012 S O N	D J F M /	2013	20 S O N D J F M A M J 6 77 78 79 80 81 82 83 84 85	14 2015 J A S O N D J F M A
10R1DELS62	Excavate/rock dowels/ring beam/shotcre;3.2mPD	82		02MAR11A		•	02MAR11A		1 1000 03	04 03 00	07 00 09 70 7	1 12 13 14 13 1	0 77 70 79 00 01 02 03 04 03	00 07 00 09 90 91 92 93 94 93
Base for Spira	3	1												
10R1DO0414	Construct base	14	14	09JUN11A	20JUN11A	100	09JUN11A	20JUN11A						
Spiral Ramp fr	om +4.30mPD to +28.43mPD													
10R1DO0S02	Cast bay 1A	28	28	21JUN11A	23JUL11A	100	21JUN11A	23JUL11A						
10R1DO0S03	Cast bay 1B	11	11					04AUG11A						
10R1DO0S04	Cast bay 2	11		05AUG11A				30AUG11A						
10R1DO0S06	Cast bay 3	11		27AUG11A				08SEP11A						
10R1DO0S08	Cast bay 4	8	8	05SEP11A				20SEP11A						
10R1D00S10	Cast bay 5	8	8	09SEP11A				04OCT11A						
10R1D00S12	Cast bay 6	8	8	06OCT11A	18OCT11A	100	06OCT11A	18OCT11A						
10R1D00S14	Cast bay 7	8	8	24OCT11A	08NOV11A			08NOV11A						
10R1DO0S16	Cast bay 8	8	8	07NOV11A				16NOV11A						
10R1D00S18	Cast bay 9	8	8	14NOV11A	24NOV11A	100	14NOV11A	24NOV11A						
10R1DO0S20	Cast bay 10	8	8	25NOV11A	02DEC11A			02DEC11A						
10R1DO0S22	Cast bay 11	8	8	01DEC11A	12DEC11A			12DEC11A						
10R1DO0S24	Cast bay 12	8	8	09DEC11A	22DEC11A	100	09DEC11A	22DEC11A						
10R1DO0S26	Cast bay 13	8	8				19DEC11A	16JAN12A						
10R1DO0S28	Cast bay 14	8	8	03JAN12A	20JAN12A			20JAN12A						
10R1DO0S29	Cast bay 15	31	31	16JAN12A	21FEB12A	100		21FEB12A						
10R1DO0S30	Preparation & fill central void;	11	11	23APR12A	27JUL12A		29MAR12	14APR12						
10R1DO0S32	Construct spiral ramp top; Outfall O-1	8	8	28JUL12A		100	16APR12	24APR12						
Finishing Wor	ks on Spiral Ramp													
10R1DO0F10	Install handrails	16	16	01NOV12*	19NOV12	0	25APR12	15MAY12	-512					
10R1DO0F20	Water proofing works	24	24	20NOV12	17DEC12	0	16MAY12	12JUN12	-512					
10R1DO0F30	Tiling works	48	48	18DEC12	18FEB13	0	13JUN12	09AUG12	-512					
10R1DO0F40	Install GRP	29	29	19FEB13	23MAR13	0	10AUG12	12SEP12	-512	- /				
PVO-TR-20	Vertical greening & water points at Spiral Ramp	48	0	25MAR13	25MAY13	0			-512					
Lower Part F	Box Culvert/Open Channel by Open Cut													
Approval for T														
10R1DOD102	Prepare TTA scheme	100	100	28FEB09A	30MAY09A	100	28FEB09A	30MAY09A						
10R1D0D102	Obtain TTA approval from rel. authorities/SOR	60			17NOV09A			17NOV09A						
10R1D0D104	Obtain XP from HyD	60		28SEP09A				04DEC09A						
10R1D0D108	Preparatory works prior to implement TTA	59		04JAN10A				15JUN10A						
		39	39	U4JANTUA	133011107	100	043/1110/	100011107						
10R1DOD202	Trial run to close one lane of E/B C'way	1	1	13JUL10A	13       104	100	13JUL10A	13JUL10A						
10R1D0D202	Trial pit excavation	28	28					07AUG10A						
10R1D0D212	Install stage 1(32#) pipe piles	60		09AUG10A			09AUG10A							
10R1D0D222	Drainage & traffic diversion to close fast lane	13		21OCT10A				04NOV10A						
10R1D0D224	Install stg 2 (25# pipe piles) & 10# king posts	42	42	17NOV10A			17NOV10A							
10R1D0D226	Excavation & temp. support to exist. services	149	149	29NOV10A			29NOV10A							
10R1D0D232	Construct box culvert incl upstand wall	47	47	27JUN11A			27JUN11A							
10R1D0D330	Backfill up to base of retain, wall & blinding	11		22AUG11A			22AUG11A							
10K 1DOD430	Backilli up to base or retaill. Wall & billiuling	11	11	ZZAUGTIA	USSEPTIA	100	ZZAUGTIA	USSEPTIA						

ID	Activity	WP10	WP09	WP10	WP10	% WP09	WP09	Total	2012			2013		2014		2015
	Description	Dur	Dur	Start	Finish	Comp Start	Finish	Float	63 64 65 G	N D J 66 67 68	F M A N 69 70 71 72	73 74 75 7	S O N D J F M A 6 77 78 79 80 81 82 83	M J J A S	8 89 90 91	92 93 94 9
	Construct base for L-shapped retaining wall	14	14	02SEP11A	22SEP11A	100 02SEP11A	22SEP11A									
	Reinst. sewer pipe/modify supports to watermain	12	12	170CT11A	27OCT11A	100 17OCT11A	270CT11A									
10R1DOD444	Construct wall for L-shapped retaining wall	23	23	12SEP11A	220CT11A	100 12SEP11A	220CT11A									
	Backfill to top & remove temp. supports	24	24	07OCT11A	30NOV11A	100 07OCT11A	30NOV11A									
10R1DOD460	Road works	12	12	01DEC11A	19DEC11A	100 01DEC11A	19DEC11A									
10R1DOD470	Re-open fast lane of E/B C'way	1	1	21DEC11A	21DEC11A	100 21DEC11A	21DEC11A									
Open Channel	Between Box Culvert & Seawall; East															i
10R1DOE005	Formation & blinding	6	6	05SEP11A	15SEP11A	100 05SEP11A	15SEP11A									
10R1DOE015	Base inside Arch Bridge	7	7	15SEP11A	03OCT11A	100 15SEP11A	03OCT11A									
10R1DOE025	Walls inside Arch Bridge	20	20	06OCT11A	08DEC11A	100 06OCT11A	08DEC11A									
10R1DOE030	Delivery of formliner at site	0	0		04OCT11A	100	04OCT11A									
10R1DOE035	Coping at East end with formlier	12	12	100CT11A	24OCT11A	100 100CT11A	240CT11A									
10R1DOE045	Base of T Shapped Wall	7	7	270CT11A	02NOV11A	100 27OCT11A	02NOV11A									i
10R1DOE055	Wall of T Shapped Wall with formliner	10	10	03NOV11A	09NOV11A	100 03NOV11A	09NOV11A									
10R1DOE065	Base outside Arch Bridge	7	7	10NOV11A	15NOV11A	100 10NOV11A	15NOV11A									
10R1DOE075	Wall outside Arch Bridge with formliner	10	10	16NOV11A	23NOV11A	100 16NOV11A	23NOV11A									
10R1DOE085	Reinstage rock armour	24	24	28NOV11A	09JAN12A	100 28NOV11A	09JAN12A									
Open Channel	Between Box Culvert & Seawall; West															
10R1DOW005	Formation & blinding	6	6	12SEP11A	21SEP11A	100 12SEP11A	21SEP11A									i
10R1DOW015	Base inside Arch Bridge	7	7	04OCT11A	110CT11A	100 04OCT11A	110CT11A									
10R1DOW025	Walls inside Arch Bridge	20	20	18OCT11A	28NOV11A	100 18OCT11A	28NOV11A									
10R1DOW035	Coping at West end with formliner	12	12	25OCT11A	270CT11A	100 25OCT11A	270CT11A									
10R1DOW045	Base of T Shapped Wall	7	7	02NOV11A	09NOV11A	100 02NOV11A	09NOV11A									
10R1DOW055	Wall of T Shapped Wall with formliner	10	10	10NOV11A	17NOV11A	100 10NOV11A	17NOV11A									
10R1DOW065	Base outside Arch Bridge	7	7	21NOV11A	25NOV11A	100 21NOV11A	25NOV11A									
10R1DOW075	Wall outside Arch Bridge with formliner	10	10	26NOV11A	30NOV11A	100 26NOV11A	30NOV11A									
10R1DOW085	Reinstage rock armour	50	50	30JAN12A	20MAR12A	100 30JAN12A	24MAR12									
Coping & Baffle	e Walls															i
10R1DOM005	Seawall coping with formliner; 9 bays	18	18	28OCT11A	21NOV11A	100 28OCT11A	21NOV11A									i
10R1DOM015	Type G baffle walls with formliner; 16#	16	16	05DEC11A	04FEB12A	100 05DEC11A	04FEB12A									
Vehicular Ac	cess/Upper Box Culvert/Cascade															i
Stage 2 TTA; U	oper B/C/Lower Cascade/V. Access															i
10ELS002	TBM advance to Ch. 0.00	0	0		28FEB12A	100	28FEB12									i
10ELS012	Removel of Muck Hopper	24	24	01MAR12A	28MAR12A	100 01MAR12	28MAR12									
10ELS014	Trial pits/identify utilities/elevated footpath	64	64	22DEC11A	27MAR12A	100 22DEC11A	12MAR12									
10ELS022	Install 27# pipe piles	34	34		20FEB12A		20FEB12A									
10ELS032	Install remaining 15# pipe piles	24	24			100 29MAR12	02MAY12									
	Excavate & temp. support to services incl. V. A.	135	135			89 29MAR12	11SEP12	-606	<b>+</b>							
	Construct base slab; 690m3 (2 pours)	13	13	12NOV12	26NOV12	0 12SEP12	26SEP12	-606	-							
	Construct step 1; 403m3	10	10	27NOV12	07DEC12	0 27SEP12	09OCT12	-606	-	•						
	Construct step 2 & 3; 362m3	10	10	08DEC12	19DEC12	0 10OCT12	20OCT12	-606	-							
	Construct type F baffle walls; 8#	20	20	27NOV12	19DEC12	0 27SEP12	20OCT12	-527	_							
	Construct walls, roof & upstand; 860m3 (4 pours)	40	40		07FEB13	0 22OCT12	07DEC12	-527	-							
	/ ( ·   )	1		·				1		M/M	///					

ID	Activity		WP09	WP10	WP10	%	WP09	WP09	Total	2012 A S O	ΝП	J F M	1 A M	2013 J J A S	S O N	D J F	M A M	2014 J J A	SON	DIE	)15  M A
10R1DO0716	Description  Backfill include removal of king posts	Dur 24	Dur 24	O8FEB13	Finish 11MAR13	Comp	Start 08DEC12	Finish 08JAN13	-527	63 64 65	66 67	68 69 7	0 71 72	73 74 75 76	6 77 78	79 80 81	82 83 84	85 86 87	88 89 90	91 92 93	94 95
10R1DO0716	Road paving & reinstate footpath	12	12	16OCT13	29OCT13		08APR13	20APR13	-606			<i>HH</i>									+
10R1DO0728	Re-open slow lane of E/B C'way	1	12	30OCT13	30OCT13		22APR13	22APR13	-606			<i>HH.</i>									+
10R1DO0728	Additional ELS & key excavation	48	0	14SEP12	10NOV12	0		ZZALICIS	-606			<i>HH.</i>									+
PVO-W-10	Modification of existing Outfall "W"	48	0	26FEB13	26APR13	0			-527												+
l <mark>II</mark> Leadinean	of Vehicular Access	40	<u> </u>	201 LD 13	20AI 1(13	0			-321						+//						
10R1DO0407	Complete excavation with open cut/blinding	0	0		13SEP12	0		11SEP12	-440												
10R1DO0407	Construct base	8	8	14SEP12	22SEP12		12SEP12	20SEP12	-440	-											
10R1DO0408	Construct walls	10	10	24SEP12	05OCT12		21SEP12	03OCT12	-440	-											
10R1DO0410	Construct waiis  Construct roof	16	16	06OCT12	25OCT12		04OCT12	22OCT12	-440	-											-
		10	10	0000112	2500112	U	0400112	2200112	-440				4		- 4						-
	of Upper Cascade; Bays 16-21	04	04	0005040	40 14 14 10		45NO) (40	0005040	000												
10R1DO0730	Construct base (1682m3); (6x7)/2=21 days	21	21	20DEC12	16JAN13 03APR13		15NOV12	08DEC12	-606												
VO-245-200	Construct walls; 15 pours	60	0	17JAN13		0			-606												
VODLNDAD60	Construct roof & planter wall; 6 pours	98	0	05APR13	01AUG13	0			-606			44			-4		4				
	pe at West of Spiral Ramp	1 .					1	 													
10R1DOSW10	Removal of Tower Crane	4	4	02AUG13	06AUG13		19FEB13	22FEB13	-606						- //						
10R1DOSW20	Excavate & construct mass conc. walls	18	18	07AUG13	27AUG13		23FEB13	15MAR13	-606												
10R1DOSW30	Slope reinstatement & drainage works	21	21	28AUG13	21SEP13		16MAR13	13APR13	-606					-							
VOADIS10	Additional Irrigation Sys Pump House	24	0	23SEP13	22OCT13	0			-606			////					4				
Permanent \	Norks at +24mPD																				
Removal of TE	BM Services & Excavation at +24mPD																				
10R1DO0600	Remove TBM services from tunnel; 24 hrs works	24	24	02MAR12A	30APR12A	100	02MAR12	29MAR12													
10R1DO0601	Remove TBM serivces outside tunel; day time	44	44	02MAR12A	09JUN12A	100	02MAR12	26APR12													
10R1DO0602	Excavate tapered channel inside Noise Enclosure	25	25	18APR12A	16JUN12A	100	30MAR12	04MAY12													
10R1DO0603	Excavate tapered channel outside Noise Enclosre	32	32	21MAY12A	10JUL12A	100	05MAY12	11JUN12													
Construction	of Buttress Wall (VO#233)																				
VO-233-005	Receive VO#233	0	0	19APR12A		100															
VO-233-010	Excavation/Formation/Blinding	9	0	14MAY12A	23MAY12A	100															
VO-233-015	Bay B, 1st pour; +23.8mPD~+27.0mPD	9	0	24MAY12A	02JUN12A	100															
VO-233-020	Bay B, 2nd pour; +27mPD~+31mPD	11	0	04JUN12A	15JUN12A	100															
VO-233-025	Bay B, 3rd pour; +31.0mPD~+35.0mPD	13	0	26JUN12A	11JUL12A	100															
VO-233-030	Bay B, 4th pour; +35.0mPD~+39.0mPD	20	0	12JUL12A	03AUG12A	100															
VO-233-035	Bay B, Upper planter wall	9	0	28SEP12	09OCT12	0			-546	8											
VO-233-040	Bay A, 1st pour; +23.8mPD~+27.0mPD	7	0	16JUN12A	25JUN12A	100															
VO-233-045	Bay A, 2nd pour; +27mPD~+31mPD	15	0	10AUG12A	27AUG12A	100						/////									
VO-233-050	Bay A, 3rd pour; +31.0mPD~+35.0mPD	9	0	28AUG12	06SEP12	0			-546			/////									
VO-233-055	Bay A, 4th pour; +35.0mPD~+39.0mPD	9	0	07SEP12	17SEP12	0			-546	8		/////									
VO-233-060	Bay A, Upper planter wall	9	0	18SEP12	27SEP12	0			-546	•		/////									
VO-233-065	Bay C, 1st pour; +23.8mPD~+27.0mPD	9	0	100CT12	190CT12	0			-546			////									
VO-233-070	Bay C, 2nd pour; +27.0mPD~+31.0mPD	9	0	20OCT12	310CT12	0			-546			////									
VO-233-075	Bay C, 3rd pour; +31.0mPD~+35.0mPD	9	0	01NOV12	10NOV12	0			-546			////									
VO-233-085	Bay C, 4th pour; +35.0mPD~+39.0mPD	9	0	12NOV12	21NOV12	0			-546			////									$\Box$
VO-233-090	Bay C, Upper planter wall	9	0	22NOV12	01DEC12	0			-546			////									

ID	Activity Description	WP10 Dur	WP09 Dur	WP10 Start	WP10	% Comp	WP09 Start	WP09 Finish	Total	201: A S O		F M A	2013 M J J <i>J</i>	ASON	NDJF	M A M J 82 83 84 85	)14   J   A   S   0	D N D	2015 J F M A
Construction	of Tapered Channel (VO#245)	Dui	Dui	Start	Finish	Comp	Start	FIIIISII	Fivat 6	3 64 65	66 67 68	69 70 71	72 73 74 7	75 76 77 7	8 79 80 81	82 83 84 85	8   86   87   88   8	9 90 91	92 93 94 98
10R1DO0644	Install penstock & testing	39	39	02FEB13	22MAR13	0	15NOV12	02JAN13	-501										
VO-245-005	Receive VO#245	0	00	19APR12A	ZZIVI/ (I C I O	100	10110112	020/11/10	001										
VO-245-010	Bay B1; Blinding & survey setting out	2	0		24MAY12A	100													
VO-245-015	Bay B1; Base slab	14	0	25MAY12A	12JUN12A	100													
VO-245-020	Bay B1; Wall B1A	15	0	13JUN12A	10JUL12A	100													
VO-245-025	Bay B1; Wall B1B	15	0	11JUL12A	25JUL12A	100													
VO-245-030	Bay B1; Wall B1C	15	0	26JUL12A	13AUG12A	100													
VO-245-035	Bay B1; Wall B1D	15	0	14AUG12A	25AUG12A	100													
VO-245-040	Bay B2A; Blinding & survey setting out	2	0	16JUN12A	16JUN12A	100													
VO-245-045	Bay B2A; Base slab	10	0	19JUN12A	29JUN12A	100													
VO-245-060	Bay B2B; Blinding & survey setting out	2	0	25JUN12A	27JUN12A	100													
VO-245-065	Bay B2B; Base slab	10	0	28JUN12A	09JUL12A	100													
VO-245-080	Bay B2C; Blinding & survey setting out	2	0	11JUL12A	20JUL12A	100													
VO-245-085	Bay B2C; Base slab	10	0	13JUL12A	31JUL12A	100													
VO-245-090	Walls for Bay 2A, 2B and 2C	56	0	30JUN12A	04SEP12	87			-558										
VO-245-105	Baffle walls (28#)	25	0	25AUG12A	22SEP12	8			-558										
VO-245-115	Columns (12#)	25	0	01SEP12	29SEP12	0			-558										
VODLNDAD10	Construct additional landscap deck	80	0	12SEP12	15DEC12	0			-558										
	st of Tappered Channel	1 00		.2022	1022012				000										
10R1DO0P10	Formation	8	8	05SEP12	13SEP12	0	20SEP12	28SEP12	-480	8-									
10R1DO0P20	Const. slope toe planter wall/surface drainage	28	28	17DEC12	21JAN13		29SEP12	02NOV12	-558	<b>i</b>									
10R1DO0P30	Lay sub-base & construct slab	10	10	22JAN13	01FEB13		03NOV12	14NOV12	-558										
VOADT-10	Additional Trellis	96	0	02FEB13	04JUN13	0			-558										
	pe at North & East of Spiral Ramp																		
10R1D00E10	Prepare slope reinstatement report	49	49	20JUN11A	31MAY12A	100	20JUN11A	09MAR12											
10R1D00E30	Obtain consent from SOR & GEO	170	170	08SEP11A	14JUL12A			09MAY12											
10R1D00E35	CLP disconnect power to TR	18	0	28AUG12	17SEP12	0		001111111	-557										
10R1D00E40	Demolish transformer room	18	18	18SEP12	09OCT12	-	25APR12	17MAY12	-557										
10R1DO0E50	Construct ret. wall at entrance of Spiral Ramp	12	12	100CT12	24OCT12		18MAY12	31MAY12	-557										
10R1DO0E60	Reinstate slope; +14mPD to +21mPD	24	24	25OCT12	21NOV12		01JUN12	29JUN12	-557										
10R1D00E70	Reinstate slope; +21mPD to +28mPD	48	48	22NOV12	19JAN13		30JUN12	25AUG12	-557	-									
Soabod Prof	ection Works																		
	orks As Per VO#061 Site possession of Portion E-650d of DOC	0		09JUL09A		100	09JUL09A												
VO061-002	Receive VO # 061	0	0	OSJOLUSA	30JUN09A	100		30JUN09A										+	
VO061-002 VO061-004	Appoint Independent Hydrographic Surveyor	60	60	02JUL09A	26SEP09A		02JUL09A	26SEP09A											
VO061-004 VO061-006	Carry out sounding survey	6		02JULU9A 02OCT09A	10OCT09A		020CT09A	100CT09A										+	
VO061-006 VO061-008	Prepare/submit drwgs./report of sounding survey	6		04NOV09A				03NOV09A										+	
VO061-008 VO061-010	SOR approves drwgs./report of sounding survey	6						10NOV09A										+	
VO061-010 VO061-012	SOR approves drwgs./report of sounding survey  SOR issue Supplm. Environmental Review Report	30	30		05OCT09A		02JUL09A	05OCT09A										+	
VO061-012 VO061-014	Apply for Variation to FEP	6	30	05OCT09A				05OCT09A										+	
VO061-014 VO061-016	EPD review/issue FEP	30	20	06OCT09A				28OCT09A						++					
VO001-016	EFD TEVIEW/ISSUE FEF	30	30	000C109A	2000109A	100	0000 109A	2000 109A			VXXX				XXXX				

VO061-020 IEC end VO061-022 EPD ad VO061-032 Appoint VO061-034 Submit VO061-040 Apply fo	Description  are/submit Revised EM&A Manual by ET  andorse Revised EM&A Manual  acknowledge Revised EM&A Manual  acknowledge Revised EM&A Manual  acknowledge Revised EM&A Manual	30 12 6	30 12	Start 29OCT09A	Finish 02DEC09A	Comp         Start           100         29OCT09A	Finish	1 lout	03 04 05 06 07 08	69/70/71/72	73 74 75 76 77 78 79 80 81 82 8	33 84 85 86 87 88 89 90 91 92	12 93 94 95
VO061-020 IEC end VO061-022 EPD ad VO061-032 Appoint VO061-034 Submit VO061-040 Apply fo	ndorse Revised EM&A Manual acknowledge Revised EM&A Manual nt sub-contractor for varied works	12					02DEC09A			////			
VO061-022 EPD ac VO061-032 Appoint VO061-034 Submit VO061-040 Apply fo	acknowledge Revised EM&A Manual nt sub-contractor for varied works			03DEC09A	30DEC09A	100 03DEC09A	30DEC09A						
VO061-032 Appoint VO061-034 Submit VO061-040 Apply fo	nt sub-contractor for varied works		6	02JAN10A	06JAN10A	100 02JAN10A	06JAN10A						
VO061-034 Submit VO061-040 Apply fo		60	60	02JUL09A	17OCT09A	100 02JUL09A	17OCT09A						
VO061-040 Apply fo	it & review of method statement	65	65	10DEC09A	02MAR10A		02MAR10A						
11.7	for marine notice	6	6	05NOV09A	11NOV09A	100 05NOV09A	11NOV09A						
VO061-042 Revew/	w/issue marine notice by Marine Department	30	30	12NOV09A	24DEC09A	100 12NOV09A	24DEC09A						
	for dumping permit	10	10	13AUG10A	24AUG10A		24AUG10A						
VO061-046 Review	w/issue dumping permit by EPD	31	31	16AUG10A	20SEP10A	100 16AUG10A	20SEP10A						
	e-drilling for ground investigation	40	40	02FEB10A	03MAY10A		03MAY10A						
	s Per Alternative Design												
	it Contractor's proposal; alternative design	0	0	03JUL10A	17SEP10A	100 03JUL10A	17SEP10A						
	w/approval of Contractor's proposal by SOR	87	87	05JUL10A	26NOV10A	100 05JUL10A	26NOV10A						
	it method statement for basin construction	36	36	19AUG10A	22SEP10A	100 19AUG10A	22SEP10A						
ALP-032 Review	w/approval of method statement by ICE	12	12	30SEP10A	30NOV10A	100 30SEP10A	30NOV10A						
ALP-042 Review	w/approval of method statement by SOR	47	47	20AUG10A	110CT10A	100 20AUG10A	110CT10A						
ALP-062 Review	w/approval of alternative design by SOR	41	41	27AUG10A	26NOV10A	100 27AUG10A	26NOV10A						
	w/approval of alternative design by ICE	32	32	03SEP10A	27OCT10A	100 03SEP10A	27OCT10A						
Basin Construction A	As Per Alternative Design												
	nence basin construction	0	0	25OCT10A		100 25OCT10A							
ALC012 Intial w	works	70*	70*	26OCT10A	18JAN11A	100 26OCT10A	18JAN11A						
ALC022 Install s	silt curtain	3	3	26OCT10A	28OCT10A	100 26OCT10A	28OCT10A						
ALC032 Dredge	ge marine deposit	33	33	29OCT10A	06DEC10A	100 29OCT10A	06DEC10A						
ALC052 Remov	ove rock armor	34	34	07DEC10A	18JAN11A	100 07DEC10A	18JAN11A						
ALC062 Form S	Seawall Type North & Eest	64*	64*	24JAN11A	12APR11A	100 24JAN11A	12APR11A						
ALC072 Dredge	ge	39	39	24JAN11A	12MAR11A	100 24JAN11A	12MAR11A						
ALC082 Place of	concrete and levelling layer	11	11	14MAR11A	25MAR11A	100 14MAR11A	25MAR11A						
ALC092 Place s	seawall blocks	7	7	26MAR11A	02APR11A	100 26MAR11A	02APR11A						
ALC102 Backfill	ill seawall	7	7	04APR11A	12APR11A	100 04APR11A	12APR11A						
ALC112 Form S	Seawall Wing Wall at East	38*	38*	13APR11A	31MAY11A	100 13APR11A	31MAY11A						
ALC132 Place of	concrete and levelling layer	16	16	13APR11A	04MAY11A	100 13APR11A	04MAY11A						
ALC142 Place s	seawall blocks	13	13	05MAY11A	20MAY11A	100 05MAY11A	20MAY11A						
ALC152 Backfill	îll seawall	9	9	21MAY11A	31MAY11A	100 21MAY11A	31MAY11A						
ALC172 Form S	Seawall at North & West	55*	55*	28JUN11A	31AUG11A	100 28JUN11A	31AUG11A						
ALC182 Dredge	ge	22	22	28JUN11A	23JUL11A	100 28JUN11A	23JUL11A						
	back concrete and levelling layer	9	9		03AUG11A								
	seawall blocks; 71#	24	24	04AUG11A	20AUG11A	100 04AUG11A	20AUG11A						
	ill seawall	10	10	30AUG11A		100 30AUG11A							
	temp. conc. block wall	6	6	22AUG11A		100 22AUG11A							
	Seawall Wing Wall at West	168*	174*	01SEP11A		100 01SEP11A							
ALC332 Dredgir		6	6	01SEP11A			14SEP11A						
	back concrete and levelling layer	6	6	15SEP11A			19SEP11A						
ALC352 Place s	seawall blocks (1st stage); 48#	11	11	20SEP11A	30SEP11A	100 20SEP11A	30SEP11A						

ID	Activity	WP10	WP09	WP10	WP10	% WP09	WP09	Total	2012 2013 2014 2
	Description	Dur	Dur	Start	Finish	Comp Start	Finish	Float	A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J S 364 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 8
ALC362	Backfill seawall	6	6	07OCT11A	150CT11A	100 07OCT11A	150CT11A		
ALC366	Place seawall blocks (2nd stage); 12#	6	6	23MAR12A	24MAR12A	100 26MAR12	31MAR12		
ALC372	Place Concere Blocks in Apron Invert	137*	155*	25OCT11A	12APR12A	100 25OCT11A	05MAY12		
ALC382	Dredge	18	18	25OCT11A	08NOV11A	100 25OCT11A	08NOV11A		
ALC392	Place levelling layer	25	25	09NOV11A	26NOV11A	100 09NOV11A	26NOV11A		
ALC402	Place step blocks	58	58	28NOV11A	27MAR12A	100 28NOV11A	05MAR12		
ALC412	Place type 2 arour infront of seawall	24	24	13MAR12A	12APR12A	100 02APR12	05MAY12		
ALC522	Complete Outfall Basin	0	0		12APR12A	100	05MAY12		
Remaining V	Vorks Prior to Handover								
10R1DO0904	Finishing & reinstatement works; Portion D	36	36	16SEP13	30OCT13	0 07MAR13	22APR13	-606	
10R1DO0906	Pre-handover inspections and remedial works	30	30		06NOV13	0 21MAR13	29APR13	-606	
16R7DO0900	Landscaping works upper part of slope	150	150		21MAR13	0 15JUN12	11DEC12	-420	
16R7DO0902	Landscaping works lower part of slope	60	60		06NOV13	0 14FEB13	29APR13	-606	
16R7DO0904	Establishment Works at Portion D	365	365		06NOV14	0 30APR13	29APR14	-745	
PVO-AP-10	Anti-pedestrian Apron Slab at Outfall D	48	0		28DEC12	0	20/11/11	-395	
PVO-TR-10	Tree survey as per revised planting schedule	12	0		18SEP12	0		-420	
<u> </u>		12	Ü	000EI IZ	100E1 12	O CONTRACTOR		420	
Scriedule of	Milestones for Cost Centre No. 10R								
1001001000	10D 1 0			I	00 4 DD00 4	400	004 BB004		
10R1DO1002	10R 1; On completion of 20% excavation works	0	0		09APR09A	100	09APR09A	1	
10R1DO1004	10R 2; On completion of 40% excavation works	0	0		28AUG09A	100	28AUG09A	1	
10R1DO1006	10R 3; On completion of 60% excavation works	0	0		13APR10A	100	13APR10A	1	
10R1DO1008	10R 4; On completion of 80% excavation works	0	0		08JUN11A	100	08JUN11A	0.10	
10R1DO1010	10R 5; On completion all excavation works	0	0		13SEP12	0	11SEP12	912	♦at Outfall O-1
10R1DO1012	10R 6; On completion of cascade structure	0	0		01AUG13	0	18FEB13	590	o oat Outfall (0-1)
10R1DO1014	10R 7; On completion of spiral ramp to +16mPD	0	0		07NOV11A	100	07NOV11A		
10R1DO1016	10R 8; On completion of spiral access ramp	0	0		23MAR13	0	12SEP12	721	o at Outfall O-1
10R1DO1018	10R 9; On completion box-culvert & open channel	0	0		01AUG13	0	18FEB13	590	◆and open channel underneath CPR
10R1DO1020	10R 10; On completion of seabed protection wks	0	0		12APR12A	100	05MAY12	$\perp$	
10R1DO1022	10R 11; On completion of all works under this CC	0	0		06NOV13	0	29APR13	493	under this Cost Centre
Schedule of	Milestones for Cost Centre No. 14R								
14R5DO1102	14R 1; On complet. of remove exist. rock armour	0	0		22JAN11A	100	22JAN11A		
14R5DO1104	14R 2; On complet. of 50% soil nailing by number	0	0		07APR09A	100	07APR09A		
14R5DO1106	14R 3; On completion all soil nailing works	0	0		19NOV09A	100	19NOV09A		
14R5DO1108	14R 4; On completion of all works under this CC	0	0		22JAN11A	100	22JAN11A		
Drainage In	provement Works at Portion G								
Preliminary	•								
Site Establish									
01R6GG0114	Possession of Portion G -700d of DOC	0	0	26NOV09A	T	100 26NOV09A	T T		
01R6GG0114 01R6GG0116	Site clearance	30		26NOV09A 26NOV09A		100 26NOV09A	02 1001100		
<u> </u>									
VO-125G05	VO#125 received for revised hoarding & fencing	0	0		02JAN10A	100	02JAN10A		

ID	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total	201			2013		2014		2015
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish		A S O 63 64 65	N D J 66 67 68	F M A M	J J A S	S O N D J F M A M 6 77 78 79 80 81 82 83 84	J J A S O N 85 86 87 88 89 9	N D J 0 91 92	F M A 95
VO-125G10	Fenceing/Hoarding erection	50	50	05JAN10A	01MAR10A	100	05JAN10A	01MAR10A								$\top$	
G.I. Works (VO	#126)																
VO-126G05	Slope stripping for RS-3	14	14	09DEC09A	24DEC09A	100	09DEC09A	24DEC09A									
VO-126G10	Timber platform for predrilling works	12	12	15JAN10A	20JAN10A	100	15JAN10A	20JAN10A									
VO-126G15	Predrilling for H-piling works & soil nailing	36	36	20JAN10A	04MAR10A	100	20JAN10A	04MAR10A									
VO-126G20	Submission of drilling report	14	14	18FEB10A	18FEB10A	100	18FEB10A	18FEB10A									
Tree Felling/Tra	ansplanting Works (VO#126)																
VO-126T05	Tree survey & report submission	14	14	16DEC09A	04JAN10A	100	16DEC09A	04JAN10A									
VO-126T15	Obtain tree felling permit	105	105	05JAN10A	15MAY10A	100	05JAN10A	15MAY10A									
VO-126T25	Tree felling	24	24	14JUN10A	12OCT10A	100	14JUN10A	120CT10A									
Soil Nailing V	Vorks (VO#126)																
Soil Nailing Wo																	
VO-126S05	Erect wokring platform & mobilization	8	8	19MAR10A	30MAR10A	100	19MAR10A	30MAR10A									
VO-126S10	Test nails	8	8		17APR04A			17APR04A									
VO-126S15	Permanent soil nails 64#	30	30	19APR10A	13MAY10A	100	19APR10A	13MAY10A									
VO-126S20	Soil nail heads	20	20	14MAY10A	01JUN10A	100	14MAY10A	01JUN10A									
VO-126S25	Removal of platform	7	7	02JUN10A	09JUN10A	100	02JUN10A	09JUN10A									
Soil Nailing Wo	orks at Area B																
VO-126S35	Erect wokring platform & mobilization	8	8	19MAR10A	30MAR10A	100	19MAR10A	30MAR10A									
VO-126S40	Test nails	8	8	01APR04A	17APR04A		01APR04A	17APR04A									
VO-126S45	Permanent soil nails 19#	10	10	19APR10A	13MAY10A	100	19APR10A	13MAY10A									
VO-126S50	Soil nail heads	12	12	14MAY10A	01JUN10A	100	14MAY10A	01JUN10A									
VO-126S55	Removal of platform	7	7	02JUN10A	09JUN10A	100	02JUN10A	09JUN10A									
Piling Works	(VO#0126)		1														
Piling Platform																	
VO-126P05	Obtain SO's consent for temp. works design	0	0		23JUN10A	100		23JUN10A									
VO-126P20	Platform for mini piling	16	16		30JUN10A		11JUN10A	30JUN10A									
VO-126P30	Mobilization & set up for mini piling	3	3	02JUL10A	05JUL10A			05JUL10A									
VO-126P35	Mini piling & pile caps construction	104	104	06JUL10A	06NOV10A		06JUL10A	06NOV10A									
VO-126P37	Erect steel platform for H-piling	47	47	08NOV10A	04JAN11A			04JAN11A									
VO-126P39	Remove steel platform; grid 2-4	5	5				30MAY11A										
VO-126P41	Remove steel platform; grid 4-6	3	3	20JUN11A		100	20JUN11A	22JUN11A									
VO-126P43	Remove steel platform; grid 6-10	9	9		03DEC11A		28NOV11A										
VO-126P44	Remove steel platform; grid 10-14	5	5	03JUN11A	09JUN11A		03JUN11A										
H-Piling Works																	
VO-126P45	Mibilization & set up for H-piling	18	18	05JAN11A	25JAN11A	100	05JAN11A	25JAN11A									
VO-126P50	H-piling types 1 & 2; 38 nos.	93	93		23MAY11A			23MAY11A								+	
	Demobilize piling rig	5			28MAY11A			28MAY11A								+	+++
Skin Wall																+	
VO-126P60	Excavate; Bays 1, 5 & 6	52	52	10JUN11A	20AUG11A	100	10JUN11A	20AUG11A									
VO-126P65	Construct skin wall; Bays 1, 5 & 6	27	27		07SEP11A			07SEP11A								+	
VO-126P70	Construct capping beam; Bays 1, 5 & 6	18			23NOV11A			23NOV11A									
	11 3 , , , , , , , , , , , , , , , , , ,										11/1/1//	/X/X					

ID	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total .	2012				2013		Jula			2014			2015
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish	Float 6	3 64 65	66 67	J F 68 69	M A N	J J A	5 76 77	7 78 79	80 81 8	M A M 32 83 84	5 86 8°	88 89 9	0 91 9:	2 93 94
VO-126P75	Excavate; Bays 2, 3 & 4	30	30	05DEC11A	21JAN12A	100	05DEC11A	21JAN12A										<u> </u>				
VO-126P80	Construct skin wall; Bays 2, 3 & 4	24	24	21JAN12A	18FEB12A	100	21JAN12A	18FEB12A										<u> </u>				
VO-126P85	Construct capping beam; Bays 2, 3 & 4	18	18	10APR12A	05MAY12A	100	18APR12	10MAY12										4				
Drainage Im	provement Works (VO#128)																					
Pipe Jacking I	Between SM1 & SM2																					
15R6GG0301	Obtain approval of ELS design package incl MS	0	0		04JUN10A	100		04JUN10A														
15R6GG0302	Install ELS & construct shaft for pipe jacking	51	51	08APR10A	08JUN10A	100	08APR10A	08JUN10A														
15R6GG0303	Mobilization & set up	12	12	09JUN10A	23JUN10A	100	09JUN10A	23JUN10A														
15R6GG0304	Pipe jacking	320	320	24JUN10A	30JUL11A	100	24JUN10A	30JUL11A														
15R6GG0314	Construct receiving shaft	24	24	06JUN11A	05JUL11A	100	06JUN11A	05JUL11A														
15R6GG0324	Demobilization	6	6	01AUG11A	06AUG11A	100	01AUG11A	06AUG11A														
1.5m dia. Drai	nage beween SM2 & CP2																					
15R6GG0200	Excavate existing tow wall & formation for pipe	18	18	10AUG11A	10SEP11A	100	10AUG11A	10SEP11A														
15R6GG0205	Construct SM2 & CP2	18	18	13AUG11A	280CT11A	100	13AUG11A	280CT11A														
15R6GG0210	Construct 300UC along 1.5m dia. drainage (~12m)	12	12	27AUG11A	310CT11A	100	27AUG11A	310CT11A														
15R6GG0215	Construct 1.5m dia. drainage with CS (~12m)	12	12	12SEP11A	140CT11A	100	12SEP11A	140CT11A														
15R6GG0220	Construct 1.5m dia. drainage with CS (~20m)	18	18	14MAR12A	10APR12A	100	09MAR12	29MAR12														
15R6GG0230	Construct SM3	12	12	02APR12A	24APR12A	100	30MAR12	17APR12														
15R6GG0240	Construct 300UC & install/certify hoisting syst.	16	16	20FEB12A	08MAR12A	100	20FEB12A	08MAR12														
750UC, 750SC	& CP1 at Area B																					
15R6GG0340	Obtain TTA scheme approval from SOR	30	30	01DEC09A	26MAR10A	100	01DEC09A	26MAR10A														
15R6GG0345	Implement TTA	1	1	14FEB11A	14FEB11A	100	14FEB11A	14FEB11A														
15R6GG0350	Construct 750 UC, SC & CP1	72	72	20DEC10A	19MAR11A	100	20DEC10A	19MAR11A														
	nage, WS1 & Outlet Structure																					
15R6GG0355	Construct WS1 at Area A	25	25	10FEB11A	10MAR11A		10FEB11A	10MAR11A														
15R6GG0385	Construct cross road 750UC at Area A	17	17	08APR11A	30APR11A	100	08APR11A	30APR11A														
15R6GG0390	Revised details received	0	0		08JUL11A	100		08JUL11A														
15R6GG0395	ELS works and excavation for 1.5m drainage	46	46	09JUL11A	22OCT11A		09JUL11A	220CT11A														
15R6GG0405	Strenthen existing masonry wall	18	18	01SEP11A	22OCT11A		01SEP11A	220CT11A														
15R6GG0415	Install 1.5m dia. drainage with CS	10	10		04NOV11A			04NOV11A													$\perp$	
15R6GG0425	Backfill & reinstate	12		05NOV11A				02DEC11A													$\perp$	
15R6GG0435	Excavate for Outlet (additional)	18		03DEC11A	12DEC11A		03DEC11A	12DEC11A													$\perp$	
15R6GG0445	Construct Outlet (additional)	18	18	13DEC11A	16JAN12A		13DEC11A	16JAN12A													$\perp$	
15R6GG0455	Steel works	6	6	28MAY12A	31MAY12A	100	30MAR12	10APR12										4			4	
	el Staircase connecting to CP2																					
15R6GG0500	Excavate for 1.5m stepped channel	30	30	11JUL11A			11JUL11A	13AUG11A										4			$\perp$	
15R6GG0520	Construct 1.5m stepped channel (~14m)	0	0		19SEP11A	100		19SEP11A										4			$\perp$	
15R6GG0522	Receive VO#219	0	0		15SEP11A	100		15SEP11A										4			$\perp$	
15R6GG0530	Install steel staircase (additional)	12		19MAY12A			18APR12	03MAY12										4			$\perp$	
15R6GG0532	Excavate additional outlet	12	12				20SEP11A	22OCT11A										4			$\perp$	
15R6GG0542	Construct additional outlet	12		240CT11A			24OCT11A	15NOV11A										4			$\perp$	
15R6GG0552	Excavate for mass concrete	6	6					19NOV11A										41			$\perp \perp$	
15R6GG0562	Construct mass wall	4	4	21NOV11A	25NOV11A	100	21NOV11A	25NOV11A										4			$\perp \! \! \perp$	

ID	Activity	WP10	WP09	WP10	WP10	%	WP09	WP09	Total	20	)12			2013			2	014		201	5
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish	Float 6	3 64 6	O N 65 66 6	D J F 67 68 69	M A 9 70 71	M J J A 72 73 74 75	S O N 76 77 78	D J F 79 80 81 8	M A M J 32 83 84 89	J A S 5 86 87 88	O N D	J F I	1 A 4 95
15R6GG0564	Receive VO#251 for modification of outlet	0	0		29MAR12A	100															
15R6GG0566	Preparation works for VO#251	1	0	30MAR12A	10APR12A	100															
15R6GG0570	Modify outlet; VO#251	86	0	11APR12A	03AUG12A	100															
1.5m dia. Drai	nage, WS2 at Area C																				
15R6GG0605	Confirm additional land by SOR	0	0		12JUL11A	100		12JUL11A													
15R6GG0610	Insurance cover for additional land	6	6	13JUL11A	19JUL11A	100	13JUL11A	19JUL11A													
15R6GG0615	Procurement for hoarding	18	18	13JUL11A	02AUG11A	100	13JUL11A	02AUG11A													
15R6GG0620	Confirm mobilization with house owner	7	7	03AUG11A	12AUG11A	100	03AUG11A	12AUG11A													
15R6GG0625	Erect hoarding	6	6	13AUG11A	17AUG11A	100	13AUG11A	17AUG11A													
15R6GG0630	Trial pit excavation	6	6	18AUG11A	22AUG11A	100	18AUG11A	22AUG11A													
15R6GG0635	Issue VO#223 & 216 with revised drainage details	12	12	23AUG11A	110CT11A	100	23AUG11A	110CT11A													
15R6GG0640	Confirm site clearance with SOR/house owner	12	12	120CT11A	01NOV11A	100	120CT11A	01NOV11A													
15R6GG0642	Site clerance & removal of trees	12	12	02NOV11A	15NOV11A	100	02NOV11A	15NOV11A													
15R6GG0645	ELS design & with ICE endorsement	18	18	16NOV11A	23DEC11A	100	16NOV11A	23DEC11A													
15R6GG0650	Excavation & construction of WS2	18	18	16NOV11A	01DEC11A	100	16NOV11A	01DEC11A													
15R6GG0655	Excavate/construct drainage; 6.5m	29	29	02DEC11A		100	02DEC11A	06JAN12A													
15R6GG0660	Excavate/construct drainage; 23.5m + SM1A	136	85	07JAN12A	30JUN12A	100	07JAN12A	23APR12													
15R6GG0665	Backfill & reinstate	12	12	03JUL12A	31JUL12A	100	24APR12	09MAY12													
800UC at Area	10																				
15R6GG0755	Construct 800UC cross road & reinstate	12	12	01AUG12A	16AUG12A	100	18AUG12	31AUG12		H											
750UC Crossr	oad connecting to CP2																				
15R6GG0801	Receive VO#252 for revised 750UC	0	0	31MAR12A		100															
15R6GG0803	Trial pit excavation	1	0	11MAY12A	26MAY12A	100															
15R6GG0808	Receive further revised 750UC details	0	0		27AUG12A	100				<b>?</b>											
15R6GG0810	Fabrication of pre-cast UC	36	24	28AUG12	09OCT12	0	11MAY12	07JUN12	696												
15R6GG0820	Excavation & installation of pre-cast UC	12	12	100CT12	24OCT12	0	08JUN12	21JUN12	696	[											
Mass Concret	e Beam, 300UC, 300SC, at Slope																				1
15R6GG0900	Excavate for mass concrete beam	12	12	07SEP11A	28SEP11A	100	07SEP11A	28SEP11A													
15R6GG0910	Construct mass concrete beam	6	6	20SEP11A		100	20SEP11A	310CT11A													
15R6GG0920	Construct 300UC, 300SC & conc. stair	48	48	12SEP11A			12SEP11A	31JAN12A													
15R6GG0930	Install steel stair & steel gate	12	12	25MAY12A	14JUL12A		04MAY12	17MAY12													4
15R6GG0940	Install hand railing;	18	18	24MAY12A			25APR12	17MAY12	747												
15R6GG0950	Lay erosoin control mat	6	6		02AUG12A		18MAY12	24MAY12													
15R6GG0960	Hydroseeding	1	2	10AUG12A	10AUG12A	100	25MAY12	26MAY12									411			$\perp \perp \downarrow$	$\perp$
Remaning V	Vorks Prior to Handover to Client																				
15R6GG0370	Pre-handover inspections and remedial works	12	12	25OCT12	07NOV12	0	01SEP12	14SEP12	696	-											
Schedule of	Milestones for Cost Centre No. 15R										1/2										П
Confodule of	This section is a section in the sec																				
15R6GG0502	15R 1; On completion of all temp. works	0	0		04JAN11A	100		04JAN11A				XX).									
15R6GG0504	15R 2; On completion of 25% of pipejacking	0	0		08OCT10A	100		08OCT10A			X										
15R6GG0506	15R 3; On completion of 50% of pipejacking	0	0		12FEB11A	100		12FEB11A				XXI.									П
	<u> </u>	-1						1		•		11/1/	Y / /I								-

ID	Activity	WP10		WP10	WP10	%	WP09	WP09	Total	20 A S C	12 ) N D	J F M	20 <sup>-</sup>	13 J A S	OND	J F M A	2014 M J J	ASO	201: N D J F N
	Description	Dur	Dur	Start	Finish	Comp	Start	Finish	Float	63 64 6	5 66 67	68 69 70	71 72 73	74 75 76	77 78 79	30 81 82 83	84 85 86	87 88 89 9	90 91 92 93 9
15R6GG0508	15R 4; On completion of 75% of pipejacking	0	0		19MAR11A	100		19MAR11A											
15R6GG0510	15R 5; On completion of all pipejacking	0	0		30JUL11A	100		30JUL11A											
15R6GG0512	15R 6; On completion of all wks under this CC	0	0		07NOV12	0		14SEP12	857	<b>*</b>	une	der this	Cost Co	entre					



Implementation Status of Environmental Mitigation Measures

### IMPLEMENTATION SCHEDULE December 2012

EIA Ref.	Recommended Mitigation Measures	Who to implement the measure?	Location of the measure	What requirements or standards for the measure to achieve?	Status
Air Q	uality				
3.6.1	Specific  As mentioned in Section 3.5, exceedances of 1-hour and 24-hour average TSP guideline	DSD's Contractor	Construction Work Sites	Air Pollution Control (Construction Dust) Regulation	✓
	levels have been predicted at most of the ASRs. Hence, mitigation measures are considered necessary in order to suppress the potential dust impact.  The dust suppression measures set out in the <i>Air Pollution Control (Construction Dust)</i>				
	Regulation, 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 Air Pollution Control (Construction Dust) Regulation, the dust level is expected to be reduced by over 75%.				✓
	General				
	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.  • 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;				N/A
	dump truck for material transport should be totally enclosed by impervious sheeting;				$\checkmark$
	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;				✓
	stockpile of dusty materials should not extend beyond the pedestrian barriers, fencing or traffic cones;				✓
	<ul> <li>dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> </ul>				✓

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> <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> </ul>	DSD's Contractor	Construction Work Sites	Air Pollution Control (Construction Dust) Regulation	✓
	<ul> <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> </ul>				✓
	<ul> <li>every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet;</li> </ul>				✓
	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;				✓
	• 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;	_			✓
	all dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty material wet;				✓
	vehicle speed should be limited to 10 kph except on completed access roads;				✓
	<ul> <li>every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites;</li> </ul>				✓
	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				✓
	• 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.				✓
Noise	Parks Condend to	DSD's	C	PN 2/93 Noise from	
4.6.1	During Construction  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	Contractor	Construction Work Sites	Construction Activities & EIAO	✓
	Good Site Practice 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:				
	<ul> <li>only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction works;</li> </ul>				✓
	• machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;				✓

<ul> <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		to achieve ?	
	Contractor	Construction Work	PN 2/93 Noise from Construction Activities &	$\checkmark$
<ul> <li>mobile plant should be sited as far away from NSRs as possible; and</li> </ul>	-	Sites	EIAO	✓
<ul> <li>material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>				✓
<ul> <li>For Drill and Blast Works</li> <li>Charge mass per delay should be decreased by minimising the number of blastholes firing on each delay.</li> </ul>				N/A
	_			N/A
neighbours are busy with their daily tasks (and at a regular time such as lunch time).				N/A
• 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				N/A
During Operation  Good site practice and noise management can significantly reduce the impact of maintenance	DSD's Contractor	Project Area	NCO & EIAO	
				N/A
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				N/A
<ul> <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
<u>Duality</u>	1			
	DSD's Contractor	Construction Work Sites	Professional Persons with	<b>√</b>
the intakes and work sites.			(ProPECC PN 1/94) and	
Precautions to be taken at any time of year when rainstorms are likely:			WQO	✓
	4			
Trenches should be dug and backfilled in short sections. Measures should be taken to	_			<b>∨</b>
Actions to be taken when a rainstorm is imminent or forecast:	-			<b>√</b>
	to screen noise from on-site construction activities.  For Drill and Blast Works  Charge mass per delay should be decreased by minimising the number of blastholes firing on each delay.  Smaller blasthole patterns and longer delays should be used between dependent charges.  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).  For TBM Tunnelling  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.  During Operation  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  only well-maintained plant should be operated on-site;  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  plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs.  During Construction  Mitigation measures and a spill control and response plan have been prepared for works at the intakes and work sites.  Precautions to be taken at any time of year when rainstorms are likely:  Temporarily exposed surfaces should be covered e.g. by tarpaulin.  Temporarily exposed surfaces should be covered e.g. by tarpaulin.  Temporary access roads should be protected by crushed stone or gravel.  Trenches should be dug and backfilled in short sections. Measures should be taken to minimize the ingress of rainwater into trenches.	to screen noise from on-site construction activities.  For Drill and Blast Works  Charge mass per delay should be decreased by minimising the number of blastholes firing on each delay.  Smaller blasthole patterns and longer delays should be used between dependent charges.  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).  For TBM Tunnelling  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.  During Operation  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  only well-maintained plant should be operated on-site;  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  plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs.  Pullity  During Construction  Mitigation measures and a spill control and response plan have been prepared for works at he intakes and work sites.  Precautions to be taken at any time of year when rainstorms are likely:  Temporary access roads should be protected by crushed stone or gravel.  Trenches should be dug and backfilled in short sections. Measures should be taken to minimize the ingress of rainwater into trenches.  Cations to be taken when a rainstorm is imminent or forecast:	to screen noise from on-site construction activities.  For Drill and Blast Works  Charge mass per delay should be decreased by minimising the number of blastholes firing on each delay.  Smaller blasthole patterns and longer delays should be used between dependent charges.  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).  For TBM Tunnelling  For the tunnel excavation, it is anticipated that beyond the initial length (say within 30m), escavation will be carried out well within the tunnel and door should be provided to further minimize the noise nuisance to the nearby receivers.  During Operation  Douring Operation  Jood site practice and noise management can significantly reduce the impact of maintenance civitities on nearby NSRs. The following package of measures should be followed during construction  Joney well-maintained plant should be operated on-site;  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  plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs.  During Construction  Work Sites  Contractor  Construction  Work Sites  Temporary access roads should be protected by crushed stone or gravel.  Trenches should be dug and backfilled in short sections. Measures should be taken to minimize the ingress of rainwater into trenches.  In termorary is imminent or forecast:	to screen noise from on-site construction activities.  For Drill and Blast Works  Charge mass per delay should be decreased by minimising the number of blastholes firing on each delay.  Smaller blasthole patterns and longer delays should be used between dependent charges.  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).  For TBM Tumelling  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.  During Operation  Good site practice and noise management can significantly reduce the impact of maintenance citivities on nearby NSRs. The following package of measures should be followed during onstruction  on only well-maintained plant should be operated on-site:  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  plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs.  Precautions to be taken at any time of year when rainstorms are likely:  Temporarly exposed surfaces should be covered e.g. by tarpaulin.  Temporary access roads should be protected by crushed stone or gravel.  Trenches should be dug and backfilled in short sections. Measures should be taken to minimize the ingress of rainwater into trenches.

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> <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	✓
	All temporary covers to slopes and stockpiles should be secured.				✓
	Actions to be taken during or after rainstorms:     Silt removal facilities should be checked and maintained to ensure satisfactory working conditions.				✓
	Spill Control and Response Plan				
	1 Prevention and Precaution Measures				
	<ul><li>General Precautions</li><li>No discharge of silty water into watercourses.</li></ul>				✓
	<ul> <li>All materials to be used during construction and operation shall be identified and their hazard potential evaluated.</li> </ul>				✓
	<ul> <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>				✓
	<ul> <li>Any soil contaminated with chemicals/oils shall be removed from site and the void created shall be filled with suitable materials.</li> </ul>				✓
	• 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.				✓
	Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport				✓
	Chemical waste containers shall be suitably labelled to notify and warn the personnel who are handling the wastes to avoid accidents.				✓
	Storage areas shall be selected at safe locations on site and adequate space shall be allocated to the storage area.				✓
	Prevent obstructions and tripping hazards.				✓
	<ul> <li>Storage Precautions</li> <li>All chemical storage containers shall be correctly labelled.</li> </ul>	]			✓
	Solid and impermeable enclosure walls or storage shelves shall be used.				✓
	Only compatible chemical wastes shall be stored in the same storage area.	1			✓
	The storage areas shall be inspected to detect any leakages or defective containers on a regular basis.				✓
	• Suitable notices warning of hazards, emergency response plans, telephone numbers etc shall be posted around the site, including storage areas.				✓
	Large and heavy containers shall be stored at ground level.				$\checkmark$

EIA Ref.	Recommended Mitigation Measures	Who to implement the measure ?	Location of the measure	What requirements or standards for the measure to achieve ?	Status
	Chemical waste containers shall be stored below eye level.				✓
5.9.1	Adequate space for handling of the containers shall be provided	DSD's	Construction	WQO	✓
	• Spill response kits shall be located adjacent/near to the storage areas.	Contractor	Work Sites		✓
	A log of chemical wastes shall be maintained.				✓
•	Incompatible chemicals shall be stored separately.				✓
	2 Responses/Action Plan				
	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:				✓
	• Only trained personnel who are equipped with protective clothing and equipment shall be allowed to enter the spillage area for clean up.				✓
	• Spills shall be transferred appropriate back into containers using suitable equipment.				✓
	<ul> <li>Absorbent materials shall be used to clean up the spills and shall be disposed of as chemical wastes.</li> </ul>				✓
	<ul> <li>Where appropriate suitable solvents may be used to clean the contaminated area after removal of all contaminated materials.</li> </ul>				✓
	• All necessary protective devices, safety equipment, containers and clean up materials for emergency use shall be maintained to a high standard.				✓
	3 Spill Clean Up and Disposal				
	Effect the response plan.				✓
	Control the leakage and absorb the spillage using suitably absorbent materials.				✓
	Provide safety equipment and personal protective equipment for handling of chemical wastes would be similar to that for handling of chemicals.				✓
	Safety equipment includes but is not limited to: • Fire extinguishers.				✓
	• Spades, brushes, dustpan, mop and bucket (or similar readily available on site).				✓
	• Absorbent material such as dry sand, tissues and toweling (all materials readily available on-site).				✓
	Containers including plaster bags, drums, etc.				✓
	Absorbing materials.				✓
	• Pumps.	1			✓
	Personal protective equipment includes as appropriate:  • First-aid kits.				✓
	Safety helmet and goggles.				✓
ļ	Gloves which can resist chemical reaction.				✓

EIA Ref.	Recommended Mitigation Measures	Who to implement the measure?	Location of the measure	What requirements or standards for the measure to achieve ?	Status
	Protective boot and clothing.	DSD's	Construction	WQO	✓
5.9.1	Respirators and gas masks.	Contractor	Work Sites		✓
	Face visor and masks.	1			✓
5.9.2	Emergency Responses to Spillages				
	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.				
	The emergency plans should include the procedures for:  • spill prevention and precaution;				✓
	response actions; and				✓
	spill clean up and disposal.				✓
	Spill prevention and precaution embraces good site practice and covers:  • good housekeeping practices;				✓
	chemical storage requirements; and	1			✓
	chemical transfer and transport.	1			✓
5.9.3	During Operation	DSD's Contractor	Project Area		
	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.				N/A
Waste	Management				
6.5.1	During Construction  Vegetation Removed from Site Clearance  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.	DSD's Contractor	Construction Work Sites	Waste Disposal Ordinance (Cap.354); Waste Disposal (Chemical Wastes) (General) Regulation (Cap 354) and ETWBTC No.	<b>√</b>
	Construction and Demolition Materials  The Contractor should reuse any C&D material on-site. C&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.			15/2003, Waste anagement on Construction Site	<b>√</b>

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 317,936m3 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.  Under the contract, the contractor will be required to minimise the generation of C&D	DSD's Contractor	Construction Work Sites	WDO (Cap.354), ETWBTC No. 15/2003, ETWBTC No. 12/2002 and ETWBTC No. 31/2004	
	material and reuse it on site through the following:  (a) to plan in the design and construction, methods to minimise the generation of C&D	_			✓
	material;  (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);	_			✓
	(c) to reuse recycled aggregates in accordance with ETWBTC No. 12/2002 or any superseding circular(s);				<b>√</b>
	(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;				✓
	(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.				✓
	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.				$\checkmark$
	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	<b>√</b>
	Excavated Materials  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.  Municipal Waste	DSD's Contractor	Construction Work Sites	WDO (Cap.354) and ETWBTC No. 15/2003	<b>√</b>
	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.				$\checkmark$
6.5.1	Waste Management Plan  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	<b>√</b>

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	Avoidance  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.  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	DSD's Contractor	Construction Work Sites	EIAO	<b>√</b>
7.7.2	runoff.  Minimisation				
	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.				
	Measures for Construction Runoff 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.  Good Construction Practice	-			✓
	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.	DSD's Contractor	Construction Work Sites	EIAO	✓
	Avoid any damage and disturbance, particularly those caused by filling and illegal dumping, to the remaining and surrounding natural stream habitats.				✓
	Regularly check the work site boundaries to ensure that they are not breached and that no damage occurs to surrounding areas.				✓
	Prohibit and prevent open fires within the site boundary during construction and provide temporary fire fighting equipment in the work areas.				✓
	Treat any damage that may have occurred to individual major trees in the adjacent area with surgery.				✓

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	<b>√</b>
7.7.3	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.  Provide natural stream bed (approximately 0.5 ha,) for the Approach Channel and Dry				N/A
	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.				N/A
	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.				N/A
	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.				N/A
	Provide armour rocks for the affected intertidal habitat in order to allow natural colonisation of intertidal organisms.	]			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 H</b>	<del>Ieritage</del>				
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	✓
	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/ built heritage specialist	Construction Work Sites	EIAO	<b>√</b>
<u>Fisheries</u>		T	1		
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:	<ul> <li>✓ Compliance of mitigation measure</li> <li>× Non-compliance of mitigation measure</li> <li>N/A Not applicable</li> </ul>				



# Appendix E

Status of License and Permit



#### **Updated Status of Environmental Permit & Licence**

Application Date	Environmental Permit / Licence	Issued Date	Ref No.	Account No.	Permit / Licence No.	Permit / Licence Validity Date	Remarks
2 Jan 2008	Waste Disposal (Charges for Disposal of Construction Waste) Regulation - Billing Account	17 Jan 2008	WFG06289	7006574			Valid
10 Jan 2008	Notification Pursuant to Section 3(1) of the Air Pollution Control (Construction Dust) Regulation	10 Jan 2008	001026901				Valid
18 Apr 2008	Water Discharge Licence – Intake I-1	19 Jun 2008	001029978		EP760/327/013315I	19 Jun 2008 - 30 Jun 2013	Valid
18 Apr 2008	Water Discharge Licence – Intake I-2	2 Jul 2008	001029959		EP760/321/013020I	02 Jul 2008 - 31 Jul 2013	Valid
18 Apr 2008	Water Discharge Licence – Intake I-3	5 Aug 2008	001029960		EP760/323/013324I	05 Aug 2008 - 31 Aug 2013	Valid
18 Apr 2008	Water Discharge Licence – Portion I	26 Jun 2008	001029974		EP760/350/013334I	26 Jun 2008 - 30 Jun 2013	Valid
23 Jul 2008	Water Discharge Licence – Intake I-1 (Intersection of Wo Yi Hop Lane and Ho Fung College)	27 Aug 2008	001031974		EP760/325/013536I	27 Aug 2008 - 31 Aug 2013	Valid
2 Sep 2008	Variation of Environmental Permit	25 Sep 2008	VEP-271/2008		EP-275/2007/B		Valid
29 Apr 2009	Water Discharge Licence – Intake I-3 (Additional Discharge Point)	25 Mar 2010	305058		WT00005917-2010	25 Mar 2010 - 31 Mar 2015	Valid
4 Sep 2010	Water Discharge Licence – Portion G	28 Oct 2010	321337		WT00007685-2010	28 Oct 2010 - 31 Oct 2015	Valid
21 Jul 2011	Licence To Posses Category 1 Dangerous Goods		12976		A002007		Valid
21 Jul 2011	Permit To Use Category 1 Dangerours Goods		12976		A006406		Valid
16 Nov 2010	Water Discharge Licence - Outfall	17 Nov 2011	(14) in EP/RW/000080206		WT-00008094-2010	17 Nov 2011 - 30 Nov 2016	Valid
30 Jul 2012	Construction Noise Permit - Outfall	13 Aug 2012	(4) in EP/RW/0000301563		GW-RW0608-12	13 Aug 2012 - 12 Feb 2013	Valid
30 Jul 2012	Construction Noise Permit - Intake I-2	14 Aug 2012	(4) in EP/RW?0000320258		GW-RW0633-12	14 Aug 2012 - 12 Dec 2012	Expired
30 Jul 2012	Construction Noise Permit - Intake I-3	10 Aug 2012	(4) in EP/RW/000080194		GW-RW0606-12	13 Aug 2012 - 12 Feb 2013	Valid
30 Jul 2012	Construction Noise Permit - Portion I	13 Aug 2012	(4) in EP/RW/000080230		GW-RW0609-12	19 Aug 2012 - 10 Feb 2013	Valid



#### Updated Status of Environmental Permit & Licence

Application Date	Environmental Permit / Licence	Issued Date	Ref No.	Account No.	Permit / Licence No.	Permit / Licence Validity Date	Remarks
6 Aug 2012	Further Environmental Permit	29 Aug 2012	FEP-140/2012		FEP-02/275/2007/B		Valid
	Waste Disposal (Chemical Waste) (General) - Chemical Waste Producer	9 Oct 2012	(7) in EP/RW/000062354		5111-324-M2703-01		Valid



# Appendix F

# **Calibration Certificates**

Project Title: Design and Construction of Tsuen Wan Drainage Tunnel

Monitoring Location: Ho Fung College (ASR 1)

Calibration Date: 29-Nov-12
Calibration Due Date 29-Jan-13
Time: 8:15

Sampler Model:	BM2000HX		
Serial No.:	4994		
Calibrator Orifice no.:	1785		
Slope (m):	2.00506		
Intercept (b):	-0.02062		
Correction coeff. (r)	0.99998		

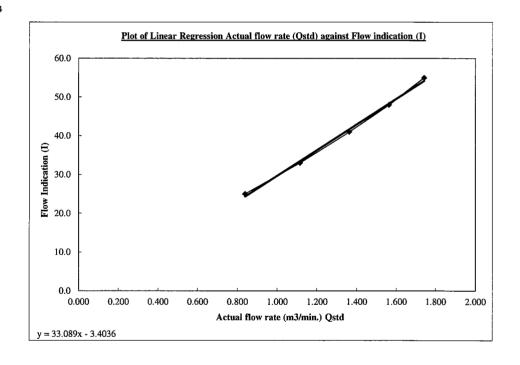
Standard pressure (mmHg) Pstd:	763.9
Standard temp. (K) Tstd:	290.8
Calibration pressure (mmHg) Pa:	761.5
Calibration temp. (K) Ta:	291.1

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

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

Sample no.	Pressure Drop (H), inch	Flow (corrcted), m <sup>3</sup> /min	Actual flow rate (Qstd), m <sup>3</sup> /min	Flow indication (I), arbitrary
1	11.8	3.470	1.741	55.0
2	9.5	3.114	1.563	48.0
3	7.2	2.711	1.362	41.0
4	4.8	2.213	1.114	33.0
5	2.7	1.660	0.838	25.0

Correlation Coefficient: 0.9984



Remark 1HPa = 0.750062 mmHg

Calibrated by: Edwin CHAN

Date: 29 November 2012

Checked by: F.C

F.C. Tsang

( Isanf Jan Reorg)

**Project Title:** 

Design and Construction of Tsuen Wan Drainage Tunnel

**Monitoring Location:** 

Hong Hoi Chi Hong Ship Temple (ASR 3)

Calibration Date: Calibration Due Date 29-Nov-12 29-Jan-13

Calibr Time:

9:00

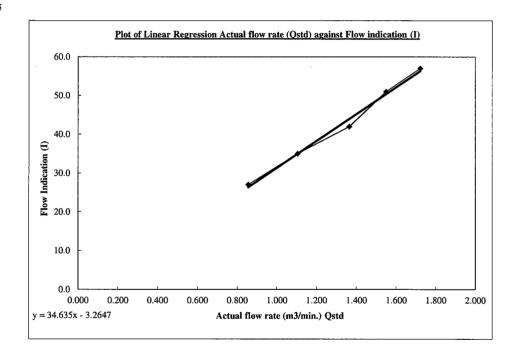
Sampler Model:	BM2000HX
Serial No.:	5875
Calibrator Orifice no.:	1785
Slope (m):	2.00506
Intercept (b):	-0.02062
Correction coeff. (r)	0.99998

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

Qstd =	1 -×	$\mathcal{L}_H$	× <del>Pa</del>	Tstd	- b)
~	m	`γ	Pstd	Ta	ĺ

Sample no.	Pressure Drop (H), inch	Flow (corrcted), m3/min	Actual flow rate (Qstd), m <sup>3</sup> /min	Flow indication (I), arbitrary
1	11.5	3.430	1.721	57.0
2	9.3	3.085	1.549	51.0
3	7.2	2.714	1.364	42.0
4	4.7	2.193	1.104	35.0
5	2.8	1.693	0.854	27.0

Correlation Coefficient: 0.9955



Remark 1HPa = 0.750062 mmHg

Calibrated by:

Edwin Chan

Date: 29 November 2012

Checked by:

F.C. Tsang

Project Title:

Design and Construction of Tsuen Wan Drainage Tunnel

**Monitoring Location:** 

Long Beach Garden (ASR 8)

Calibration Date: Calibration Due Date 29-Nov-12 29-Jan-13

Time:

8:30

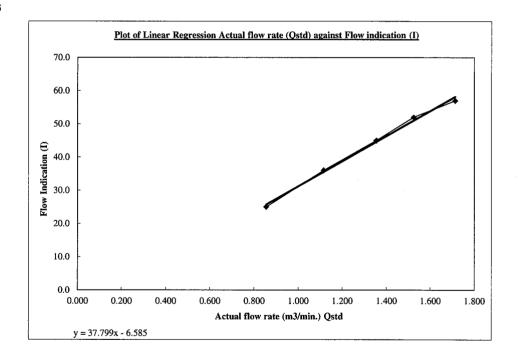
Sampler Model:	TE5005X
Serial No.:	1059
Calibrator Orifice no.:	1785
Slope (m):	2.00506
Intercept (b):	-0.02062
Correction coeff. (r)	0.99998

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

$Qstd = \frac{1}{m}$	×(. H	×—Pa	Tstd	b)
m	·V	Pstd	Та	

Sample no.	Pressure Drop (H), inch	Flow (corrcted), m <sup>3</sup> /min	Actual flow rate (Qstd), m <sup>3</sup> /min	Flow indication (I), arbitrary
1	11.4	3.414	1.713	57.0
2	9.0	3.033	1.523	52.0
3	7.1	2.694	1.354	45.0
4	4.8	2.215	1.115	36.0
5	2.8	1.692	0.854	25.0

Correlation Coefficient: 0.9975



Remark

1HPa = 0.750062 mmHg

Calibrated by:

Edwin Chan

Date: 29 November 2012

Checked by:

F.C. Tsang

**Project Title:** 

Design and Construction of Tsuen Wan Drainage Tunnel

**Monitoring Location:** 

Greenview Terrace (ASR 9)

**Calibration Date: Calibration Due Date** 

29-Nov-12 29-Jan-13

Time:

8:00

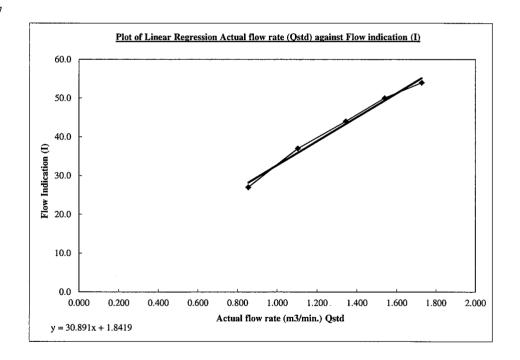
Sampler Model:	TE5005X
Serial No.:	1713
Calibrator Orifice no.:	1785
Slope (m):	2.00506
Intercept (b):	-0.02062
Correction coeff. (r)	0.99998

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

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

Sample no.	Pressure Drop (H), inch	Flow (corrcted), m <sup>3</sup> /min	Actual flow rate (Qstd), m³/min	Flow indication (I), arbitrary
1	11.6	3.441	1.726	54.0
2	9.2	3.064	1.539	50.0
3	7.0	2.673	1.343	44.0
4	4.7	2.190	1.103	37.0
5	2.8	1.691	0.853	27.0

Correlation Coefficient: 0.9947



Remark

1HPa = 0.750062 mmHg

Calibrated by:

Edwin Chan

Date: 29 November 2012

Checked by:

F.C. Tsang



TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, OH 45002
513.467.9000
877.263.7610 TOLL FREE
513.467.9009 FAX
WWW.TISCH-ENV.COM

#### AIR POLLUTION MONITORING EQUIPMENT

#### ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

	-	Rootsmeter Orifice I.I		1785	Ta (K) - Pa (mm) -	297 - 751.84
PLATE	VOLUME	VOLUME	DIFF	DIFF	METER DIFF	ORFICE DIFF
OR Run #	START (m3)	STOP (m3)	VOLUME (m3)	TIME (min)	(mm)	H2O (in.)
1 2 3	NA NA NA	NA NA NA	1.00 1.00 1.00	1.3940 0.9830 0.8780	3.2 6.4 7.9	2.00 4.00 5.00
4 5	NA NA	NA NA	1.00	0.8360	8.8 12.7	5.50 8.00

#### DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9884 0.9842 0.9821 0.9810 0.9758	0.7090 1.0012 1.1185 1.1734 1.4101	1.4090 1.9926 2.2278 2.3365 2.8179		0.9957 0.9915 0.9894 0.9883 0.9831	0.7143 1.0087 1.1269 1.1822 1.4206	0.8889 1.2570 1.4054 1.4740
Qstd slop intercept coefficie	(b) =	2.00815 -0.01705 0.99998		Qa slope intercept coefficie	t (b) =	1.25747 -0.01076 0.99998
y axis =	SQRT [H20(	Pa/760)(298/	ra)]	y axis =	SQRT[H20(	Γa/Pa)]

#### CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta)
Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]

Qa = Va/Time

For subsequent flow rate calculations:

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



#### Sun Creation Engineering Limited

Calibration and Testing Laboratory

## Certificate of Calibration 校正證書

Certificate No.: C123580

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號:IC12-1472)

Description / 儀器名稱

Sound Level Meter

Manufacturer / 製造商

Rion

Model No./型號

NL-31

Serial No. / 編號

00410224

Supplied By / 委託者

Envirotech Services Co.

Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,

Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 :

 $(23 \pm 2)^{\circ}$ C

Relative Humidity / 相對濕度 : (55 ± 20)%

Line Voltage / 電壓 :

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期

15 June 2012

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.

All results are within manufacturer's specification.

The results are detailed in the subsequent page(s).

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

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

Tested By 測試

Certified By 核證

K C Lee

Date of Issue

15 June 2012

簽發日期

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

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

Sun Creation Engineering Limited - Calibration & Testing Laboratory

c'o 4 F. Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong 輝創工程有限公司 – 校正及檢測實驗所

c/o 香港新界屯門與安里一號青山灣機樓四樓

Tel 電話: 2927 2606 Fax 傳真: 2744 8986

E-mail 電郵: callab@suncreation.com

Website/網址: www.suncreation.com



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校正證書

The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

Self-calibration was performed before the test. 2.

The results presented are the mean of 3 measurements at each calibration point. 3.

4. Test equipment:

CL281

Equipment ID CL280

Description

40 MHz Arbitrary Waveform Generator

Certificate No. C120016 DC110233

Multifunction Acoustic Calibrator

Test procedure: MA101N. 5.

Results:

Sound Pressure Level

6.1.1 Reference Sound Pressure Level

	UUT Setting			Applied	l Value	UUT	IEC 61672 Class 1
Range	Mode	Frequency	Time	Level	Freq.	Reading	Spec.
(dB)		Weighting	Weighting	(dB)	(kHz)	(dB)	(dB)
30 - 120	LA	A	Fast	94.00	1	93.7	$\pm 1.1$

6.1.2 Linearity

Jinearity						
UUT Setting			Applied	l Value	UUT	
Range	Mode	Frequency	Time	Level	Freq.	Reading
(dB)		Weighting	Weighting	(dB)	(kHz)	(dB)
30 - 120	$L_{A}$	A	Fast	94.00	1	93.7 (Ref.)
				104.00		103.7
				114.00		113.7

IEC 61672 Class 1 Spec. :  $\pm$  0.6 dB per 10 dB step and  $\pm$  1.1 dB for overall different.

Time Weighting

UUT Setting			Applied	Value	UUT	IEC 61672 Class 1	
Range	Mode	Frequency	Time	Level	Freq.	Reading	Spec.
(dB)		Weighting	Weighting	(dB)	(kHz)	(dB)	(dB)
30 - 120	$L_A$	A	Fast	94.00	1	93.7	Ref.
			Slow			93.6	± 0.3

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

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Sun Creation Engineering Limited

**Calibration and Testing Laboratory** 

# Certificate of Calibration

# 校正證書

Frequency Weighting

6.3.1 A-Weighting

A- weighting	5						
UUT Setting			Appl	ied Value	UUT	IEC 61672 Class 1	
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Spec. (dB)
30 - 120	L <sub>A</sub>	A	Fast	94.00	63 Hz	67.3	$-26.2 \pm 1.5$
					125 Hz	77.4	$-16.1 \pm 1.5$
					250 Hz	85.0	$-8.6 \pm 1.4$
					500 Hz	90.4	$-3.2 \pm 1.4$
					1 kHz	93.7	Ref.
					2 kHz	95.0	$+1.2 \pm 1.6$
					4 kHz	94.8	$+1.0 \pm 1.6$
					8 kHz	92.7	-1.1 (+2.1; -3.1)
					12.5 kHz	89.8	-4.3 (+3.0; -6.0)

6.3.2 C-Weighting

C- Weighting							
	UUT Setting			Applied Value		UUT	IEC 61672 Class 1
Range	Mode	Frequency	Time	Level	Freq.	Reading	Spec.
(dB)		Weighting	Weighting	(dB)		(dB)	(dB)
30 - 120	L <sub>C</sub>	С	Fast	94.00	63 Hz	92.8	$-0.8 \pm 1.5$
					125 Hz	93.5	$-0.2 \pm 1.5$
1-					250 Hz	93.7	$0.0 \pm 1.4$
					500 Hz	93.8	$0.0 \pm 1.4$
					1 kHz	93.7	Ref.
					2 kHz	93.6	$-0.2 \pm 1.6$
					4 kHz	93.1	$-0.8 \pm 1.6$
					8 kHz	90.8	-3.0 (+2.1; -3.1)
			*		12.5 kHz	88.0	-6.2 (+3.0; -6.0)

Remarks: - Mfr's Spec.: IEC 61672 Class 1

- Uncertainties of Applied Value : 94 dB  $\pm$  : 63 Hz - 125 Hz  $\pm$  0.35 dB

 $250 \text{ Hz} - 500 \text{ Hz} : \pm 0.30 \text{ dB}$ 1 kHz :  $\pm 0.20 \text{ dB}$  2 kHz - 4 kHz :  $\pm 0.35 \text{ dB}$ 8 kHz  $\pm 0.45 \text{ dB}$ 

Certificate No.:

證書編號

C123580

8 kHz 12.5 kHz :  $\pm 0.70 \text{ dB}$  104 dB : 1 kHz :  $\pm 0.10 \text{ dB}$  (Ref. 94 dB) 1 kHz :  $\pm 0.10 \text{ dB}$  (Ref. 94 dB)

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

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

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

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



Sun Creation Engineering Limited

Calibration and Testing Laboratory

# Certificate of Calibration

校正證書

Certificate No.:

C126333

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號: IC12-2717)

Description / 儀器名稱

Integrating Sound Level Meter

Manufacturer / 製造商

Brüel & Kjær

Model No. / 型號 Serial No. / 編號 2238 2448529

Supplied By / 委託者

Hyder Consulting Limited

47/F., Hopewell Centre, 183 Queen's Road East,

Wanchai, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 :

 $(23 \pm 2)^{\circ}$ C

Relative Humidity / 相對濕度 :

 $(55 \pm 20)\%$ 

Line Voltage / 電壓 :

---

TEST SPECIFICATIONS / 測試規節

Calibration check

DATE OF TEST / 測試日期

3 November 2012

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.

All results are within manufacturer's specification.

The results are detailed in the subsequent page(s).

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

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

Tested By 測試

Certified By 核證 C C Cheung

Date of Issue 簽發日期 5 November 2012

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

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

Sun Creation Engineering Limited – Calibration & Testing Laboratory

c'o 4F. Tsing Shan Wan Exchange Building. 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong 輝創工程有限公司 – 校正及檢測實驗所

輝創工程有限公司 - 校止及檢測實驗所 c/o 香港新界屯門與安里一號青山灣機樓四樓

Tel 電話: 2927 2606 Fax/傳真: 2744 8986

E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com



#### Sun Creation Engineering Limited

Calibration and Testing Laboratory

# Certificate of Calibration

校正證書

Certificate No.:

C126665

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號:IC12-2878)

Description / 儀器名稱 :

Sound Level Calibrator

Manufacturer / 製造商

Rion

Model No./型號

NC-73

Serial No. / 編號

10486660

Supplied By / 委託者

Envirotech Services Co.

Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,

Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 :

 $(23 \pm 2)^{\circ}$ C

Relative Humidity / 相對濕度 :

 $(55 \pm 20)\%$ 

Line Voltage / 電壓 :

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期

19 November 2012

#### TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.

All results are within manufacturer's specification.

The results are detailed in the subsequent page(s).

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

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

Tested By 測試

C C Cheung

K C Lee

Date of Issue 簽發日期 21 November 2012

Certified By

核證

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

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

Sun Creation Engineering Limited - Calibration & Testing Laboratory

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong 輝創工程有限公司 – 校正及檢測實驗所

輝創工程有限公司 - 校止及檢測實驗所 c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel/電話: 2927 2606 Fax/傳真: 2744 8986

E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com

Page 1 of 2



### **Calibration Certificate**

Certificate No. 17675

Page 1 of 2 Pages

Customer: Hyder Consulting Limited

Address: 47/F., Hopewell Centre, 183 Queens Road East, Wanchai, Hong Kong

Order No.: Q12979

Date of receipt

22-Dec-11

**Item Tested** 

**Description**: Sound Level Calibrator

Manufacturer: B&K

Model: Type 4231

Serial No.

: 2699361

**Test Conditions** 

Date of Test: 4-Jan-12

Supply Voltage : --

Ambient Temperature :

 $(23 \pm 3)^{\circ}C$ 

Relative Humidity: (50 ± 25) %

#### **Test Specifications**

Calibration check.

Ref. Document/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:

Equipment No.	<u>Description</u>	Cert. No.	Traceable to
S014	Spectrum Analyzer	13535	NIM-PRC & SCL-HKSAR
S024	Sound Level Calibrator	15136	NIM-PRC & SCL-HKSAR
S041	Universal Counter	15610	SCL-HKSAR
S206	Sound Level Meter	16338	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

This Certificate is issued by: Hong Kong Calibration Ltd.

Hong Kong Calibration Ltd.

NT Hong Kong

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



# **Calibration Certificate**

Certificate No. 17675

Page 2 of 2 Pages

Results:

#### 1. Level Accuracy

UUT Nominal Value (dB)	Measured Value (dB)	IEC 942 Class 1 Spec.
94	94.16	$\pm 0.3 \; \mathrm{dB}$
114	114.18	

Uncertainty: ± 0.1 dB

#### 2. Frequency

UUT Nominal Value	Measured Value	IEC 942 Class 1 Spec.
1 kHz	1.000 kHz	± 2 %

Uncertainty:  $\pm 3.6 \times 10^{-6}$ 

3. Level Stability: 0.0 dB

IEC 942 Class 1 Spec. :  $\pm$  0.1 dB

Uncertainty: ± 0.01 dB

4. Total Harmonic Distortion : < 0.4 %

IEC 942 Class 1 Spec. : < 3 % Uncertainty : ± 2.3 % of reading

Remark: 1. UUT: Unit-Under-Test

- 2. The above measured values are the mean of 3 measurement.
- 3. The uncertainty claimed is for a confidence probability of not less than 95%.
- 4. Atmospheric Pressure: 1016 hPa.

	<b>END</b>	
--	------------	--

Work Order:

HK1224790

Date of Issue:

21/09/2012

Client:

HYDER CONSULTING LTD



Description:

YSI Multimeter

Brand Name:

YSI

Model No.:

YSI Professional Plus

Serial No.:

11J100824

Equipment No.:

N/A

Date of Calibration:

19 September, 2012

Date of next Calibration:

19 December, 2012

Parameters:

Conductivity

Ref: APHA (21st edition), 2510B

Expected Reading (uS/cm)	Displayed Reading (uS/cm )	Tolerance (%)
146.9	146.5	-0.3
6667	6496	-2.6
12890	12510	-2.9
58670	56906	-3.0
	Tolerance Limit (±%)	10.0

**Dissolved Oxygen** 

Method Ref: APHA (21st edition), 45000: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
2.65	2.50	
2.65	2.50	-0.15
4.58	4.40	-0.18
7.73	7.66	-0.07
	Tolerance Limit (±mg/L)	0.20
	Tolerance Limit (±mg/L)	0.20

**Temperature** 

Method Ref: Section 6 of International Accreditation New Zealand Technical

Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C )	Tolerance (°C )
9.5	9.7	0.2
24.5	24.4	-0.1
43.0	42.8	-0.2
	Tolerance Limit (°C)	2.0

Mr Chan Kwok Fail Godfrey

Laboratory Manager - Hong Kong

Work Order:

HK1224307

Date of Issue:

19/09/2012

Client:

HYDER CONSULTING LTD



Description:

Portable Turbidimeter

Brand Name:

Hanna

Model No.:

HI 98703-02

Serial No.:

08498735

Equipment No.:

---

Date of Calibration:

13 September, 2012

Date of next Calibration:

13 December, 2012

Parameters:

**Turbidity** 

Method Ref: ALPHA 21st Ed. 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
20		
0	0.09	
4	4.27	6.7
40	41.7	4.3
80	78.1	-2.4
400	407	1.8
800	847	5.9
	Tolerance Limit (±%)	10.0

Mr Chan Kwok Fai, Godfrey Laboratory Manager - Hong Kong

Work Order:

HK1222658

Date of Issue:

03/09/2012

Client:

HYDER CONSULTING LTD



DO Meter

Brand Name:

YSI

Model No.: Serial No.:

55/12 95J38390

Equipment No.:

--

Date of Calibration:

03 September, 2012

Date of next Calibration:

03 December, 2012

Parameters:

**Dissolved Oxygen** 

Method Ref: APHA (21st edition), 45000: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
	- 4-	
2.30	2.48	0.18
6.24	6.38	0.14
8.06	8.11	0.05
	Tolerance Limit (±mg/L)	0.20

**Temperature** 

Method Ref: Section 6 of International Accreditation New Zealand Technical

Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Reading of Ref. thermometer (°C )	Displayed Reading (°C )	Tolerance (°C )
10.0	11.1	1.1
25.0	24.8	-0.2
44.5	43.4	-1.1
	Tolerance Limit (°C)	2.0

Mr Chan Kwok Fai, Godfrey

Laboratory Manager - Hong Kong

Work Order:

HK1225454

Date of Issue:

26/09/2012

Client:

HYDER CONSULTING LTD



Description:

pH Meter

Brand Name:

Hanna

Model No.:

Hanna HI-8014

Serial No.:

SN 08345212

Equipment No.:

N/A

Date of Calibration:

25 September, 2012

Date of next Calibration:

25 December, 2012

Parameters:

pH Value

Method Ref: APHA (21st edition), 4500H:B

Method Kel. Artia (213t edition), 43	0011.0	
Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	4.10	0.10
7.0	7.04	0.04
10.0	9.85	-0.15
	Tolerance Limit (±unit)	0.20

Mr Chan Kwok Fai, Godfrey Laboratory Manager – Hong Kong

Work Order: Date of Issue: HK1233313 21/12/2012

Client:

HYDER CONSULTING LTD



Description:

YSI Multimeter

Brand Name:

YSI

Model No.:

YSI Professional Plus

Serial No.:

111100824 (11F100420 Probe)

Equipment No.:

N/A

Date of Calibration:

18 December, 2012

Date of next Calibration:

18 March, 2013

Parameters:

pH Value

Method Ref: APHA (21st edition), 4500H:B

Meetion itelian (=200 controlly)						
Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)				
4.0	4.08	0.08				
7.0	7.07	0.07				
10.0	10.00	0.00				
	Tolerance Limit (±unit)	0.20				

Conductivity

Ref: APHA (21st edition), 2510B

Rel. Al IIA (21st cuition), 25105					
Expected Reading (uS/cm)	Displayed Reading (uS/cm )	Tolerance (% )			
146.9	143.6	-2.2			
6667	6240	-6.4			
12890	12347	-4.2			
58670	58327	-0.6			
	Tolerance Limit (±%)	10.0			

Dissolved Oxygen

Method Ref: APHA (21st edition), 45000: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
4.09 6.20 8.46	4.00 6.12 8.40	-0.09 -0.08 -0.06
	Tolerance Limit (±mg/L)	0.20

**Temperature** 

Method Ref: Section 6 of International Accreditation New Zealand Technical

Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C )	Displayed Reading (°C )	Tolerance (°C )
10.5	10.2	-0.3
21.0	20.8	-0.2
35.5	35.7	0.2
	Tolerance Limit (°C)	1 2.0

ALS Technichem (HK) Pty Ltd

ALS Environmental

Mr Chan Kwok/Fai, Godfrey Laboratory Manager - Hong Kong

Page 2 of 2

Work Order: Date of Issue: HK1232550 13/12/2012

Client:

HYDER CONSULTING LTD



Description:

Portable Turbidimeter

Brand Name:

Hanna

Model No.: Serial No.: HI 98703-02 08498735

Equipment No.:

--

Date of Calibration:

11 December, 2012

Date of next Calibration:

11 March, 2013

Parameters:

**Turbidity** 

Method Ref: ALPHA 21st Ed. 2130B

Tection (City) and the city of					
Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)			
0	0.00				
4	4.02	0.5			
40	40.90	2.3			
80	85.30	6.6			
400	413.00	3.3			
800	813.00	1.6			
	Tolerance Limit (±%)	10.0			

Mr Chan Kwok Fai, Godfrey Laboratory Manager - Hong Kong

Work Order:

HK1231703

Date of Issue:

07/12/2012

Client:

HYDER CONSULTING LTD



Description:

YSI 55 DO METER

Brand Name:

YSI

Model No.:

55/12

Serial No.:

95138390

Equipment No.:

N/A

Date of Calibration:

04 December, 2012

Date of next Calibration:

04 March, 2013

Parameters:

**Dissolved Oxygen** 

Method Ref: APHA (21st edition), 45000: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
4.23	122	
4.31	4.23	-0.08
6.65	6.54 8.47	-0.11 0.01
8.46	8.47	0.01
	Tolerance Limit (±mg/L)	0.20

**Temperature** 

Method Ref: Section 6 of International Accreditation New Zealand Technical

Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C )	Tolerance (°C )
11.0	11.6	0.6
21.5	21.5	0.0
38.0	37.6	-0.4
	Tolerance Limit (°C)	2.0

Mr Chan Kwok Fai, Godfrey Laborator Manager - Hong Kong

Work Order:

HK1233680

Date of Issue:

21/12/2012

Client:

HYDER CONSULTING LTD



Description:

pH Meter

Brand Name:

Hanna

Model No.:

Hanna HI-8014

Serial No.:

SN 08345212

Equipment No.:

N/A

Date of Calibration:

20 December, 2012

Date of next Calibration:

20 March, 2013

Parameters:

pH Value

Method Ref: APHA (21st edition), 4500H:B

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	4.00	0.00
7.0	7.06	0.06
10.0	10.00	0.00
*	Tolerance Limit (±unit)	0.20

Mr Chan Kwok Fai, Godfrey Laboratory Manager - Hong Kong

ALS Technichem (HK) Pty Ltd **ALS Environmental** 

Page 2 of 2



### Appendix G

## **Monitoring Locations**

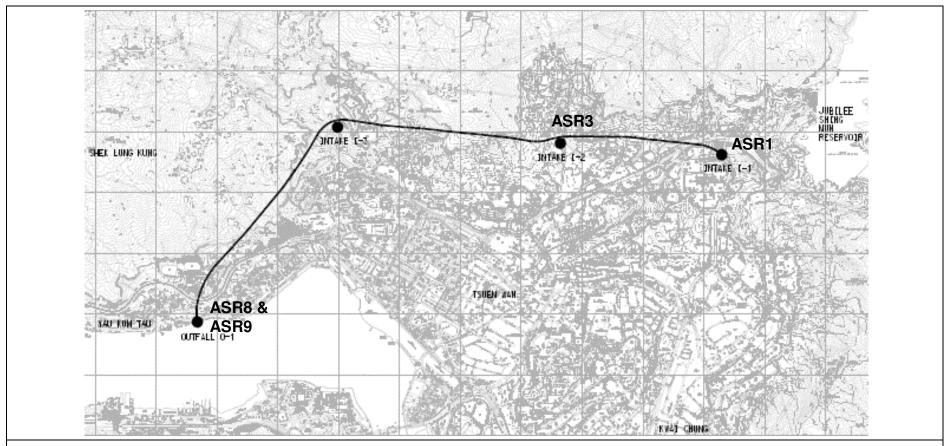


Figure 1 Air Quality Monitoring Stations

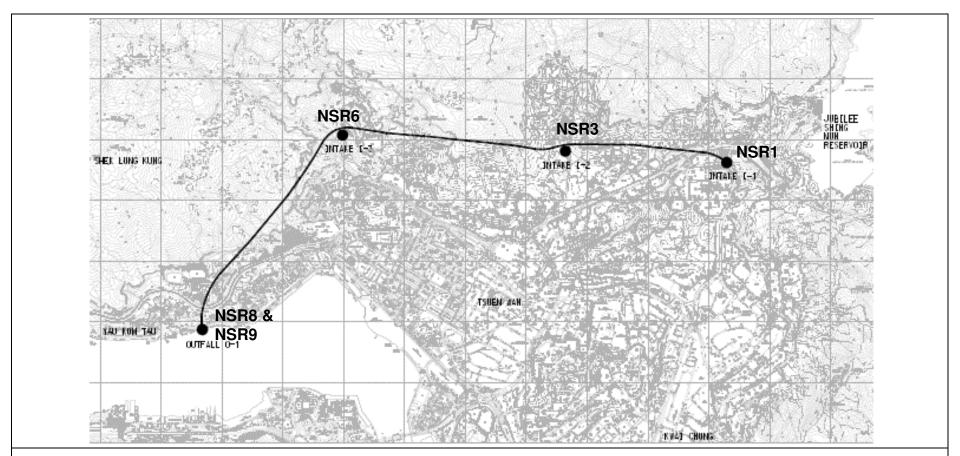


Figure 2 Noise Monitoring Stations

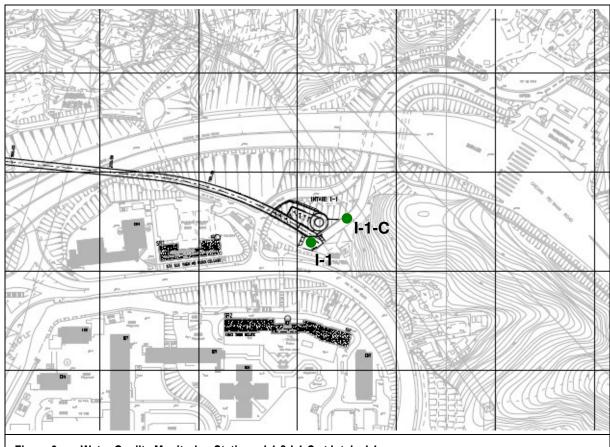
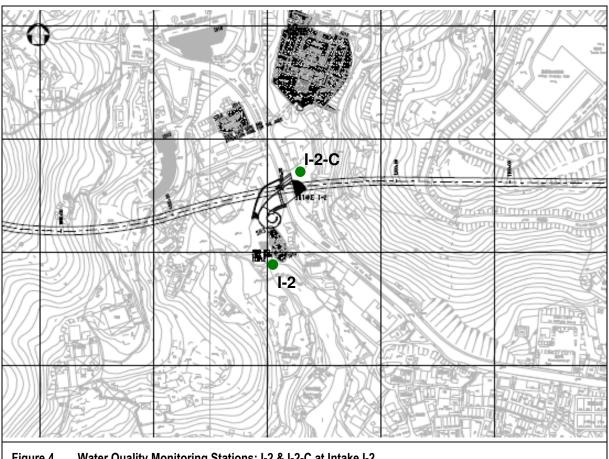
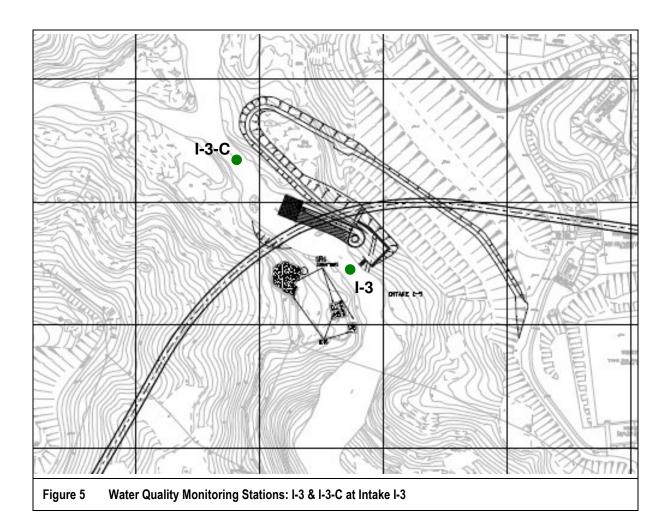


Figure 3 Water Quality Monitoring Stations: I-1 & I-1-C at Intake I-1



Water Quality Monitoring Stations: I-2 & I-2-C at Intake I-2 Figure 4



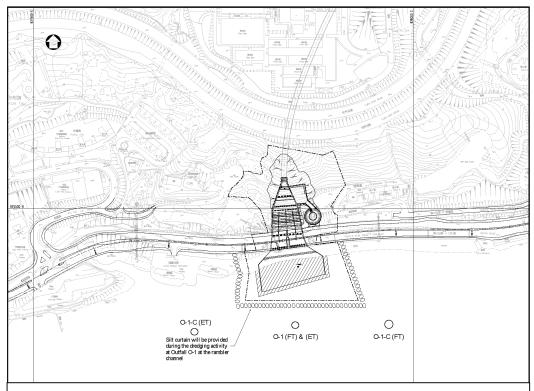


Figure 6 Water Quality Monitoring Stations: O-1 (FT) & (ET), O-1-C(FT) & O-1-C(FT) at Outfall O-1



## Appendix H

### **EM&A Schedule**

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

#### **Impact Monitoring Programme – December 12**

Date		Air	Noise	Water
01- Dec-12	Sat			
02- Dec-12	Sun			
03- Dec-12	Mon			✓
04- Dec-12	Tue			
05- Dec-12	Wed			<b>✓</b>
06- Dec-12	Thu	✓	✓	
07- Dec-12	Fri			✓
08- Dec-12	Sat			
09- Dec-12	Sun			
10- Dec-12	Mon			<b>✓</b>
11- Dec-12	Tue			
12 Dec-12	Wed	✓	✓	✓
13- Dec-12	Thu			
14- Dec-12	Fri			✓
15- Dec-12	Sat			
16- Dec-12	Sun			
17- Dec-12	Mon			✓
18- Dec-12	Tue	✓	√ (NSR6, NSR8 and NSR9 only)	
19- Dec-12	Wed		√ (NSR 1 and NSR3 only)	✓
20- Dec-12	Thu			
21- Dec-12	Fri			✓
22- Dec-12	Sat			
23- Dec-12	Sun			
24- Dec-12	Mon	✓	✓	✓
25- Dec-12	Tue			
26- Dec-12	Wed			
27- Dec-12	Thu			✓
28- Dec-12	Fri	✓		
29- Dec-12	Sat			✓
30- Dec-12	Sun			
31- Dec-12	Mon			✓

Note:

Shaded area indicates public holiday.

Air – Monitoring 1-hour TSP is undertaken three times per every six days

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

Water -Water quality monitoring is undertaken three times per week

k:\eb000364 tsuen wan drainage tunnel\f-reports\monitoring schedule\monitoring\_schedule dec12-mar13.docx

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

#### **Impact Monitoring Programme – January 13 (Tentative)**

Date		Air	Noise	Water
1-Jan-13	Tue			
2-Jan-13	Wed			✓
3-Jan-13	Thu	✓	✓	
4-Jan-13	Fri			✓
5-Jan-13	Sat			
6-Jan-13	Sun			
7-Jan-13	Mon			✓
8-Jan-13	Tue			
9-Jan-13	Wed	✓	✓	✓
10-Jan-13	Thu			
11-Jan-13	Fri			✓
12-Jan-13	Sat			
13-Jan-13	Sun			
14-Jan-13	Mon			✓
15-Jan-13	Tue	✓	✓	
16-Jan-13	Wed			✓
17-Jan-13	Thu			
18-Jan-13	Fri			✓
19-Jan-13	Sat			
20-Jan-13	Sun			
21-Jan-13	Mon	✓	✓	✓
22-Jan-13	Tue			
23-Jan-13	Wed			✓
24-Jan-13	Thu			
25-Jan-13	Fri	✓		✓
26-Jan-13	Sat			
27-Jan-13	Sun			
28-Jan-13	Mon			✓
29-Jan-13	Tue			
30-Jan-13	Wed			✓
31-Jan-13	Thu	✓	✓	

Shaded area indicates public holiday.

Air – Monitoring 1-hour TSP is undertaken three times per every six days
Noise – Noise measurements is undertaken once every week at (0700-1900 Monday to Saturday)

Water -Water quality monitoring is undertaken three times per week

k:\eb000364 tsuen wan drainage tunnel\f-reports\monitoring schedule\monitoring\_schedule dec12-mar13.docx

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

#### **Impact Monitoring Programme – February 13 (Tentative)**

Date		Air	Noise	Water
1-Feb-13	Fri			✓
2-Feb-13	Sat			
3-Feb-13	Sun			
4-Feb-13	Mon			✓
5-Feb-13	Tue			
6-Feb-13	Wed	✓	✓	✓
7-Feb-13	Thu			
8-Feb-13	Fri			✓
9-Feb-13	Sat	✓	✓	
10-Feb-13	Sun			
11-Feb-13	Mon			
12-Feb-13	Tue			
13-Feb-13	Wed			
14-Feb-13	Thu			✓
15-Feb-13	Fri	✓	✓	
16-Feb-13	Sat			✓
17-Feb-13	Sun			
18-Feb-13	Mon			✓
19-Feb-13	Tue			
20-Feb-13	Wed			✓
21-Feb-13	Thu	✓	✓	
22-Feb-13	Fri			✓
23-Feb-13	Sat			
24-Feb-13	Sun			
25-Feb-13	Mon			✓
26-Feb-13	Tue			
27-Feb-13	Wed	✓	✓	✓
28-Feb-13	Thu			

#### Note:

Shaded area indicates public holiday.

Air – Monitoring 1-hour TSP is undertaken three times per every six days

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

Water –Water quality monitoring is undertaken three times per week

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

#### **Impact Monitoring Programme – March 13 (Tentative)**

Date		Air	Noise	Water
1-Mar-13	Fri			✓
2-Mar-13	Sat			
3-Mar-13	Sun			
4-Mar-13	Mon			✓
5-Mar-13	Tue	✓	✓	
6-Mar-13	Wed			✓
7-Mar-13	Thu			
8-Mar-13	Fri			✓
9-Mar-13	Sat			
10-Mar-13	Sun			
11-Mar-13	Mon	✓	✓	✓
12-Mar-13	Tue			
13-Mar-13	Wed			✓
14-Mar-13	Thu			
15-Mar-13	Fri	✓		✓
16-Mar-13	Sat			
17-Mar-13	Sun			
18-Mar-13	Mon			✓
19-Mar-13	Tue			
20-Mar-13	Wed			✓
21-Mar-13	Thu	✓	✓	
22-Mar-13	Fri			✓
23-Mar-13	Sat			
24-Mar-13	Sun			
25-Mar-13	Mon			✓
26-Mar-13	Tue			
27-Mar-13	Wed	✓	✓	✓
28-Mar-13	Thu			
29-Mar-13	Fri			
30-Mar-13	Sat			
31-Mar-13	Sun			

#### Note:

Shaded area indicates public holiday.

Air – Monitoring 1-hour TSP is undertaken three times per every six days

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

Water –Water quality monitoring is undertaken 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)

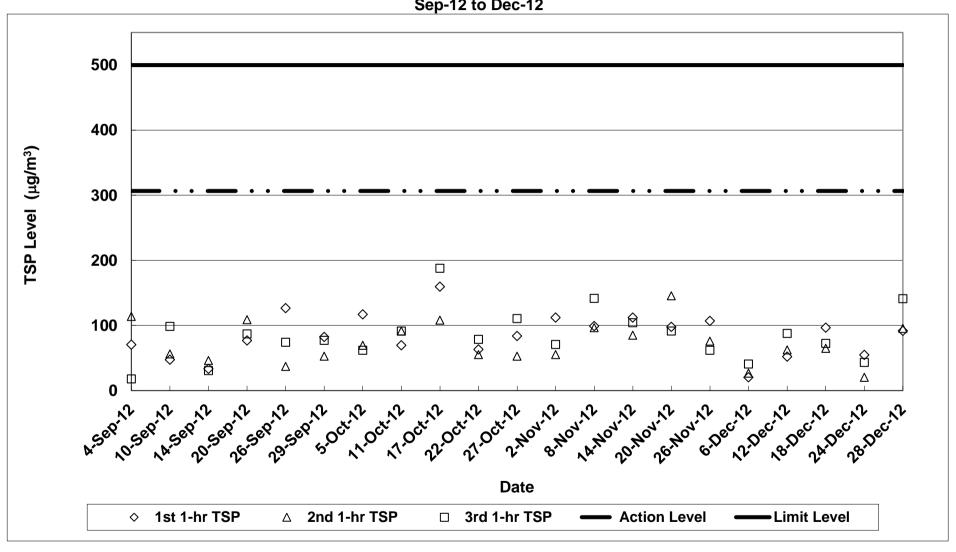
Location	Monitoring Date	Weather	Wind Speed	Temp	Timer-I	Timer-F	Time (mins)	Flow-I	Flow-F	Flow-I	Flow-F	Flow-avg	Volume	Weight-I (g)	Weight-f (g)	Weight-diff. (g)	1-hr TSP	Average 1-Hr TSP	Action/Limit	Observation	Other Possible Dust Sources
		Conditions	with Direction	(°C)				(CFM)	(CFM)	(m³/min)	(m³/min)	(m³/min)	(m³)				(μg/m³)	(μg/m³)	Levels	/ Site Condition	
			(m/s)																(μg/m³)		
	6 Dec 12	Cloudy	0.5N	18	644842	644942	60.0	40	40	1.31	1.31	1.31	78.70	2.8938	2.8954	0.0016	20.3	20.2		Evenuation Mork	Vahialaa
	6-Dec-12	Cloudy	0.5N	18	644942	645042	60.0	40	40	1.31	1.31	1.31	78.70	2.9001	2.9022	0.0021	26.7	29.2		Excavation Work	Vehicles
		Cloudy	0.5N	18	645042	645142	60.0	40	40	1.31	1.31	1.31	78.70	2.8967	2.8999	0.0032	40.7				
	12-Dec-12	Sunny	0.5N	18	645142	645242	60.0	40	40	1.31	1.31	1.31	78.70	2.8986	2.9027	0.0041	52.1	67.3		Excavation Work	Vehicles
	12-Dec-12	Sunny Sunny	0.5N 0.5N	18 18	645242 645342	645342 645442	60.0 60.0	40	40 40	1.31 1.31	1.31 1.31	1.31	78.70 78.70	2.9000 2.9020	2.9049 2.9089	0.0049	62.3 87.7	67.3		Excavation Work	verlicles
		<u> </u>		18		-					1										
Sik Yuen Ho Fung	18-Dec-12	Cloudy	0.7N 0.7N	18	645442 645542	645542 645642	60.0 60.0	40 40	40 40	1.31 1.31	1.31	1.31	78.70 78.70	2.8905 2.8733	2.8981 2.8784	0.0076 0.0051	96.6 64.8	77.9 306.6/500	306 6/500	Excavation Work	Vehicles
ge - Intake (ASR1)	10-060-12	Cloudy Cloudy	0.7N 0.7N	18	645642	645742	60.0	40	40	1.31	1.31	1.31	78.70	2.8719	2.8776	0.0051	72.4		300.0/300	Lacavation work	Verificies
		Sunny	0.7N	13	645742	645842	60.0	40	40	1.31	1.31	1.31	78.70	2.8553	2.8596	0.0037	54.6				
	24-Dec-12	Sunny	0.6N	13	645842	645942	60.0	40	40	1.31	1.31	1.31	78.70	2.8715	2.8731	0.0043	20.3	39.4	Excavation Work	Vehicles	
	24 000 12	Sunny	0.6N	13	645942	646042	60.0	40	40	1.31	1.31	1.31	78.70	2.8713	2.8741	0.0016	43.2		Execution Work	Vernoice	
		Sunny	0.3N	19	646042	646142	60.0	40	40	1.31	1.31	1.31	78.70	2.7520	2.7592	0.0072	91.5				
	28-Dec-12	Sunny	0.3N	19	646142	646242	60.0	40	40	1.31	1.31	1.31	78.70	2.7265	2.7340	0.0072	95.3	109.3	Excavation Work	Vehicles	
	20 200 12	Sunny	0.3N	19	646242	646342	60.0	40	40	1.31	1.31	1.31	78.70	2.7375	2.7486	0.0111	141.0		2.00 Tallon Work	Vermende	
		Cloudy	0.5N	18	613390	613490	60.0	40	40	1.25	1.25	1.25	74.95	2.8845	2.8869	0.0024	32.0				
	6-Dec-12	Cloudy	0.5N	18	613490	613590	60.0	40	40	1.25	1.25	1.25	74.95	2.8833	2.8871	0.0024	50.7	60.0		Crane operation and excavation work	Vehicles
		Cloudy	0.5N	18	613590	613690	60.0	40	40	1.25	1.25	1.25	74.95	2.8719	2.8792	0.0038	97.4	23.0		3,000,000,000	
		Sunny	0.6N	18	613690	613790	60.0	40	40	1.25	1.25	1.25	74.95	2.9220	2.9296	0.0076	101.4			Crane operation and concrete work	Vehicles
	12-Dec-12	Sunny	0.6N	18	613790	613890	60.0	40	40	1.25	1.25	1.25	74.95	2.9220	2.9212	0.0076	45.4	81.4			
		Sunny	0.6N	18	613890	613990	60.0	40	40	1.25	1.25	1.25	74.95	2.9066	2.9139	0.0034	97.4				
		Cloudy	0.5N	18	613990	614090	60.0	40	40	1.25	1.25	1.25	74.95	2.9111	2.9189	0.0078	104.1				
g Hoi Chee Hong	18-Dec-12	Cloudy	0.5N	18	614090	614190	60.0	40	40	1.25	1.25	1.25	74.95	2.8964	2.9038	0.0074	98.7	97.8	327.4/500	Crane operation and rock breaking	Vehicles
ole - Intake (ASR3)	10 200 12	Cloudy	0.5N	18	614190	614290	60.0	40	40	1.25	1.25	1.25	74.95	2.9086	2.9154	0.0068	90.7	07.0	027.17000	Oranio oporation and rook broaking	Vermende
		Sunny	0.4N	13	614290	614390	60.0	40	40	1.25	1.25	1.25	74.95	2.8874	2.8929	0.0055	73.4				
	24-Dec-12	Sunny	0.4N	13	614390	614490	60.0	40	40	1.25	1.25	1.25	74.95	2.8784	2.8833	0.0039	65.4	82.7		Crane operation and rock breaking	Vehicles
	2.200.2	Sunny	0.4N	13	614490	614590	60.0	40	40	1.25	1.25	1.25	74.95	2.7423	2.7505	0.0049	109.4	02.7		Orano operation and rook broaking	Verneige
		Sunny	0.4N	19	614590	614690	60.0	40	40	1.25	1.25	1.25	74.95	2.7311	2.7361	0.0050	66.7				
	28-Dec-12	Sunny	0.2N	19	614690	614790	60.0	40	40	1.25	1.25	1.25	74.95	2.7311	2.7432	0.0030	129.4	89.8		Crane operation and rock breaking	Vehicles
	20 000 12	Sunny	0.2N	19	614790	614790	60.0	40	40	1.25	1.25	1.25	74.95	2.7409	2.7464	0.0097	73.4	00.0		Oranie operation and rock breaking	Vernoids
			0.9N	18	607534	607634	60.0	40	40	1.23	1.23	1.23	73.95	2.7341	2.7391	0.0050	67.6				
	6-Dec-12	Cloudy Cloudy	0.9N	18	607634	607734	60.0	40	40	1.23	1.23	1.23	73.95	2.8870	2.8898	0.0030	37.9	50.0		Crane operation and concrete work	Vehicles
		Cloudy	0.9N	18	607734	607834	60.0	40	40	1.23	1.23	1.23	73.95	2.8887	2.8920	0.0028	44.6	50.0		Oranie operation and concrete work	Vernoids
		Sunny	0.8N	18	607834	607934	60.0	40	40	1.23	1.23	1.23	73.95	2.8852	2.8895	0.0033	58.2				
	12-Dec-12	Sunny	0.8N	18	607934	608034	60.0	40	40	1.23	1.23	1.23	73.95	2.8843	2.8951	0.0043	146.1	83.4		Crane operation and concrete work	Vehicles
	12-060-12	Sunny	0.8N	18	608034	608134	60.0	40	40	1.23	1.23	1.23	73.95	2.8669	2.8703	0.0108	46.0		Crane operation and concrete work	VOITIOIOS	
		Cloudy	1.2N	18	608034	608234	60.0	40	40	1.23	1.23	1.23	73.95	2.8660	2.8681	0.0034	28.4				
Beach Gardens -	18-Dec-12		1.2N	18	608234	608334	60.0	40	40	1.23	1.23	1.23	73.95	2.8714	2.8740	0.0021	35.2	38.8 336.6/500	Crane operation and steel bending	Vehicles	
Outfall (ASR8)	10-060-12	Cloudy Cloudy	1.2N	18	608334	608434	60.0	40	40	1.23	1.23	1.23	73.95	2.8759	2.8798	0.0026	52.7	30.0	330.0/300	Crane operation and steel bending	venicies
		· · · · ·	0.8N		608434	608534	60.0		40	1.23	1.23	+	73.95	2.8670	2.8737	0.0039	<del>                                     </del>				
	24-Dec-12	Sunny		13				40			+	1.23					90.6	60.4			Vehicles
	27-060-12	Sunny Sunny	0.8N 0.8N	13 13	608534 608634	608634 608734	60.0 60.0	40	40 40	1.23 1.23	1.23 1.23	1.23 1.23	73.95 73.95	2.8637 2.8705	2.8673 2.8736	0.0036 0.0031	48.7 41.9	00.4		Crane operation and steel bending	Verilloles
		Sunny	0.5N	19	608734	608734	60.0	40	40	1.23	1.23	1.23	73.95	2.7521	2.7567	0.0031	62.2				
	28-Dec-12		0.5N 0.5N	19	608834	608834	60.0	40	40	1.23	1.23	1.23	73.95	2.7521	2.7567	0.0046	300.2	132.5		Crane operation and concrete work	Vehicles
	20-060-12	Sunny Sunny	0.5N 0.5N	19 19	608834	608934	60.0	40	40	1.23	1.23	1.23	73.95	2.7381	2.7603	0.0222	300.2 35.2	132.3	1	Grane operation and concrete work	VEHICIES
		-		18	600380		60.0	40	40	1.23	1.23	1.23	73.95		2.7334	0.0028	24.3				
	6-Dec-12	Cloudy	0.8N 0.8N	18 18	600380	600480 600580	60.0	40	40	1.24	1.24	1.24	74.11 74.11	2.8882 2.8842	2.8900	0.0018	33.7	44.5		Crane operation and concrete work	Vehicles
	0-060-12	Cloudy Cloudy	0.8N 0.8N	18 18	600580	600680	60.0	40	40	1.24	1.24	1.24	74.11	2.8842	2.8867	0.0025	75.6	77.5		Static operation and concrete work	VOINGIO
		· · · · · ·	0.8N 0.7N	18	600680	600780	60.0		40	1.24	1.24	1.24	74.11	2.8859	2.8818	0.0056	75.6 86.4				
	12-Dec-12	Sunny	0.7N 0.7N	18 18	600680	600780	60.0	40 40	40	1.24	1.24	1.24	74.11 74.11	2.8754	2.8818	0.0064	86.4 67.5	73.3		Crane operation and concrete work	Vehicles
	12-060-12	Sunny Sunny	0.7N 0.7N	18 18	600780	600880	60.0	40	40	1.24	1.24	1.24	74.11	2.8857	2.8907	0.0050	66.1	10.0		Grane operation and concrete work	Verilloies
		· · ·	1.1N	18	600880	601080	60.0		40			<del> </del>	74.11	2.8950	2.8999	0.0049	<del>                                     </del>				
enview Terrace -	18-Dec-12	Cloudy		18 18				40		1.24	1.24	1.24					66.1	54.9	329.2/500	Crane operation and steel bending	Vehicles
Outfall (ASR9)	10-060-12	Cloudy Cloudy	1.1N 1.1N	18 18	601080 601180	601180 601280	60.0 60.0	40 40	40 40	1.24 1.24	1.24 1.24	1.24 1.24	74.11 74.11	2.8585 2.8587	2.8623 2.8622	0.0038 0.0035	51.3 47.2	54.3	329.2/300	Grane operation and steel bending	Verilloies
		<del>'</del>										+					<del>                                     </del>				
	24-Dec-12	Sunny	0.8N	13	601280	601380	60.0	40	40	1.24	1.24	1.24	74.11	2.8706	2.8778	0.0072	97.1	60.7		Crane eneration and steel handing	Vahiolog
	24-Dec-12	Sunny	0.8N	13	601380	601480	60.0	40	40	1.24	1.24	1.24	74.11	2.8811	2.8838	0.0027	36.4	69.7		Crane operation and steel bending	Vehicles
		Sunny	0.8N	13	601480	601580	60.0	40	40	1.24	1.24	1.24	74.11	2.8735	2.8791	0.0056	75.6				
	00 Dec 40	Sunny	0.5N	19	601580	601680	60.0	40	40	1.24	1.24	1.24	74.11	2.7429	2.7481	0.0052	70.2	400.7		Crops appretion and accreate week	Vahiolos
	28-Dec-12	Sunny	0.5N	19	601680	601780	60.0	40	40	1.24	1.24	1.24	74.11	2.7357	2.7470	0.0113	152.5	100.7		Crane operation and concrete work	Vehicles
		Sunny	0.5N	19	601780	601880	60.0	40	40	1.24	1.24	1.24	74.11	2.7310	2.7369	0.0059	79.6				

Note:

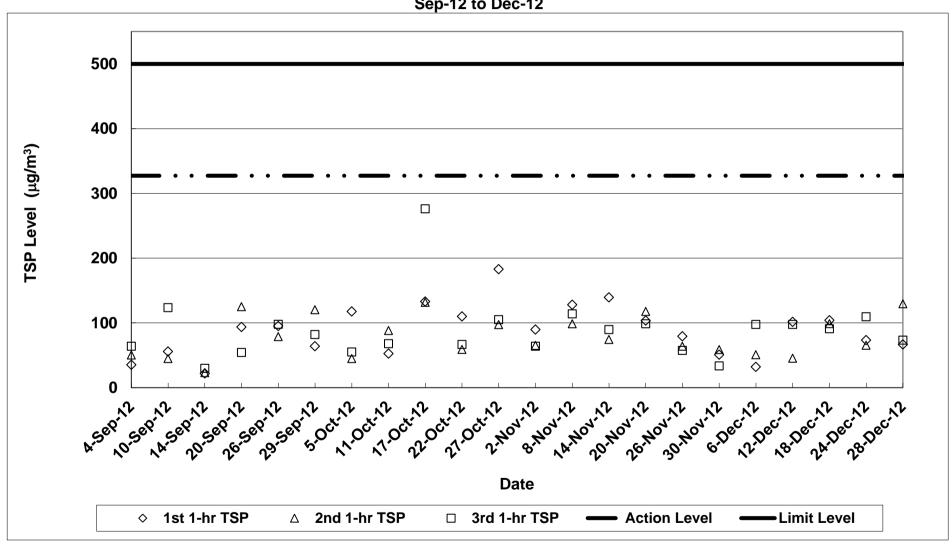
Italic font and yellow shaded indicates an exceedance of Action Level

Bolld font and red shaded area indicates an exceedance of Limit Level

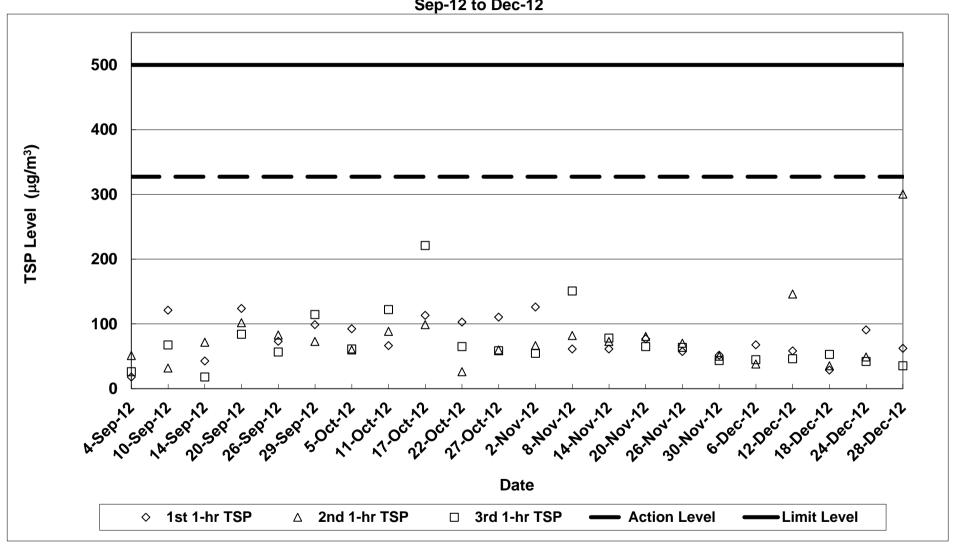
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Air Quality Monitoring (1-hr TSP) Results at Sik Sik Yuen Ho Fung College - Intake (ASR1) Sep-12 to Dec-12



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 - Intake (ASR3) Sep-12 to Dec-12

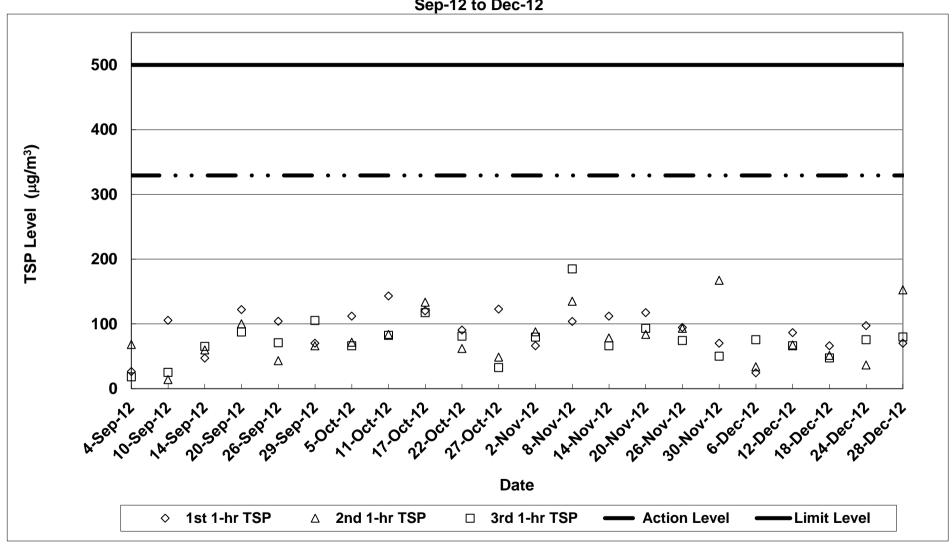


Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Air Quality Monitoring (1-hr TSP) Results at Long Beach Gardens - Outfall (ASR8) Sep-12 to Dec-12



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

Sep-12 to Dec-12



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

### Noise Impact Monitoring Results

Monitoring Locations	Date	Weather	Temperature	Wind Speed	Wind	Start Time	End Time	BL <sup>1</sup>	LL <sup>2</sup>	L <sub>eq(30min)</sub>	L <sub>10(30min)</sub>	L <sub>90(30min)</sub>	CNL <sup>3</sup>	Observation /	Other Noise Sources
		Conditions	(°C)	(m/s)	Direction			dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	Site Condition	
Sik Sik Yuen Ho Fung College	6-Dec-12	Cloudy	18	0.5	N	14:56	15:26		70	63.0	65.4	59.2	-	Excavation work	Traffic noise
NSR 1	12-Dec-12	Sunny	18	0.5	N	14:45	15:15		70	64.7	67.1	59.7	-	Excavation work	Traffic noise
	19-Dec-12	Cloudy	15	0.9	N	13:44	14:14	66.1	70	65.0	67.4	61.0	-	Crane operation and rock breaking	Traffic noise
	24-Dec-12	Sunny	13	0.6	N	14:40	15:10		70	64.1	66.7	59.4	-	Excavation work	Traffic noise
													-		
Hong Hoi Chee Hong Temple	6-Dec-12	Cloudy	18	0.5	N	14:17	14:47		75	71.1	74.5	63.2	-	Crane operation and excavation work	Traffic noise
NSR 3	12-Dec-12	Sunny	18	0.6	N	14:05	14:35		75	64.3	67.0	60.1	-	Crane operation and concrete work	Traffic noise
	19-Dec-12	Cloudy	14	0.9	N	13:05	13:35	57.9	75	66.3	68.8	61.8	-	Crane operation and excavation work	Traffic noise
	24-Dec-12	Sunny	13	0.4	N	14:02	14:32		75	72.2	75.7	62.2	-	Crane operation and rock breaking	Traffic noise
													-		
Squatters	6-Dec-12	Cloudy	18	0.3	N	13:30	14:00		75	54.7	56.9	50.0	-	Crane operation and excavation work	Birds
NSR 6	12-Dec-12	Sunny	18	0.3	N	10:35	11:05		75	56.1	58.2	53.3	-	Crane operation and excavation work	Birds
	18-Dec-12	Cloudy	18	0.4	N	15:55	16:25	61.2	75	60.5	63.8	55.9	-	Crane operation and excavation work	Birds
	24-Dec-12	Sunny	13	0.5	N	9:55	10:25		75	57.2	59.1	54.7	-	Crane operation and excavation work	Traffic noise
													-		
Long Beach Gardens	6-Dec-12	Cloudy	18	0.9	N	10:55	11:25		75	64.2	65.8	62.7	-	Crane operation and concrete work	Traffic noise
NSR 8	12-Dec-12	Sunny	18	0.8	N	15:33	16:03		75	64.4	65.8	62.9	-	Crane operation and concrete work	Traffic noise
	18-Dec-12	Cloudy	18	1.2	N	14:30	15:00	15:00 60.9		64.4	66.2	62.7	-	Crane operation and steel bending	Traffic noise
	24-Dec-12	Sunny	13	0.8	N	10:40	11:10		75	63.2	64.7	61.7	-	Crane operation and steel bending	Traffic noise
													-		
Greenview Terrace	6-Dec-12	Cloudy	18	0.8	N	10:12	10:42		75	63.2	64.8	61.4	-	Crane operation and concrete work	Traffic noise
NSR 9	12-Dec-12	Sunny	18	0.7	N	16:14	16:44		75	64.5	66.6	62.1	-	Crane operation and concrete work	Traffic noise
	18-Dec-12	Cloudy	18	1.1	N	15:11	15:41	59.7	75	64.8	66.1	61.9	-	Crane operation and steel bending	Traffic noise
	24-Dec-12	Sunny	13	0.8	N	11:20	11:50		75	65.0	67.5	61.8	-	Crane operation and steel bending	Traffic noise
													-		

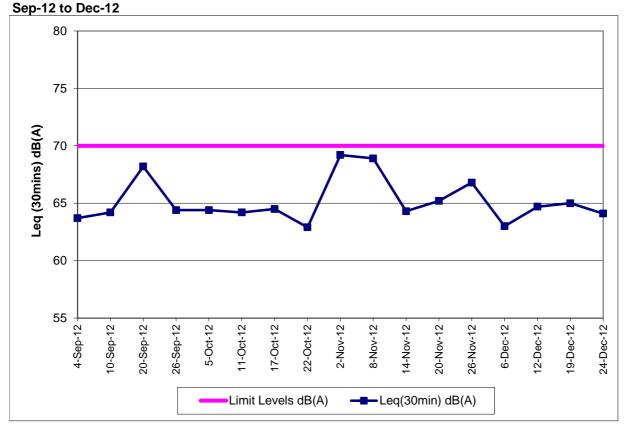
1: Baseline Noise Level

2: Limit Level3: Corrected Noise Level

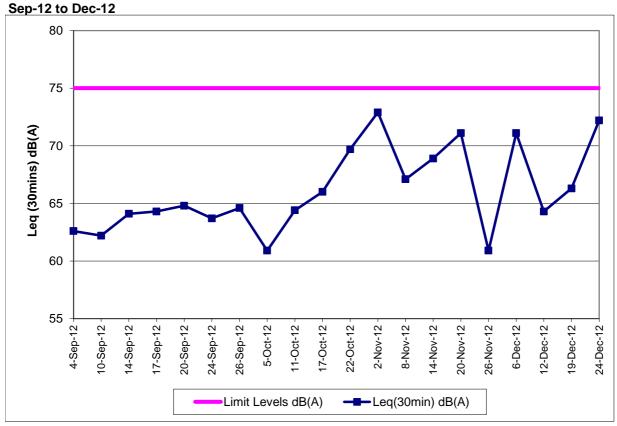
The limit level of NSR1 is 65dB(A) during school examination period.

Red Bold indicates an exceedance of Limit Level

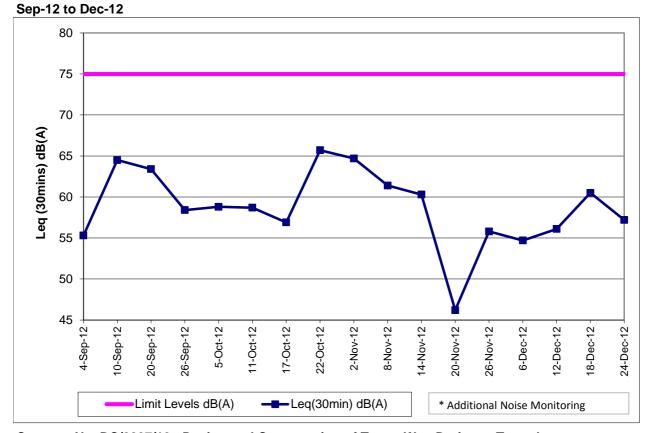
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Noise Monitoring Results at Sik Sik Yuen Ho Fung College (NSR 1)



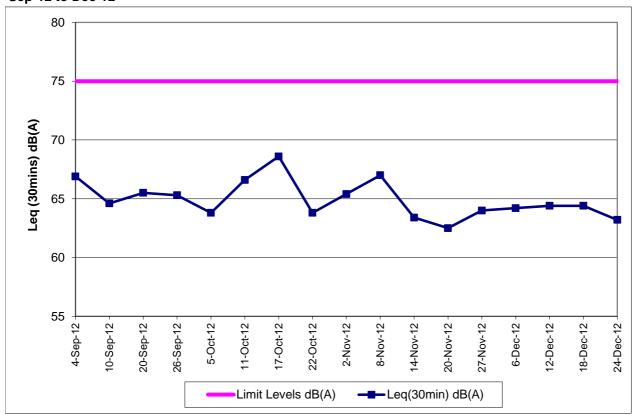
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Noise Monitoring Results at Hong Hoi Chee Hong Temple (NSR 3)



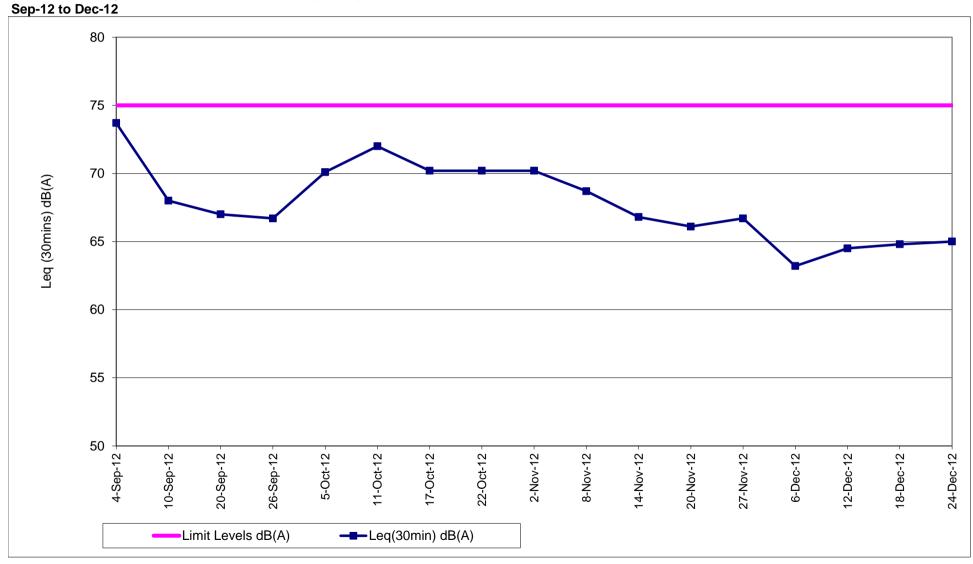
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Noise Monitoring Results at Squatters (NSR 6)



Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Noise Monitoring Results at Long Beach Gardens (NSR 8) Sep-12 to Dec-12



Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Noise Monitoring Results at Greenview Terrace (NSR 9)



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

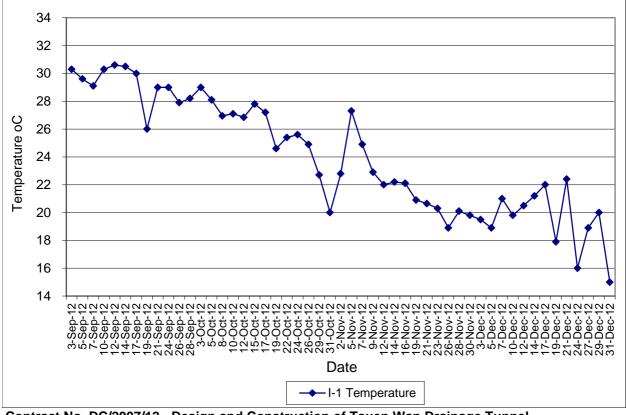
Water Quality Impact Monitoring Results

Monitoring Locations	Date	Start	Weather		Temp		DO(mg/L			рН		Turbidity(NTU)	Action/Limit	SS (mg			Remarks	Action to be taken
0", 0", 11, 5, 0, 11	0.5.40	Time		Depth(m) 1	2		1 2	Ŭ	of DO(mg/L)	1 2	Avg	1 2 Avg	Level of Tby	1 2		el of SS(mg	,	
Sik Sik Yuen Ho Fung College	3-Dec-12 5-Dec-12			<1 19.5 <1 18.9	19.50		.52 8.57 .25 8.30	8.55 8.28		7.78 7.78 7.80 7.80		6.50     6.46     6.48       3.85     3.92     3.89	-	4.60 4.60 <2.00 <2.0	<b>4.60</b> 0 <2.00		Excavation work  Excavation work and concrete work	Nil Nil
ľ.	7-Dec-12	_			21.00			8.45		8.00 8.00		3.60 3.70 3.65	1 [		2.00		Excavation work	Nil
	10-Dec-12			<1 19.8			.33 8.30	8.32		7.86 7.85		12.71 12.80 <b>12.76</b>			9.80		Excavation work	Nil
	12-Dec-12 14-Dec-12				20.50		40 8.43 41 8.44	8.42 8.43		7.92 7.92 7.97 7.97		3.17 3.21 3.19 4.05 4.02 4.04	-   -		0 <2.00 9.15		Excavation work	Nil
	17-Dec-12				) 22.00			0 22		7.96 7.96		3.02 3.00 3.01	┥		7.25		Excavation work  Excavation work	Nil
	19-Dec-12	14:06	Cloudy	<1 17.9	17.90	17.90 9.	.10 9.13	9.12	3.42 / 3.34	7.91 7.91	7.91	4.11 4.18 4.15	9.75 / 12.47	7.00 6.40	- X X	35 / 10 17	Excavation work	Nil
	21-Dec-12				22.40		83 8.79	8.81		7.96 7.96		3.90 3.98 3.94	4	5.20 4.70			Excavation work	Nil
	24-Dec-12 27-Dec-12		,		16.00			9.13 8.93		7.91 7.91 7.83 7.83		3.02     3.00     3.01       5.90     5.88     5.89			3.30 6.25		Excavation work  Excavation work	Nil
	29-Dec-12				20.00		16 9.21	9.19		7.80 7.80		11.12 11.10 11.11	1		10.20		Excavation work	Nil
	31-Dec-12			<1 15.0			.07 9.05	9.06		7.80 7.80		3.40 3.45 3.43		2.20 2.20			Excavation work	Nil
011 011 1/4 11 5 0 11	0.5.40	4.4.40	Б.	4 40.5	10.50	40.50	77 0.00	0.70		7.70 7.70	7.70	0.00	-	0.00	0.40		- NP	-
Sik Sik Yuen Ho Fung College I-1-C	3-Dec-12 5-Dec-12		Rainy Rainy	<1 19.5 <1 19.0	19.50		.77 8.80 .33 8.27	8.79 8.30		7.78 7.78 7.80 7.80		6.60 6.74 6.67 3.97 4.04 4.01	-		3.10		NII Nii	NII Nii
	7-Dec-12		,		21.00		36 8.39	8.38		8.00 8.00		3.70 3.62 3.66	1		0 <2.00		Nil	Nil
	10-Dec-12		_	<1 19.8			.22 8.25	8.24		7.86 7.86		13.15 13.30 13.23		5.20 6.00			Nil	Nil
	12-Dec-12 14-Dec-12				20.60		.20 8.27 .33 8.39	8.24 8.36		7.92 7.92 7.97 7.97		3.23     3.16     3.20       4.17     4.20     4.19	-		0 <2.00		Nil Nii	Nil
	17-Dec-12		,		) 22.00			8.24	,	7.96 7.96		3.10 3.15 3.13	┥ , ┡		7.30	,	Nil	Nil
	19-Dec-12	13:55	Cloudy	<1 17.9	17.90	17.90 9	.22 9.20	9.21	- /-	7.91 7.91	7.91	4.27 4.36 4.32	/- _	5.80 5.10	5.45	- /-	Nil	Nil
	21-Dec-12				22.50		90 8.87	8.89		7.96 7.96		4.04 4.14 4.09	4		4.85		Nil Ner	Nil
	24-Dec-12 27-Dec-12		_	<1 16.0 <1 18.9	16.00		.20 9.24 .00 9.02	9.22 9.01		7.91 7.91 7.83 7.83		3.10     3.06     3.08       6.01     5.95     5.98	-  F		3.65 5.80		INII Nii	Nil
	29-Dec-12			<1 19.9			10 9.14	9.12		7.80 7.80		11.20 11.31 11.26	<u> </u>		9.70		Nil	Nil
	31-Dec-12		•	<1 15.0			17 9.13	9.15		7.80 7.80	7.80	3.57 3.64 3.61	] [	2.20 2.40			Nil	Nil
Hong Hoi Chao Harra Tarral	2 Da - 40	14.40	Deire	- 4 40.5	10.00	10 FF C	55 0.57	0.50		7.00 7.00	7.00	466 460 460		-2.00	2 20 00		- Crans energion and walding wards	- Nii
Hong Hoi Chee Hong Temple I-2	3-Dec-12 5-Dec-12			<1 19.5 <1 18.6	19.60		.55 8.57 .35 8.33	8.56 8.34		7.80 7.80 7.80 7.80		4.66     4.69     4.68       1.84     1.88     1.86	-  F		0 <2.00 0 <2.00		Crane operation and welding work Crane operation and concrete work	Nil
<u> </u>	7-Dec-12			<1 21.2			57 8.52	8.55		7.90 7.90		1.80 1.84 1.82	<u> </u>		0 <2.00		Crane operation and excavation work	Nil
	10-Dec-12				19.90		.36 8.31	8.34		7.88 7.88		1.86 1.92 1.89			0 <2.00		Crane operation and concrete work	Nil
	12-Dec-12 14-Dec-12				20.20			8.29 8.40		7.98 7.98 8.00 8.00		1.69     1.75     1.72       1.64     1.68     1.66	-   -		0 <2.00		Crane operation and concrete work  Crane operation and rock breaking	Nil
	17-Dec-12		,		21.80			0.00		7.97 7.97		1.66 1.73 1.70	<del> </del>		12.00		Crane operation and rock breaking  Crane operation and rock breaking	Nil
	19-Dec-12	13:27	Cloudy	<1 17.9	17.90	17.90 9.	.05 9.02	9.04	3.66 / 3.63	7.92 7.92	7.92	1.68 1.70 1.69	6.63 / 6.99	<2.00 <2.0	<2.00	NX / X 3/4	Crane operation and rock breaking	Nil
	21-Dec-12				22.40		75 8.72	8.74		7.96 7.96		1.70 1.66 1.68	4		<2.00		Crane operation and welding work	Nil
	24-Dec-12 27-Dec-12			<1 16.2 <1 18.8	16.20			8.96 8.76		7.93 7.93 7.81 7.81		1.77         1.74         1.76           1.22         1.27         1.25	-		0 <2.00 0 <2.00		Crane operation and rock breaking Crane operation and welding work	Nil Nil
	29-Dec-12				19.80			9.16		7.78 7.78		1.55 1.52 1.54	1		0 <2.00		Crane operation and rock breaking	Nil
	31-Dec-12	13:33	Sunny	<1 15.1				9.09		7.76 7.76	7.76	1.57 1.55 1.56		<2.00 <2.0	0 <2.00		Crane operation and excavation work	Nil
Hong Hoi Chee Hong Temple	3-Dec-12	14:20	Painy	- <1 19.6	19.60	10.60 8	48 8.52	8.50		7.80 7.80	7.80	4.57 4.63 4.60		<2.00 <2.0	0 <2.00		Nii	- Nii
I-2-C	5-Dec-12				19.60			8.39		7.81 7.81		1.93 1.97 1.95	<b>-</b>		0 <2.00		Nil	Nil
			Cloudy		21.20			8.49		7.90 7.90		1.86 1.92 1.89		<2.00 <2.0	<2.00		Nil	Nil
	10-Dec-12				19.90			8.41		7.88 7.88		1.90 1.94 1.92			0 <2.00		Nil Nii	Nil
	12-Dec-12 14-Dec-12				20.20			8.31 8.51		7.98 7.98 7.99 7.99		1.72         1.77         1.75           1.70         1.74         1.72	1		0 <2.00		NII Nii	Nil
				<1 22.0				8.16	- /-	7.95 7.95		1.70 1.74 1.72	<b>.</b> ,		0 <2.00	1	Nil	Nil
	19-Dec-12				17.90			9.09	- /-	7.92 7.92		1.60 1.57 1.59			0 <2.00	- /-	Nil	Nil
	21-Dec-12 24-Dec-12				22.40		.85 8.77 .06 9.02	8.81 9.04		7.96 7.96 7.93 7.93		1.74         1.76         1.75           1.82         1.76         1.79	-		0 <2.00		NII Nii	Nil Nil
	27-Dec-12				) 18.80			8.67		7.80 7.80		1.20 1.24 1.22	1		0 <2.00		Nil	Nil
	29-Dec-12				19.80					7.78 7.78		1.57 1.64 1.61	] [		<2.00		Nil	Nil
	31-Dec-12	13:22	Sunny	<1 15.1	15.10	15.10 9.	.02 9.00	9.01		7.76 7.76	7.76	1.60 1.63 1.62					Nil	
Squatters	3-Dec-12	15,11		-									1	<2.00 <2.0	0 <2.00		1111	Nil
ارغ		15.14	Rainv	<1 19.6	19.60	19.60 8	.51 8.49	8.50		7.80 7.80	7.80	4.22 4.16 <b>4.19</b>					- Crane operation and excavation work	Nil - Nil
1-3	5-Dec-12	16:07	Rainy	<1 18.2	18.20	18.20 8	.23 8.20	8.50 8.22		7.86 7.85	7.86	3.79 3.83 3.81		<2.00 <2.0 <2.00 <2.0	0 <2.00 0 <2.00		Crane operation and excavation work	Nil Nil Nil
li-3	5-Dec-12 7-Dec-12	16:07 15:32	Rainy Cloudy	<1 18.2 <1 21.5	18.20 21.50	18.20     8.       21.50     8.	23 8.20 47 8.41	8.22 8.44		7.86 7.85 7.92 7.92	7.86 7.92	3.79     3.83     3.81       3.94     3.98     3.96		<2.00 <2.0 <2.00 <2.0 <2.00 <2.0	2.00 2 <2.00 3 <2.00 5 <2.00		Crane operation and excavation work Crane operation and excavation work	Nil Nil Nil Nil
11-3	5-Dec-12 7-Dec-12 10-Dec-12	16:07 15:32 14:47	Rainy Cloudy Sunny	<1 18.2 <1 21.5 <1 20.0	18.20 21.50 20.00	18.20 8 21.50 8 20.00 8	23 8.20 47 8.41 15 8.13	8.22 8.44 8.14		7.86 7.85 7.92 7.92 7.92 7.92	7.86 7.92 7.92	3.79     3.83     3.81       3.94     3.98     3.96       1.94     1.91     1.93		<2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0	2.00 0 <2.00 0 <2.00 0 <2.00 0 <2.00		Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking	Nil Nil Nil Nil Nil Nil
11-3	5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12	16:07 15:32 14:47 10:56 14:16	Rainy Cloudy Sunny Sunny Sunny	<1 18.2 <1 21.5 <1 20.0 <1 20.0 <1 21.8	18.20 18.20 10.21.50 10.20.00 10.20.00 10.20.00 10.20.00	18.20 8 21.50 8 20.00 8 20.00 8 21.80 8	23 8.20 47 8.41 15 8.13 12 8.16 25 8.21	8.22 8.44		7.86     7.85       7.92     7.92       7.92     7.92       7.88     7.88       8.01     8.01	7.86 7.92 7.92 7.88 8.01	3.79     3.83     3.81       3.94     3.98     3.96		<2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0	2.00 2 <2.00 3 <2.00 5 <2.00		Crane operation and excavation work Crane operation and excavation work	Nil         Nil         Nil         Nil         Nil         Nil         Nil         Nil         Nil
11-3	5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12	16:07 15:32 14:47 10:56 14:16 16:13	Rainy Cloudy Sunny Sunny Sunny Cloudy	<1 18.2 <1 21.5 <1 20.0 <1 20.0 <1 21.8 <1 21.7	18.20 21.50 20.00 20.00 20.00 21.80 21.70	18.20     8       21.50     8       20.00     8       20.00     8       21.80     8       21.70     8	23 8.20 47 8.41 15 8.13 12 8.16 25 8.21 23 8.26	8.22 8.44 8.14 8.14 8.23 8.25	3.65 / 3.51	7.86     7.85       7.92     7.92       7.92     7.92       7.88     7.88       8.01     8.01       7.95     7.95	7.86 7.92 7.92 7.88 8.01 7.95	3.79     3.83     3.81       3.94     3.98     3.96       1.94     1.91     1.93       1.89     1.94     1.92       1.80     1.83     1.82       1.74     1.71     1.73	3.99 / 4.18	<2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0	2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 3.00 4.00 5.00 6.00	13 / 7.23	Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking Crane operation and excavation work	Nil         Nil         Nil         Nil         Nil         Nil         Nil         Nil         Nil
11-3	5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12 19-Dec-12	16:07 15:32 14:47 10:56 14:16 16:13 14:42	Rainy Cloudy Sunny Sunny Sunny Cloudy Cloudy	<1 18.2 <1 21.5 <1 20.0 <1 20.0 <1 21.8 <1 21.7 <1 17.9	18.20 21.50 20.00 20.00 21.80 21.70 17.90	18.20     8       21.50     8       20.00     8       20.00     8       21.80     8       21.70     8       17.90     9	23 8.20 47 8.41 15 8.13 12 8.16 25 8.21 23 8.26 16 9.14	8.22 8.44 8.14 8.14 8.23 8.25 9.15	3.65 / 3.51	7.86 7.85 7.92 7.92 7.92 7.92 7.88 7.88 8.01 8.01 7.95 7.95 7.95 7.95	7.86 7.92 7.92 7.88 8.01 7.95 7.95	3.79     3.83     3.81       3.94     3.98     3.96       1.94     1.91     1.93       1.89     1.94     1.92       1.80     1.83     1.82       1.74     1.71     1.73       1.73     1.78     1.76	3.99 / 4.18	<2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0	2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 3.00 4.00 6.00	13 / 7.23	Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking Crane operation and excavation work Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking	Nil
IF-3	5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12 19-Dec-12 21-Dec-12	16:07 15:32 14:47 10:56 14:16 16:13 14:42 14:02	Rainy Cloudy Sunny Sunny Sunny Cloudy Cloudy Cloudy	<1 18.2 <1 21.5 <1 20.0 <1 20.0 <1 21.8 <1 21.7 <1 17.9 <1 22.4	18.20 21.50 20.00 20.00 20.00 21.80 21.70	18.20     8       21.50     8       20.00     8       20.00     8       21.80     8       21.70     8       17.90     9       22.40     8	23 8.20 47 8.41 15 8.13 12 8.16 25 8.21 23 8.26 16 9.14	8.22 8.44 8.14 8.14 8.23 8.25	3.65 / 3.51	7.86     7.85       7.92     7.92       7.92     7.92       7.88     7.88       8.01     8.01       7.95     7.95	7.86 7.92 7.92 7.88 8.01 7.95 7.95	3.79     3.83     3.81       3.94     3.98     3.96       1.94     1.91     1.93       1.89     1.94     1.92       1.80     1.83     1.82       1.74     1.71     1.73	3.99 / 4.18	<2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0	2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 3.00 4.00 5.00 6.00	13 / 7.23	Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking Crane operation and excavation work Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking Crane operation and rock breaking	Nil
11-3	5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12 19-Dec-12 21-Dec-12 24-Dec-12	16:07 15:32 14:47 10:56 14:16 16:13 14:42 14:02 10:23 12:00	Rainy Cloudy Sunny Sunny Sunny Cloudy Cloudy Cloudy Sunny Cloudy	<1 18.2 <1 21.5 <1 20.0 <1 20.0 <1 21.8 <1 21.7 <1 17.9 <1 22.4 <1 16.3 <1 19.0	18.20 21.50 20.00 20.00 21.80 21.70 17.90 22.40 16.30 19.00	18.20     8       21.50     8       20.00     8       20.00     8       21.80     8       21.70     8       17.90     9       22.40     8       16.30     9       19.00     8	23 8.20 47 8.41 15 8.13 12 8.16 25 8.21 23 8.26 16 9.14 72 8.74 10 9.15 75 8.78	8.22 8.44 8.14 8.14 8.23 8.25 9.15 8.73 9.13 8.77	3.65 / 3.51	7.86       7.85         7.92       7.92         7.92       7.92         7.88       7.88         8.01       8.01         7.95       7.95         7.95       7.95         7.95       7.95	7.86 7.92 7.92 7.88 8.01 7.95 7.95 7.95 7.94	3.79     3.83     3.81       3.94     3.98     3.96       1.94     1.91     1.93       1.89     1.94     1.92       1.80     1.83     1.82       1.74     1.71     1.73       1.73     1.78     1.76       1.79     1.82     1.81	3.99 / 4.18	<2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0 <2.00 <2.0	2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 3.00 4.00 6.00	13 / 7.23	Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking Crane operation and excavation work Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking	Nil
11-3	5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12 19-Dec-12 21-Dec-12 24-Dec-12 29-Dec-12	16:07 15:32 14:47 10:56 14:16 16:13 14:42 14:02 10:23 12:00 14:57	Rainy Cloudy Sunny Sunny Sunny Cloudy Cloudy Cloudy Sunny Cloudy Rainy	<1 18.2 <1 21.5 <1 20.0 <1 20.0 <1 21.8 <1 21.7 <1 17.9 <1 22.4 <1 16.3 <1 19.0 <1 19.7	18.20 21.50 20.00 20.00 21.80 21.70 17.90 22.40 16.30 19.00 19.70	18.20     8       21.50     8       20.00     8       20.00     8       21.80     8       21.70     8       17.90     9       22.40     8       16.30     9       19.00     8       19.70     9	23 8.20 47 8.41 15 8.13 12 8.16 25 8.21 23 8.26 16 9.14 72 8.74 10 9.15 75 8.78 14 9.20	8.22 8.44 8.14 8.14 8.23 8.25 9.15 8.73 9.13 8.77 9.17	3.65 / 3.51	7.86         7.85           7.92         7.92           7.92         7.92           7.88         7.88           8.01         8.01           7.95         7.95           7.95         7.95           7.94         7.94           7.78         7.78           7.78         7.78	7.86 7.92 7.92 7.88 8.01 7.95 7.95 7.95 7.94 7.78	3.79     3.83     3.81       3.94     3.98     3.96       1.94     1.91     1.93       1.89     1.94     1.92       1.80     1.83     1.82       1.74     1.71     1.73       1.73     1.78     1.76       1.79     1.82     1.81       1.90     1.94     1.92       1.44     1.40     1.42       1.90     1.95     1.93	3.99 / 4.18	<pre>&lt;2.00</pre>	2.00 2.00	13 / 7.23	Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking Crane operation and excavation work Crane operation and rock breaking Crane operation and rock breaking Crane operation and excavation work	Nil
1-3	5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12 19-Dec-12 21-Dec-12 24-Dec-12 29-Dec-12	16:07 15:32 14:47 10:56 14:16 16:13 14:42 14:02 10:23 12:00 14:57	Rainy Cloudy Sunny Sunny Sunny Cloudy Cloudy Cloudy Sunny Cloudy Rainy	<1 18.2 <1 21.5 <1 20.0 <1 20.0 <1 21.8 <1 21.7 <1 17.9 <1 22.4 <1 16.3 <1 19.0	18.20 21.50 20.00 20.00 21.80 21.70 17.90 22.40 16.30 19.00 19.70	18.20 8 21.50 8 20.00 8 20.00 8 21.80 8 21.70 8 17.90 9 22.40 8 16.30 9 19.00 8	23 8.20 47 8.41 15 8.13 12 8.16 25 8.21 23 8.26 16 9.14 72 8.74 10 9.15 75 8.78 14 9.20	8.22 8.44 8.14 8.14 8.23 8.25 9.15 8.73 9.13 8.77 9.17	3.65 / 3.51	7.86         7.85           7.92         7.92           7.92         7.92           7.88         7.88           8.01         8.01           7.95         7.95           7.95         7.95           7.94         7.94           7.78         7.78           7.78         7.78	7.86 7.92 7.92 7.88 8.01 7.95 7.95 7.95 7.94 7.78	3.79     3.83     3.81       3.94     3.98     3.96       1.94     1.91     1.93       1.89     1.94     1.92       1.80     1.83     1.82       1.74     1.71     1.73       1.73     1.78     1.76       1.79     1.82     1.81       1.90     1.94     1.92       1.44     1.40     1.42	3.99 / 4.18	<pre>&lt;2.00      &lt;2.0 &lt;2.00      &lt;2.0&lt;&lt;2.0 &lt;2.00      &lt;2.0 &lt;2.00      &lt;2.0</pre>	2.00 2.00	13 / 7.23	Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking Crane operation and excavation work Crane operation and rock breaking Crane operation and rock breaking Crane operation and excavation work Crane operation and excavation work	Nil
Squatters	5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12 21-Dec-12 24-Dec-12 27-Dec-12 29-Dec-12 31-Dec-12	16:07 15:32 14:47 10:56 14:16 16:13 14:42 14:02 10:23 12:00 14:57 14:06	Rainy Cloudy Sunny Sunny Cloudy Cloudy Cloudy Cloudy Sunny Cloudy Sunny Cloudy Sunny Cloudy Rainy Sunny	<1 18.2 <1 21.5 <1 20.0 <1 20.0 <1 21.8 <1 21.7 <1 17.9 <1 22.4 <1 16.3 <1 19.0 <1 15.1 -	18.20 21.50 20.00 20.00 21.80 21.70 17.90 22.40 16.30 19.00 19.70 15.10	18.20 8 21.50 8 20.00 8 20.00 8 21.80 8 21.70 8 17.90 9 22.40 8 16.30 9 19.00 8 19.70 9	23     8.20       47     8.41       15     8.13       12     8.16       25     8.21       23     8.26       16     9.14       72     8.74       10     9.15       75     8.78       14     9.20       09     9.07	8.22 8.44 8.14 8.14 8.23 8.25 9.15 8.73 9.13 8.77 9.17 9.08	3.65 / 3.51	7.86         7.85           7.92         7.92           7.92         7.92           7.88         7.88           8.01         8.01           7.95         7.95           7.95         7.95           7.94         7.94           7.78         7.78           7.79         7.79	7.86 7.92 7.92 7.88 8.01 7.95 7.95 7.95 7.94 7.78 7.78 7.79	3.79     3.83     3.81       3.94     3.98     3.96       1.94     1.91     1.93       1.89     1.94     1.92       1.80     1.83     1.82       1.74     1.71     1.73       1.73     1.78     1.76       1.79     1.82     1.81       1.90     1.94     1.92       1.44     1.40     1.42       1.90     1.95     1.93       1.70     1.74     1.72	3.99 / 4.18	<pre>&lt;2.00</pre>	2.00 2.00	13 / 7.23	Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking Crane operation and excavation work Crane operation and rock breaking Crane operation and rock breaking Crane operation and excavation work	Nil
Squatters I-3-C	5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12 19-Dec-12 21-Dec-12 24-Dec-12 27-Dec-12 29-Dec-12 31-Dec-12	16:07 15:32 14:47 10:56 14:16 16:13 14:42 14:02 10:23 12:00 14:57 14:06	Rainy Cloudy Sunny Sunny Sunny Cloudy Cloudy Cloudy Cloudy Sunny Cloudy Rainy Sunny Rainy Rainy	<1 18.2 <1 21.5 <1 20.0 <1 20.0 <1 20.0 <1 21.8 <1 21.7 <1 17.9 <1 22.4 <1 16.3 <1 19.0 <1 19.7 <1 15.1 - <1 18.2	18.20 21.50 20.00 20.00 21.80 21.70 17.90 22.40 16.30 19.00 19.70 15.10 19.60 18.20	18.20     8       21.50     8       20.00     8       20.00     8       21.80     8       21.70     8       17.90     9       22.40     8       16.30     9       19.00     8       19.70     9       15.10     9       19.60     8       18.20     8	23 8.20 47 8.41 15 8.13 12 8.16 25 8.21 23 8.26 16 9.14 72 8.74 10 9.15 75 8.78 14 9.20 09 9.07 57 8.54 27 8.24	8.22 8.44 8.14 8.14 8.23 8.25 9.15 8.73 9.13 8.77 9.17 9.08	3.65 / 3.51	7.86         7.85           7.92         7.92           7.92         7.92           7.88         7.88           8.01         8.01           7.95         7.95           7.95         7.95           7.94         7.94           7.78         7.78           7.79         7.79           7.80         7.85           7.85         7.85	7.86 7.92 7.92 7.88 8.01 7.95 7.95 7.95 7.94 7.78 7.78 7.79	3.79     3.83     3.81       3.94     3.98     3.96       1.94     1.91     1.93       1.89     1.94     1.92       1.80     1.83     1.82       1.74     1.71     1.73       1.73     1.78     1.76       1.79     1.82     1.81       1.90     1.94     1.92       1.44     1.40     1.42       1.90     1.95     1.93       1.70     1.74     1.72       4.27     4.31     4.29       3.62     3.71     3.67	3.99 / 4.16	<2.00	0 <2.00 0 <2.00	13 / 7.23	Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking Crane operation and excavation work Crane operation and rock breaking Crane operation and rock breaking Crane operation and excavation work	Nil
	5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12 21-Dec-12 24-Dec-12 27-Dec-12 29-Dec-12 31-Dec-12 3-Dec-12 5-Dec-12	16:07 15:32 14:47 10:56 14:16 16:13 14:42 14:02 10:23 12:00 14:57 14:06 15:55 15:20	Rainy Cloudy Sunny Sunny Cloudy Cloudy Cloudy Cloudy Sunny Cloudy Sunny Cloudy Rainy Sunny Rainy Cloudy	<1	18.20 21.50 20.00 20.00 21.80 21.70 17.90 22.40 16.30 19.00 19.70 15.10 19.60 18.20 21.40	18.20     8       21.50     8       20.00     8       20.00     8       21.80     8       21.70     8       17.90     9       22.40     8       16.30     9       19.00     8       19.70     9       15.10     9       19.60     8       18.20     8       21.40     8	23     8.20       47     8.41       15     8.13       12     8.16       25     8.21       23     8.26       16     9.14       72     8.74       10     9.15       75     8.78       14     9.20       09     9.07       57     8.54       27     8.24       50     8.45	8.22 8.44 8.14 8.14 8.23 8.25 9.15 8.73 9.13 8.77 9.17 9.08	3.65 / 3.51	7.86         7.85           7.92         7.92           7.88         7.88           8.01         8.01           7.95         7.95           7.95         7.95           7.94         7.94           7.78         7.78           7.79         7.79           7.80         7.85           7.92         7.92	7.86 7.92 7.92 7.88 8.01 7.95 7.95 7.95 7.78 7.78 7.78 7.79 7.80 7.85 7.92	3.79     3.83     3.91       3.94     3.98     3.96       1.94     1.91     1.93       1.89     1.94     1.92       1.80     1.83     1.82       1.74     1.71     1.73       1.73     1.78     1.76       1.79     1.82     1.81       1.90     1.94     1.92       1.44     1.40     1.42       1.90     1.95     1.93       1.70     1.74     1.72       4.27     4.31     4.29       3.62     3.71     3.67       4.07     4.15     4.11	3.99 / 4.16	<2.00	6. <2.00 0 <2.00	13 / 7.23	Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking Crane operation and excavation work Crane operation and rock breaking Crane operation and rock breaking Crane operation and excavation work	Nil   Nil
	5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12 21-Dec-12 24-Dec-12 27-Dec-12 29-Dec-12 31-Dec-12 5-Dec-12 7-Dec-12	16:07 15:32 14:47 10:56 14:16 16:13 14:42 14:02 10:23 12:00 14:57 14:06 15:55 15:20 14:35	Rainy Cloudy Sunny Sunny Cloudy Cloudy Cloudy Cloudy Sunny Cloudy Rainy Sunny Rainy Sunny Cloudy Sunny	<1	18.20 21.50 20.00 20.00 21.80 21.70 17.90 22.40 16.30 19.00 19.70 15.10 19.60 18.20 21.40 20.00	18.20     8       21.50     8       20.00     8       20.00     8       21.80     8       21.70     8       17.90     9       22.40     8       16.30     9       19.70     9       15.10     9       19.60     8       18.20     8       21.40     8       20.00     8	23     8.20       47     8.41       15     8.13       12     8.16       25     8.21       23     8.26       16     9.14       72     8.74       10     9.15       75     8.78       14     9.20       09     9.07       57     8.54       27     8.24       50     8.45       24     8.18	8.22 8.44 8.14 8.14 8.23 8.25 9.15 8.73 9.13 8.77 9.17 9.08	3.65 / 3.51	7.86         7.85           7.92         7.92           7.92         7.92           7.88         7.88           8.01         8.01           7.95         7.95           7.95         7.95           7.94         7.94           7.78         7.78           7.79         7.79           7.80         7.85           7.92         7.92           7.92         7.92	7.86 7.92 7.92 7.88 8.01 7.95 7.95 7.95 7.94 7.78 7.78 7.79 7.80 7.85 7.92	3.79     3.83     3.91       3.94     3.98     3.96       1.94     1.91     1.93       1.89     1.94     1.92       1.80     1.83     1.82       1.74     1.71     1.73       1.73     1.78     1.76       1.79     1.82     1.81       1.90     1.94     1.92       1.44     1.40     1.42       1.90     1.95     1.93       1.70     1.74     1.72       4.27     4.31     4.29       3.62     3.71     3.67       4.07     4.15     4.11       1.85     1.89     1.87	3.99 / 4.16	<pre>&lt;2.00</pre>	0 <2.00 0 <2.00	13 / 7.23	Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking Crane operation and excavation work Crane operation and rock breaking Crane operation and rock breaking Crane operation and excavation work	Nil
	5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12 19-Dec-12 21-Dec-12 24-Dec-12 29-Dec-12 31-Dec-12 3-Dec-12 5-Dec-12 10-Dec-12 12-Dec-12	16:07 15:32 14:47 10:56 14:16 16:13 14:42 14:02 10:23 12:00 14:57 14:06 15:55 15:20 14:35 10:45	Rainy Cloudy Sunny Sunny Cloudy Cloudy Cloudy Cloudy Sunny Cloudy Rainy Sunny Rainy Sunny Cloudy Sunny	<1	18.20 21.50 20.00 20.00 21.80 21.70 17.90 22.40 16.30 19.70 15.10 19.60 18.20 21.40 20.00 20.00 20.00	18.20 8 21.50 8 20.00 8 20.00 8 21.80 8 21.70 8 17.90 9 22.40 8 16.30 9 19.00 8 19.70 9 15.10 9 19.60 8 18.20 8 21.40 8 20.00 8	23     8.20       47     8.41       15     8.13       12     8.16       25     8.21       23     8.26       16     9.14       72     8.74       10     9.15       75     8.78       14     9.20       .09     9.07       .57     8.54       27     8.24       50     8.45       24     8.18       18     8.21	8.22 8.44 8.14 8.14 8.23 8.25 9.15 8.73 9.13 8.77 9.17 9.08	3.65 / 3.51	7.86         7.85           7.92         7.92           7.88         7.88           8.01         8.01           7.95         7.95           7.95         7.95           7.94         7.94           7.78         7.78           7.79         7.79           7.80         7.85           7.92         7.92           7.88         7.88           8.02         8.02	7.86 7.92 7.92 7.88 8.01 7.95 7.95 7.95 7.94 7.78 7.78 7.79 7.80 7.85 7.92 7.92 7.88 8.02	3.79     3.83     3.91       3.94     3.98     3.96       1.94     1.91     1.93       1.89     1.94     1.92       1.80     1.83     1.82       1.74     1.71     1.73       1.73     1.78     1.76       1.79     1.82     1.81       1.90     1.94     1.92       1.44     1.40     1.42       1.90     1.95     1.93       1.70     1.74     1.72       4.27     4.31     4.29       3.62     3.71     3.67       4.07     4.15     4.11       1.85     1.89     1.87       1.88     1.91     1.90       1.85     1.81     1.83	3.99 / 4.18	<2.00	6. <2.00 0 <2.00	13 / 7.23	Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking Crane operation and excavation work Crane operation and rock breaking Crane operation and rock breaking Crane operation and excavation work	Nil
	5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12 19-Dec-12 21-Dec-12 27-Dec-12 29-Dec-12 31-Dec-12 5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12	16:07 15:32 14:47 10:56 14:16 16:13 14:42 14:02 10:23 12:00 14:57 14:06 15:55 15:20 14:35 10:45 14:04 16:00	Rainy Cloudy Sunny Sunny Sunny Cloudy Cloudy Cloudy Sunny Cloudy Sunny Cloudy Rainy Sunny Cloudy Rainy Sunny Cloudy Sunny Cloudy Sunny Cloudy Sunny Cloudy Sunny Cloudy Sunny Cloudy	<1	18.20 21.50 20.00 20.00 21.80 21.70 17.90 22.40 16.30 19.00 19.70 15.10 19.60 18.20 18.20 18.20 19.60 19.70 19.60 19.60 19.60 19.70 19	18.20     8       21.50     8       20.00     8       20.00     8       21.80     8       21.70     8       17.90     9       22.40     8       16.30     9       19.00     8       19.70     9       15.10     9       19.60     8       18.20     8       21.40     8       20.00     8       19.95     8       21.70     8	23     8.20       47     8.41       15     8.13       12     8.16       25     8.21       23     8.26       16     9.14       72     8.74       10     9.15       75     8.78       14     9.20       09     9.07       57     8.54       27     8.24       50     8.45       24     8.18       18     8.21       31     8.28       12     8.20	8.22 8.44 8.14 8.14 8.23 8.25 9.15 8.73 9.13 8.77 9.17 9.08 8.56 8.26 8.48 8.21 8.20 8.30 8.16		7.86         7.85           7.92         7.92           7.88         7.88           8.01         8.01           7.95         7.95           7.95         7.95           7.94         7.94           7.78         7.78           7.79         7.79           7.80         7.85           7.92         7.92           7.88         7.88           8.02         8.02           7.95         7.95	7.86 7.92 7.92 7.88 8.01 7.95 7.95 7.95 7.95 7.78 7.78 7.79 7.80 7.85 7.92 7.82 7.88 8.02 7.95	3.79     3.83     3.96       3.94     3.98     3.96       1.94     1.91     1.93       1.89     1.94     1.92       1.80     1.83     1.82       1.74     1.71     1.73       1.73     1.78     1.76       1.79     1.82     1.81       1.90     1.94     1.92       1.44     1.40     1.42       1.90     1.95     1.93       1.70     1.74     1.72       4.27     4.31     4.29       3.62     3.71     3.67       4.07     4.15     4.11       1.85     1.89     1.87       1.88     1.91     1.90       1.85     1.81     1.83       1.78     1.82     1.80	3.99 / 4.18	<2.00	6. <2.00 0 <2.00	13 / 7.23	Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking Crane operation and excavation work Crane operation and rock breaking Crane operation and rock breaking Crane operation and excavation work	Nil
	5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12 21-Dec-12 24-Dec-12 27-Dec-12 29-Dec-12 31-Dec-12 5-Dec-12 7-Dec-12 10-Dec-12 14-Dec-12 17-Dec-12 19-Dec-12 19-Dec-12	16:07 15:32 14:47 10:56 14:16 16:13 14:42 14:02 10:23 12:00 14:57 14:06 15:55 15:20 14:35 10:45 14:04 16:00 14:30	Rainy Cloudy Sunny Sunny Sunny Cloudy Cloudy Cloudy Sunny Cloudy Rainy Sunny  Rainy Sunny Cloudy Sunny Cloudy	<1	18.20 21.50 20.00 20.00 21.80 21.70 17.90 22.40 16.30 19.00 19.70 15.10 19.60 18.20 18.20 21.40 20.00 21.40 20.00 21.40 20.00 21.60 21.70 21.70	18.20     8       21.50     8       20.00     8       20.00     8       21.80     8       21.70     8       17.90     9       22.40     8       16.30     9       19.00     8       19.70     9       15.10     9       19.60     8       18.20     8       21.40     8       20.00     8       19.95     8       21.70     8       17.90     9	23         8.20           47         8.41           15         8.13           12         8.16           25         8.21           23         8.26           16         9.14           72         8.74           10         9.15           75         8.78           14         9.20           09         9.07           57         8.54           27         8.24           50         8.45           24         8.18           18         8.21           31         8.28           12         8.20           11         9.15	8.22 8.44 8.14 8.14 8.23 8.25 9.15 8.73 9.13 8.77 9.17 9.08 8.56 8.26 8.48 8.21 8.20 8.30 8.16 9.13	3.65 / 3.51 - /-	7.86         7.85           7.92         7.92           7.88         7.88           8.01         8.01           7.95         7.95           7.95         7.95           7.94         7.94           7.78         7.78           7.79         7.79           7.80         7.85           7.92         7.92           7.85         7.85           7.92         7.92           7.88         7.88           8.02         8.02           7.94         7.94           7.94         7.94	7.86 7.92 7.92 7.88 8.01 7.95 7.95 7.95 7.94 7.78 7.78 7.79 7.80 7.85 7.92 7.92 7.88 8.02 7.95 7.94	3.79     3.83     3.96       1.94     1.91     1.93       1.89     1.94     1.92       1.80     1.83     1.82       1.74     1.71     1.73       1.73     1.78     1.76       1.79     1.82     1.81       1.90     1.94     1.92       1.44     1.40     1.42       1.90     1.95     1.93       1.70     1.74     1.72       4.27     4.31     4.29       3.62     3.71     3.67       4.07     4.15     4.11       1.85     1.89     1.87       1.88     1.91     1.90       1.85     1.81     1.83       1.78     1.82     1.80       1.80     1.75     1.78	3.99 / 4.18	<2.00	6.	13 / 7.23	Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking Crane operation and excavation work Crane operation and rock breaking Crane operation and rock breaking Crane operation and excavation work	Nil
	5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12 21-Dec-12 24-Dec-12 27-Dec-12 31-Dec-12 3-Dec-12 5-Dec-12 10-Dec-12 12-Dec-12 11-Dec-12 12-Dec-12 12-Dec-12 12-Dec-12 13-Dec-12 13-Dec-12 14-Dec-12 17-Dec-12 19-Dec-12 21-Dec-12	16:07 15:32 14:47 10:56 14:16 16:13 14:42 14:02 10:23 12:00 14:57 14:06 15:55 15:20 14:35 10:45 14:04 16:00 14:30	Rainy Cloudy Sunny Sunny Cloudy Cloudy Cloudy Cloudy Sunny Cloudy Rainy Sunny Rainy Sunny Cloudy Sunny Cloudy	<1	18.20 21.50 20.00 20.00 21.80 21.70 17.90 22.40 16.30 19.00 19.70 15.10 18.20 21.40 20.00 21.40 20.00 21.60 21.70 21.70 21.70 21.70 22.40 21.70 22.40 21.70 22.40 21.70 22.40 21.70 22.40 21.70 22.40 20.00 21.70 20.00 21.70 20.00 21.70 20.00 20	18.20 8 21.50 8 20.00 8 20.00 8 21.80 8 21.70 8 17.90 9 22.40 8 16.30 9 19.00 8 19.70 9 15.10 9 19.60 8 18.20 8 21.40 8 20.00 8 19.95 8 21.60 8 21.70 8 17.90 9 22.40 8	23         8.20           47         8.41           15         8.13           12         8.16           25         8.21           23         8.26           16         9.14           72         8.74           10         9.15           75         8.78           14         9.20           09         9.07           57         8.54           27         8.24           50         8.45           24         8.18           18         8.21           31         8.28           12         8.20           11         9.15           68         8.65	8.22 8.44 8.14 8.14 8.23 8.25 9.15 8.73 9.13 8.77 9.17 9.08 8.56 8.26 8.48 8.21 8.20 8.30 8.16 9.13 8.67		7.86         7.85           7.92         7.92           7.88         7.88           8.01         8.01           7.95         7.95           7.95         7.95           7.94         7.94           7.78         7.78           7.79         7.79           7.80         7.85           7.92         7.92           7.88         7.88           8.02         8.02           7.94         7.94           7.95         7.95	7.86 7.92 7.92 7.88 8.01 7.95 7.95 7.95 7.94 7.78 7.78 7.79 7.80 7.85 7.92 7.92 7.88 8.02 7.95 7.94 7.95	3.79         3.83         3.96           1.94         1.91         1.93           1.89         1.94         1.92           1.80         1.83         1.82           1.74         1.71         1.73           1.79         1.82         1.81           1.90         1.94         1.92           1.44         1.40         1.42           1.90         1.95         1.93           1.70         1.74         1.72           4.27         4.31         4.29           3.62         3.71         3.67           4.07         4.15         4.11           1.85         1.89         1.87           1.88         1.91         1.90           1.85         1.81         1.83           1.78         1.82         1.80           1.80         1.75         1.78           1.86         1.88         1.87	- /-	<2.00	6.	13 / 7.23	Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking Crane operation and excavation work Crane operation and rock breaking Crane operation and rock breaking Crane operation and excavation work	Nil
	5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12 21-Dec-12 24-Dec-12 27-Dec-12 31-Dec-12 3-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12 17-Dec-12 24-Dec-12 27-Dec-12 27-Dec-12 27-Dec-12	16:07 15:32 14:47 10:56 14:16 16:13 14:42 14:02 10:23 12:00 14:57 14:06 15:55 15:20 14:35 10:45 14:04 16:00 14:30 13:50 10:10	Rainy Cloudy Sunny Sunny Sunny Cloudy Cloudy Cloudy Sunny Cloudy Rainy Sunny Rainy Sunny Cloudy Sunny Cloudy Cloudy Cloudy Cloudy Sunny Cloudy Sunny Cloudy Sunny Sunny Cloudy Cloudy Cloudy Cloudy Cloudy Cloudy Cloudy	<1	18.20 21.50 20.00 20.00 21.80 21.70 17.90 22.40 16.30 19.00 19.70 15.10 19.60 18.20 18.20 19.60 19.60 19.60 19.70 10.00 10	18.20     8       21.50     8       20.00     8       20.00     8       21.80     8       21.70     8       17.90     9       22.40     8       16.30     9       19.00     8       19.70     9       15.10     9       19.60     8       21.40     8       20.00     8       19.95     8       21.70     8       17.90     9       22.40     8       16.30     9       19.00     8	23     8.20       47     8.41       15     8.13       12     8.16       25     8.21       23     8.26       16     9.14       72     8.74       10     9.15       75     8.78       14     9.20       09     9.07       57     8.54       27     8.24       50     8.45       24     8.18       18     8.21       31     8.28       12     8.20       11     9.15       68     8.65       05     9.07       66     8.70	8.22 8.44 8.14 8.14 8.23 8.25 9.15 8.73 9.13 8.77 9.17 9.08 8.56 8.26 8.48 8.21 8.20 8.30 8.16 9.13 8.67 9.06 8.68		7.86         7.85           7.92         7.92           7.88         7.88           8.01         8.01           7.95         7.95           7.95         7.95           7.94         7.94           7.78         7.78           7.79         7.79           7.80         7.85           7.92         7.92           7.88         7.88           8.02         8.02           7.95         7.95           7.94         7.94           7.95         7.95           7.97         7.95           7.98         7.88           8.02         8.02           7.95         7.95           7.93         7.93           7.77         7.77	7.86 7.92 7.92 7.88 8.01 7.95 7.95 7.95 7.95 7.78 7.78 7.79 7.80 7.85 7.92 7.82 7.88 8.02 7.95 7.94 7.95 7.95 7.97 7.80 7.87 7.80 7.87 7.79	3.79     3.83     3.96       1.94     1.91     1.93       1.89     1.94     1.92       1.80     1.83     1.82       1.74     1.71     1.73       1.73     1.78     1.76       1.79     1.82     1.81       1.90     1.94     1.92       1.44     1.40     1.42       1.90     1.95     1.93       1.70     1.74     1.72       4.27     4.31     4.29       3.62     3.71     3.67       4.07     4.15     4.11       1.85     1.89     1.87       1.88     1.91     1.90       1.85     1.81     1.83       1.78     1.82     1.80       1.80     1.75     1.78       1.86     1.88     1.87       1.91     1.97     1.94       1.42     1.45     1.44	- /-	<2.00	6. <2.00 0 <2.00	13 / 7.23	Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking Crane operation and excavation work Crane operation and rock breaking Crane operation and rock breaking Crane operation and excavation work	Nil
	5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12 21-Dec-12 24-Dec-12 27-Dec-12 31-Dec-12 3-Dec-12 7-Dec-12 10-Dec-12 11-Dec-12 12-Dec-12 12-Dec-12 12-Dec-12 12-Dec-12 12-Dec-12 12-Dec-12 24-Dec-12 21-Dec-12 21-Dec-12 21-Dec-12 21-Dec-12 22-Dec-12 29-Dec-12	16:07 15:32 14:47 10:56 14:16 16:13 14:42 14:02 10:23 12:00 14:57 14:06 15:55 15:20 14:35 10:45 14:04 16:00 14:30 13:50 10:10 11:50 14:46	Rainy Cloudy Sunny Sunny Sunny Cloudy Cloudy Cloudy Sunny Cloudy Rainy Sunny Cloudy Rainy Sunny Cloudy Cloudy Sunny Cloudy Sunny Cloudy Sunny Cloudy Sunny Sunny Cloudy Sunny Cloudy Cloudy Cloudy Cloudy Cloudy Rainy Cloudy Cloudy Cloudy Rainy	<1	18.20 21.50 20.00 20.00 21.80 21.70 17.90 22.40 16.30 19.00 19.70 15.10 19.60 18.20 19.60 18.20 19.60 19.60 19.60 19.60 19.60 19.60 19.60 19.70 10.00 10	18.20     8       21.50     8       20.00     8       20.00     8       20.00     8       21.80     8       21.70     8       17.90     9       22.40     8       16.30     9       19.00     8       19.70     9       19.60     8       18.20     8       21.40     8       20.00     8       21.60     8       21.70     8       17.90     9       22.40     8       16.30     9       19.00     8       19.70     9	23         8.20           47         8.41           15         8.13           12         8.16           25         8.21           23         8.26           16         9.14           72         8.74           10         9.15           75         8.78           14         9.20           09         9.07           57         8.54           27         8.24           50         8.45           24         8.18           18         8.21           31         8.28           12         8.20           11         9.15           68         8.65           05         9.07           66         8.70           06         9.03	8.22 8.44 8.14 8.14 8.23 8.25 9.15 8.73 9.13 8.77 9.17 9.08 8.56 8.26 8.48 8.21 8.20 8.30 8.16 9.13 8.67 9.06 8.68 9.05		7.86         7.85           7.92         7.92           7.88         7.88           8.01         8.01           7.95         7.95           7.95         7.95           7.94         7.94           7.78         7.78           7.79         7.79           7.80         7.85           7.92         7.92           7.88         7.88           8.02         8.02           7.94         7.94           7.95         7.95           7.79         7.77           7.77         7.77           7.78         7.78	7.86 7.92 7.92 7.88 8.01 7.95 7.95 7.95 7.95 7.78 7.78 7.78 7.80 7.85 7.92 7.92 7.88 8.02 7.95 7.94 7.95 7.95 7.97 7.78	3.79     3.83     3.96       1.94     1.91     1.93       1.89     1.94     1.92       1.80     1.83     1.82       1.74     1.71     1.73       1.73     1.78     1.76       1.79     1.82     1.81       1.90     1.94     1.92       1.44     1.40     1.42       1.90     1.95     1.93       1.70     1.74     1.72       4.27     4.31     4.29       3.62     3.71     3.67       4.07     4.15     4.11       1.85     1.89     1.87       1.88     1.91     1.90       1.85     1.81     1.83       1.78     1.82     1.80       1.80     1.75     1.78       1.86     1.88     1.87       1.91     1.97     1.94       1.42     1.45     1.44       2.04     1.97     2.01	- /-	<2.00	6. <2.00 6. <2.00 6. <2.00 7. <2.00 8. <2.00 9. <2.00	13 / 7.23	Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking Crane operation and excavation work Crane operation and rock breaking Crane operation and rock breaking Crane operation and excavation work	Nil
	5-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12 21-Dec-12 24-Dec-12 27-Dec-12 31-Dec-12 3-Dec-12 7-Dec-12 10-Dec-12 12-Dec-12 14-Dec-12 12-Dec-12 14-Dec-12 17-Dec-12 17-Dec-12 24-Dec-12 27-Dec-12 27-Dec-12 27-Dec-12	16:07 15:32 14:47 10:56 14:16 16:13 14:42 14:02 10:23 12:00 14:57 14:06 15:55 15:20 14:35 10:45 14:04 16:00 14:30 13:50 10:10 11:50 14:46	Rainy Cloudy Sunny Sunny Sunny Cloudy Cloudy Cloudy Sunny Cloudy Rainy Sunny Cloudy Rainy Sunny Cloudy Cloudy Sunny Cloudy Sunny Cloudy Sunny Cloudy Sunny Sunny Cloudy Sunny Cloudy Cloudy Cloudy Cloudy Cloudy Rainy Cloudy Cloudy Cloudy Rainy	<1	18.20 21.50 20.00 20.00 21.80 21.70 17.90 22.40 16.30 19.00 19.70 15.10 19.60 18.20 18.20 19.60 19.60 19.60 19.70 10.00 10	18.20     8       21.50     8       20.00     8       20.00     8       20.00     8       21.80     8       21.70     8       17.90     9       22.40     8       16.30     9       19.00     8       19.70     9       19.60     8       18.20     8       21.40     8       20.00     8       21.60     8       21.70     8       17.90     9       22.40     8       16.30     9       19.00     8       19.70     9	23         8.20           47         8.41           15         8.13           12         8.16           25         8.21           23         8.26           16         9.14           72         8.74           10         9.15           75         8.78           14         9.20           09         9.07           57         8.54           27         8.24           50         8.45           24         8.18           18         8.21           31         8.28           12         8.20           11         9.15           68         8.65           05         9.07           66         8.70           06         9.03	8.22 8.44 8.14 8.14 8.23 8.25 9.15 8.73 9.13 8.77 9.17 9.08 8.56 8.26 8.48 8.21 8.20 8.30 8.16 9.13 8.67 9.06 8.68		7.86         7.85           7.92         7.92           7.88         7.88           8.01         8.01           7.95         7.95           7.95         7.95           7.94         7.94           7.78         7.78           7.79         7.79           7.80         7.85           7.92         7.92           7.88         7.88           8.02         8.02           7.95         7.95           7.94         7.94           7.95         7.95           7.97         7.95           7.98         7.88           8.02         8.02           7.95         7.95           7.93         7.93           7.77         7.77	7.86 7.92 7.92 7.88 8.01 7.95 7.95 7.95 7.95 7.78 7.78 7.78 7.80 7.85 7.92 7.92 7.88 8.02 7.95 7.94 7.95 7.95 7.97 7.78	3.79     3.83     3.96       1.94     1.91     1.93       1.89     1.94     1.92       1.80     1.83     1.82       1.74     1.71     1.73       1.73     1.78     1.76       1.79     1.82     1.81       1.90     1.94     1.92       1.44     1.40     1.42       1.90     1.95     1.93       1.70     1.74     1.72       4.27     4.31     4.29       3.62     3.71     3.67       4.07     4.15     4.11       1.85     1.89     1.87       1.88     1.91     1.90       1.85     1.81     1.83       1.78     1.82     1.80       1.80     1.75     1.78       1.86     1.88     1.87       1.91     1.97     1.94       1.42     1.45     1.44	- /-	<2.00	6. <2.00 6. <2.00 6. <2.00 7. <2.00 8. <2.00 9. <2.00	13 / 7.23	Crane operation and excavation work Crane operation and excavation work Crane operation and rock breaking Crane operation and excavation work Crane operation and rock breaking Crane operation and rock breaking Crane operation and excavation work	Nil

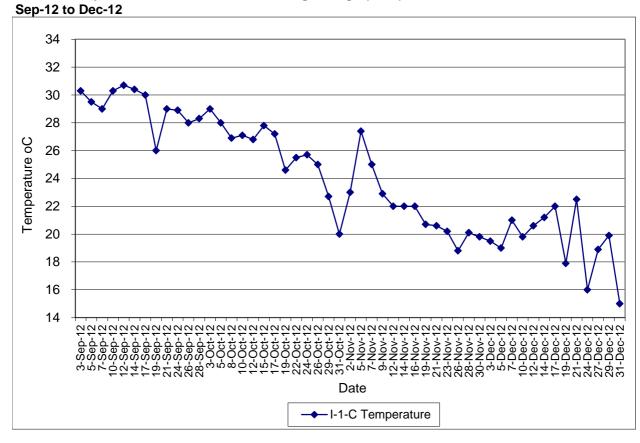
Note:
Blue Italic indicates an exceedance of Action Level
Red Bold indicates an exceedance of Limit Level

Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)

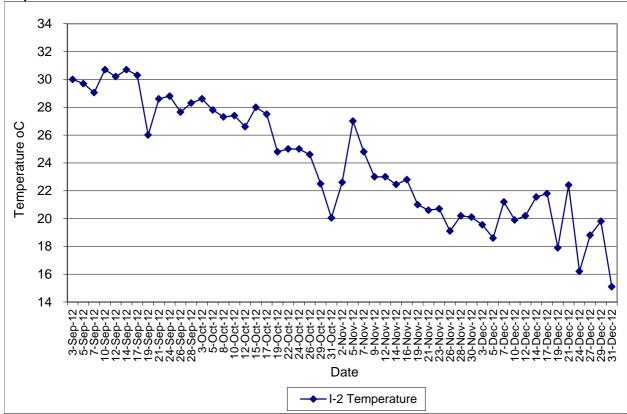




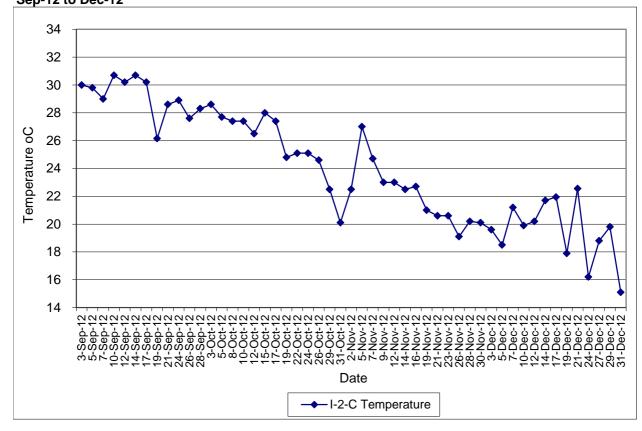
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)



Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Hong Hoi Chee Hong Temple (I-2) Sep-12 to Dec-12

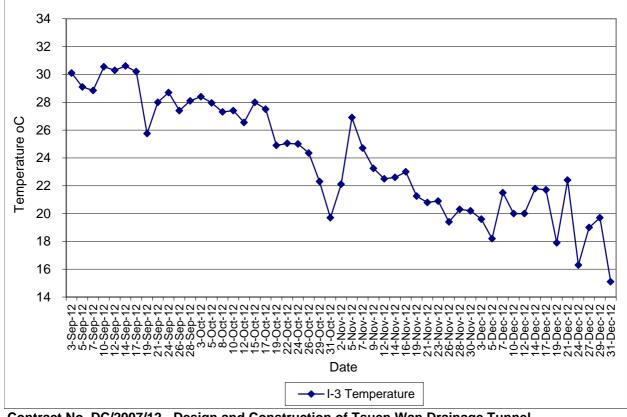


Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C) Sep-12 to Dec-12

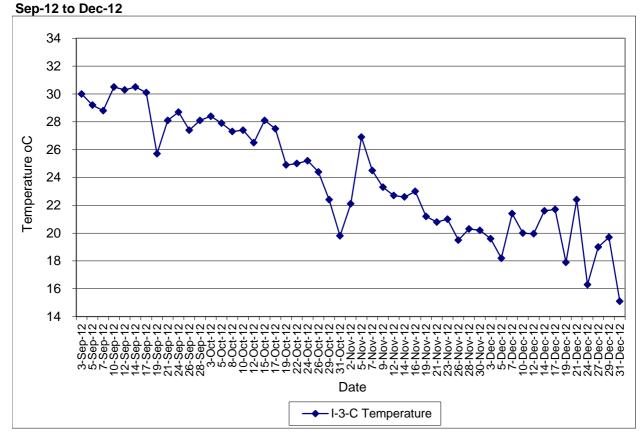


## Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Squatters (I-3)

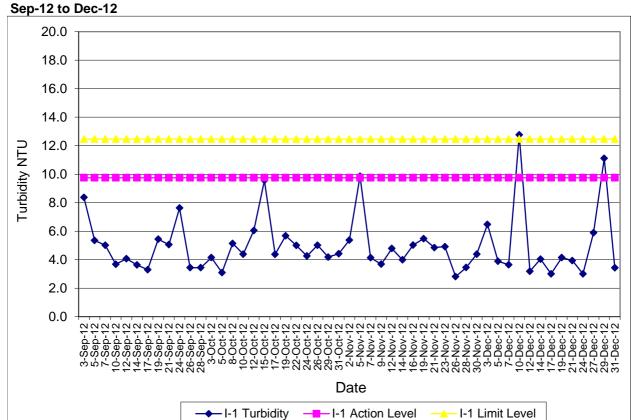
Sep-12 to Dec-12



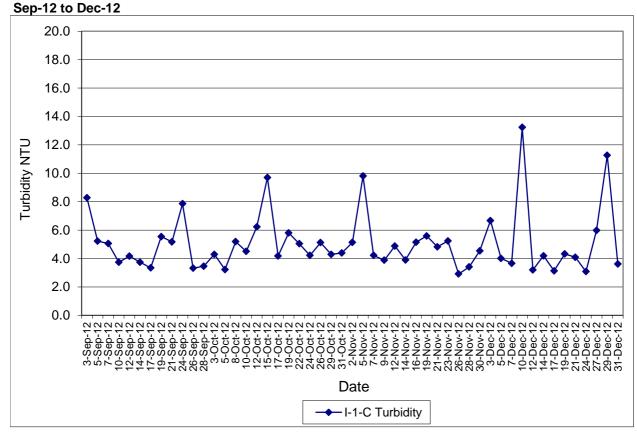
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Squatters (I-3-C)



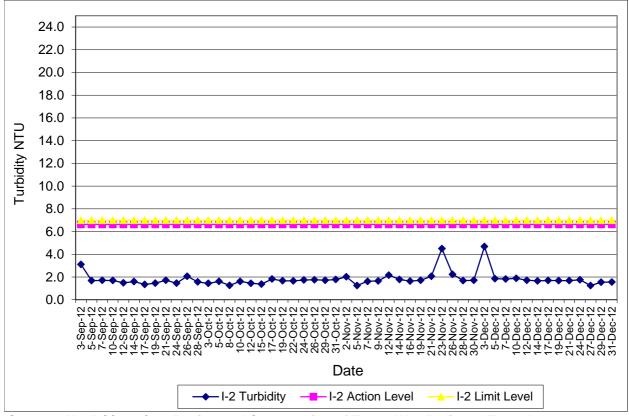
## Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)



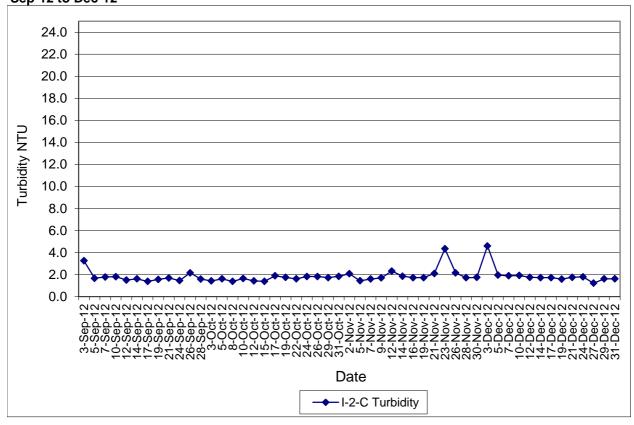
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C)



Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Hong Hoi Chee Hong Temple (I-2) Sep-12 to Dec-12

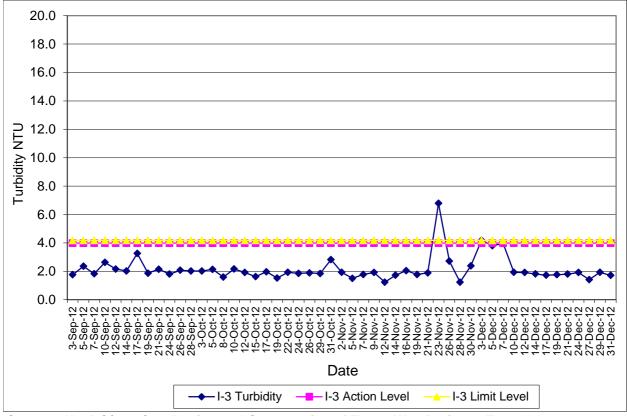


Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C) Sep-12 to Dec-12

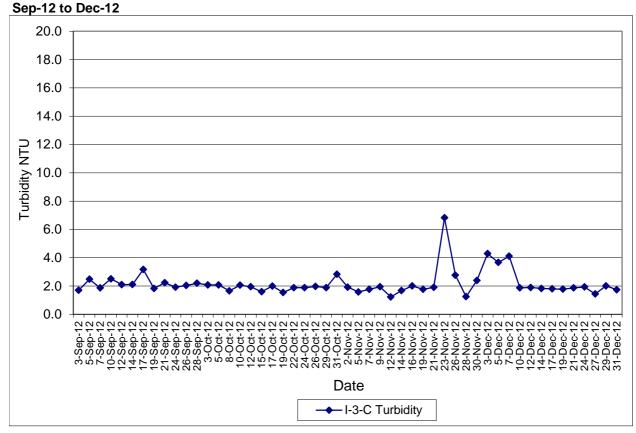


### Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Squatters (I-3)

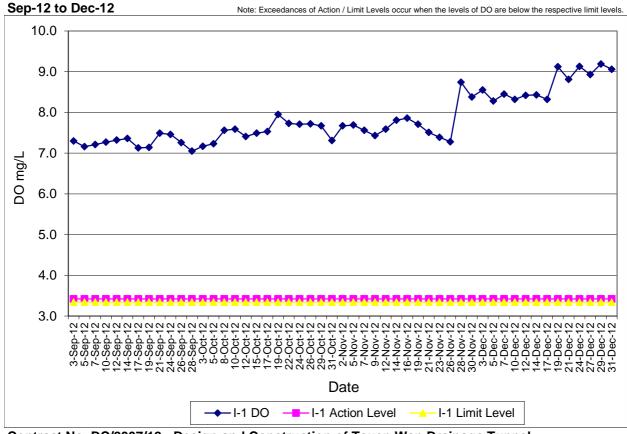




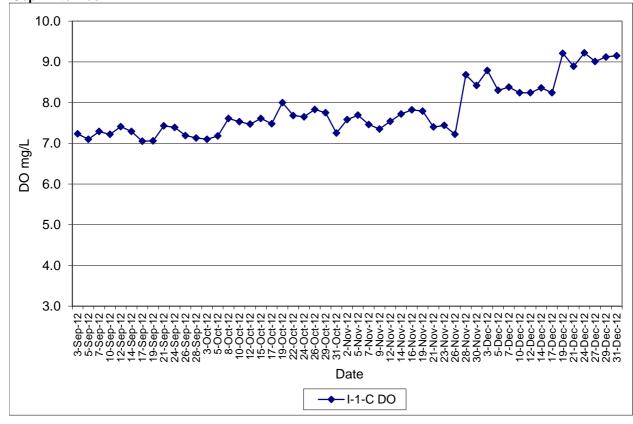
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Squatters (I-3-C)



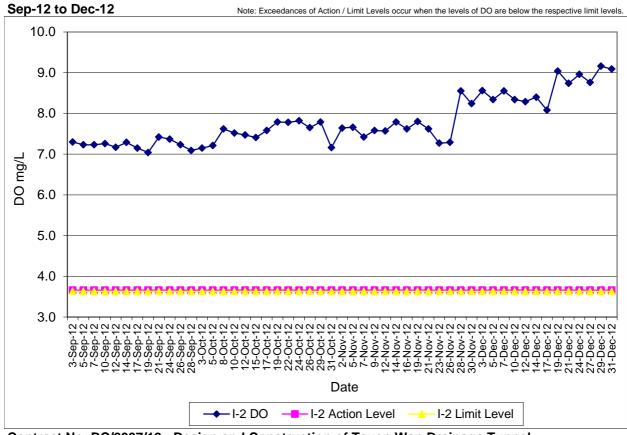
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)



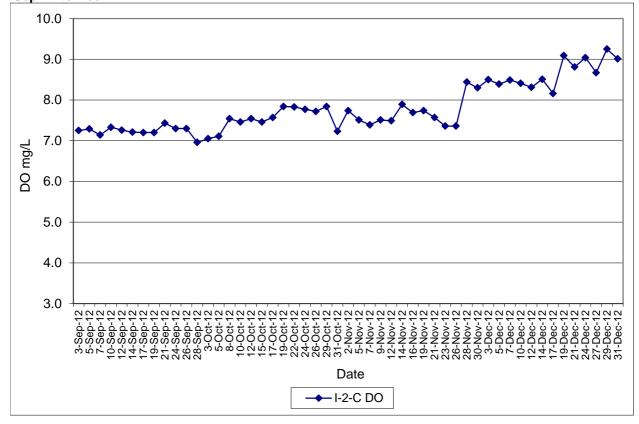
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C) Sep-12 to Dec-12



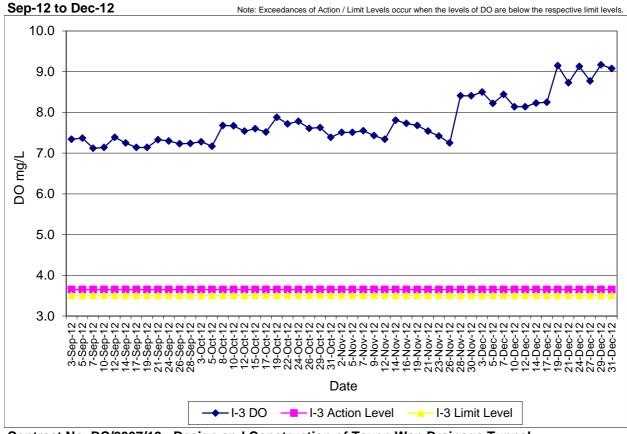
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Hong Hoi Chee Hong Temple (I-2)



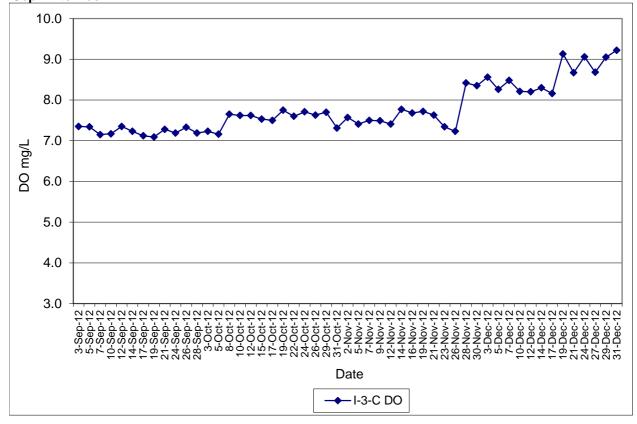
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C) Sep-12 to Dec-12



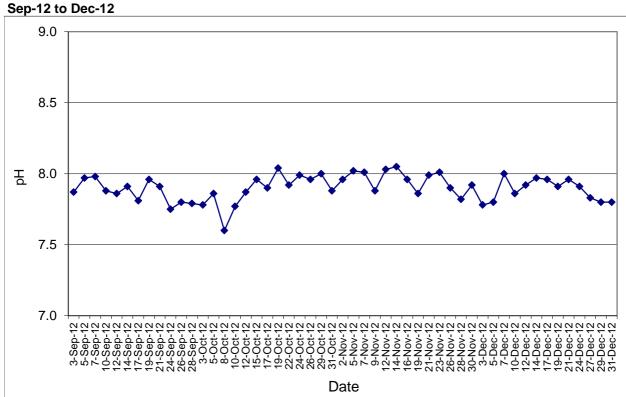
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Squatters (I-3)



Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Squatters (I-3-C) Sep-12 to Dec-12

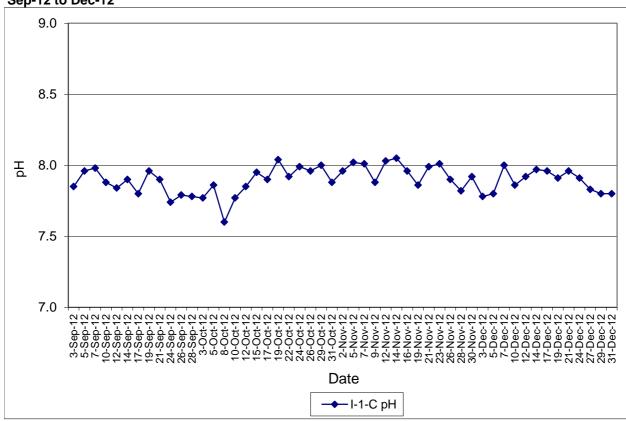


# Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)

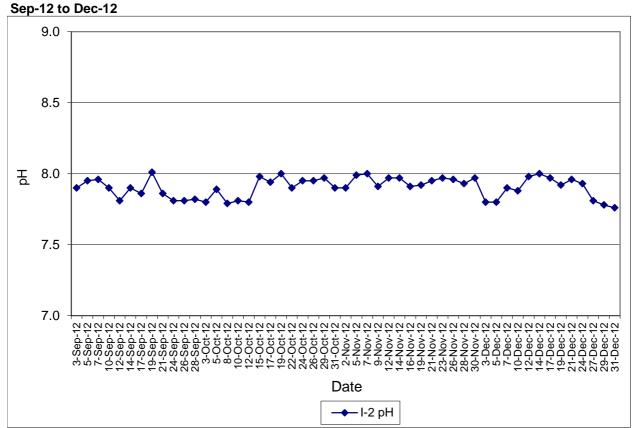


**→** I-1 pH

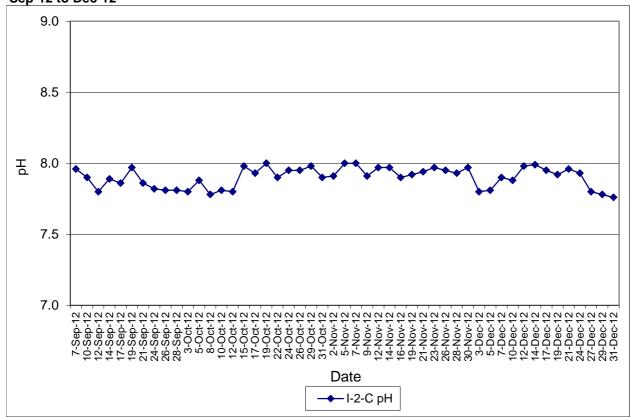
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C) Sep-12 to Dec-12



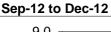
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Hong Hoi Chee Hong Temple (I-2)

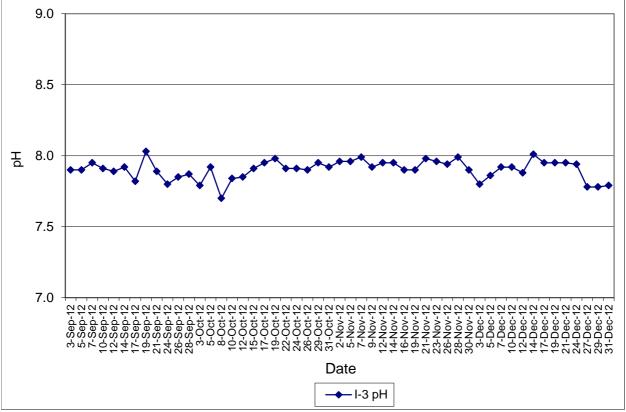


Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C) Sep-12 to Dec-12

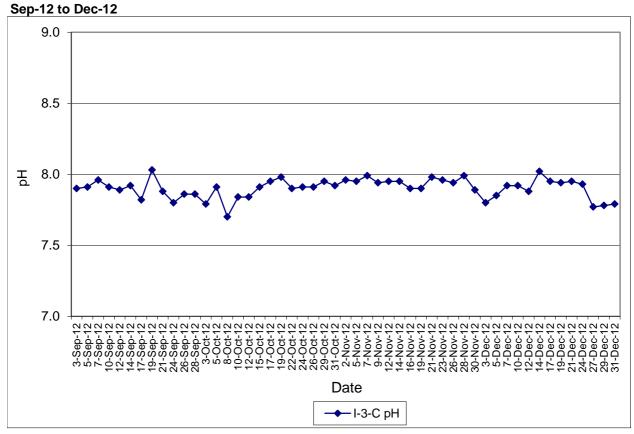


## Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Squatters (I-3)



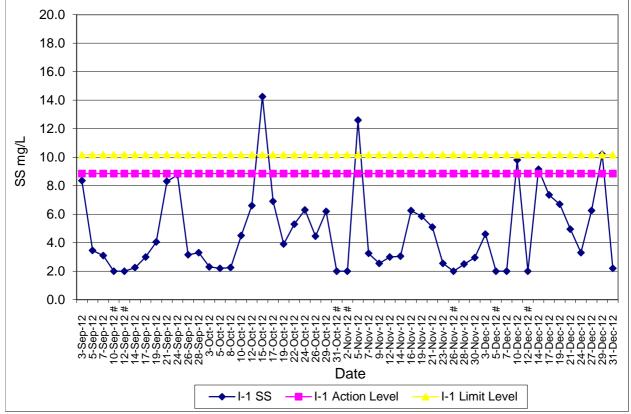


Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Squatters (I-3-C)

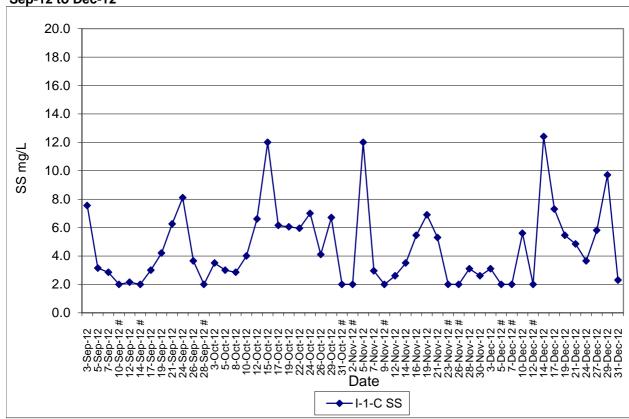


## Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1)





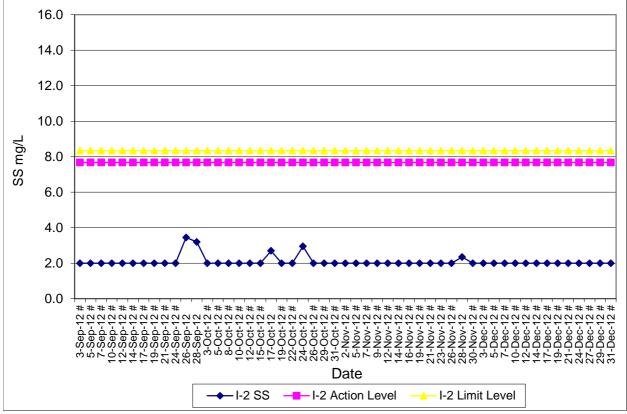
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Sik Sik Yuen Ho Fung College (I-1-C) Sep-12 to Dec-12



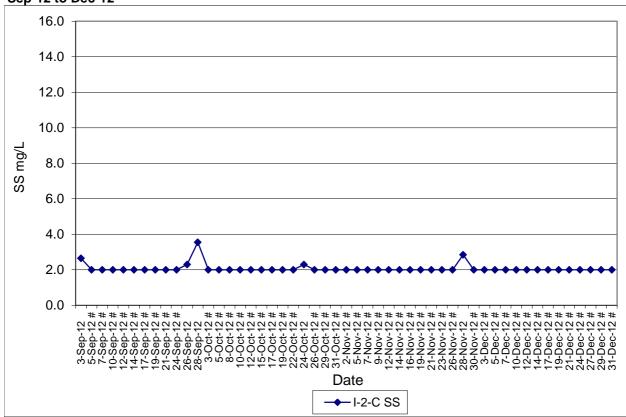
Note:# - For average SS level smaller than 2 mg/L, the level is plotted as 2 mg/L in the graph

## Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Hong Hoi Chee Hong Temple (I-2)





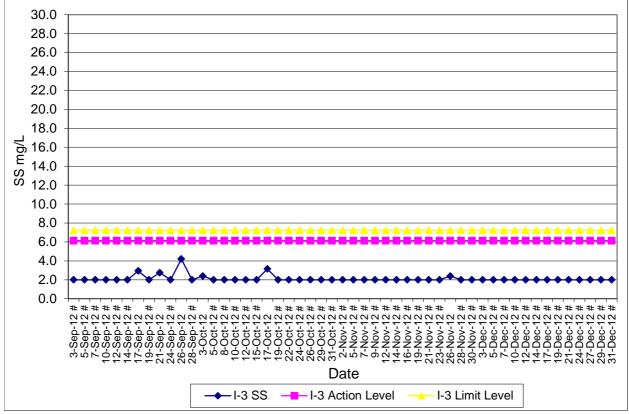
Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Hong Hoi Chee Hong Temple (I-2-C) Sep-12 to Dec-12



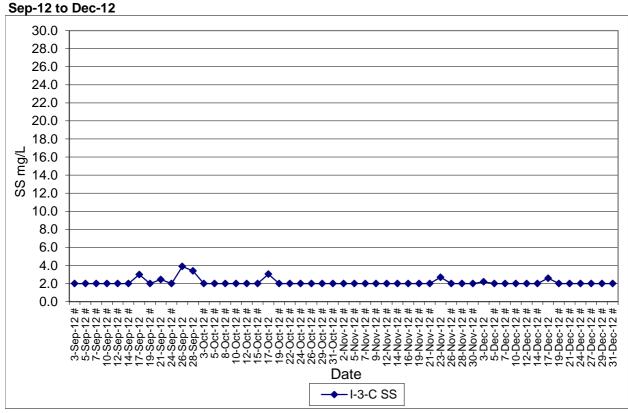
Note:# - For average SS level smaller than 2 mg/L, the level is plotted as 2 mg/L in the graph

## Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Squatters (I-3)





Contract No. DC/2007/12 - Design and Construction of Tsuen Wan Drainage Tunnel Water Quality Results at Squatters (I-3-C)



Note:# - For average SS level smaller than 2 mg/L, the level is plotted as 2 mg/L in the graph



Appendix J

Interim Notifications of Environmental Quality Limits Exceedances

#### Interim Notification of Environmental Quality Limit Exceedance

#### Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
·	, and the second
Date	3-Dec-12
Time	3:14 PM
Monitoring Location	Squatters (I-3)
Parameter	Turbidity
Action & Limit Levels (NTU)	3.99 / 4.18
Measured Level (NTU)	4.19
Control Station	I-3-C
Measured Level at the Control Station (NTU)	4.29
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline limit level, but lower than the turbidity level of the control station (I-3-C). General site cleaning and housekeeping, erecting formwork for equipment room, rebaring fixing for vortex shaft (VS) base slab, casting blinding layer for VS upper base slab, shuttering and concreting for staircase on top of 900mm drainage pipe outlet, excavation for access road at ch. 0 - 20, adjustment for trash grill at approach channel, and drilling for additional boulder trap were undertaken during the monitoring day. No direct disturbance was observed from the site. Therefore, the exceedance was considered to be contributed by natural variation. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	The following mitigation measures were provided on-site during monitoring: (1) all wastewater was collected and diverted to waste water treatment plant prior to discharge; and (2) existing stream was diverted from upstream to downstream to maintain the working area in dry condition.
Remarks	None

Prepared by: Fan Cheong Tsang

Designation: Environmental Team Leader

Signature:

Date: 4-Dec-12

#### Photographic record for exceedance of Turbidity recorded at Squatters (I-3) on 03-Dec-12



Photo taken at I-3



#### Interim Notification of Environmental Quality Limit Exceedance

#### Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	3-Dec-12
Time	2:27 PM
Monitoring Location	Sik Sik Yuen Ho Fung College (I-1)
Parameter	Suspended Solids (SS)
Action & Limit Levels (mg/L)	8.85 / 10.17
Measured Level (mg/L)	4.60
Control Station	I-1-C
Measured Level at the Control Station (mg/L)	3.10
Possible reason for Action or Limit Level Non-compliance	The measured SS level was lower than the baseline action / limit level, but higher than 130% of the SS level of the control station (I-1-C). Site housekeeping, erecting formwork of trash gill RC frame, fixing rebar of L-shaped wall, and installing stop log "B" were undertaken during the monitoring day. No direct disturbance was observed from the site. Therefore, the exceedance was considered to be contributed by natural variation. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	The following mitigation measures were provided on-site during monitoring: (1) wastewater was collected and diverted to wastewater treatment plant for treatment before discharge, and (2) existing nullah and working area were separated by sand bags bund wall.
Remarks	None

Prepared by: Fan Cheong Tsang

Designation: Environmental Team Leader

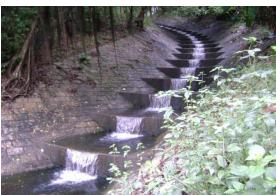
Signature: Auften

Date: 10-Dec-12

### Photographic record for exceedance of Suspended Solids (SS) recorded at Sik Sik Yuen Ho Fung College (I-1) on 03-Dec-12



Photo taken at I-1



#### Interim Notification of Environmental Quality Limit Exceedance

#### Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	10-Dec-12
Time	1:52 PM
Monitoring Location	Sik Sik Yuen Ho Fung College (I-1)
Parameter	Turbidity
Action & Limit Levels (NTU)	9.75 / 12.47
Measured Level (NTU)	12.76
Control Station	I-1-C
Measured Level at the Control Station (NTU)	13.23
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline action / limit level, but lower than the turbidity level of the control station (I-1-C). Site housekeeping and drilling holes for installation of trash grill RC frame were undertaken during the monitoring day. No direct disturbance was observed from the site. Therefore, the exceedance was considered to be contributed by high turbidity level at upsteam location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	The following mitigation measures were provided on-site during monitoring: (1) wastewater was collected and diverted to wastewater treatment plant for treatment before discharge; and (2) existing nullah and working area were separated by sand bags bund wall.
Remarks	None

Prepared by: Fan Cheong Tsang

Designation: Environmental Team Leader

Signature:

Date: 12-Dec-12

## Photographic record for exceedance of Turbidity recorded at Sik Sik Yuen Ho Fung College (I-1) on 10-Dec-12



Photo taken at I-1



#### Interim Notification of Environmental Quality Limit Exceedance

#### Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	10-Dec-12
Time	1:52 PM
Monitoring Location	Sik Sik Yuen Ho Fung College (I-1)
Parameter	Suspended Solids (SS)
Action & Limit Levels (mg/L)	8.85 / 10.17
Measured Level (mg/L)	9.80
Control Station	I-1-C
Measured Level at the Control Station (mg/L)	5.60
Possible reason for Action or Limit Level Non-compliance	The measured SS level was higher than the baseline action level, and higher than 130% of the SS level of the control station (I-1-C). Site housekeeping and drilling holes for installation of trash grill RC frame were undertaken during the monitoring day. No wastewater directly discharged from the site was observed. Although the SS level at I-1 was about 75% higher than that at I-1-C, no direct sources of impact from the site were identified. As such, no further mitigation measures or actions were recommended.
Actions taken / to be taken	The following mitigation measures were provided on-site during monitoring: (1) wastewater was collected and diverted to wastewater treatment plant for treatment before discharge, and (2) existing nullah and working area were separated by sand bags bund wall.
Remarks	None

Prepared by: Fan Cheong Tsang

Designation: Environmental Team Leader

Signature: Hough

Date: 18-Dec-12

### Photographic record for exceedance of Suspended Solids (SS) recorded at Sik Sik Yuen Ho Fung College (I-1) on 10-Dec-12



Photo taken at I-1



#### Interim Notification of Environmental Quality Limit Exceedance

#### Incident Report on Action Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	14-Dec-12
Time	1:19 PM
Monitoring Location	Sik Sik Yuen Ho Fung College (I-1)
Parameter	Suspended Solids (SS)
Action & Limit Levels (mg/L)	8.85 / 10.17
Measured Level (mg/L)	9.15
Control Station	I-1-C
Measured Level at the Control Station (mg/L)	12.40
Possible reason for Action or Limit Level Non-compliance	The measured SS level was higher than the baseline action level, but lower than the SS level of the control station (I-1-C). Site housekeeping, preparation for sand replacement test (SRT) at the top of box culvert, and erecting formwork for trash grill reinforced concrete frame were undertaken during the monitoring day. No direct disturbance was observed from the site. Therefore, the exceedance was considered to be contributed by SS level at upsteam location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	The following mitigation measures were provided on-site during monitoring: (1) wastewater was collected and diverted to wastewater treatment plant for treatment before discharge, and (2) existing nullah and working area were separated by sand bags bund wall.
Remarks	None

Prepared by: Fan Cheong Tsang

Designation: Environmental Team Leader

Signature: Fourtaille of

Date: 24-Dec-12

## Photographic record for exceedance of Suspended Solids (SS) recorded at Sik Sik Yuen Ho Fung College (I-1) on 14-Dec-12



Photo taken at I-1



Photo taken at I-1-C

#### Interim Notification of Environmental Quality Limit Exceedance

#### Incident Report on Action Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	19-Dec-12
Time	2:06 PM
Monitoring Location	Sik Sik Yuen Ho Fung College (I-1)
Parameter	Suspended Solids (SS)
Action & Limit Levels (mg/L)	8.85 / 10.17
Measured Level (mg/L)	6.70
Control Station	I-1-C
Measured Level at the Control Station (mg/L)	5.45
Possible reason for Action or Limit Level Non-compliance	The measured SS level was lower than the baseline action / limit level, but higher than 120% of the SS level of the control station (I-1-C). Preparation for sand replacement test (SRT) at the top of box culvert and erecting formwork for trash grill reinforced concrete (RC) frame were undertaken during the monitoring day. No direct disturbance was observed from the site. Therefore, the exceedance was considered to be contributed by natural variation. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	The following mitigation measures were provided on-site during monitoring: (1) wastewater was collected and diverted to wastewater treatment plant for treatment before discharge, and (2) existing nullah and working area were separated by sand bags bund wall.
Remarks	None

Harftenthoof

Prepared by: Fan Cheong Tsang

Designation: Environmental Team Leader

Signature:

Date: 28-Dec-12

### Photographic record for exceedance of Suspended Solids (SS) recorded at Sik Sik Yuen Ho Fung College (I-1) on 19-Dec-12



Photo taken at I-1



Photo taken at I-1-C

#### Interim Notification of Environmental Quality Limit Exceedance

#### Incident Report on Action Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	29-Dec-12
Time	2:01 PM
Monitoring Location	Sik Sik Yuen Ho Fung College (I-1)
Parameter	Turbidity
Action & Limit Levels (NTU)	9.75 / 12.47
Measured Level (NTU)	11.11
Control Station	I-1-C
Measured Level at the Control Station (NTU)	11.26
Possible reason for Action or Limit Level Non-compliance	The measured turbidity level was higher than the baseline action level, but lower than the turbidity level of the control station (I-1-C). Backfill and compaction at slope was undertaken during the monitoring day. No direct disturbance was observed from the site. About 0.5 to 2 mm of rainfall was observed over the catchment of I-1 between 13:00 and 14:00 on the monitoring day by the Hong Kong Observatory. The exceedance was considered to be contributed by rainfall and high turbidity level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	The following mitigation measures were provided on-site during monitoring: (1) wastewater was collected and diverted to wastewater treatment plant for treatment before discharge.
Remarks	None

Prepared by: Fan Cheong Tsang

Designation: Environmental Team Leader

Signature:

Date: 3-Jan-13

## Photographic record for exceedance of Turbidity recorded at Sik Sik Yuen Ho Fung College (I-1) on 29-Dec-12



Photo taken at I-1



#### Interim Notification of Environmental Quality Limit Exceedance

#### Incident Report on Limit Level Non-compliance

Project	Tsuen Wan Drainage Tunnel
Date	29-Dec-12
Time	2:01 PM
Monitoring Location	Sik Sik Yuen Ho Fung College (I-1)
Parameter	Suspended Solids (SS)
Action & Limit Levels (mg/L)	8.85 / 10.17
Measured Level (mg/L)	10.20
Control Station	I-1-C
Measured Level at the Control Station (mg/L)	9.70
Possible reason for Action or Limit Level Non-compliance	The measured SS level was higher than the baseline action / limit level, but lower than 120% of the SS level of the control station (I-1-C). Backfill and compaction at slope was undertaken during the monitoring day. No direct disturbance was observed from the site. About 0.5 to 2 mm of rainfall was observed over the catchment of I-1 between 13:00 and 14:00 on the monitoring day by the Hong Kong Observatory. The exceedance was considered to be contributed by rainfall and high SS level at upstream location. Since the exceedance was non-project related, no further action was required.
Actions taken / to be taken	The following mitigation measures were provided on-site during monitoring: (1) wastewater was collected and diverted to wastewater treatment plant for treatment before discharge.  None

Prepared by: Fan Cheong Tsang

Designation: Environmental Team Leader

Signature:

Date: 4-Jan-13

### Photographic record for exceedance of Suspended Solids (SS) recorded at Sik Sik Yuen Ho Fung College (I-1) on 29-Dec-12



Photo taken at I-1



Photo taken at I-1-C



## Appendix K

# Complaint Log

Environmental Monitoring and Audit

### **APPENDIX K**

### **COMPLAINT LOG**

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
1	CIR-001	9 March 2009 at Outfall	Public through EPD	EPD has received a complaint (EPD ref: EP3/N22/RW/04846-09) regarding to muddy effluent discharged from the outfall of the construction site from a public on 9 March 2009. Site investigation was also carried out by EPD with the Contractor on the same day.	Findings/ Observations In the afternoon on 9 March 2009, the Contractor was carrying out regular maintenance for removing silt accumulated in the wastewater treatment plant. During the maintenance works, some residual silt inside the plant was accidentally leaked out to the outfall discharge outlet. The reason was that a flexible pipe for disposing silt was found connecting to the concrete platform of the outfall discharge outlet.  Conclusion/Remedial Action The complaint was valid and it was due to maintenance works at the wastewater treatment plant at the outfall area. The contractor had cleaned up the silt at discharge outlet and the channel at the outfall area on 12 March 2009 as shown in the attached photo. The ET will closely inspect the discharge outlet and the channel during the routine site inspections and provide advice to the Contractor. The Contractor was also advised to provide mitigation measures during any occasion of the maintenance work on the wastewater treatment plant.  The discharge pipe of the treatment plant should be plugged and ensure not functioned when carrying out maintenance works on the wastewater treatment plant in order to prevent the discharge of silt or muddy water to the outlet.  Flexible pipe for discharge of sludge should not be placed on the concrete platform under the outfall discharge outlet. For disposal of slit or sludge in the wastewater treatment plant, tanker should be used.	Closed
2	CIR-002	8 May 2009 at Outfall	Public through EPD	EPD has received a complaint (EPD ref: EP3/N22/RW/09755-09) regarding to construction dust from the outfall	Findings/ Observations Regular 1-hour TSP monitoring, in accordance with EM&A Manual, is performed by Environmental Team. The monitoring station concerned is ASR9 (i.e. at the podium level of Greenview Terrace facing to the construction site).  The closest date for the 1-hour TSP concentration monitoring was on 6	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
				construction site on 8 May 2009. Site investigation was also carried out by EPD with the Contractor on 14 May 2009.	May 2009 and 12 May 2009 at Greenview Terrace, ASR9. Soil nailing works and loading & unloading excavated materials were observed during monitoring. In accordance with the EM&A Manual and the Baseline Monitoring Report, all 1-hour TSP concentrations at ASR9 were below the established Action and Limit Levels. No exceedance was recorded on 6 and 12 May 2009.  The contractor and the environmental team were also undertaken site investigation on the subject area in response to the complaint. It was confirmed that the air quality mitigation measures as recommended in EIA have been provided by the Contractor. The mitigation measures are as follows:  • Water spraying was provided to the exposed surface.  • Several automatic sprinklers were provided at the outfall construction site for water spraying of the haul road.  • Water spraying was provided during dust generating works (e.g. rock breaking and soil nailing works).  Conclusion/Remedial Action  Based on the site inspection and monitoring results, the complaint is considered not justifiable since no action & limit level exceedance on construction dust are identified. Air quality mitigation measures as recommended in EIA have been implemented in order to control and minimise the air quality impact and nuisance arising from the construction activities. Nevertheless, in view of the recent dry and sunny weather, the haul road and the exposed area would be dry very quickly. The Contractor was recommended to provide more frequent water spraying especially in the dry and sunny weather.	
3	CIR-003	14 May 2009 at Outfall	Public through EPD	EPD has received a complaint (EPD ref: EP/RW/080206) regarding to daytime construction rock breaking at 7:15 am	The closest date to the complaint for the 1-hour TSP monitoring & daytime construction noise monitoring was on 12, 18 and 27 May 2009 at Greenview Terrace, ASR9 and NSR9. Soil nailing, excavation, rock breaking, loading and unloading the materials were observed during monitoring period. The measured noise levels complied with the limit level in accordance with the EIAO-TM. All 1-hour TSP concentrations at ASR9 were below the established Action and Limit Levels. No 1-hour TSP	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
				and dusty at the outfall construction site on 14 May 2009.	exceedance was recorded.  The contractor and the environmental team were also undertaken site investigation on the subject area in response to the complaint. Air quality mitigation measures as recommended in EIA have been implemented by the Contractor. However, noise mitigation measures could be further improved.  Based on our site inspection and monitoring results, the complaint for dust is considered not justifiable since no action & limit level exceedance on construction dust is identified. Air quality mitigation measures as recommended in EIA have also been implemented in order to control and minimise the air quality impact arising from the construction activities. In view of the recent dry and sunny weather, the haul road and the exposed area would be dry very quickly. The Contractor was recommended to enhance water spraying especially in the dry and sunny weather.  On the other hand, the complaint for noise is considered due to works and the Contractor was agreed to improve the on-site noise mitigation measures such as the following measures. ET's site inspection and the joint inspection with relevant parties was conducted on 29 May 2009 and 4 June 2009 respectively to confirm all the below measures have been implemented.  • For the idling plant, it should be switched off to reduce noise level generated.  • The sound insulation sheets and noise insulation materials should be placed to enclose the breaking tip tightly and also aside or surrounding the breaking activities as recommended in the following photos 1-3 in noise mitigation measures.  • Noise monitoring frequency was increased in order to check the effectiveness of the mitigation measures. The additional measurement was taken on 27 May, 8 June, 10 June and 12 June 2009 after all the measures implemented. The noise levels (Leq, 30 min) were 70.9 dB (A), 70.5 dB (A), 70.3 dB (A) and 70.3 dB (A) respectively, which comply with the limit level in accordance with the EIAO-TM. Soil nailing, excavation and rock breaking were observed during monitoring pe	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					The measures were well in place and seemed effective during the measurement.	
4	CIR-004	10 July 2009 at Outfall	Public through EPD	EPD has received a complaint (EPD ref: EP3/N22/RW/15137-09) regarding to construction dust from the outfall construction site on 10 July 2009.	Findings/ Observations  1-hour TSP concentration monitoring was on 10 July 2009 at Greenview Terrace, ASR9. Soil nailing works, concrete breaking, excavation and loading & unloading excavated materials were observed during monitoring. All 1-hour TSP concentrations at ASR9 were below the established Action and Limit Levels. No exceedance was recorded on 10 July 2009.  The contractor and the environmental team were also undertaken site investigation on the subject area in response to the complaint. It was confirmed that the air quality mitigation measures as recommended in EIA have been provided by the Contractor. The mitigation measures are as follows:  • Water spraying was provided to the exposed surface.  • Automatic sprinklers were provided at the outfall construction site for water spraying of the haul road.  • Water spraying was provided during dust generating works (e.g. rock breaking and soil nailing works).  • Tarpaulin was used for covering the dusty works in the Portal area.  Conclusion/Remedial Action  The complaint is considered not justifiable since no action & limit level exceedance on construction dust are identified	Closed
5 & 6	CIR-005	29 July 2009 & 11 August 2009 at Outfall	Public through SOR	SOR has received two complaints (SOR ref: (DC/2007/12)/M45/5 00/02480, 02500) from Greenview Terrace regarding to daytime construction noise exceedance	Findings/ Observations Soil nailing, excavation, rock breaking and drilling, loading and unloading the materials were generally observed during monitoring period in July and August 2009. According to the noise monitoring results from 6 July 2009 to 31 August 2009 at NSR 9, the measured noise levels complied with the limit level in accordance with the EIAO-TM. All 1-hour TSP concentrations at ASR9 were below the established Action and Limit Levels from 6 July 2009 to 25 August 2009.  Conclusion/Remedial Action The dust complaint on 22 July 2009 was due to the soil nailing works. The	Same Case with Complai nt No. 11

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
				recorded at NSR9 on 8, 22, 23, 27 and 29 July 2009 and a large amount dust generated at the outfall construction site. The complaint dates were corresponded to 29 July and 11 August 2009.	Contractor was reminded enhance the dust mitigation measures during soil nailing works. A designated staff was provided to spray water continuously during soil nailing. A nylon bag was placed on the drilling hole and keeping wet to suppress dust. A sprinkler was added at the hillside of the site and water spraying was provided continuously during operation of drilling to suppress dust.  The documented complaint for noise is considered to trigger the action level and the Contractor was also reminded to enhance the on-site noise mitigation measures continuously. The enhanced mitigation measures are proposed as follows:  • A staff from the Contractor was designated to take the reading of Leq (5mins) at the roof of Greenview Terrace. In case of the Leq (5min) exceed 73 dB(A), the Contractor would re-schedule the noisy plants to mitigate the escalation of noise level.  • The designated staff was reminded to record all the weather condition including raining and wind speed.  • Tools box talk for the Contractor's Team was carried out for reminding that the movable barrier should be placed to the breaking activities as much as possible.  • Movable noise barriers were placed on site and the movable noise barriers were also modified.  • Existing 25 ton rock breaker had been replaced by the another breaker.  • The breaking tap of the 25 ton rock breaker had been replaced by another breaking tap.  • A joint filler wall was installed at the vertical face of westbound to mitigate the noise rebound from the vertical face to high level of Greenview Terrace.  From the additional monitoring data and monitoring data under regular EM&A requirements, noise level (Leq. 30 min) between 6 July to 31 August 2009 was in the range of 71 to 74 dB(A) to the nearest integer. The noise monitoring frequency was maintained in twice per week to check whether the mitigation measures are effective. From the information of the Contractor, all the mitigation measures were implemented on 31 August	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					2009. Noise levels ( $L_{eq, 30 \text{ min}}$ ) were also re-measured after the implementation of the mitigation measures. Noise level ( $L_{eq, 30 \text{ min}}$ ) from 4 Sep to 28 Sep 2009 was in the range of 70 to 73 dB(A) to the nearest integer after the implementation of the mitigation measures. In our investigation, there was no exceedance of the measured noise level at Greenview Terrace.	
7	CIR-006	12 August 2009 at Outfall	Public through SOR	SOR has received a complaint (SOR ref: (DC/2007/12)/M45/5 00/02527) from Greenview Terrace, via Apple Daily regarding to daytime construction noise level (L <sub>eq(30min)</sub> ) was sometimes more than 80 dB(A) and a large amount dust generated at the outfall construction site. The complaint date was corresponded to 12 August 2009.	Findings/ Observations Soil nailing, excavation, rock breaking and drilling, loading and unloading the materials were generally observed during monitoring period in July and August 2009. According to the noise monitoring results from 6 July 2009 to 31 August 2009 at NSR 9, the measured noise levels complied with the limit level in accordance with the EIAO-TM. All 1-hour TSP concentrations at ASR9 were below the established Action and Limit Levels from 6 July 2009 to 25 August 2009.  Conclusion/Remedial Action The dust complaint was considered not justifiable since no action & limit level exceedance on construction dust were identified. However, it was a recurrent case from Greenview Terrace. The Contractor was recommended to enhance water spraying continuously especially in rock breaking activities.  On the other hand, there was no noise levels (Leq(30min)) from the measurement taken from ET was more than 80 dB(A). However, it was a recurrent case from Greenview Terrace. The Contractor was reminded to enhance the on-site noise mitigation measures. The enhanced mitigation measures are proposed as follows:  • A staff from the Contractor was designated to take the reading of Leq (5mins) at the roof of Greenview Terrace. In case of the Leq (5min) exceed 73 dB(A), the Contractor would re-schedule the noisy plants to mitigate the escalation of noise level.  • The designated staff was reminded to record all the weather condition including raining and wind speed.  • Tools box talk for the Contractor's Team was carried out for reminding that the movable barrier should be placed to the breaking activities as	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					<ul> <li>much as possible.</li> <li>Movable noise barriers were placed on site and the movable noise barriers were also modified.</li> <li>Existing 25 ton rock breaker had been replaced by the another breaker.</li> <li>The breaking tap of the 25 ton rock breaker had been replaced by another breaking tap.</li> <li>A joint filler wall was installed at the vertical face of westbound to mitigate the noise rebound from the vertical face to high level of Greenview Terrace.</li> <li>From the additional monitoring data and monitoring data under regular EM&amp;A requirements, noise level (Leq. 30 min) from 6 July to 31 August 2009 was in the range of 71 to 74 dB(A) to the nearest integer. The noise monitoring frequency was maintained in twice per week to check whether the mitigation measures are effective. From the information of the Contractor, all the mitigation measures were implemented on 31 August 2009. Noise levels (Leq. 30 min) were also re-measured after the implementation of the mitigation measures. Noise level (Leq. 30 min) from 4 Sep to 28 Sep 2009 was in the range of 70 to 73 dB(A) to the nearest integer after the implementation of the mitigation measures.</li> </ul>	
8	CIR-007	14 August 2009 at Outfall	Public through EPD	EPD has received a complaint (EPD ref: EP3/N22/RW/17978-09) from Greenview Terrace regarding to daytime construction noise from the outfall construction site. The complaint date was corresponded to 14 August 2009.	Findings/ Observations Soil nailing, excavation, rock breaking and drilling, loading and unloading the materials were generally observed during monitoring period in July and August 2009. According to the noise monitoring results from 6 July 2009 to 31 August 2009 at NSR 9, the measured noise levels complied with the limit level in accordance with the EIAO-TM.  Conclusion/Remedial Action This was a recurrent case from Greenview Terrace. The documented complaint for noise is considered to trigger the action level and the Contractor was reminded to enhance the on-site noise mitigation measures continuously. The enhanced mitigation measures are proposed as follows:  • A staff from the Contractor was designated to take the reading of Leq	Same Case with Complai nt No. 11

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					<ul> <li>(5mins) at the roof of Greenview Terrace. In case of the Leq (5min) exceed 73 dB(A), the Contractor would re-schedule the noisy plants to mitigate the escalation of noise level.</li> <li>The designated staff was reminded to record all the weather condition including raining and wind speed.</li> <li>Tools box talk for the Contractor's Team was carried out for reminding that the movable barrier should be placed to the breaking activities as much as possible.</li> <li>Movable noise barriers were placed on site and the movable noise barriers were also modified.</li> <li>Existing 25 ton rock breaker had been replaced by the another breaker.</li> <li>The breaking tap of the 25 ton rock breaker had been replaced by another breaking tap.</li> <li>A joint filler wall was installed at the vertical face of westbound to mitigate the noise rebound from the vertical face to high level of Greenview Terrace.</li> <li>From the additional monitoring data and monitoring data under regular EM&amp;A requirements, noise level (Leq, 30 min) from 6 July to 31 August 2009 was in the range of 71 to 74 dB(A) to the nearest integer. The noise monitoring frequency would be maintained in twice per week to check whether the mitigation measures are effective. From the information of the Contractor, all the mitigation measures were implemented on 31 August 2009. Noise levels (Leq, 30 min) were also re-measured after the implementation of the mitigation measures. Noise level (Leq, 30 min) from 4 Sep to 28 Sep 2009 was in the range of 70 to 73 dB(A) to the nearest integer after the implementation of the mitigation measures.</li> </ul>	
9	CIR-008	17 August 2009 at Portion D of the Site	Public through SOR	SOR has received a complaint (SOR ref:(DC/2007/12)/M4 5/500/02546) from Long Bench Garden	Findings/ Observations Soil nailing, excavation, rock breaking and drilling, loading and unloading the materials were generally observed during monitoring period in August 2009. The monitoring results from 3 August 2009 to 31 August 2009 at NSR 8 showed the measured noise levels complied with the limit level in accordance with the EIAO-TM. The contractor and the environmental	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
				regarding to noise nuisance generated from the daytime construction work (rock-breaking) in Portion D of the Site. The complaint date was corresponded to 17 August 2009.	team were also undertaken site investigation on the subject area in response to the complaint. Noise mitigation measures should be enhanced continuously due to this complaint.  Conclusion/Proposed Action The documented complaint for noise is considered to trigger the action level and the Contractor was reminded to enhance the on-site noise mitigation measures continuously. The enhanced mitigation measures are recommended as follows:  Movable noise barriers had been placed towards the direction of Long Bench Garden, particular for the pipe pile works in the portal.  Tools box talk for construction team was carried out for reminding that the movable barrier should be placed to the breaking activities as much as possible.  The existing noisy 25 ton rock breaker had been replaced by the other breaker.  A joint filler wall had been fixed on the vertical face of west bound to absorb the noise generated towards Long Beach Garden.  Noise monitoring frequency was increased twice per week by ET due to this complaint. The measured noise levels were complied with the limit level in accordance with the EIAO-TM. No further complaint was received from Long Bench Garden within the reporting month.	
10	CIR-009	22 August 2009 at Outfall	Public through SOR	A complaint (SOR ref: (DC/2007/12)/M45/5 00/02628) was received from Greenview Terrace regarding to daytime construction noise level (Leq(30min)) was sometimes exceeded 75 dB(A)	Findings/ Observations Soil nailing, excavation, rock breaking and drilling, loading and unloading the materials were generally observed during monitoring period in July and August 2009. The monitoring results from 6 July 2009 to 31 August 2009 at NSR 9 showed the measured noise levels complied with the limit level in accordance with the EIAO-TM. The contractor and the environmental team were also undertaken site investigation on the subject area in response to the complaint. Noise mitigation measures should be enhanced continuously due to this complaint.  Conclusion/Proposed Action The documented complaint for noise is considered to trigger the action level and the Contractor was reminded to enhance the on-site noise	Same Case with Complai nt No. 11

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
				at the outfall construction site. The complaint date was corresponded to 22 August 2009.	mitigation measures continuously. The enhanced mitigation measures are recommended as follows:  • A staff from the Contractor was designated to take the reading of Leq (5mins) at the roof of Greenview Terrace. In case of the Leq (5min) exceed 73 dB(A), the Contractor would re-schedule the noisy plants to mitigate the escalation of noise level.  • The designated staff was reminded to record all the weather condition including raining and wind speed.  • Tools box talk for the Contractor's Team was carried out for reminding that the movable barrier should be placed to the breaking activities as much as possible.  • Movable noise barriers were placed on site and the movable noise barriers were also modified.  • Existing 25 ton rock breaker had been replaced by the another breaker.  • The breaking tap of the 25 ton rock breaker had been replaced by another breaking tap.  • A joint filler wall was installed at the vertical face of westbound to mitigate the noise rebound from the vertical face to high level of Greenview Terrace.  From the additional monitoring data and monitoring data under regular EM&A requirements, noise level (Leq, 30 min) from 6 July to 31 August 2009 was in the range of 71 to 74 dB(A) to the nearest integer. The noise monitoring frequency was maintained in twice per week to check whether the mitigation measures are effective. From the information of the Contractor, all the mitigation measures were implemented on 31 August 2009. Noise levels (Leq, 30 min) were also re-measured after the implementation of the mitigation measures. Noise level (Leq, 30 min) from 4 Sep to 28 Sep 2009 was in the range of 70 to 73 dB(A) to the nearest integer after the implementation of the mitigation measures. In our investigation, there was no exceedance of the measured noise level at Greenview Terrace.	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
11	CIR-010	24 September 2009 at Outfall	Public through SOR	A complaint (SOR ref: (DC/2007/12)/M45/5 00/02749) was received from Greenview Terrace regarding to daytime construction noise level (Leq(30min)) was sometimes exceeded 75 dB(A) at the outfall construction site.	<ul> <li>Findings/ Observations</li> <li>Soil nailing, excavation, rock breaking and drilling, loading and unloading the materials were generally observed during monitoring period in July and September 2009. The monitoring results from 6 July 2009 to 29 October 2009 at NSR 9 showed the measured noise levels complied with the limit level in accordance with the EIAO-TM. The contractor and the environmental team were also undertaken site investigation on the subject area in response to the complaint. Noise mitigation measures have been enhanced continuously due to this complaint.</li> <li>Conclusion/Proposed Action</li> <li>The documented complaint for noise is considered to trigger the action level and the Contractor was reminded to enhance the on-site noise mitigation measures continuously. The enhanced mitigation measures were implemented as follows:</li> <li>A staff from the Contractor was designated to take the reading of Leq (5mins) at the roof of Greenview Terrace. In case of the Leq (5min) exceed 73 dB(A), the Contractor would re-schedule the noisy plants to mitigate the escalation of noise level.</li> <li>The designated staff was reminded to record all the weather condition including raining and wind speed.</li> <li>Tools box talk for the Contractor's Team was carried out for reminding that the movable barrier should be placed to the breaking activities as much as possible.</li> <li>Movable noise barriers were placed on site and the movable noise barriers were also modified.</li> <li>Existing 25 ton rock breaker had been replaced by the another breaker.</li> <li>The breaking tap of the 25 ton rock breaker had been replaced by another breaking tap.</li> <li>A joint filler wall was installed at the vertical face of westbound to mitigate the noise rebound from the vertical face to high level of Greenview Terrace.</li> </ul>	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					From the additional monitoring data above and the regular monitoring under EM&A requirements, the measured noise levels were complied with the limit level in accordance with the EIAO-TM. From the noise level on 25 September 2009 and 2 October 2009, the trend of noise level seemed to be increased since the decoration work at 14/F Greenview Terrace was the domain noise source during the monitoring. The noise level during that time would be considered for reference only. There was no exceedance of the measured noise level at Greenview Terrace in our investigation.	
12	CIR-011	2 October 2009 at I-3	Public through EPD	EPD has received a complaint (EPD ref: EP3/N22/RW/22016-09) regarding to construction dust at the Intake-3 on 2 October 2009.	Findings/ Observations There is no representative air monitoring location as stated in the EM&A Manual. The contractor and the environmental team were undertaken site investigation on the subject area at 08-Oct-09 in response to the complaint. Air quality mitigation measures as recommended in EIA have been implemented by the Contractor. However, the dust impact by exposed area could be further improved. The mitigation measures during the site investigation were observed as follows:  • Water spraying was provided to the exposed surface. • Wheel washing facilities for dump trucks was provided at the site exit. • Water spraying was provided during excavation and loading/unloading works  Conclusion/Proposed Action  Based on our site inspection, the complaint for dust is considered justifiable as it is due to windy erosion on the exposed surface. Air quality mitigation measures as recommended in EIA have also been implemented in order to control and minimise the air quality impact arising from the construction activities. In view of the recent dry season, the haul road and the exposed area would be dry very quickly. The Contractor was recommended to provide water spraying more frequently especially in the dry season.	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
13	(DC/200 7/12)/ M45/50 0/2923 & email on 11 Novemb er 2009 from MCSJV	9 November 2009 at Outfall	Greenview Terrace through EPD	Movable noise barrier was not placed close enough to the piling machine.	<ul> <li>Immediate Action         The rig was re-orientated and the barrier was placed closed to the drilling head.     </li> <li>Follow-up Action         <ul> <li>Training was conducted to the operator to ensure that the workers aware that the barrier should be placed closed not the drilling head not the machine itself.</li> <li>In order to prevent future occurrence, a permit to dig system was adopted. It should be checked by the Contractor and endorsed by the SOR before starting the drilling rig.</li> </ul> </li> <li>The follow up action was checked and a permit to dig system has been implemented.</li> </ul>	Closed
14	(DC/200 7/12)/ M45/50 0/2978 & email on 19 Novemb er 2009 from MCSJV	18 November 2009 at Outfall	Greenview Terrace through EPD	Rock-breaking activity carried out in the eastern area of Portion D, closest to Greenview Terrace, was not totally screened and line of sight of the breaker was observed from the NSR.	<ul> <li>Follow up Action</li> <li>The bamboo scaffold was extended further away from stage 3 scaffold to further screen off the activities to the Greenview. The length of the extension was about 8 to 10 m.</li> <li>A strong reminded was given to the relevant staff and sub-contractor and the barrier should be placed in the right orientation before breaking.</li> <li>The mitigation measures were strictly followed as stated in the proposal.</li> <li>The follow up action and relevant records was checked.</li> </ul>	Closed
15.	CIR-12	19 January 2010 at Intake-3 construction site	Public through EPD	EPD has received a public complaint (EPD ref: EP3/N22/RW/01270-10) regarding effluent discharge at Intake-3 construction site on 19 January 2010.	Findings/ Observations The effluent discharge on 19 January 2010 was due to the leakage of Gabion wall at I3. The water from the rock drilling work was flowing through the gap of the Gabion Wall to the watercourses at I3.  Immediate Action The contractor had sealed the gap at the Gabion Wall immediately after the incident.  Conclusion/Proposed Action Based on our site inspection, the complaint was due to leakage of Gabion	Closed.

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					wall. The area would be checked and maintained continuously to avoid recurrence case. The above identified mitigation measures have been implemented by the Contractor on 22 January 2010 and ET has also checked the implementation on 31 January 2010. The ET will closely inspect the watercourses during the routine site inspections and provide advice to the Contractor.	
16	CIR-13	19 January 2010 at Intake-3 construction site	Public through EPD	EPD has received a public complaint (EPD ref: EP3/N22/RW/01319-10) regarding daytime construction noise at Intake-3 construction site on 19 January 2010.	Findings/ Observations The monitoring station concerned is NSR6 (i.e. at Squatter facing to the construction site). Excavation, soil nailing, rock drilling and breaking, loading and unloading the materials were generally observed during monitoring period in mid-January 2010. The measured noise levels in January 2010 complied with the limit level in accordance with the EM&A Manual. These cases would also be treated as two action level exceedances on noise. The Contractor and the Environmental Team were also undertaken site investigation on the subject area in response to complaint. The noise mitigation measures during the site investigation were recommended as follows:  Sound insulation sheets were installed covering the working area during breaking and rock drilling in order to block the line of sight to the NSR.  Noise insulation materials were used to enclose the drilling rig tightly. Conclusion/Proposed Action Based on the site inspection and monitoring results, the complaint was due to noise generated by rock breaking work. The identified mitigation measures have been discussed with the Contractor and the Contractor has submitted the remedial proposal. The proposal was implemented by the Contractor on 25 January 2010 and ET has also checked the implementation on 31 January 2010. The Contractor was also advised to review the mitigation measures from time to time near the NSR at 13. The ET will closely inspect the area during the routine site inspections and provide advice to the Contractor.	Closed.
17	CIR-13	21 January 2010 at	Public through	EPD has received a public complaint	Refers to Investigation /Mitigation Action for Complaint No. 16.	Closed
		Intake-3	l c a.g	(EPD ref:		

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
		construction site	EPD	EP3/N22/RW/01444- 10) regarding daytime construction noise at Intake-3 construction site on 21 January 2010.		
18	CIR-14	27 August 2010 near Intake-2 construction site	Public through DSD	DSD has received a public complaint regarding choked sewage manhole (MH1) at Lo Wai Road construction site on 27 August 2010.	Findings/ Observations  During DSD inspection on 30 August 2010, improper discharge from the site to manhole, MH3, which is located downstream of MH1 was observed. ET had received those information from the Contractor on 09 September 2010. Site investigation was also carried out by SOR's representative with the Contractor on 01 September 2010. Checking with the site log, the construction activity at Lo Wai on 27 August 2010 was pipe jacking only. No site formation works was undertaken. The contractor and SOR's representative have undertaken site investigation on the subject area on 01 September 2010. On-site flow test at Portion G had conducted.  Maeda works area is located at the lower section of Lo Wai Road and manhole MH3 is adjacent to the works area. MH1 (choked sewage manhole) is located at the upper section of Lo Wai Road. MH2 manhole is located middle section of Lo Wai Road. MH2 are outside the works area.  Water flow test for manhole MH2 and MH3 and no blockage was observed.  Sewage overflow was found at MH1 during the joint site inspection on 01 September 2010  It was reported that there were water pipes connected between the site and the MH3. Discharge was found in MH3 during DSD inspection.  The contractor claimed that the purpose of the water pipes was to direct the storm water and underground water inside the concrete pipe "pipe jacking".  There was no discharge license for that portion. The Contractor had stopped on 01 September 2010 the water pumping to MH3 and	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					apply the discharge license for the Lo Wai site.  Conclusion/Proposed Action Based on the joint site inspection, the choked manhole MH1 was not due to works activities. The Contractor had clean up the choked manhole MH1 and no sewage overflow from MH1 was observed. The Contractor was requested to divert the storm water to desilting system prior to discharge while no such discharge can be made until a valid discharge license is granted. The ET will closely inspect the vicinity area during the routine site inspections and provide advice to the Contractor as necessary.	
19&20	CIR-15	17 November 2010 at outfall construction site	Public through EPD	EPD has received a public complaint (EPD ref: EP3/N22/RW/24002-10 and EP3/N22/RW/24006-10) regarding daytime construction noise about derrick barge squeaking and rock breaking at Outfall construction site on 17 November 2010.	Findings/ Observations  Drilling, excavation, marine mud dredging, rock breaking, mucking-out process and crane operation were observed during site inspections on 2 and 17 December 2010. The monitoring results measured on 15 November 2010 and 25 November at NSR 9 showed that the measured noise levels complied with the limit level (75 dB(A)) in accordance with the EIAO-TM. As part of the investigation of the noise complaints, the Contractor and the ET conducted additional site inspections and reviewed and audited the current noise mitigation practices and the Contractor's environmental performance on-site.  Conclusion / Proposed Action  The documented complaints for noise triggered the action level of the noise monitoring. The Contractor had implemented the following on-site noise mitigation measures:  Erection of temporary noise insulation sheet at the rim of the spiral ramp construction site;  Moveable barriers for rock breaker;  Wrapping noise absorptive material at the rock breaker head;  Tailor made noise enclosure for drilling rig;  Semi-enclosed muck out process at muck hopper;  Use of rock splitter (which is a relatively quieter method in contrast to rock breaker); and  Noise insulation blanket enclosing the crane engine of derrick barge.	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					reported in the Complaint Investigation Report submitted on 24 December 2010. The measured noise level after implementation of the noise mitigation measures ranged from 69 to 73 dB(A) to the nearest integer and complied with the limit level in accordance with the EIAO-TM. The results showed that noise mitigation measures were effective. The contractor was advised to review the mitigation measures from time to time near the NSR 9. The ET would closely inspect the area during the routine site inspections and provide advice to the Contractor.	
21	CIR-16	10 January 2011 at outfall construction site	Public through EPD	EPD has received a public complaint (EPD ref: EP3/N22/RW/00484-11) regarding dark smoke emission from derrick barge and construction noise and dust at Outfall construction site on 10 January 2011.	Findings/ Observations  1. Dark Smoke Emission from Derrick Barge Dark smoke emitted from the derrick barge was promptly investigated after the receipt of the complaint. The issue was found specific to the mechanical operation of the barge working at the site at that moment. The derrick barge being complained was then replaced by another barge without the relevant mechanical issue. No further complaint was received since then.  2. Construction Dust Regular 1-hour TSP monitoring, in accordance with EM&A Manual, was carried out by the Environmental Team (ET). The monitoring station concerned is ASR 9, located at the podium level of Greenview Terrace facing the construction site. In January, 1 hour TSP concentration monitoring had been conducted on 4, 10, 14, 20 and 26 January 2011 at Greenview Terrace (ASR). Rock breaking, drilling and excavation were observed during monitoring. No exceedance was recorded.  The contractor and the environmental team were also undertaken site investigation at the subject area on 21 January 2011 in response to the complaint. It was confirmed that the air quality mitigation measures as recommended in EIA had been provided by the Contractor. The mitigation measures are as follows:  Water spraying surrounding the spiral ramp;  Water spraying for rock drilling and rock breaking;	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					<ul> <li>derrick barge;</li> <li>Water spraying for the exposed surface and the haul road;</li> <li>Water spraying for trucks and vehicles at the site exit.</li> <li>3. Construction Noise</li> <li>The documented complaints for noise triggered the action level of the noise monitoring. The Contractor had implemented the following on-site noise mitigation measures:</li> <li>Extension of Temporary noise insulation barrier (made of noise blanket) at the rim of the spiral ramp construction site facing Greenview Terrace;</li> <li>Movable noise barriers to surround the rock breaking activities at the spiral ramp where it is in safe ground condition;</li> <li>Tailor made noise enclosure for rock drilling machine;</li> <li>Semi-enclosed muck out process at muck hopper (with noise curtain underneath);</li> <li>Use of temporary noise enclosure for piling work at Castle Peak Road;</li> <li>Noise insulation blanket enclosing the crane engine of derrick barge;</li> <li>Additional noise blanket along the railings of the spiral ramp; and</li> <li>Use of rock splitter (which is a relatively quieter method in contrast to rock breaker).</li> <li>Noise monitoring has been increased to twice per week and the results will be reported in the Complaint Investigation Report to be submitted in mid-February 2011. The measured noise level after implementation of the noise mitigation measures ranged from 71 to 74 dB(A) to the nearest integer and complied with the limit level in accordance with the EIAO-TM. The results showed that noise mitigation measures were effective. The contractor was advised to review the mitigation measures from time to time near the NSR 9. The ET would closely inspect the area during the routine site inspections and provide advice to the Contractor.</li> </ul>	
					Conclusion / Proposed Action  1. Dark Smoke Emission from Derrick Barge Dark smoke emitted from the derrick barge was considered a stand-alone	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					incident and was specific to the derrick barge being complained. No further complaint was received after the barge was replaced by another.  2. Construction Dust  Based on our site inspection and monitoring results, the complaint was considered not justifiable since no action and limit level exceedance on construction dust were identified. Air quality mitigation measures as recommended in EIA were implemented in order to control and minimize the air quality impact and nuisance arising from the construction activities. Nevertheless, the Contractor was reminded to enhance the air quality mitigation measures such as increasing the water spraying frequency and ensure proper functioning of the automatic sprinklers at the Outfall construction site.  3. Construction Noise  Noise measurement results between 10 and 28 January 2011 were below the limit level (75 dB(A)) and complied with the noise criterion. The Contractor had implemented various mitigation measures on site to alleviate the construction noise impact. The ET will remind the Contractor to enhance and maintain the normal functioning of the measures continuously to minimize the impact. The Contractor should also closely liaise with the nearby residents and inform the progress of the construction and the implementation of the environmental mitigation measures at the Outfall construction site.	
22	CIR-17	30 June 2011 at Intake-3 construction site	Public through EPD	EPD has received a public complaint (EPD ref: EP3/N22/RW/12759-11) regarding construction dust and daytime construction noise from the Intake-3 construction site on 30 June	1. Findings / Observations Checking with the site log, construction activities conducted at I-3 were breaking / mucking out and rock splitting inside the shaft, curing of planter wall, backfilling at tree pit, slope reinstatement and backfilling at PB wall, monitoring of de-formation monitoring point, and general site cleaning and housekeeping. The Contractor and ET undertook site investigations on the subject area on 8 and 20 July 2011. The following dust and noise mitigation measures were implemented during site investigations:  Dust Mitigation Measures (implemented prior to the complaint)  All the main haul road was paved;	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
				2011.	<ul> <li>Material transported by a dump truck was covered with impervious sheeting;</li> <li>Exposed soil slope surface near the PB wall was covered by tarpaulin sheets;</li> <li>Hoardings (with 2.4 m high) were provided along the site boundary next to the access road;</li> <li>Regular watering on haul roads by sprinklers was observed;</li> <li>Vehicle speed limit of 5 km per hour was implemented within the construction site;</li> <li>Water spraying for dust suppression of on-going "dusty" activities (essentially including drilling and rock breaking within the shaft of about 16.5 m below ground) was observed;</li> <li>Construction Noise Mitigation Measures (implemented prior to the complaint)</li> </ul>	
					<ul> <li>Temporary noise barriers (about 4 m high) were erected on the shaft concrete block wall;</li> <li>Quiet plant (rock splitter) was employed for shaft excavation;</li> <li>Noise from generator was screened by a temporary noise barrier; and</li> <li>Breaker heads of rock breaking machine were wrapped with sound insulating materials.</li> </ul>	
					2. <u>Conclusion / Proposed Action</u> As there are no substantial noise sources at I-3 other than the project construction activities, it is considered that the noise complaint is project-related. In accordance with the Event / Action Plan for Construction Noise specified in the EM&A Manual, noise monitoring frequency at the squatters (NSR 6) near I-3 were increased to twice per week (from 11 July 2011 to 30 July 2011) due to this complaint. The measured noise levels (L <sub>eq, 30 min</sub> ) are shown in the following table. The measured noise levels, ranged from 60.0 dB(A) to 68.9 dB(A), are well below the limit level (75 dB(A)) in accordance with the EIAO-TM. During the site investigations on 8 and 20 July 2011, the above noise mitigation measures were	
					continuously implemented. No further noise complaint was received in July 2011. Thus, with the consideration of the noise measurement results	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint			Inves	stigation / N	litigation Act	ion	Status
					constru	ction noise se mitiga	e is consid	lered acce	eptable. Th	nitigation measures, the ne Contractor will maintain bove to minimise noise	
					Date	Start Time	End Time	L <sub>eq</sub> , dB(A)	Limit Level, dB(A)	Major Construction Noise Sources	
					6-Jul-11	11:17	11:47	60.0	75	Crane operation	
					14-Jul-11	16:00	16:30	67.0	75	Drilling and rock breaking	
					15-Jul-11	17:00	17:30	68.9	75	Drilling and rock breaking	
					18-Jul-11	13:30	14:00	65.7	75	Drilling and crane operation	
					20-Jul-11	13:10	13:40	68.1	75	Drilling and rock breaking	
					28-Jul-11	13:35	14:05	64.9	75	Drilling and excavation	
					30-Jul-11	09:10	09:40	63.6	75	Drilling and crane operation	
					Remark: The loca and the	ition of pov	wered med me for eacl	hanical eq n PME may	uipment (PM not be cons	/E) will change occasionally stant.	
					measur control	es aforem	nentioned have bee	were impleme	olemented ented at I-3	on site. Additional dust by the Contractor in early	
					2) Wat	ter hoses de frame d	have bee	en installe ing; and	d to the dr	stalled for the drilling rig; rilling rig within the tailor-	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					the shaft.  The Contractor have continuously applied all the above mentioned dust suppression measures to minimise airborne dust generation, as observed during the site investigation on 20 July 2011. No dust dispersion from the construction site was observed during the site investigations on 8 and 20 July 2011. In addition, no further construction dust complaint is received in July 2011. As such, it is considered that the dust suppression measures implemented on site are adequate to minimise dust nuisance. The Contractor will maintain these measures on site for construction dust control.  3. Follow Up Action(s)  For this complaint, the Contractor has implemented adequate mitigation measures for construction dust and noise control. As no further complaint is received in July 2011, it is considered that the complaint is closed. Nevertheless, the ET will continuously review the condition of the site during the routine site inspections, inspect proper functioning of the aforementioned construction dust and noise mitigation measures, and provide advice to the Contractor to be vigilant and tailor mitigation measures in advance of future planned site work activities.	
23	CIR-18	2 September 2011 at Sheung Kok Shan near Intake 2	Mr. Cheung through EPD	EPD have received a complaint from Mr. Cheung, who lived in Sheung Kok Shan, concerning construction noise arising from the use of the TBM at night time. He alleged that the noise emanated from the tunnelling works had caused	1. Findings / Observations  According to the approved EIA Report, it is recommended to restrict the tunnel boring machine (TBM) operation in the non-restricted period for tunnel section from chainage 1295 m to 1449 m. Checking with the site log, the Contractor has strictly followed the EIA recommendation for the TBM operation within the non-restricted period between the chainage 1295 m to 1449 m. TBM moved from CH1449 on 11 August 2011 and passed through CH1295 on 23 August 2011, and the Contractor resumed night time TBM operation afterwards. TBM was operating at night time (from 01:10 to 07:00) on 26 August 2011 (about 55 m away from the EIA restricted zone and about 22 m away from Mr. Cheung's house, which is located near CH1218).	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint		Investigatio	n / Mitigation Action	Sta		
				nuisance to him since 26 August 2011.	August 2001 by time operation f September 201	the Contractor. from 26 August to 1, TBM was locate	neung was received in the morning of 26 The Contractor had stopped TBM night 01 September 2011 accordingly. On 01 ed 38 m away from Mr. Cheung's house esume the night time operation.			
					Second verbal complaint from Mr. Cheung was received on 02 September 2011 by EPD. The Contractor took immediate measure to stop the night time operation from 02 to 07 September 2011. On 08 September 2011, TBM moved 109 m away from Mr. Cheung's house. The Contractor attempted to resume night time operation and no further complaint was received after that.  2. Mitigation Measure Implemented after Receiving the Complaints  Night time operation of the TBM was restricted as shown in the following					
					Night time operation of the TBM was restricted as shown in the following table:					
					Period	Night Time Operation <sup>1</sup>	Remark			
					25 - 26 Aug 2011	From 01:10 to 07:00 (26 Aug)	The Contractor received a verbal complaint in the morning (26 Aug 2011). The Contractor began to stop night time TBM operation. TBM was located about 22 m away from Mr. Cheung's house.			
					26 - 27 Aug 2011	-	No night time TBM operation			
					27 - 28 Aug 2011	-	No night time TBM operation			
					28 - 29 Aug - No night time TBM operation 2011					
					29 - 30 Aug - No night time TBM operation 2011					

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint		Investigatio	n / Mitigation Action	Status
					30 - 31 Aug 2011	-	No night time TBM operation	
					31 Aug - 01 Sep 2011		No night time TBM operation. TBM was located about 38 m away from Mr. Cheung's house.	
					01 - 02 Sep 2011	From 23:00 (01 Sep) to 04:50 (02 Sep)	The Contractor attempted to resume night time TBM operation on 01 Sep 2011. ET received a complaint via EPD in the morning (2 Sep 2011). The Contractor began to stop night time TBM operation on 02 Sep 2011.	
					02 - 03 Sep 2011	-	No night time TBM operation	
					03 - 04 Sep 2011	-	No night time TBM operation	
					04 - 05 Sep 2011	-	No night time TBM operation	
					05 - 06 Sep 2011	-	No night time TBM operation	
					06 – 07 Sep 2011	-	No night time TBM operation	
					07 – 08 Sep 2011	From 06:00 to 07:00 (08 Sep 2011)	TBM was located about 109 m away from Mr. Cheung's house. The Contractor attempted to resume TBM night time operation and no further complaint was received.	
					Remark: 1. "Nig	ht Time" refers to	23:00 to 07:00 of the following day.	
					3. <u>Conclusio</u>	n / Proposed Actio	<u>on</u>	
					_	-	the complaints and periods of TBM on 25 - 26 August 2011 and 1 - 2	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					September 2011, it is believed that the complaints are related to the TBM operation during the night time. The Contractor has undertaken swift and appropriate action in response to Mr. Cheung's complaints. The night time operation of the TBM was restricted following the complaint. As the TBM continues to operate during the day time and moves further away from Mr. Cheung's house, the ground-borne noise nuisance upon Mr. Cheung gradually fades away. It is considered that the nuisance caused by TBM night time operation is then imperceptible from the complainant. No further complaint is received after 2 September 2011. As such, no further action is required.  4. Follow Up Action(s)  For this complaint, the Contractor has implemented adequate mitigation measure (that is, restricting the TBM to operate during the day time only) for ground-borne noise control. The TBM has moved further away from Mr. Cheung's house and no further complaint is received after the Contractor resumed the TBM night time operation (08 September 2011). Thus, it is considered that the complaint is closed.	
24	CIR-19	8 February 2012 at Intake-3 Construction Site	Mr. Cheng through SOR	SOR has received a public complaint regarding daytime construction noise from the Intake-3 construction site on 8 February 2012.	1) Findings / Observations Checking with the site log, construction activities conducted at I-3 in that morning was rock breaking by hydraulic breaker at the proposed access road. The Contractor and ET undertook site investigations on the subject area on 9 February 2012. The following noise mitigation measures were implemented during site investigations:  Construction Noise Mitigation Measures (implemented prior to the complaint)  Noise barrier on the top of vortex shaft was maintained; Silent type breaker tip was utilized; and Breaker tip was wrapped by acoustic insulating material.	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint				Investiga	ation / Mitiq	gation Action	Status
					As there construction related. In specified squatters February noise level investigation measures was received measures measures measures	are no on action according the (NSR 2012 to els (Leq els, rar (75 do ons of were ved in nent re the r will n	substivities, rdance e EM8 6) nea 29 Fe 30 minute nged fr Contin Februa esults a constinaintain	it is con with the Mar I-3 webruary:  es) are serom 59.9  n according 23 Foucusty  ary 2012  and improduction  n the no	oise sour sidered to exercise Event / 2012) due to the exercise Event / 2012) due to the event e	rces at I-3 other than the project hat the noise complaint is project-Action Plan for Construction Noise se monitoring frequency at the ased to twice per week (from 10 to this complaint. The measured the following table. The measured to 68.1 dB(A), are well below the the EIAO-TM. During the site 2012, the above noise mitigation ated. No further noise complaint with the consideration of the noise ion of the above noise mitigation is considered acceptable. The pation measures mentioned above	
					Date	Start Time	End Time	L <sub>eq</sub> , dB(A)	Limit Level, dB(A)	Major Construction Noise Sources	
					7-Feb- 2012	13:28	13:58	60.2	75	Crane operation and rock breaking	
					10-Feb- 2012 15:15 15:45 62.1 75 Crane operation and excavation works						
					13-Feb- 2012 13:35 14:05 68.1 75 Crane operation and rock breaking						

Complaint No.					Investigation / Mitigation Action						
					17-Feb- 2012	16:20	16:50	60.2	75	Crane operation and excavation works	
					20-Feb- 2012	13:33	14:03	66.4	75	Crane operation and rock breaking	
					23-Feb- 2012	14:30	15:00	64.3	75	Crane operation and rock breaking	
					27-Feb- 2012	11:10	11:40	63.4	75	Crane operation and rock breaking	
					29-Feb- 2012	13:26	13:56	59.5	75	Crane operation and rock breaking	
					Additional Contracto Noise rock The Cont mitigation the site in noise con that the r	I noise I noise I noise I noise I to fur I to fu	mitigather relief coring are to attion of was religious formation of the correction	tion mea duce the mprised a was e continuo o minimi in 9 and eceived i on meas noise nu	asures has construited acourted of acourted or usly appliese construited acourted ac	nical equipment (PME) will change reach PME may not be constant.  ave been implemented at I-3 by the action noise: stic blankets installed close to the noise thruction noise, as observed during ruary 2012. No further construction ary 2012. As such, it is considered plemented on site are adequate to The Contractor will maintain these e control.	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint		I	nvestigati	ion / Mitig	ation Action			Status
25	CIR-20	10 August 2012 at Intake-3 Construction Site	Mr. Cheng through ICC	1823 Call Centre (ICC) received a verbal complaint regarding the deterioration of water quality at Tso Kung Tam due to the construction works at Intake 3 construction	For this measure received Nevertheduring trafforeme advice tradvance as an active month. Find Routine construct construct 2012. The second construct constru	LOW UP ACTION COMPLIANT, the complaint, the complaint, the complaint, the complaint, the complaint of the contract of the Contract of future plant of the Contract of the Cont	Contraction noise inspectuation in the inspectual initial in the inspectual in the inspectual in the inspectual in th	se contice consider c	rol. As no ered that the review the aspect properting and tailor residuals of the and also (I-3-C) and ried out since ted on 8 Augming table, in	o further come complaints condition not condition over function easures, a mitigation in the community downstreame the community and cate full conditions for the community and cate full complete comple	complaint is and is closed. of the site of the site of the site of the ind provide of the index	Closed
				site on 10 August 2012.	Date	Parameters	Stati	Control (I-3-C)	Action Level	Limit Level	Exceedance	
					Water Temperature (°C) 31.6 31.7							
					August 2012 pH 7.91 7.92							
					Dissolved Oxygen (mg/L) 6.89 6.85 3.65 3.51 No							

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint		ı	nvestigat	ion / Mitig	jation Action			Status
						Turbidity (NTU)	2.21	2.25	3.99 NTU or 120% of upstream control station's turbidity	4.18 NTU or 130% of upstream control station's turbidity	No	
						Suspended Solids (SS) (mg/L)	< 2.00	< 2.00	6.13 mg/L or 120% of upstream control station's SS	7.23 mg/L or 130% of upstream control station's SS	No	
						Water Temperature (°C)	29.1	29.0	-	-	-	
						рН	7.90	7.90	-	-	-	
						Dissolved Oxygen (mg/L)	7.22	7.12	3.65	3.51	No	
					10 August 2012	Turbidity (NTU)	3.07	3.20	3.99 NTU or 120% of upstream control station's turbidity	4.18 NTU or 130% of upstream control station's turbidity	No	
						Suspended Solids (SS) (mg/L)	< 2.00	< 2.00	6.13 mg/L or 120% of upstream control station's SS	7.23 mg/L or 130% of upstream control station's SS	No	
					monitori	lowing mitigation	August 2	2012:				
					(1) Wastewater was collected and diverted to waste water treatment plar prior to discharge; and							
					(2) site wall.	area and existin	g stream	were s	eparated by	/ sealed cor	ncrete block	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint	Investigation / Mitigation Action	Status
					Clear flowing stream water was visually observed during the monitoring at I-3 on 10 August 2012. No significant water pollution source from the construction site was identified.	
					2) Conclusion / Proposed Action	
					Based on the site observation and the water quality monitoring data collected at I-3 and I-3-C on 8 and 10 August 2012, it is concluded that the construction works at I-3 did not generate unacceptable water quality impact at Tso Kung Tam. As such, the concerned complaint is not considered related to the construction works at Intake 3. No further action is, therefore, required.	
					3) FOLLOW UP ACTION(S)  Prior to the receipt of this complaint, the Contractor has already implemented adequate mitigation measures for construction effluent discharge. As no unacceptable water quality impact from the construction works was identified during the investigation, the complaint is considered as non-project related and is closed. Nevertheless, the ET will continuously monitor the water quality at Intake 3 under the current EM&A programme, review the condition of the site during the routine site inspections, and inspect proper functioning of the waste water treatment facilities.	
26	CIR-21	5 September 2012 at Chung Kee Store at Lo Wai Road (NSR 3)	Through ICC	1823 Call Center (ICC) received a complaint (5 September 2012) regarding daytime construction noise nuisance generated by the power supply	1) Findings / Observations Checking with the site log, an air compressor was located opposite to Chung Kee Store on 5 September 2012. As there was no other powered mechanical equipment located nearby and the construction was only undertaken during the daytime, it is considered that the complaint is about the noise nuisance generated from the air compressor during the daytime operation.	Closed

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint			Inves	tigation /	Mitigation Action		Stat
				machine opposite to Chung Kee Store at Lo Wai Road.	The construction of the ET at with the complaint construction of the sequence of the ET at with the complaint construction of the ET at with the ET at	measures concerned near the tached I- mber 201 er of acou- oise nuise mber 201 d air comp ub-contract t plan) th tial noise er stage eved durin at L1 had bilised off ovestigatio anical equ aytime of contract s was co on air-bo se in the from one er 2012.	l air com Vortex I 2 layout 2 and re ustic shed ance, as 2; bressor ( ctor's offi nat scree nuisance of constre g the site ceased f-site on on 20 uipment onstructio (that is, I pecific E onsidere rne nois Manual, ce to twi The nois I 2 were p	pressor Drop Shaplan) was placed bet was ir observed AC3) was ce contained offer to the cuction are investig operation 18 Sept Septem was loca on noise Hong Ho d as a e. Follo the noise ice per v e measu oresente	(AC1) located of aft (VDS) entra as de-mobilised by another air constalled next to ed during the set as mobilized on iner (as "L2" shipper the noise from public. AC3 is activities since 1 pation on 20 September 2012. As a sheet at L1.  In monitoring is considered at L1.	- 	
					Date			•	Limit Level, dB(A)	Dominant Noise Sources	
					4-Sep-12	15:50	16:20	62.6	75	Drilling	
					10-Sep-12	14:05	14:35	62.2	75	Drilling and concrete work	

Complaint No.	Log Ref.	Date/Location	Complainant	Details of Complaint			Inves	stigation /	Mitigation Action	1	Status
					14-Sep-12	11:00	11:30	64.1	75	Drilling	
					17-Sep-12	15:20	15:50	64.3	75	Drilling	
					20-Sep-12	14:02	14:32	64.8	75	Drilling and concrete work	
					24-Sep-12	13:20	13:50	63.7	75	Drilling and concrete work	
					26-Sep-12	16:00	16:30	64.6	75	Drilling and concrete work	
					below the Report and 2) Conclu With the implement noise nuireceived. air compreto minimis considered. 3) Follow As the not further conclosed. No site during construction advice to advance of the second struction and second struction advance of the second struction advance of the second struction and second struction advance of the second struction and second struction advance of the second struction and second struction advance of the second	limit level the Coresion / Processor curse construction of the cores of the cores of the cores of the Cores of future	opposed A eration the about the concerned reently defuction not ary.  In the concerned reently defuction not ary.  In the concerned reently defunction not ary.  In the concerned receives the left the	dB(A)) in ecific EM  Action of the ove noise dered metal air come eployed coise nuise nuise nuise measure of the vigil con measure of the vigil site work	noise mease mitigation in inimised with pressor has been site is screen ance to the pure was removed is considered ontinuously revons, inspect pures implement and tailor	B(A) to 64.8 dB(A), are with the approved EIA surement results and measures, construction no further complaint ten demobilised and the ened by a site container blic, no further action is a life of the ten of the ten on t	

			as an action level exceedance on construction noise.				
Signed by Environmental Team Leader:			 Hangtenlleof		Date:	31 December 2012	
				32			