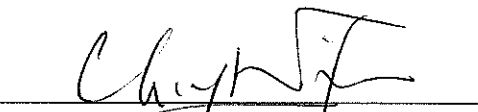


Harbour Area Treatment Scheme Stage 2A

**Contract No. DC/2007/23, DE/2009/02,
DC/2009/05, DC/2009/10,
DC/2009/17 and DC/2009/18**

**Consolidated Monthly Environmental
Monitoring and Audit Report
April 2012**

(Version 1.1)

Certified By 
(Environmental Team Leader)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties

CINOTECH CONSULTANTS LTD

Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong
Tel: (852) 2151 2083 Fax: (852) 3107 1388
Email: info@cinotech.com.hk

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ABBREVIATION AND ACRONYM

AL Levels	Action and Limit Levels
DSD	Drainage Services Department
E / ER	Engineer/Engineer's Representative
EIA	Environmental Impact Assessment
EM&A	Environmental Monitoring and Audit
EMIS	Environmental Mitigation Implementation Schedule
EP	Environmental Permit
EPD	Environmental Protection Department
ET	Environmental Team
HVS	High Volume Sampler
IEC	Independent Environmental Checker
RE	Resident Engineer
RH	Relative Humidity
QA/QC	Quality Assurance / Quality Control
SLM	Sound Level Meter
WMP	Waste Management Plan
SCISTW	Stonecutters Island Sewage Treatment Works
HATS 2A	Harbour Area Treatment Scheme Stage 2A

EXECUTIVE SUMMARY

Introduction

1. This is the 29th Consolidated Environmental Monitoring and Audit (EM&A) Report summaries the key information of EM&A monthly reports for the following construction contracts at the Stonecutters Island Sewage Treatment Works (SCISTW) under the Project of Harbour Area Treatment Scheme Stage 2A (the Project) and prepared by Cinotech Consultants Limited, the Environmental Team (ET) for Contract no. DC/2009/10.
 - Contract no. DC/2007/23 – Construction of Sewage Conveyance System from North Point to Stonecutters Island;
 - Contract no. DC/2009/05 – Construction of Interconnection Tunnel and Diaphragm Wall for Main Pumping Station at SCISTW;
 - Contract no. DE/2009/02 – Provision of Covers and Deodourisation Facilities to the Existing Sedimentation Tanks at SCISTW;
 - Contract no. DC/2009/17 - Upgrading Works at Stonecutters Island Sewage Treatment Works – Sludge Dewatering Facilities;
 - Contract no. DC/2009/10- Upgrading Works at Stonecutters Island Sewage Treatment Works – Main Pumping Station, Sedimentation Tanks and Ancillary Facilities; and
 - Contract no. DC/2009/18- Upgrading Works at Stonecutters Island Sewage Treatment Works –Effluent Tunnel and Disinfection Facilities.
2. The above-mentioned Contracts are under the same Environmental Permit (EP) No. EP-322/2008/E and separate ETs were appointed under each contract pursuant to Condition 2.1 of the EP.
3. This report is a contractual requirement under Contract No. DC/2009/10 to provide a consolidated monthly summary of the EM&A works at SCISTW for ease of reference. Each contract is administered under their respective contract by different project teams including the Engineer, the Engineer’s Representatives, the Contractor, and the ET.
4. No amendment of the information in the EM&A reports for each individual contract was made in this consolidated monthly report.
5. This Report documents the findings of EM&A Works for the Project covering the period from 1 April to 30 April 2012.
6. The details of the EM&A for individual contracts can be found in the separate EM&A monthly reports. In case of ambiguity and discrepancy, the individual EM&A report shall prevail. The Executive Summaries and Web Sites for the individual contracts are shown below:

Table I Summary Table for Executive Summaries and Web Sites:

Contract no.	ES/Web Site	Details:
DC/2007/23	Executive Summary	At SCISTW, air quality monitoring station AM6 and noise monitoring station NM5 were monitored by ET for Contract no. DC/2007/23.
	Web Site	http://www.hats2a-ema.com/RP_EMA/DC200723/EM&A%20Report-DC200723.html

DC/2009/05	Executive Summary	At SCISTW, air quality monitoring station AM7 and noise monitoring station NM6 were monitored by ET for Contract no. DC/2009/05.
	Web Site	http://www.hats2a-ema.com/RP_EMA/DC200905/EM&A%20Report-DC200905.html
DE/2009/02	Executive Summary	At SCISTW, air quality monitoring station AM8 was monitored by ET for Contract no. DE/2009/02.
	Web Site	http://www.hats2a-ema.com/RP_EMA/DE200902/EM&A%20Report-DE200902.html
DC/2009/17	Executive Summary	The air quality and noise monitoring stations under this contract were covered by other contracts at SCISTW. The monitoring data would be summarized in this monthly EM&A report.
	Web Site	http://www.hats2a-ema.com/RP_EMA/DC%202009%2017/EM&A%20Report-DC200917.html
DC/2009/10	Executive Summary	The air quality and noise monitoring stations under this contract were covered by other contracts at SCISTW. The monitoring data would be summarized in this monthly EM&A report.
	Web Site	http://www.hats2a-ema.com/RP_EMA/DC200910/EM&A%20Report-DC200910.html
DC/2009/18	Executive Summary	At SCISTW, air quality monitoring station AM9 and noise monitoring station NM7 were monitored by ET for Contract no. DC/2009/18.
	Web Site	http://www.hats2a-ema.com/RP_EMA/DC200918/EM&A%20Report-DC200918.html

Environmental Monitoring Works

- The environmental monitoring works were conducted by the ETs for the Contracts: DC/2007/23, DC/2009/05, DE/2009/02 and DC/2009/18. No monitoring work is requested for DC/2009/10, DC/2009/17. Site audits were conducted once per week for each contract by their ETs.
- Summary of the non-compliance of the reporting month is tabulated in Table II.

Table II Summary Table for Non-compliance Recorded in the Reporting Month

Monitored By	Monitoring Station	Parameter	No. of Exceedance		No. of Exceedance Due to the Project		Action Taken
			Action Level	Limit Level	Action Level	Limit Level	
DC/2007/23	AM6	1-hr TSP	0	0	0	0	N/A
		24-hr TSP	0	0	0	0	N/A
DC/2009/05	AM7	1-hr TSP	0	0	0	0	N/A
		24-hr TSP	0	0	0	0	N/A
DE/2009/02	AM8	1-hr TSP	0	0	0	0	N/A
		24-hr TSP	0	0	0	0	N/A

DC/2007/23	NM5	Noise	0	0	0	0	N/A
DC/2009/05	NM6		0	0	0	0	N/A
DC/2009/18	AM9	1-hr TSP	0	0	0	0	N/A
		24-hr TSP					
	NM7	Noise	0	0	0	0	N/A

1-hour TSP Monitoring

9. All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

24-hour TSP Monitoring

10. All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise

11. All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance for normal working hours and restricted hours were recorded in the reporting month.

Key Information in the Reporting Month

12. Summary of key information in the reporting month is tabulated in **Table III**.

Table III Summary Table for Key Information in the Reporting Month

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	0	---	N/A	N/A	---
Status of submissions under EP	1	Monthly Consolidation EM&A Report for Stonecutters Island Sewage Treatment Works for April 2012	Submitted to EPD	No comment	---
Notifications of any summons & prosecutions received	0	--	N/A	N/A	---

Key Information in the EIA Report

13. According to the EIA Report, air quality, noise, water quality, ecology and landscape and visual would be the key environmental issues during the construction of the project. Details of the implementation of mitigation measures for six contracts are provided in the **Appendix J**.

1. INTRODUCTION

Background

- 1.1 Harbour Area Treatment Scheme (HATS) Stage 2A is a designated project (Register No. : AEIAR-121/2008). The Environmental Permit (Permit No. EP-322/2008/E) for the Project was issued on 24th November 2010 to the Drainage Services Department (hereinafter called the DSD) as the Permit Holder.
- 1.2 The general location plan for the Contracts: DC/2007/23, DE/2009/02, DC/2009/05, DC/2009/10, DC/2009/17 and DC/2009/18 are shown in **Figures 1 to Figure 3**.
- 1.3 The environmental permit (EP) was issued for the whole HATS Stage 2A construction works. The ET for the Contract DC/2009/10 is contractually responsible for consolidating the key information from all monthly EM&A reports from the ETs of other Contracts at SCISTW into a single monthly summary for ease of reference.
- 1.4 The 1st to 11th consolidated monthly EM&A reports were prepared by Ove Arup & Partners Hong Kong Ltd (Arup) and submitted to EPD. From November 2010 onwards, the 12th and subsequent consolidated monthly EM&A report will be prepared and submitted by Cinotech Consultant Limited, the ET for the Contracts DC/2009/10, DC/2009/17 and DC/2009/18.
- 1.5 This is the 29th consolidated monthly EM&A report summarizing the EM&A works conducted for the Project at SCISTW from 1 April to 30 April 2012.
- 1.6 The monthly EM&A reports for each contract were prepared and certified by separate ETs and subsequently verified by the Independent Environmental Checker (IEC) for the Project. All individual monthly EM&A Reports are provided in the Project Website.

Current Contracts at SCISTW

- 1.7 The major Contracts at SCISTW and their scope of works are provided below:

Contract no. DC/2007/23

- Construction of sewage conveyance system between Sai Ying Pun junction shaft and Stonecutters Island Sewage Treatment Works;
- Construction of riser shaft at Stonecutters Island Sewage Treatment Works;
- Construction of Stage 2 Connecting Adit between the riser shaft and Stage 2 Main Pumping Station side chamber (by others) at Stonecutters Island Sewage Treatment Works.

Contract no. DE/2009/02

- Construction of covers for flocculation tanks, prototype tanks, main distribution channels, sedimentation tanks, scum chambers and effluent drop structures
- Two deodourisation facilities;
- Piling Works of Foundation;
- Construction of Foundation for Deodourisation facilities;
- Erection of Structure of Control Room at DOU Foundation;
- Construction of public access road with footpath;
- Water main laying works;
- Associated ancillary works; and
- Tree transplanting, landscaping works; and all other works as required under the Contract.

Contract no. DC/2009/05

- Construction of diaphragm wall, base slab and pile cap for the Main Pumping Station and its Inlet Chamber;
- Excavation within the diaphragm walls for the Main Pumping Station and its Inlet Chamber to founding levels;
- Piling works for the Main Pumping Station;
- Construction of Temporary launching shaft;
- Construction of Interconnection Tunnel with concrete lining between the Inlet Chamber of the Main Pumping Station and the existing Riser Shaft.

Contract no. DC/2009/10

- Construction of a main pumping station;
- The extension of chemically enhanced primary treatment tanks; and
- The construction of other ancillary facilities at Stonecutters Island Sewage Treatment Works.

Contract no. DC/2009/17

- Demolition of the existing structures including vehicle washing facilities, Sludge Silo Building, Sludge Dewatering Building, process water storage tanks, polyelectrolyte storage tanks, ADF barging facilities and all associated plant and equipment;
- Construction of Sludge Dewatering Building, Sludge Cake Silos, Sludge Conveyor Bridges, Sludge Storage Tank, Deodourisation Units, Workshop Building, Process Water Storage Tanks and Pumping System;
- Construction of roof landscaping including irrigation system for the Sludge Dewatering Building and Workshop Building;
- Construction of chemical unloading facilities and the chemical pipe trench for the Disinfection Facilities; and
- Construction of associated Electrical, Mechanical, Building Services, Fire Services and Process Installation, Odour Control System and Temporary Vehicle Wash Facilities.

Contract no. DC/2009/18

- The Construction of an 880m long effluent tunnel at Stonecutters Island; and
- The Construction of disinfection facilities at Stonecutters Island Sewage Treatment Works (SCISTW).

Project Organizations

1.8 The key contacts of current contracts are provided in Table 1.1.

Table 1.1 Key Project Contacts

Contract No./ Position	DC/2007/23	DE/2009/02	DC/2009/05
Contract Title:	Construction of Sewage Conveyance System from North Point to Stonecutters Island;	Provision of Covers and Deodourisation Facilities to the Existing Sedimentation Tanks at SCISTW.	Construction of Interconnection Tunnel and Diaphragm Wall for Main Pumping Station at SCISTW
Consultant	Metcalf & Eddy – AECOM JV	Ove Arup & Partners HK Ltd	Ove Arup & Partners HK Ltd
The Engineer	Keith Tsang (Tel:2605 6262)	S.Y.Chan (Tel: 2528 3031)	S.Y.Chan (Tel: 2528 3031)
The Engineer Representative	Y.H. Fung (Tel: 3713 3110)	Ted Tang (Tel: 2990 6982)	Ted Tang (Tel: 2990 6982)

Contract No./ Position	DC/2007/23	DE/2009/02	DC/2009/05
ER's Coordinator	Y.H. Fung (Tel: 3713 3110)	William Yu (Tel: 9705 9566)	William Yu (Tel: 9705 9566)
Independent Environmental Checker	Dr. Anne Kerr (Tel:28285757)	Dr. Anne Kerr (Tel:28285757)	Dr. Anne Kerr (Tel:28285757)
Contractor	Gammon Construction Ltd	ATAL Engineering Ltd.	China State- Shanghai Tunnel Joint Venture
Site Agent	Max Ko (Tel: 9033 1292)	Barry Lee (Tel:9025 2410)	Chris Leung (Tel: 23703166)
Environmental Officer	Leo Chow (Tel:9300 2013)	Mr. L.C. Wong (Tel: 9376 0414)	Holmes Wong (Tel: 6300 6117)
Environmental Team	Environmental Resources Management Ms. Winnie Ko (Tel: 2271 3147)	Action- United Environmental services and Consulting Mr. T.W. Tam (Tel: 2959 6059)	AECOM Asia Co Ltd Ms. Edith Ng (Tel: 3922 9407)

Table 1.1(cont'd) Key Project Contacts

Contract No.	DC/2009/10	DC/2009/17	DC/2009/18
Contract Title:	Upgrading Works at SCISTW - Main Pumping Station, Sedimentation Tanks and Ancillary Facilities	Upgrading Works at Stonecutters Island Sewage Treatment Works – Sludge Dewatering Facilities	Upgrading Works at Stonecutters Island Sewage Treatment Works – Effluent Tunnel and Disinfection Facilities
Consultant	Ove Arup & Partners HK Ltd	Ove Arup & Partners HK Ltd	Ove Arup & Partners HK Ltd
The Engineer	S.Y.Chan (Tel: 2528 3031)	S.Y.Chan (Tel: 2528 3031)	S.Y.Chan (Tel: 2528 3031)
The Engineer Representative	Ted Tang (Tel: 2990 6982)	Ted Tang (Tel: 2990 6982)	Ted Tang (Tel: 2990 6982)
ER's Coordinator	Natalie Kwok (Tel: 6794 8844)	Natalie Kwok (Tel: 6794 8844)	Natalie Kwok (Tel: 6794 8844)
Independent Environmental Checker	Dr. Anne Kerr (Tel:28285757)	Dr. Anne Kerr (Tel:28285757)	Dr. Anne Kerr (Tel:28285757)
Contractor	Sun Fook Kong – Biwater Joint Venture	China State- ATAL Joint Venture	Chun Wo – CEC Joint Venture
Site Agent	Mr. Dan Tang (Tel: 9280 0731)	Mr. Tony Wong (Tel: 23703166)	Mr. Peter Tse (Tel: 6688 5680)
Environmental Officer	Mr. Leo Lau (Tel:9209 2703)	Mr. H.S.Lui (Tel: 9050 2212)	Mr. Ricky Tse (Tel: 9221 0368)
Environmental Team	Cinotech Consultant Limited Dr. Priscilla Choy (Tel: 2151 2089)	Cinotech Consultant Limited Dr. Priscilla Choy (Tel: 2151 2089)	Cinotech Consultant Limited Dr. Priscilla Choy (Tel: 2151 2089)

Construction Programme

- 1.9 The construction program for the six Contracts at SCISTW are provided in **Appendix L**. Major construction works undertaken during the reporting month include:

Table 1.2 Construction Works in the Reporting Month

Contract No.	Construction Works in the Reporting Month
DC/2007/23	<ul style="list-style-type: none"> • Connecting adit formwork dismantling at Riser Shaft; and • Shaft excavation by drilling and blasting method and Bunton, services and FSD ladder way installation at Production Shaft
DC/2009/05	<ul style="list-style-type: none"> • Excavation at Inlet Chamber; • Ground freezing at Launching Shaft, Inlet Chamber and Existing Riser Shaft; and • Driving of tunnel boring machine.
DE/2009/02	<ul style="list-style-type: none"> • Erection of working platform and scaffolding at Tank No. 34; • Installation of brackets at Tank No. 34; • Tank cleaning of Tank No. 44 and 46; • Installation of FRP air duct at DOU No.2 duct bridge; • Excavation for u-channel construction at DOU No. 2; and • Reinstatement of footpath for drainage works at DOU No. 2.
DC/2009/17	<ul style="list-style-type: none"> • Columns in Zone 3 from ground level to B2 floor, beams and slab of B2 floor were achieved at Portion 3; • Columns, slabs and external walls of gridlines 5A1 to 9D at M floor to 1st floor were achieved at Portion 4. Columns, corbels, slabs, stairs and external walls of gridlines 12A1 to 13D at 1st floor to 2nd floor were achieved at Portion 4; • Steel bar fixing for the roof of sludge storage tank No. 6 and the lower wall portion of the sludge storage tank No. 7 were in progress at Portion 5; and • 8 nos. of silo bodies and the 2nd set of steel supporting frame were installed at the Northern Sludge Cake Silos.
DC/2009/10	<p><u>Section 1A</u></p> <ul style="list-style-type: none"> • DN250 watermain construction; • Sheetpile works and excavation for overflow pipe construction; • RC works for storage building; • RC works for chemical pipe trench. <p><u>Section 2 (Switchgear building)</u></p> <ul style="list-style-type: none"> • Ground Investigation works. <p><u>Section 3 (MPS)</u></p> <ul style="list-style-type: none"> • Preparation of construction joint at -32.mPD; • Erection formworks and steel fixing for travelling crane column; • Erection metal scaffolding platform for wet well wall. <p><u>Section 3 (CEPT)</u></p> <ul style="list-style-type: none"> • Driven H-pile and pre-bored H-pile foundation works; • Pre-drilling works; • Flow calibration for prototype PST #34; • Replacement of scraper chain at PST #13 & #15; • Validation test at PST #40 & # 42.
DC/2009/18	<ul style="list-style-type: none"> • D wall construction including the testing (interface core, full core and sonic test); • Dismantle and mobilize for the plants and the working area of Riser and Drop Shaft area; • H-pile installation on Dechlorination Plant area, Chamber 15A; and • Disposal the excavation materials.

Summary of EM&A Requirements

1.10 The EM&A programme requires construction phase monitoring for air quality and noise, as well as site audits covering environmental mitigation measures, including landscape and visual impact, waste/chemicals management, and general compliance with the EM&A Manual and relevant permits/licenses. The EM&A requirements for each parameter are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event Action Plans;
- Environmental mitigation measures, as recommended in the project EIA study final report; and

- Environmental requirements in contract documents.
- 1.11 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 4 of this report.
- 1.12 This report summarized the monitoring results, observations, locations, equipment, period, for required monitoring parameter namely dust, noise levels, and audit works conducted for the Project from 1 April to 30 April 2012, and the methodology and QA/QC procedures of the monitoring parameters.

2. AIR QUALITY

Monitoring Requirements

- 2.1 1-hour and 24-hour TSP monitoring were conducted to monitor the air quality. **Appendix A** shows the established Action/Limit Levels for the environmental monitoring works.

Monitoring Locations

- 2.2 Four designated monitoring stations, AM6, AM7, AM8 and AM9 were selected for impact dust monitoring. Table 2.1 describes the air quality monitoring locations, which are also depicted in **Figures 1 and 3**.

Table 2.1 Locations for Air Quality Monitoring

Monitoring Station	Monitored under Contract No.	Location of Measurement
AM6	DC/2007/23	Works site boundary of DC/2007/23
AM7	DC/2009/05	North West Kowloon Sewage Pumping Station
AM8	DE/2009/02	Block A of Government Dockyard
AM9	DC/2009/18	Work Site Boundary (Near Ngong Shuen Chau Barracks Group 2)

Monitoring Equipment

- 2.3 Table 2.2 summarizes the equipment used in the impact air monitoring programme. Copies of calibration certificates were shown in **Appendix C**.

Table 2.2 Air Quality Monitoring Equipment

Equipment Contract No.	Model and Make			
	DC/2007/23	DE/2009/02	DC/2009/05	DC/2009/18
Laser Dust Monitor	N/A*	TSI Dust Trak Model 8520	Sibata Digital Dust Monitor (Model No. LD-3 and LD-3B)	Sibata; Model no. LD-3B
HVS Sampler	GMW GS-2310	Grasby Anderson GMWS 2310 HVS	Graseby Andersen Total Suspended Particulate Mass Flow Controlled Sampling System (Model No.GMWS2310)	TISCH Model no. TE-5170
Calibrator	CM-AIR-43	TISCH Model TE-5025A	TEOM Monitor, Series 1400ab(For 1-hour TSP meter) TISCH Model TE-5025A(For HVS Sampler)	TISCH Model TE-5025A

N/A*: 1-hr TSP monitoring by DC/2007/23 was carried by using HVS sampler.

Monitoring Parameters, Frequency and Duration

- 2.4 Table 2.3 summarizes the monitoring parameters and frequencies of impact dust monitoring

for the whole construction period. The air quality monitoring schedule for the reporting period is shown in **Appendix B**.

Table 2.3 Impact Dust Monitoring Parameters, Frequency and Duration

Monitoring Station	Parameter	Period	Frequency
All monitoring locations	1-hour TSP	0700-1900 hrs	3 times/ every 6 days
	24-hour TSP	0000-2400 hrs	once in every 6 days

Monitoring Methodology and QA/QC Procedure

- 2.5 The monitoring methodology and QA/QC procedure for monitoring equipments are presented in the monthly reports for Contracts DC/2007/23, DC/2009/05, DE/2009/02 and DC/2009/18.

Results and Observations

- 2.6 **Table 2.4** summaries the air quality monitoring results at AM6, AM7, AM8 and AM9 in reporting month.

Table 2.4 Summary of 1-hour and 24-hour TSP Monitoring Results in Reporting Month

Air Quality Monitoring Station	Average* μgm^{-3}	Range μgm^{-3}	Action Level μgm^{-3}	Limit Level μgm^{-3}
1 hour TSP				
AM6	187	160-225	346	500
AM7	80	74-83	322	
AM8	82	30-156	307	
AM9	85	73-93	318	
24 hours TSP				
AM6	99	92-109	196	260
AM7	51	29-88	207	
AM8	55	27-82	158	
AM9	69	51-85.5	169	

Note*: The average of 1-hour and 24-hour TSP result in μgm^{-3} is the arithmetic mean of the monitoring results in that reporting month.

- 2.7 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded. Summary of exceedance is presented in **Appendix G**.
- 2.8 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded. Summary of exceedance is presented in **Appendix G**.
- 2.9 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendix D**.
- 2.10 According to the field observations, the identified dust sources at the monitoring stations were mainly from loading of material, vehicles movement and construction works in site.

3. NOISE

Monitoring Requirements

- 3.1 Three noise monitoring stations, namely NM5, NM6 and NM7 were designated in the EM&A Manual for impact monitoring. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Monitoring Locations

- 3.2 Noise monitoring was conducted at three designated monitoring stations as listed in Table 3.1. **Figures 1 and 3** shows the locations of these stations.

Table 3.1 Noise Monitoring Stations

Monitoring Station	Monitored under Contract No.	Location of Measurement
NM5	DC/2007/23	Near FSD Diving Rescue and Training Centre
NM6	DC/2009/05	Customs' Marine Base
NM7	DC/2009/18	Open Area near Naval Base Barrack

Monitoring Equipment

- 3.3 Table 3.2 summarizes the noise monitoring equipment. Copies of calibration certificates were shown in **Appendix C**.

Table 3.2 Noise Monitoring Equipment

Equipment	Model No.		
Contract No.	DC/2007/23	DC/2009/05	DC/2009/18
Sound Level Meter	Rion NL-31	B&K Model No. 2238 and Rion NL-31	SVANTEK Model no: SVAN 955
Calibrator	Rion NC-73	Rion NC-73 and B&K 4231	SVANTEK Model no: SV 30A

Monitoring Parameters, Frequency and Duration

- 3.4 Table 3.3 summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix B**.

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Period	Frequency
NM5 NM6 NM7	$L_{eq}(30 \text{ min.})$ dB(A)	0700-1900 hrs on weekdays	Once per week
	$L_{eq}(5 \text{ min.})$ dB(A)	During restricted hours	Monitoring to be conducted during the construction works

Monitoring Methodology and QA/QC Procedures

3.5 The monitoring methodology and QA/QC procedure are presented in the monthly reports of the Contract DC/2007/23, DC/2009/05 and DC/2009/18.

Results and Observations

3.6 **Table 3.4** summaries the noise monitoring results at NM5, NM6 and NM7 in reporting month.

Table 3.4 Summary of Noise Monitoring Results in Reporting Month

For the time period 0700-1900 hrs. on weekdays		
Monitoring Station	Range, dB(A) L _{eq} (30 min.)	Limit Level ,dB(A) L _{eq} (30 min.)
NM5	58.9-63.2	75.0
NM6	66.4-69.8	
NM7	62.8-66.5	
For the time period 1900-2300 hrs on weekdays		
NM5	59.2-62.7	70.0
NM6	62.2-63.6	

3.7 All construction noise monitoring at three designated locations were conducted by their ETs as scheduled in the reporting month.

3.8 No Action/Limit Level exceedance for normal working hours and restricted hours no was recorded in the reporting month. Summary of exceedance is presented in **Appendix G**.

3.9 Noise monitoring results and graphical presentations are shown in **Appendix E**.

3.10 The major noise sources identified at the designated noise monitoring stations were the traffic noise and those generated from construction activities.

4. ENVIRONMENTAL AUDIT

Site Audits

- 4.1 Site audits were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the each Project site.
- 4.2 Environmental site audits were conducted in the reporting month for each Contract is the following. No non-compliance was observed during the site audits.

Table 4.1 Summary of Date of Site Inspection

Contract No.	Date of Site Inspection
DC/2007/23	3, 8, 17 and 22 April 2012
DE/2009/02	4, 11, 17 and 25 April 2012
DC/2009/05	3, 10, 17 and 24 April 2012
DC/2009/10	3, 13, 18 and 25 April 2012
DC/2009/17	3, 12, 19 and 26 April 2012
DC/2009/18	5, 11, 18 and 27 April 2012

- 4.3 Site inspections were undertaken to ensure and check that the implementation and maintenance of landscape and visual mitigation measures are being properly carried out in the reporting month in accordance to section 11.10 of the EM&A Manual. No non-compliance was observed during the site inspections.
- 4.4 The summaries of site audits for six contracts are attached in **Appendix H**.

Review of Environmental Monitoring Procedures

- 4.5 The monitoring works conducted by the monitoring teams of respective Contracts and were inspected regularly by their ETs.

Status of Environmental Licensing and Permitting

- 4.6 All permits/licenses obtained for the each Contract are summarized in **Appendix F**.

Status of Waste Management

- 4.7 The amount of wastes generated by the activities of six contracts in the reporting month is the following:

Table 4.2 Summary of Amount of Waste Generated in Reporting Month

Contract	Inert C&D ¹ Materials	Other C&D ² Waste	Chemical Waste (L)	Marine Deposit (m ³)		
				Type 1 (Tonnes)	Type 2 (Tonnes)	Type 3 (Tonnes)
DC/2007/23	9,217.54* (Tonnes)	26.3* (Tonnes)	0	0*	0*	0*
DC/2009/05	4489.55 (Tonnes)	10.72 (Tonnes)	0	0*	0*	0*
DE/2009/02	0(m ³)	260(m ³)	0	0	0	0
DC/2009/17	0(m ³)	18.85 (Tonnes)	0	0	0	0
DC/2009/10	871(m ³)	128 (kg) and 9 (m ³)	0	0	0	0
DC/2009/18	785.1 (m ³)	8.92(m ³)	0	0	0	0

*: The amount of waste generated is from all sites in this Contract.

1: Inert C&D Materials includes Broken Concrete/Rock, Inert C&D waste reused in the Contract/other Project and those disposed to Public Fill.

2: Other C&D Waste includes Metals, Paper Cardboard packaging, plastic and other General Refuse.

4.8 The disposal location of wastes generated by the activities of six contracts is the following:

Table 4.3 Summary of Disposal Location of Waste Generated in Reporting Month

Contract No.	Disposal Location of Wastes in Report Month
DC/2007/23	Tuen Mun Area 38 Fill Bank, Tseung Kwan O Area 137 Fill Bank, Chai Wan Barging Point and SENT Landfill. 1090.57 tonnes of broken rock has been transferred to Lam Tei Quarry for use. No steel material and plastics, but 108kg of paper/cardboard packaging was sent to recyclers for recycling during the reporting period.
DC/2009/05	Tuen Mun Area 38 Fill Bank, Tseung Kwan O Area 137 Fill Bank, NENT Landfill
DE/2009/02	NENT Landfill.
DC/2009/17	Tuen Mun Area 38 Fill Bank and NENT Landfill.
DC/2009/10	Tuen Mun Area 38 Fill Bank and NENT Landfill.
DC/2009/18	Tuen Mun Area 38 Fill Bank and NENT Landfill.

4.9 The summaries of amount of waste generated in six contracts could be referred to respective monthly report.

Implementation Status of Environmental Mitigation Measures

4.10 Details of the implementation of mitigation measures for six contracts are provided in the **Appendix J**.

4.11 During the weekly environmental site inspections in the reporting period, no non-conformance was identified. The observations and recommendations for the Projects are summarized in **Appendix H**.

Implementation Status of Event Action Plans

4.12 The Event Action Plans for air quality and noise are presented in **Appendix I**.

1-hr TSP

4.13 No Action/Limit Level exceedance was recorded.

24-hr TSP

4.14 No Action/Limit Level exceedance was recorded.

Construction Noise

4.15 No Action/Limit Level exceedance for normal working hours and restricted hours was recorded in the reporting month. Summary of exceedance is presented in **Appendix G**.

Landscape and Visual

4.16 No non-compliance was recorded.

Summary of Complaints and Prosecutions

4.17 No environmental complaint and prosecution was received at SCISTW for six contracts in the reporting month.

4.18 There were no environmental complaint and prosecution received since the commencement of six contracts. The Complaint Log is presented in **Appendix K**.

5. FUTURE KEY ISSUES

Key Issues for the Coming Month

5.1 Key environmental issues in the coming month include:

- Generation of dust from stockpiles of excavated and dusty materials, unpaved site area and vehicle movement, roadworks, excavation works and loading and unloading dusty materials on-site;
- Noise from operation of equipment and machinery on-site;
- Storage of chemicals/fuel and chemical waste/waste oil on-site;
- Ponding water generated in pre-drillings;
- Drainage system should be well designed and maintained to prevent flooding and silty water getting into the public area during and after rainstorm;
- Silty surface runoff generated from the site area;
- Silt and dust getting into the public area by the leaving site vehicles at the site exits without adequate wheel washing facilities; and
- Proper tree and shrub protection works should be provided when carrying out works near existing trees and shrubs.

Monitoring Schedule for the Next Month

5.2 The tentative environmental monitoring schedules for the next month are shown in **Appendix B**.

Construction Program for the Next Month

5.3 The tentative construction programs are provided in **Appendix L**.

6. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 6.1 Environmental monitoring and audit works were performed in the reporting month and all monitoring results were checked and reviewed.

1-hour TSP Monitoring

- 6.2 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

24-hour TSP Monitoring

- 6.3 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise Monitoring

- 6.4 No Action/Limit Level exceedance for normal working hours and restricted hours was recorded in the reporting month. Summary of exceedance is presented in **Appendix G**.

Environmental Audit

- 6.5 Environmental site audits were conducted on weekly basis in the reporting month. No non-compliance was recorded.

Complaint and Prosecution

- 6.6 No environmental complaint and prosecution was received in the reporting month.

Recommendations for the coming reporting month:

- 6.7 According to the environmental audit performed in the reporting month, the following recommendations were made for the coming reporting month:

Air Quality

- To prohibit any open burning on site;
- To regularly maintain the machinery and vehicles on site;
- To follow up any exceedance caused by the construction works; and
- To implement dust suppression measures on all haul roads, stockpiles, dried/unpaved surfaces and excavation/road breaking works.

Noise

- To inspect the noise sources inside the site;
- To follow up any exceedance caused by the construction works;
- To space out noisy equipment and position the equipment as far away as possible from

sensitive receivers;

- To provide temporary noise barriers for operations of noisy equipment near the noise sensitive receivers in an appropriate location;
- To provide adequate lubricant on mechanical equipments to reduce frictional noise; and
- To well maintain the mechanical equipments / machineries to avoid abnormal noise nuisance.

Water Quality

- To identify any discharge of wastewater from the construction site;
- To regularly maintain the sediment control measures after rainstorms; and
- To avoid water from accumulation on site and carry out larviciding against mosquito breeding for stagnant water when mosquito larvae are observed.

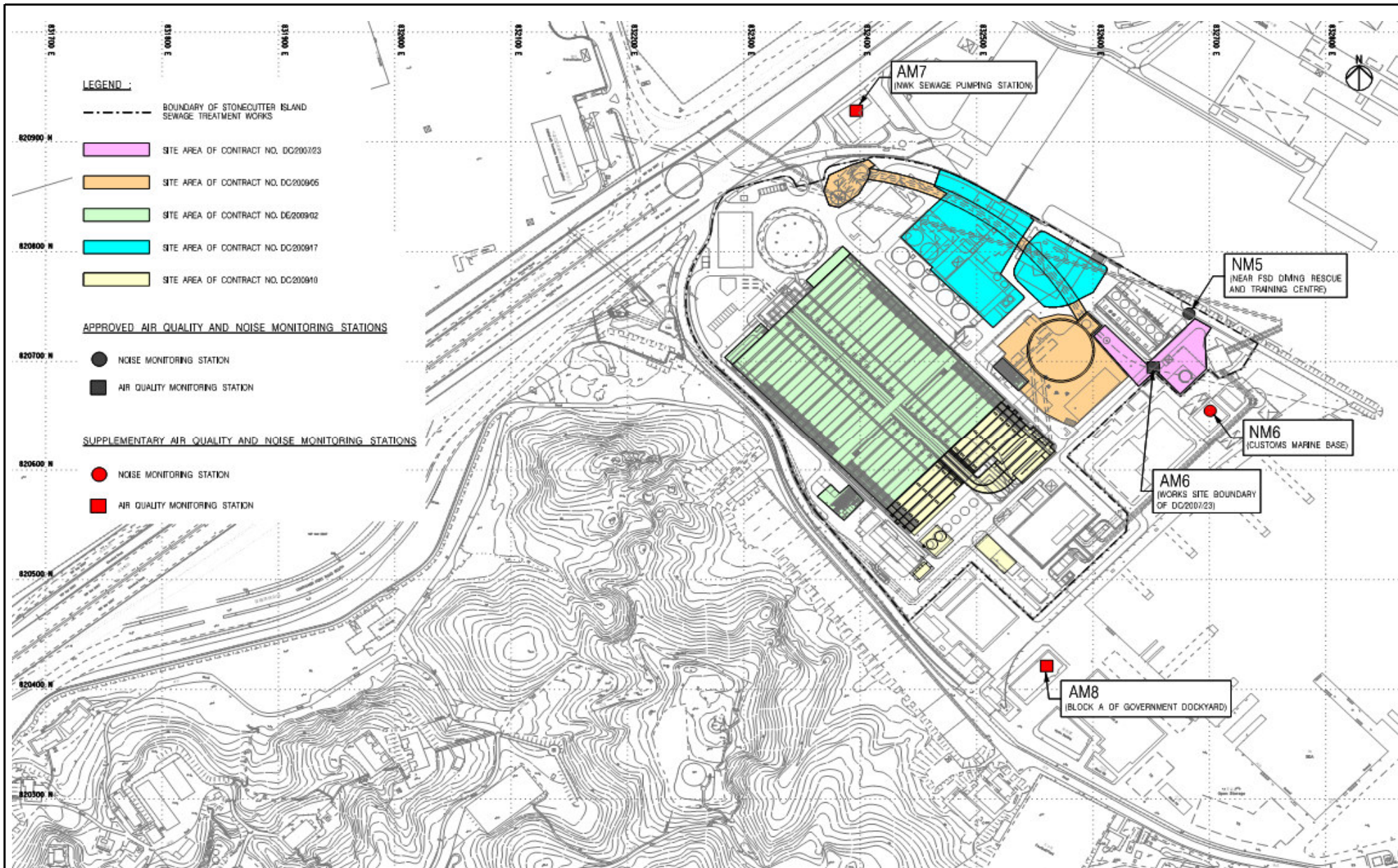
Waste/Chemical Management

- To provide proper rubbish bins / skips for waste collection;
- To check for any accumulation of wasted materials or rubbish on site;
- To provide proper storage area or drip trays for oil containers/ equipment on site;
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the equipment;
- To well maintain the equipment and drip trays to avoid oil leakage; and
- To avoid improper handling or storage of oil drum on site.

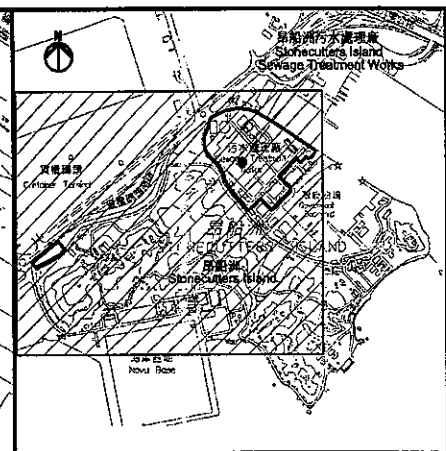
Landscape and Visual

- To erect and maintain the protection fence around the retaining tree; and
- To avoid any heavy materials placed into tree protection zone.

FIGURES



Title	Contract No: DC/2009/10	Scale	N.T.S	Project No.	MA11007	CINOTECH
	HATS 2A - Upgrading Main Pumping Station, Sedimentation Tanks and Ancillary Facilities at SISTW	Date	8/2011	Figure	1	
General Location Plan of the Project and Locations of Air Quality and Noise Monitoring Stations						



KEY PLAN

- LEGEND:**
- BOUNDARY OF SCISTW
 - ALIGNMENT OF EFFLUENT TUNNEL

0	ISSUE FOR CONSTRUCTION	PW	06/11
Rev	Description	By	Date

Consultant
ARUP 奧雅納工程顧問
 Ove Arup & Partners Hong Kong Limited

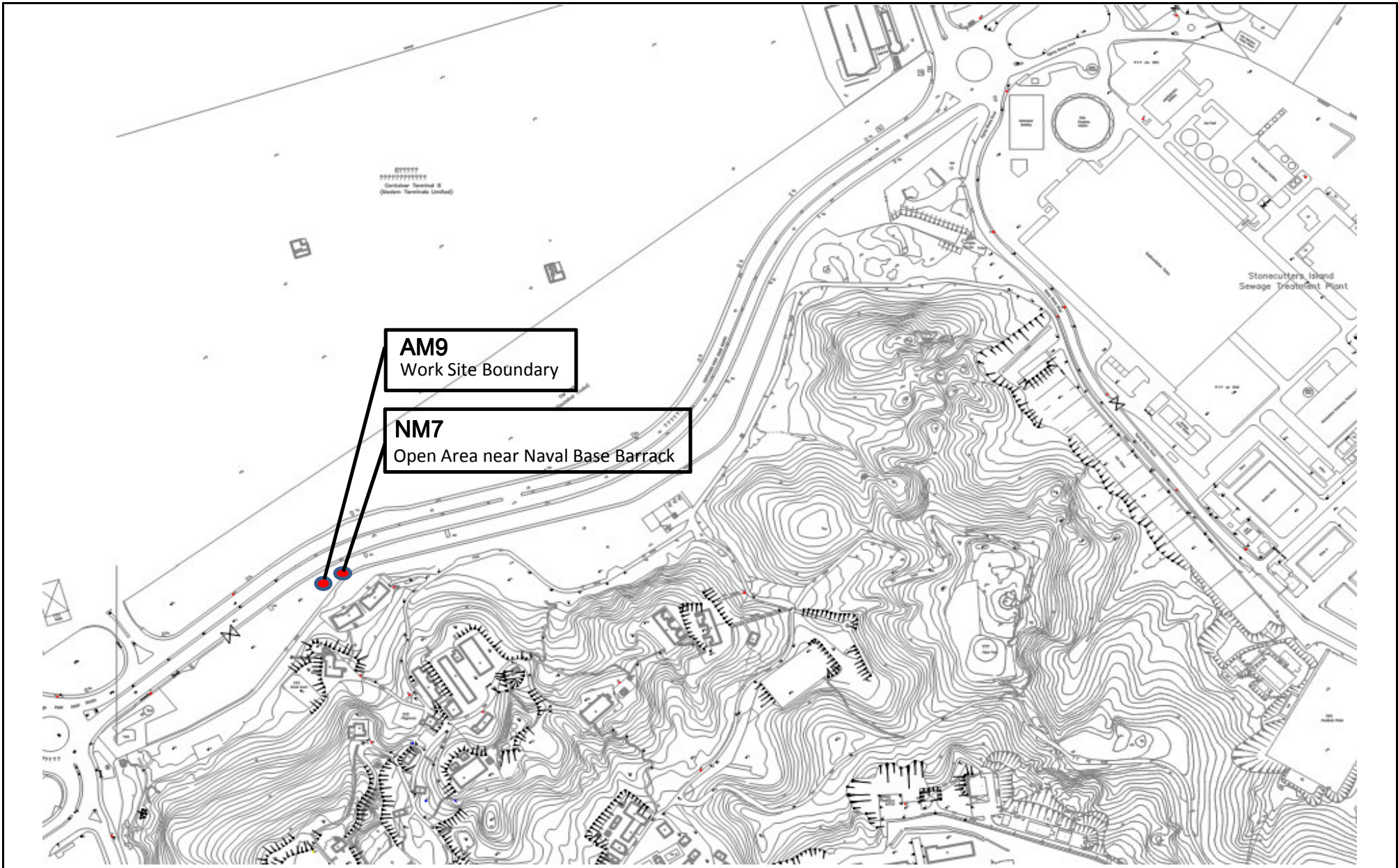
Project title
 Contract No. DC/2009/18
 Harbour Area Treatment Scheme Stage 2A-
 Upgrading Works at
 Stonecutters Island Sewage Treatment Works-
 Effluent Tunnel and Disinfection Facilities

Drawing title
**GENERAL LAYOUT
 (SHEET 1)**

Drawing no. 24888/ETF/0021		Rev. 0	
Drawn WM	Date 08/10	Checked PW	Approved DP
Scale 1:2000 @A1		Status WORKING	

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 GOVERNMENT OF THE
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 SPECIAL ADMINISTRATIVE REGION

Printed by : 17/16/2011
 Filename : J:\24888\Record\WORKING\CIVIL\2010617_ETF\DCN\24888_ETF0021.dgn



Title	Contract No. DC/2009/18	Scale	N.T.S	Project No.	MA11043	CINOTECH
	HATS 2A -Upgrading Works at Stonecutters Island Sewage Treatment Works - Effluent Tunnel and Disinfection Facilities	Date	12/2011	Figure	3	
Locations of Impact Air Quality and Noise Monitoring Stations						

**APPENDIX A
ACTION AND LIMIT LEVELS FOR AIR
QUALITY AND NOISE**

Appendix A Action and Limit Levels

Table A-1 Action and Limit Levels for 1-Hour TSP and 24-Hour TSP

Monitoring Stations	Action Level ($\mu\text{g}/\text{m}^3$)		Limit Level ($\mu\text{g}/\text{m}^3$)	
	1-hour	24-hour	1-hour	24-hour
AM6	346	196	500	260
AM7	322	207	500	260
AM8	307	158	500	260
AM9	138	169	500	260

Table A-2 Action and Limit Level for Construction Noise

Monitoring Stations	Time Period	Action Level	Limit Level in dB(A)
NM5 NM6 NM7	0700-1900 hours on normal weekdays	When one documented complaint is received	75

Notes: If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.

**APPENDIX B
ENVIRONMENTAL MONITORING
SCHEDULES**

DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
Impact Construction Air Quality Monitoring Schedule

AM6 - Works Site Boundary
Monitoring Month : April 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
01-Apr	02-Apr	03-Apr	04-Apr	05-Apr	06-Apr	07-Apr
		1-hr and 24-hr Monitoring	Ching Ming Festival		Good Friday	The day following Good Friday
08-Apr	09-Apr	10-Apr	11-Apr	12-Apr	13-Apr	14-Apr
	Easter Monday	1-hr and 24-hr Monitoring				
15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr
	1-hr and 24-hr Monitoring				1-hr and 24-hr Monitoring	
22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr	28-Apr
				1-hr and 24-hr Monitoring		The Birthday of the Buddha
29-Apr	30-Apr					

Monitoring Month : May 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		01-May	02-May	03-May	04-May	05-May
		Labour Day	1-hr and 24-hr Monitoring			
06-May	07-May	08-May	09-May	10-May	11-May	12-May
		1-hr and 24-hr Monitoring				
13-May	14-May	15-May	16-May	17-May	18-May	19-May
	1-hr and 24-hr Monitoring				1-hr and 24-hr Monitoring	
20-May	21-May	22-May	23-May	24-May	25-May	26-May
				1-hr and 24-hr Monitoring		
27-May	28-May	29-May	30-May	31-May		
			1-hr and 24-hr Monitoring			

DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
Impact Construction Noise Quality Monitoring Schedule

NM5 - A Location near the FSD Diving Rescue and Diving Training Centre near the Site Boundary
Monitoring Month : April 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
01-Apr	02-Apr	03-Apr	04-Apr	05-Apr	06-Apr	07-Apr
		Noise Monitoring (Day time + Evening time)	Ching Ming Festival		Good Friday	The day following Good Friday
08-Apr	09-Apr	10-Apr	11-Apr	12-Apr	13-Apr	14-Apr
Noise Monitoring (during daytime of sundays/ public holidays)	Easter Monday	Noise Monitoring				
15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr
	Noise Monitoring	Noise Monitoring (Evening time)				
22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr	28-Apr
Noise Monitoring (during daytime of sundays/ public holidays)				Noise Monitoring		The Birthday of the Buddha
29-Apr	30-Apr					

Monitoring Month : April 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		01-May	02-May	03-May	04-May	05-May
		Labour Day	Noise Monitoring			
06-May	07-May	08-May	09-May	10-May	11-May	12-May
Noise Monitoring (during daytime of sundays/ public holidays)		Noise Monitoring				
13-May	14-May	15-May	16-May	17-May	18-May	19-May
	Noise Monitoring	Noise Monitoring (evening time)				
20-May	21-May	22-May	23-May	24-May	25-May	26-May
Noise Monitoring (during daytime of sundays/ public holidays)				Noise Monitoring		
27-May	28-May	29-May	30-May	31-May		
		Noise Monitoring (evening time)	Noise Monitoring			

**DC/2009/05 - HATS Stage 2A Construction of Interconnection Tunnel and Diaphragm Wall for Main Pumping Station at SCISTW
Impact Air Quality and Noise Monitoring Schedule for April 2012**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Apr	2-Apr	3-Apr	4-Apr	5-Apr	6-Apr	7-Apr
	Noise				24-hour TSP 1-hour TSP	
8-Apr	9-Apr	10-Apr	11-Apr	12-Apr	13-Apr	14-Apr
				24-hour TSP 1-hour TSP Noise		
15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr
			24-hour TSP 1-hour TSP Noise			
22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr	28-Apr
		24-hour TSP 1-hour TSP Noise				
29-Apr	30-Apr					
	24-hour TSP 1-hour TSP Noise					

**DC/2009/05 - HATS Stage 2A Construction of Interconnection Tunnel and Diaphragm Wall for Main Pumping Station at SCISTW
Tentative Impact Air Quality and Noise Monitoring Schedule for May 2012**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-May	2-May	3-May	4-May	5-May
6-May	7-May	8-May	9-May	10-May	11-May	12-May
24-hour TSP 1-hour TSP						24-hour TSP 1-hour TSP Noise
13-May	14-May	15-May	16-May	17-May	18-May	19-May
					24-hour TSP 1-hour TSP Noise	
20-May	21-May	22-May	23-May	24-May	25-May	26-May
				24-hour TSP 1-hour TSP Noise		
27-May	28-May	29-May	30-May	31-May		
			24-hour TSP 1-hour TSP Noise			

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Monitoring Schedule in Reporting Month

Date		Dust Monitoring	
		1-hour TSP	24-hour TSP
Sun	1-Apr-12		
Mon	2-Apr-12		
Tue	3-Apr-12		
Wed	4-Apr-12		
Thu	5-Apr-12		
Fri	6-Apr-12		
Sat	7-Apr-12		
Sun	8-Apr-12		
Mon	9-Apr-12		
Tue	10-Apr-12		
Wed	11-Apr-12		
Thu	12-Apr-12		
Fri	13-Apr-12		
Sat	14-Apr-12		
Sun	15-Apr-12		
Mon	16-Apr-12		
Tue	17-Apr-12		
Wed	18-Apr-12		
Thu	19-Apr-12		
Fri	20-Apr-12		
Sat	21-Apr-12		
Sun	22-Apr-12		
Mon	23-Apr-12		
Tue	24-Apr-12		
Wed	25-Apr-12		
Thu	26-Apr-12		
Fri	27-Apr-12		
Sat	28-Apr-12		
Sun	29-Apr-12		
Mon	30-Apr-12		

Remarks: 1-hour TSP monitoring is conducted between 0700-1900 hours.

	Monitoring Day
	Sunday or Public Holiday

Tentative Monitoring Schedule in Forthcoming Month

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

Remarks: 1-hour TSP monitoring is conducted between 0700-1900 hours.

	Monitoring Day
	Sunday or Public Holiday

Contract No. DC/2009/18
HATS 2A -Upgrading Works at Stonecutters Island Sewage Treatment Works - Effluent Tunnel and Disinfection Facilities
Impact Air Quality and Noise Monitoring Schedule (April 2012)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Apr	2-Apr	3-Apr	4-Apr	5-Apr	6-Apr	7-Apr
				Noise 3 x 1 hr TSP 24 hr TSP		
8-Apr	9-Apr	10-Apr	11-Apr	12-Apr	13-Apr	14-Apr
			Noise 3 x 1 hr TSP 24 hr TSP			
15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr
		Noise 3 x 1 hr TSP 24 hr TSP				
22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr	28-Apr
	Noise 3 x 1 hr TSP 24 hr TSP				3 x 1 hr TSP 24 hr TSP	
29-Apr	30-Apr					

Air Quality Monitoring Location:

AM9 : Work Site Boundary (Near Ngong Shuen Chau Barracks Group 2)

Noise Monitoring Location:

NM7 - Open Area near Naval Base Barrack

Contract No. DC/2009/18
HATS 2A -Upgrading Works at Stonecutters Island Sewage Treatment Works - Effluent Tunnel and Disinfection Facilities
Impact Air Quality and Noise Monitoring Schedule (May 2012)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-May	2-May	3-May	4-May	5-May
				Noise 3 x 1 hr TSP 24 hr TSP		
6-May	7-May	8-May	9-May	10-May	11-May	12-May
			Noise 3 x 1 hr TSP 24 hr TSP			
13-May	14-May	15-May	16-May	17-May	18-May	19-May
		Noise 3 x 1 hr TSP 24 hr TSP				
20-May	21-May	22-May	23-May	24-May	25-May	26-May
	Noise 3 x 1 hr TSP 24 hr TSP					3 x 1 hr TSP 24 hr TSP
27-May	28-May	29-May	30-May	31-May		

Air Quality Monitoring Location:

AM9 : Work Site Boundary (Near Ngong Shuen Chau Barracks Group 2)

Noise Monitoring Location:

NM7 - Open Area near Naval Base Barrack

**APPENDIX C
CALIBRATION CERTIFICATES OF THE
ENVIRONMENTAL MONITORING
EQUIPMENT**

High-Volume TSP Sampler
5-Point Calibration Record9

Location : AM6
 Calibrated by : P.F.Yeung
 Date : 20/03/2012

Sampler

Model : GMWS-2310 ACCU-VOL
 Serial Number : S/N 1254

Calibration Orifice and Standard Calibration Relationship

Serial Number : 1785
 Service Date : 25 April 2011
 Slope (m) : 2.00506
 Intercept (b) : -0.02062
 Correlation Coefficient(r) : 0.99998

Standard Condition

Pstd (hpa) : 1013
 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1014
 Ta(K) : 294

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	9.0	3.022	1.517	65	65.5
2 13 holes	7.0	2.665	1.339	56	56.4
3 10 holes	5.5	2.362	1.188	49	49.4
4 7 holes	3.5	1.884	0.950	37	37.3
5 5 holes	2.0	1.425	0.721	26	26.2

Sampler Calibration Relationship

Slope(m):49.213 Intercept(b): -9.413 Correlation Coefficient(r): 0.9999

Checked by: Magnum Fan

Date: 24/03/2012



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
 VILLAGE OF CLEVELAND, 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

Date - Apr 25, 2011 Rootmeter S/N 0438320 Ta (K) - 294
 Operator Tisch Orifice I.D. - 1785 Pa (mm) - 746.76

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.3870	3.2	2.00
2	NA	NA	1.00	0.9830	6.4	4.00
3	NA	NA	1.00	0.8780	7.9	5.00
4	NA	NA	1.00	0.8350	8.9	5.50
5	NA	NA	1.00	0.6900	12.9	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9917	0.7150	1.4113	0.9957	0.7179	0.8874
0.9873	1.0044	1.9959	0.9913	1.0085	1.2549
0.9853	1.1222	2.2315	0.9893	1.1268	1.4030
0.9841	1.1785	2.3405	0.9881	1.1833	1.4715
0.9787	1.4184	2.8227	0.9827	1.4242	1.7747
Qstd slope (m) = 2.00506			Qa slope (m) = 1.25553		
intercept (b) = -0.02062			intercept (b) = -0.01297		
coefficient (r) = 0.99998			coefficient (r) = 0.99998		
y axis = SQRT[H2O(Pa/760) (298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

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

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

For subsequent flow rate calculations:

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

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

Certificate No. : C113973

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter

Manufacturer : Rion

Model No. : NL-31

Serial No. : 00320533

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C113973.*

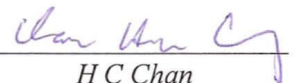
The equipment is supplied by

Co. Name : Envirotech Services Co.

*Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong*

Date of Issue : 18 July 2011

Certified by :


H C Chan

Report No. : C113973

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Meter
MANUFACTURER : Rion
MODEL NO. : NL-31
SERIAL NO. : 00320533

TEST CONDITIONS

AMBIENT TEMPERATURE : $(23 \pm 2)^{\circ}\text{C}$ RELATIVE HUMIDITY : $(55 \pm 20)\%$
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 16 July 2011

JOB NO. : IC11-1746

TEST RESULTS

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
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested by :


K C Lee

Date : 18 July 2011

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Report No. : C113973

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. Self-calibration was performed before the test.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C110018
CL281	Multifunction Acoustic Calibrator	C1006860

5. Test procedure : MA101N.

6. Results :

- 6.1 Sound Pressure Level

- 6.1.1 Reference Sound Pressure Level

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

- 6.1.2 Linearity

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

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

- 6.2 Time Weighting

- 6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L _A	A	Fast	94.00	1	93.9	Ref.
			Slow			93.8	± 0.1

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Report No. : C113973

Calibration Report

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
20 - 110	L _A	A	FAST	106.00	Continuous	106.0	Ref.
	L _{AMAX}				200 ms	105.1	-1.0 ± 1.0
	L _A	SLOW	Continuous		106.0	Ref.	
	L _{AMAX}		500 ms		102.0	-4.1 ± 1.0	

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L _A	A	Fast	94.00	31.5 Hz	54.2	-39.4 ± 1.5
					63 Hz	67.6	-26.2 ± 1.5
					125 Hz	77.7	-16.1 ± 1.0
					250 Hz	85.2	-8.6 ± 1.0
					500 Hz	90.6	-3.2 ± 1.0
					1 kHz	93.9	Ref.
					2 kHz	95.1	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	92.8	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.9	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L _C	C	Fast	94.00	31.5 Hz	90.7	-3.0 ± 1.5
					63 Hz	92.9	-0.8 ± 1.5
					125 Hz	93.6	-0.2 ± 1.0
					250 Hz	93.8	0.0 ± 1.0
					500 Hz	93.9	0.0 ± 1.0
					1 kHz	93.9	Ref.
					2 kHz	93.8	-0.2 ± 1.0
					4 kHz	93.2	-0.8 ± 1.0
					8 kHz	90.9	-3.0 (+1.5 ; -3.0)
					12.5 kHz	88.1	-6.2 (+3.0 ; -6.0)

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration Report

6.4 Time Averaging

UUT Setting				Applied Value					UUT	IEC 60804
Range (dB)	Mode	Frequency Weighting	Time Weighting	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type 1 Spec. (dB)
20 - 110	L _{Aeq}	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5
								90	90.0	± 0.5
			60 sec.					80	80.0	± 1.0
			5 min.					70	70.0	± 1.0

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

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

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

Note :

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

Certificate No. : C113972

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Calibrator

Manufacturer : Rion

Model No. : NC-73

Serial No. : 10786708

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C113972.*

The equipment is supplied by

Co. Name : Envirotech Services Co.

*Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong*

Date of Issue : 18 July 2011

Certified by :


H C Chan

Report No. : C113972

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Calibrator
MANUFACTURER : Rion
MODEL NO. : NC-73
SERIAL NO. : 10786708

TEST CONDITIONS

AMBIENT TEMPERATURE : $(23 \pm 2)^{\circ}\text{C}$ RELATIVE HUMIDITY : $(55 \pm 20)\%$
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 16 July 2011

JOB NO. : IC11-1746

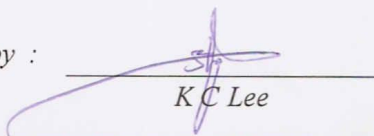
TEST RESULTS

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
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested by :


K C Lee

Date : 18 July 2011

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours before the commencement of the test.
2. The results presented are the mean of 3 measurements at each calibration point.
3. Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
TST150A	Measuring Amplifier	C101008
CL130	Universal Counter	C113350
CL281	Multifunction Acoustic Calibrator	C1006860

4. Test procedure : MA100N.

5. Results :

- 5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	93.9	± 0.5	± 0.2

- 5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.991	1 kHz ± 2 %	± 1

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

Note :

The values given in this Calibration Report 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.

AECOM Asia Company Limited

TSP High Volume Sampler

Field Calibration Report

Station: Roof top of West Kowloon No.2 Sewage Pumping Sta

Cal. Date: 19-Mar-12

Next Due Date: 19-May-12

Set Point (IC) 40.79

Station: Roof top of West Kowloon No.2 Sewage Pumping Station (AM7) Operator: Shum Kam Yuen
 Cal. Date: 19-Mar-12 Next Due Date: 19-May-12
 Equipment No.: A.001.12T Serial No. 10373

Ambient Condition	
Temperature, Ta (K)	295
Pressure, Pa (mmHg)	759.3

Orifice Transfer Standard Information		
Serial No:	843	Slope, mc
Last Calibration Date:	15-Nov-11	Intercept, bc
Next Calibration Date:	15-Nov-12	$mc \times Qstd + bc = [DH \times (Pa/760) \times (298/Ta)]^{1/2}$
		$Qstd = \{ [DH \times (Pa/760) \times (298/Ta)]^{1/2} - bc \} / mc$

Calibration of TSP Sampler			
Resistance Plate No.	Orifice		HVS Flow Recorder
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	10.0	3.18	50.23
13	7.7	2.79	44.20
10	5.6	2.38	38.18
7	3.5	1.88	30.14
5	2.4	1.56	24.11

By Linear Regression of Y on X
 Slope, mw = 32.0614 Intercept, bw = -0.6991

Correlation Coefficient* = 0.9985
 *If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation	
From the TSP Field Calibration Curve, take Qstd = 1.30m ³ /min	
From the Regression Equation, the "Y" value according to	
$mw \times Qstd + bw = IC \times \{ [Pa/760) \times (298/Ta)]^{1/2}$	
Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)] ^{1/2} = <u>40.79</u>	

Remarks:

QC Reviewer: [Signature] Signature: [Signature] Date: 23-Mar-12

IC (CFM)	Qstd (m ³ /min)
24	0.770
25	0.802
26	0.833
27	0.864
28	0.895
29	0.926
30	0.958
31	0.989
32	1.020
33	1.051
34	1.082
35	1.113
36	1.145
37	1.176
38	1.207
39	1.238
40	1.269
41	1.301
42	1.332
43	1.363
44	1.394
45	1.425
46	1.457
47	1.488
48	1.519
49	1.550
50	1.581
51	1.613
52	1.644
53	1.675
54	1.706
55	1.737
56	1.768
57	1.800
58	1.831
59	1.862
60	1.893
61	1.924
62	1.956
63	1.987
64	2.018
65	2.049



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
 VILLAGE OF CLEVELAND, 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

Date - Nov 15, 2011 Rootmeter S/N 0438320 Ta (K) - 294
 Operator Tisch Orifice I.D. - 0843 Pa (mm) - 748.03

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.3810	3.2	2.00
2	NA	NA	1.00	0.9810	6.4	4.00
3	NA	NA	1.00	0.8760	7.8	5.00
4	NA	NA	1.00	0.8370	8.8	5.50
5	NA	NA	1.00	0.6890	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9934	0.7193	1.4125	0.9957	0.7210	0.8866
0.9891	1.0083	1.9976	0.9915	1.0107	1.2538
0.9871	1.1269	2.2334	0.9895	1.1295	1.4018
0.9859	1.1779	2.3424	0.9882	1.1807	1.4703
0.9807	1.4233	2.8251	0.9830	1.4267	1.7732
Qstd slope (m) = 2.00834			Qa slope (m) = 1.25759		
intercept (b) = -0.02923			intercept (b) = -0.01835		
coefficient (r) = 0.99994			coefficient (r) = 0.99994		
y axis = SQRT[H2O(Pa/760) (298/Ta)]			y axis = SQRT[H2O(Ta/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}

EQUIPMENT CALIBRATION RECORD

Type: Laser Dust Monitor
 Manufacturer/Brand: SIBATA
 Model No.: LD-3
 Equipment No.: A.005.09a
 Sensitivity Adjustment Scale Setting: 797 CPM

Operator: Mike Shek (MSKM)

Standard Equipment

Equipment: Rupprecht & Patashnick TEOM®
 Venue: Cyberport (Pui Ying Secondary School)
 Model No.: Series 1400AB
 Serial No: Control: 140AB219899803
 Sensor: 1200C143659803 K₀: 12500
 Last Calibration Date*: 4 June 2011

*Remarks: Recommended interval for hardware calibration is 1 year

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): 797 CPM
 Sensitivity Adjustment Scale Setting (After Calibration): 797 CPM

Hour	Date (dd-mm-yy)	Time	Ambient Condition		Concentration ¹ (mg/m ³) Y-axis	Total Count ²	Count/ Minute ³ X-axis
			Temp (°C)	R.H. (%)			
1	05-06-11	13:30 - 14:30	31.4	66	0.04416	1758	29.30
2	05-06-11	14:30 - 15:30	31.5	66	0.04752	1889	31.48
3	05-06-11	15:30 - 16:30	31.5	66	0.04371	1748	29.13
4	05-06-11	16:30 - 17:30	31.5	67	0.04543	1808	30.13

Note: 1. Monitoring data was measured by Rupprecht & Patashnick TEOM®
 2. Total Count was logged by Laser Dust Monitor
 3. Count/minute was calculated by (Total Count/60)

By Linear Regression of Y or X

Slope (K-factor): 0.0015
 Correlation coefficient: 0.9953

Validity of Calibration Record: 4 June 2012

Remarks:

QC Reviewer: YW Fung

Signature: 

Date: 8 June 2011

EQUIPMENT CALIBRATION RECORD

Type: Laser Dust Monitor
 Manufacturer/Brand: SIBATA
 Model No.: LD-3
 Equipment No.: A.005.11a
 Sensitivity Adjustment Scale Setting: 799 CPM

Operator: Mike Shek (MSKM)

Standard Equipment

Equipment: Rupprecht & Patashnick TEOM®
 Venue: Cyberport (Pui Ying Secondary School)
 Model No.: Series 1400AB
 Serial No: Control: 140AB219899803
 Sensor: 1200C143659803 K₀: 12500
 Last Calibration Date*: 4 June 2011

*Remarks: Recommended interval for hardware calibration is 1 year

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): 799 CPM
 Sensitivity Adjustment Scale Setting (After Calibration): 799 CPM

Hour	Date (dd-mm-yy)	Time	Ambient Condition		Concentration ¹ (mg/m ³) Y-axis	Total Count ²	Count/ Minute ³ X-axis
			Temp (°C)	R.H. (%)			
1	02-07-11	09:30 - 10:30	31.1	70	0.04305	1718	28.63
2	02-07-11	10:30 - 11:30	31.1	71	0.04257	1703	28.38
3	02-07-11	11:30 - 12:30	31.2	71	0.04424	1763	29.38
4	02-07-11	12:30 - 13:30	31.2	71	0.04632	1855	30.92

Note: 1. Monitoring data was measured by Rupprecht & Patashnick TEOM®
 2. Total Count was logged by Laser Dust Monitor
 3. Count/minute was calculated by (Total Count/60)


By Linear Regression of Y or X

Slope (K-factor): 0.0015
 Correlation coefficient: 0.9961

Validity of Calibration Record: 1 July 2012

Remarks:

QC Reviewer: YW Fung

Signature: 

Date: 4 July 2011

EQUIPMENT CALIBRATION RECORD

Type: Laser Dust Monitor
 Manufacturer/Brand: SIBATA
 Model No.: LD-3B
 Equipment No.: A.005.12a
 Sensitivity Adjustment Scale Setting: 805 CPM

Operator: Mike Shek (MSKM)

Standard Equipment

Equipment: Rupprecht & Patashnick TEOM®
 Venue: Cyberport (Pui Ying Secondary School)
 Model No.: Series 1400AB
 Serial No: Control: 140AB219899803
 Sensor: 1200C143659803 K₀: 12500
 Last Calibration Date*: 4 June 2011

*Remarks: Recommended interval for hardware calibration is 1 year

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): 805 CPM
 Sensitivity Adjustment Scale Setting (After Calibration): 805 CPM

Hour	Date (dd-mm-yy)	Time	Ambient Condition		Concentration ¹ (mg/m ³) Y-axis	Total Count ²	Count/ Minute ³ X-axis
			Temp (°C)	R.H. (%)			
1	02-07-11	09:30 - 10:30	31.1	70	0.04305	1843	30.72
2	02-07-11	10:30 - 11:30	31.1	71	0.04257	1826	30.43
3	02-07-11	11:30 - 12:30	31.2	71	0.04424	1893	31.55
4	02-07-11	12:30 - 13:30	31.2	71	0.04632	1994	33.23

Note: 1. Monitoring data was measured by Rupprecht & Patashnick TEOM®
 2. Total Count was logged by Laser Dust Monitor
 3. Count/minute was calculated by (Total Count/60)

By Linear Regression of Y or X

Slope (K-factor): 0.0014
 Correlation coefficient: 0.9947

Validity of Calibration Record: 1 July 2012

Remarks:

QC Reviewer: YW Fung

Signature: 

Date: 4 July 2011

EQUIPMENT CALIBRATION RECORD

Type: Laser Dust Monitor
 Manufacturer/Brand: SIBATA
 Model No.: LD-3B
 Equipment No.: A.005.13a
 Sensitivity Adjustment Scale Setting: 643 CPM
 Operator: Mike Shek (MSKM)

Standard Equipment

Equipment: Rupprecht & Patashnick TEOM®
 Venue: Cyberport (Pui Ying Secondary School)
 Model No.: Series 1400AB
 Serial No: Control: 140AB219899803
 Sensor: 1200C143659803 K₀: 12500
 Last Calibration Date*: 4 June 2011

*Remarks: Recommended interval for hardware calibration is 1 year

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): 643 CPM
 Sensitivity Adjustment Scale Setting (After Calibration): 643 CPM

Hour	Date (dd-mm-yy)	Time	Ambient Condition		Concentration ¹ (mg/m ³) Y-axis	Total Count ²	Count/ Minute ³ X-axis
			Temp (°C)	R.H. (%)			
1	05-06-11	11:00 - 12:00	31.4	67	0.04513	1933	32.21
2	05-06-11	12:00 - 13:00	31.4	67	0.04392	1833	31.38
3	05-06-11	13:00 - 14:00	31.5	66	0.04751	2042	34.03
4	05-06-11	14:00 - 15:00	31.5	66	0.04476	1918	31.97

Note: 1. Monitoring data was measured by Rupprecht & Patashnick TEOM®
 2. Total Count was logged by Laser Dust Monitor
 3. Count/minute was calculated by (Total Count/60)

By Linear Regression of Y or X

Slope (K-factor): 0.0014
 Correlation coefficient: 0.9978

Validity of Calibration Record: 4 June 2012

Remarks:

QC Reviewer: YW Fung

Signature: 

Date: 8 June 2011



CERTIFICATE OF CALIBRATION

Certificate No.: 11CA1116 04 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2238	,	4188
Serial/Equipment No.:	2255688	,	2141430
Adaptors used:	-	,	-

Item submitted by

Customer Name: AECOM ASIA CO., LTD.
Address of Customer: -
Request No.: -
Date of receipt: 16-Nov-2011

Date of test: 21-Nov-2011

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	09-May-2012	CIGISMEC
Signal generator	DS 360	33873	30-May-2012	CEPREI
Signal generator	DS 360	61227	30-May-2012	CEPREI

Ambient conditions

Temperature: (23 ± 1) °C
Relative humidity: (55 ± 10) %
Air pressure: (1005 ± 5) hPa

Test specifications

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- 2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsiveness of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:


Huang Jian Min / Feng Jun Qi

Date: 21-Nov-2011

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

Certificate No.: 11CA0325 02-02 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	Microphone	Preamp
Manufacturer:	B & K	B & K	B & K
Type/Model No.:	2270	4189	ZC0032
Serial/Equipment No.:	2644597/N.012.01	2638713	11294
Adaptors used:	-	-	-

Item submitted by

Customer Name: AECOM ASIA CO., LTD.
Address of Customer: -
Request No.: -
Date of request: 25-Mar-2011

Date of test: 28-Mar-2011

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	10-Jan-2012	CIGISMEC
Signal generator	DS 360	33873	28-Jun-2011	CEPREI
Signal generator	DS 360	61227	24-Jun-2011	CEPREI

Ambient conditions

Temperature: (22 ± 1) °C
Relative humidity: (60 ± 10) %
Air pressure: (1000 ± 5) hPa

Test specifications

- The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:


Huang Jian Min/Feng Jun Qi

Date: 30-Mar-2011

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

Certificate No.: 11CA0830 02 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	Microphone	Preamp
Manufacturer:	Rion Co., Ltd.	Rion Co., Ltd.	Rion Co., Ltd.
Type/Model No.:	NL-31	UC-53A	NH-19
Serial/Equipment No.:	00320528 / N.007.03A	90565	75883
Adaptors used:	-	-	-

Item submitted by

Customer Name: AECOM ASIA CO., LTD.
Address of Customer: -
Request No.: -
Date of receipt: 30-Aug-2011

Date of test: 31-Aug-2011

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	09-May-2012	CIGISMEC
Signal generator	DS 360	33873	30-May-2012	CEPREI
Signal generator	DS 360	61227	30-May-2012	CEPREI

Ambient conditions

Temperature: (23 ± 1) °C
Relative humidity: (60 ± 5) %
Air pressure: (1000 ± 5) hPa

Test specifications

- The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure response of the Sound Level Meter.


Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:


Huang Jian-Mia/Feng Jun Qi

Date: 31-Aug-2011

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

Certificate No.: 11CA0711 01-05

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: Rion Co., Ltd.
Type/Model No.: NC-73
Serial/Equipment No.: 10307223 / N.004.08
Adaptors used: -

Item submitted by

Customer: AECOM ASIA CO. LTD.
Address of Customer: -
Request No.: -
Date of receipt: 11-Jul-2011

Date of test: 13-Jul-2011

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	18-May-2012	SCL
Preamplifier	B&K 2673	2239857	14-Dec-2011	CEPREI
Measuring amplifier	B&K 2610	2346941	15-Dec-2011	CEPREI
Signal generator	DS 360	61227	30-May-2012	CEPREI
Digital multi-meter	34401A	US36087050	09-Dec-2011	CEPREI
Audio analyzer	8903B	GB41300350	27-May-2012	CEPREI
Universal counter	53132A	MY40003662	30-May-2012	CEPREI

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 55 ± 5 %
Air pressure: 990 ± 5 hPa

Test specifications

- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

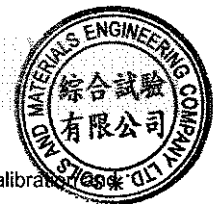
Details of the performed measurements are presented on page 2 of this certificate.

Approved Signatory:

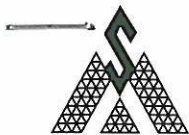

Huang Jian-Min/Feng Jun Qi

Date: 13-Jul-2011

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

Certificate No.: 11CA0711 01-04

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: B & K
Type/Model No.: BK4231
Serial/Equipment No.: 1790985 / N.004.01
Adaptors used: Yes

Item submitted by

Customer: AECOM ASIA CO. LTD.
Address of Customer: -
Request No.: -
Date of receipt: 11-Jul-2011

Date of test: 11-Jul-2011

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	18-May-2012	SCL
Preamplifier	B&K 2673	2239857	14-Dec-2011	CEPREI
Measuring amplifier	B&K 2610	2346941	15-Dec-2011	CEPREI
Signal generator	DS 360	61227	30-May-2012	CEPREI
Digital multi-meter	34401A	US36087050	09-Dec-2011	CEPREI
Audio analyzer	8903B	GB41300350	27-May-2012	CEPREI
Universal counter	53132A	MY40003662	30-May-2012	CEPREI

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 55 ± 5 %
Air pressure: 990 ± 5 hPa

Test specifications

- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on page 2 of this certificate.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 13-Jul-2011

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Block A of Government Dockyard Offices	Date of Calibration: 27-Feb-12
Location ID : AM8	Next Calibration Date: 27-May-12
	Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1016.4	Corrected Pressure (mm Hg)	762.3
Temperature (°C)	12.1	Temperature (K)	285

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.11693
Model->	5025A	Qstd Intercept ->	0.02568
Calibration Date->	2-Jun-11	Expiry Date->	2-Jun-12

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.3	5.3	10.6	1.563	57	59.67	Slope = 38.7564 Intercept = -0.7120 Corr. coeff. = 0.9998
13	4.2	4.2	8.4	1.390	51	53.39	
10	3.3	3.3	6.6	1.230	45	47.11	
7	2.3	2.3	4.6	1.025	37	38.73	
5	1.6	1.6	3.2	0.853	31	32.45	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

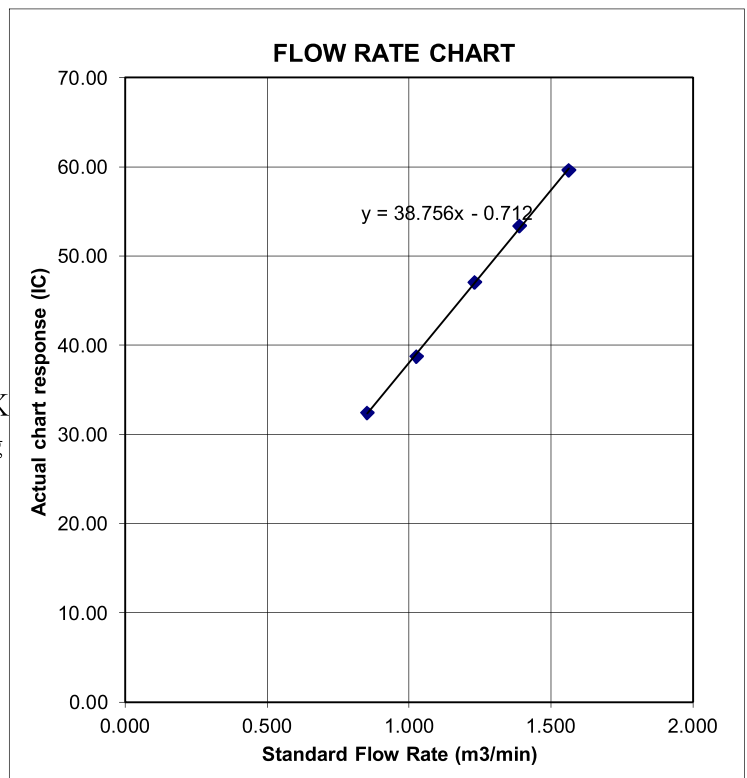
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate
 IC = corrected chart responses
 I = actual chart response
 m = calibrator Qstd slope
 b = calibrator Qstd intercept
 Ta = actual temperature during calibration (deg K)
 Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

m = sampler slope
 b = sampler intercept
 I = chart response
 Tav = daily average temperature
 Pav = daily average pressure





TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
 VILLAGE OF CLEVELAND, 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

Date - Jun 02, 2011 Roots-meter S/N 0438320 Ta (K) - 294
 Operator Tisch Orifice I.D. - 1941 Pa (mm) - 754.38

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4660	3.3	2.00
2	NA	NA	1.00	1.0410	6.4	4.00
3	NA	NA	1.00	0.9310	8.1	5.00
4	NA	NA	1.00	0.8830	8.9	5.50
5	NA	NA	1.00	0.7310	13.0	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0017	0.6833	1.4185	0.9956	0.6791	0.8829
0.9975	0.9582	2.0061	0.9914	0.9524	1.2486
0.9952	1.0690	2.2429	0.9892	1.0625	1.3959
0.9942	1.1260	2.3524	0.9882	1.1191	1.4641
0.9887	1.3526	2.8371	0.9827	1.3444	1.7657
Qstd slope (m) = 2.11693			Qa slope (m) = 1.32558		
intercept (b) = -0.02568			intercept (b) = -0.01598		
coefficient (r) = 0.99993			coefficient (r) = 0.99993		
y axis = SQRT [H2O (Pa/760) (298/Ta)]			y axis = SQRT [H2O (Ta/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 }

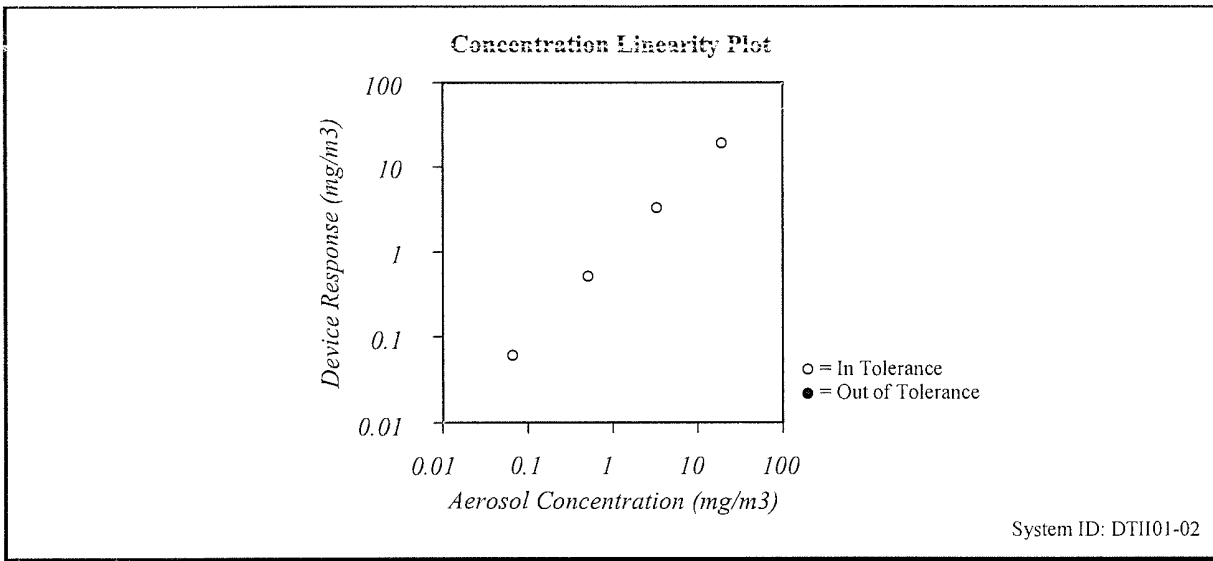


CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

Environment Condition			Model	8520
Temperature	68.7 (20.4)	°F (°C)		
Relative Humidity	41	%RH	Serial Number	23079
Barometric Pressure	28.98 (981.4)	inHg (hPa)		

<input checked="" type="checkbox"/> As Left	<input checked="" type="checkbox"/> In Tolerance
<input type="checkbox"/> As Found	<input type="checkbox"/> Out of Tolerance



Average:	Minimum:	Maximum:	Time:
0.000 :mg/m ³	0.000 :mg/m ³	0.001 :mg/m ³	4:00 :hrs.

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1.

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Barometric Pressure	E003733	01-15-11	02-15-12	Temperature	E002873	11-24-10	11-24-11
Humidity	E002873	11-24-10	11-24-11	DC Voltage	E003314	01-05-11	01-05-12
DC Voltage	E003315	01-05-11	01-05-12	Photometer	E003319	07-25-11	01-25-12
Microbalance	E001324	01-04-11	01-04-12	Pressure	E003511	11-12-10	11-12-11
Flowmeter	E003769	06-13-11	06-13-12				

T. Thao Final Function Check September 13, 2011
Calibrated Date

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA11043/63/0004

Project No. AM9 - Work Site Boundary (Near Ngong Shuen Chau Barracks Group 2)
 Operator: WK
 Date: 11-Apr-12 Next Due Date: 10-Jun-12
 Equipment No.: A-01-63 Serial No. 2356

Ambient Condition			
Temperature, Ta (K)	295.4	Pressure, Pa (mmHg)	764.5

Orifice Transfer Standard Information					
Equipment No.:	A-04-01	Slope, mc	0.0568	Intercept, bc	-0.0432
Last Calibration Date:	9-Oct-11	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	8-Oct-12	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	12.3	3.53	62.96	7.5	2.76
2	11.5	3.42	60.90	6.8	2.63
3	8.4	2.92	52.16	5.1	2.27
4	5.3	2.32	41.59	3.2	1.80
5	3.2	1.80	32.49	2.1	1.46

By Linear Regression of Y on X

Slope, mw = 0.0424 Intercept, bw : 0.0632
 Correlation coefficient* = 0.9992

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.51

Remarks: _____

Conducted by: Wk Tang Signature: _____ Date: 11/4/12
 Checked by: Wk Signature: _____ Date: 11 April 2012

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/120228/1
Date of Issue:	2012-03-01
Date Received:	2012-02-28
Date Tested:	2012-02-28
Date Completed:	2012-03-01
Next Due Date:	2012-04-30

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 095029
Sensitivity (K) 1 CPM	: 0.001 mg/m ³
Sen. Adjustment Scale Setting	: 551 CPM
Equipment No.	: A-02-10

Test Conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 65%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0031
-------------------------	--------

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/110923/4
Date of Issue:	2011-09-24
Date Received:	2011-09-23
Date Tested:	2011-09-23
Date Completed:	2011-09-24
Next Due Date:	2012-09-23

ATTN: Mr. Henry Leung

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 12553
Microphone No.	: 35222
Equipment No.	: N-08-02

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 57%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/110923/2
Date of Issue:	2011-09-24
Date Received:	2011-09-23
Date Tested:	2011-09-23
Date Completed:	2011-09-24
Next Due Date:	2012-09-23

ATTN: Mr. Henry Leung

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 10929
Equipment No.	: N-09-01

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 59%

Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

**APPENDIX D
1-HOUR AND 24-HOUR TSP
MONITORING RESULTS AND
GRAPHICAL PRESENTATIONS**

Appendix D - 1-hour and 24-hour TSP Monitoring Results and Graphical Presentations

24-hour TSP Monitoring Results

Station AM6

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
03-Apr-12	16:36	04-Apr-12	16:36	Sunny	2.7145	2.8700	9492.03	9516.03	24.00	1.21	1.21	1.21	109	196	260	Construction work in progress	1254	3957
10-Apr-12	16:06	11-Apr-12	16:06	Sunny	2.7100	2.8751	9654.03	9678.03	24.00	1.21	1.21	1.21	95	196	260	Construction work in progress	1254	3961
16-Apr-12	16:26	17-Apr-12	16:26	Sunny	2.6950	2.8711	9681.03	9705.03	24.00	1.21	1.21	1.21	101	196	260	Construction work in progress	1254	3965
20-Apr-12	16:16	21-Apr-12	16:16	Rainy	2.7095	2.8695	9708.03	9732.03	24.00	1.21	1.21	1.21	92	196	260	Construction work in progress	1254	3969
26-Apr-12	16:31	27-Apr-12	16:31	Sunny	2.6954	2.8690	9735.03	9759.03	24.00	1.21	1.21	1.21	100	196	260	Construction work in progress	1254	4242
													Min.	92				
													Max.	109				
													Average	99				

Appendix D - 1-hour and 24-hour TSP Monitoring Results and Graphical Presentations

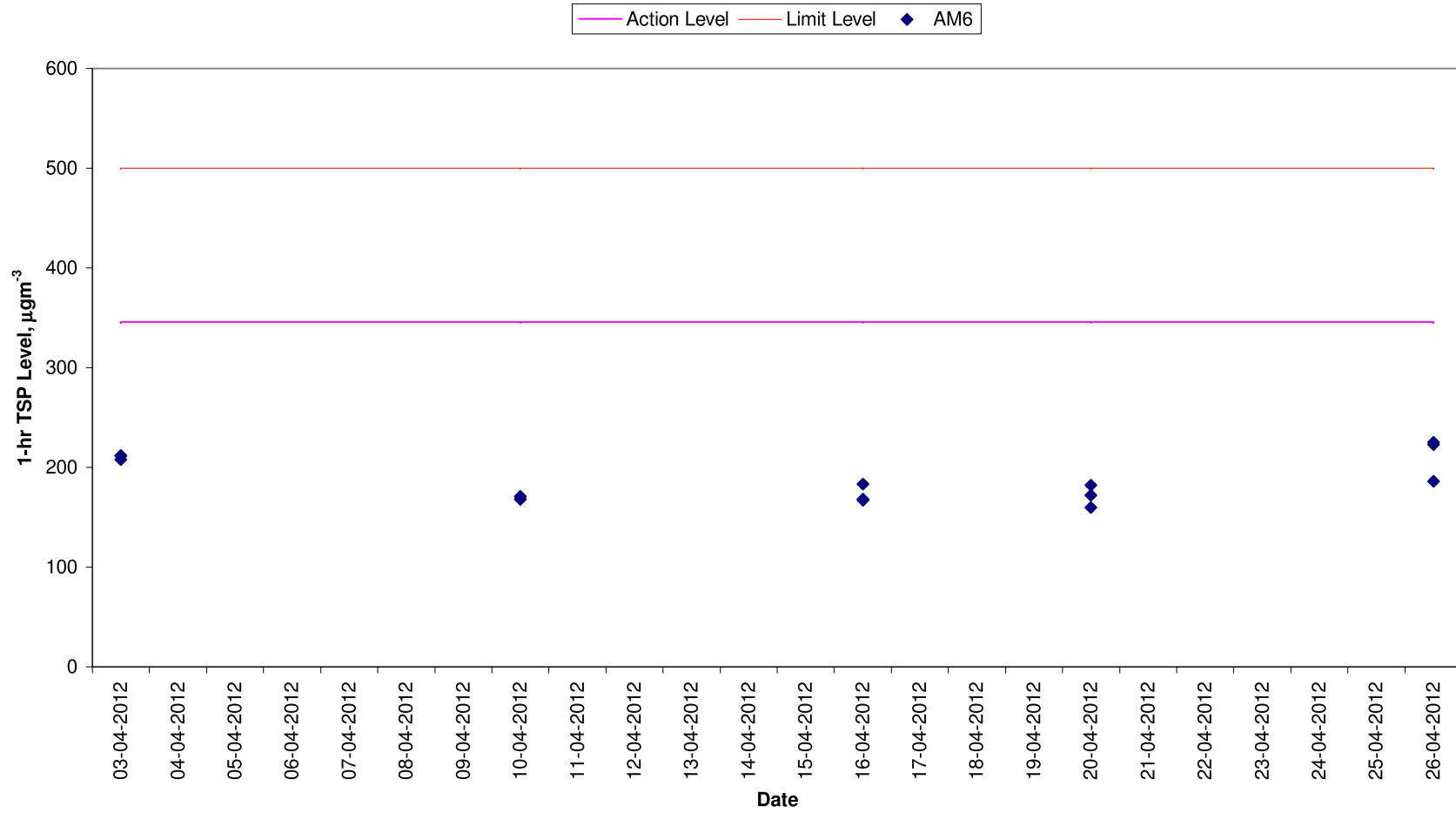
1-hour TSP Monitoring Results

Station AM6

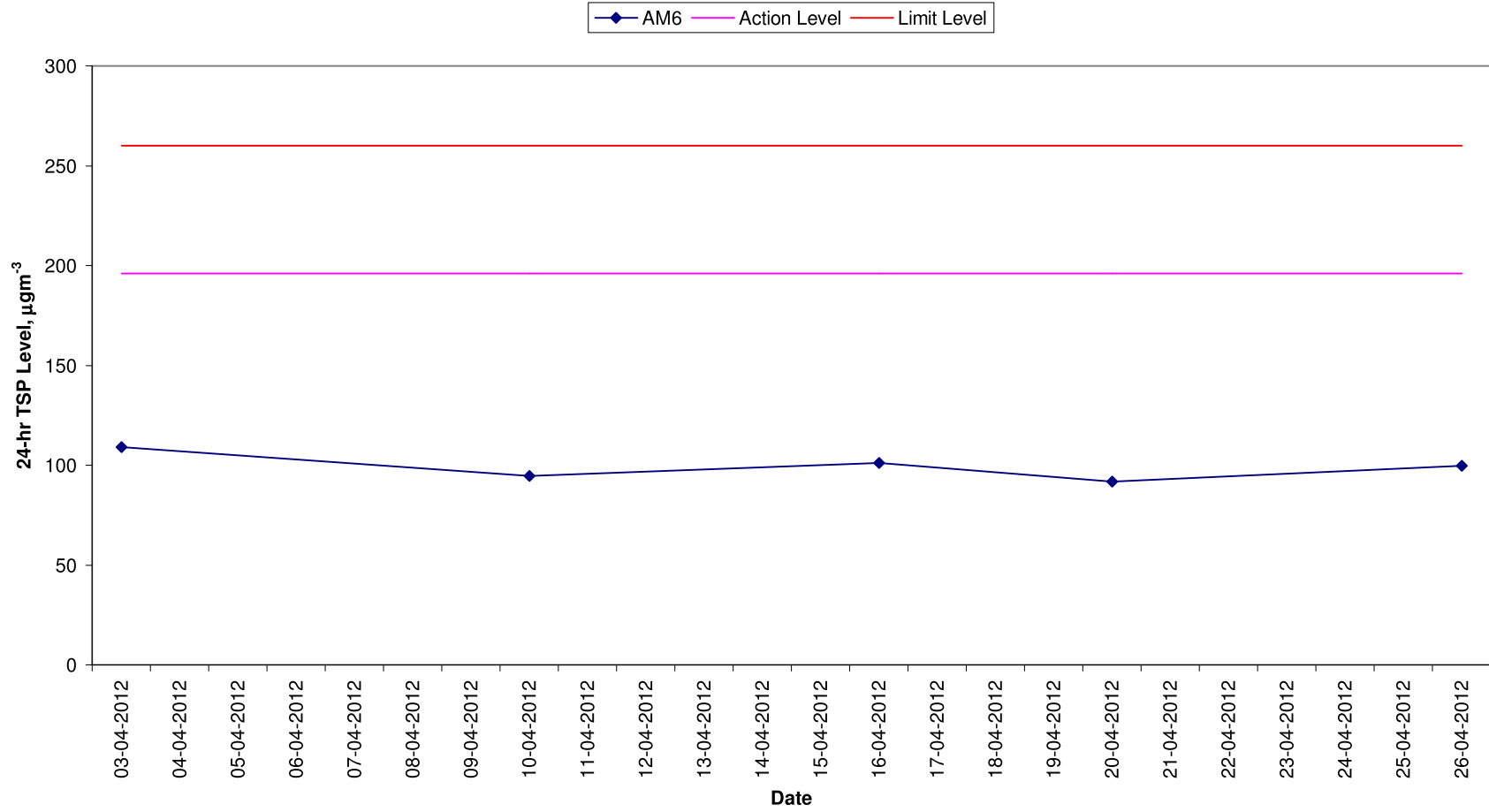
Date	Start Time	Finish Time	Weather	TSP Concentration (µg/m³)	Action Level (µg/m³)	Limit Level (µg/m³)	Site Conditions / Observations / Remarks	Temperature (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
03-Apr-12	13:30	14:30	Sunny	212	346	500	Construction work in progress	27	<5	1254	3954
	14:32	15:32	Sunny	208	346	500	Construction work in progress	27	<5	1254	3955
	15:34	16:34	Sunny	212	346	500	Construction work in progress	27	<5	1254	3956
10-Apr-12	13:00	14:00	Sunny	168	346	500	Construction work in progress	22	<5	1254	3958
	14:02	15:02	Sunny	168	346	500	Construction work in progress	22	<5	1254	3959
	15:04	16:04	Sunny	171	346	500	Construction work in progress	22	<5	1254	3960
16-Apr-12	13:20	14:20	Sunny	168	346	500	Construction work in progress	23	<5	1254	3962
	14:22	15:22	Sunny	167	346	500	Construction work in progress	23	<5	1254	3963
	15:24	16:24	Sunny	183	346	500	Construction work in progress	23	<5	1254	3964
20-Apr-12	13:10	14:10	Rainy	172	346	500	Construction work in progress	22	<5	1254	3966
	14:12	15:12	Rainy	182	346	500	Construction work in progress	22	<5	1254	3967
	15:14	16:14	Rainy	160	346	500	Construction work in progress	22	<5	1254	3968
26-Apr-12	13:25	14:25	Sunny	186	346	500	Construction work in progress	25	<5	1254	4239
	14:27	15:27	Sunny	225	346	500	Construction work in progress	25	<5	1254	4240
	15:29	16:29	Sunny	223	346	500	Construction work in progress	25	<5	1254	4241
				Min.	160						
				Max.	225						
				Average	187						

* Wind Speed data is presented in the Meteorological Data table

**1-hr TSP Levels
AM6 (Stonecutters Island Sewage Treatment Works)**



**24-hr TSP Levels
AM6 (Stonecutters Island Sewage Treatment Works)**

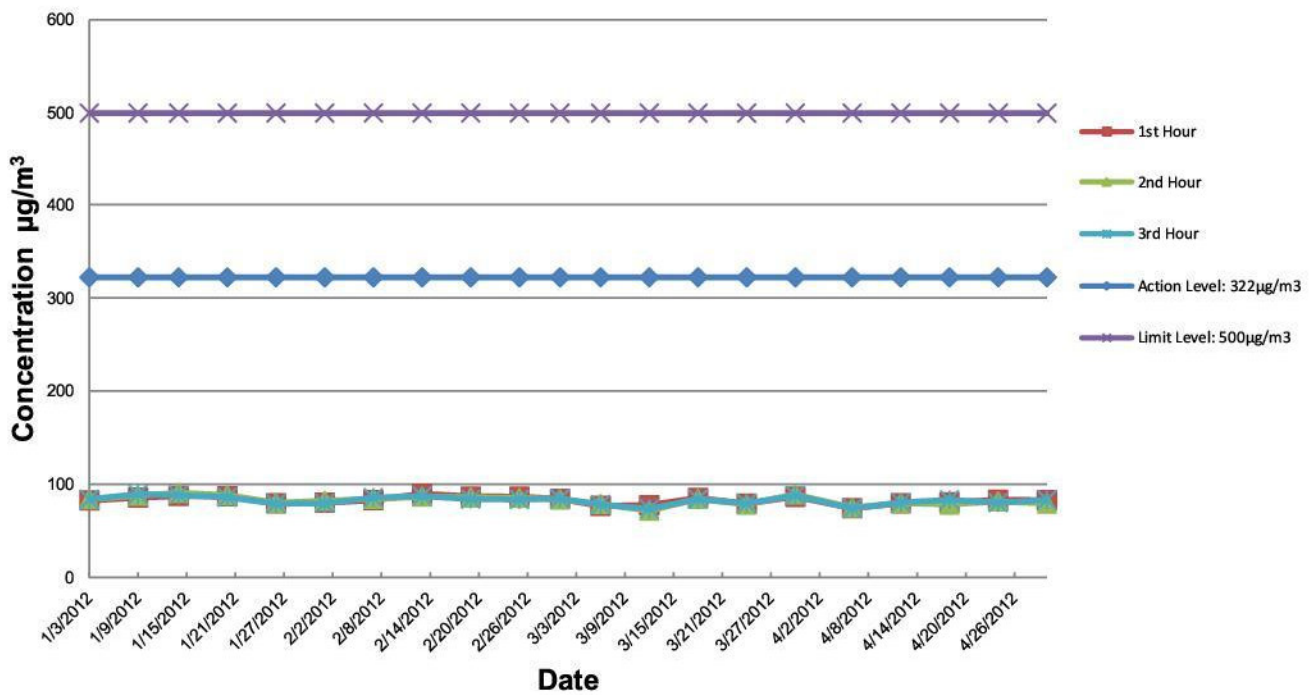


Appendix D - 1-hour and 24-hour TSP Monitoring Results and Graphical Presentations

1-hour TSP Monitoring Results at Station AM7 (Rooftop of West Kowloon No.2 Sewage Pumping Station)

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Site Conditions / Observations / Remarks	Mean Temperature ($^{\circ}\text{C}$)	Mean Wind Speed (km/h)	Sampler ID	Filter ID
6-Apr-12	13:34	14:34	Rainy	74	322	500	Dust from Project site, traffic emission and dust from other construction sites	19.9	13.1	A005-11a	-
	14:34	15:34	Rainy	75							
	15:34	16:34	Rainy	74							
12-Apr-12	13:17	14:17	Fine	80	322	500	Dust from Project site, traffic emission and dust from other construction sites	25.5	7.6	A005-11a	-
	14:17	15:17	Fine	80							
	15:17	16:17	Fine	80							
18-Apr-12	10:20	11:20	Sunny	81	322	500	Dust from Project site, traffic emission and dust from other construction sites	22.0	17.5	A005-12a	-
	11:20	12:20	Sunny	78							
	12:20	13:20	Sunny	83							
24-Apr-12	10:33	11:33	Fine	83	322	500	Dust from Project site, traffic emission and dust from other construction sites	27.1	16.6	A005-13a	-
	11:33	12:33	Fine	82							
	12:33	13:33	Fine	80							
30-Apr-12	13:24	14:24	Sunny	83	322	500	Dust from Project site, traffic emission and dust from other construction sites	28.5	16.1	A005-09a	-
	14:24	15:24	Sunny	79							
	15:24	16:24	Sunny	83							
				Min.							
				Max.							
				Average							

AM7



HATS Stage 2A - Construction of Interconnection Tunnel and Diaphragm Wall for Main Pumping Station at SCISTW

Graphical Presentation of 1-hour TSP Monitoring Results

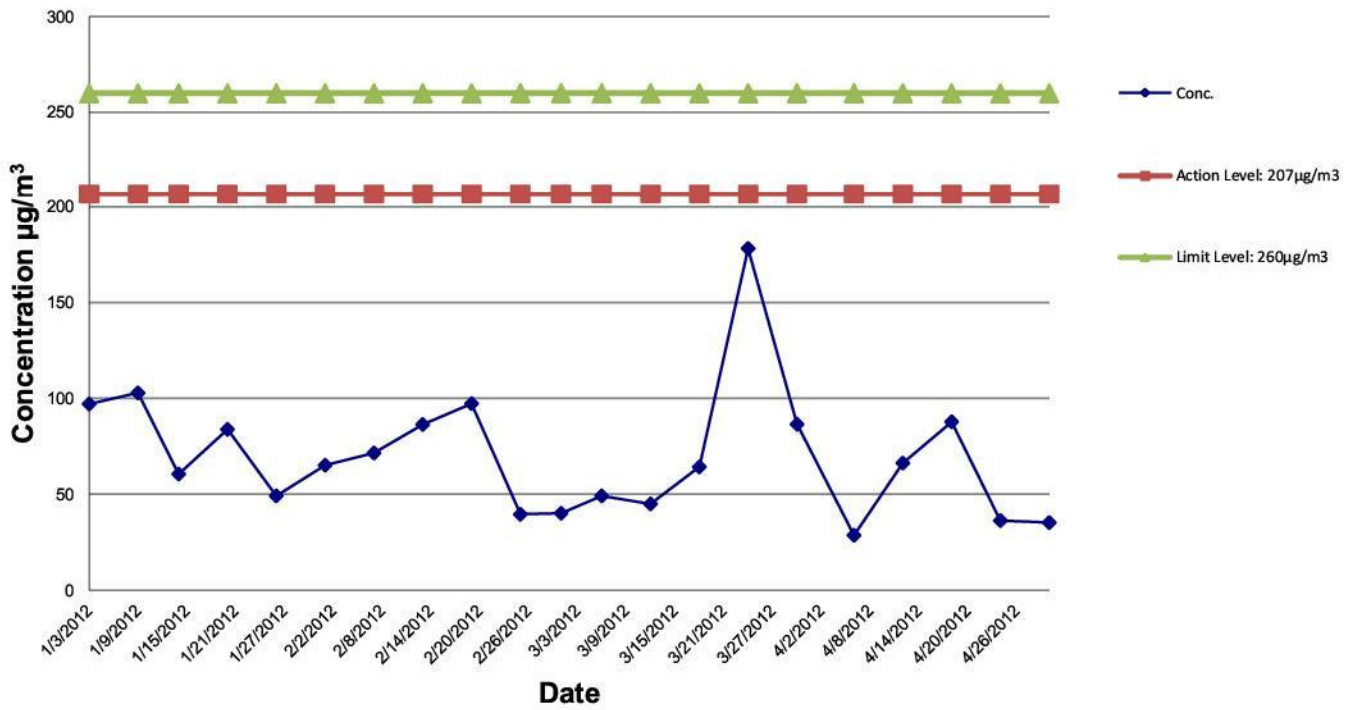
SCALE	N.T.S.	DATE	May-12
CHECK	ENFL	DRAWN	PWYN
JOB NO.	60143571	APPENDIX No.	Rev.
		D	-

Appendix D - 1-hour and 24-hour TSP Monitoring Results and Graphical Presentations

24-hour TSP Monitoring Results at Station AM7 (Rooftop of West Kowloon No.2 Sewage Pumping Station)

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
5-Apr-12	16:00	6-Apr-12	16:00	Rainy	2.7604	2.8158	10030.84	10054.84	24.00	1.3470	1.3470	1.3470	29	207	260	Dust from Project site, traffic emission and dust from other construction sites	A.001.12T	14454
11-Apr-12	16:00	12-Apr-12	16:00	Fine	2.8050	2.9334	10054.84	10078.84	24.00	1.3470	1.3470	1.3470	66	207	260	Dust from Project site, traffic emission and dust from other construction sites	A.001.12T	14442
17-Apr-12	16:00	18-Apr-12	16:00	Sunny	2.8119	2.9821	10078.84	10102.84	24.00	1.3470	1.3470	1.3470	88	207	260	Dust from Project site, traffic emission and dust from other construction sites	A.001.12T	14487
23-Apr-12	16:00	24-Apr-12	16:00	Fine	2.7649	2.8352	10102.84	10126.84	24.00	1.3470	1.3470	1.3470	36	207	260	Dust from Project site, traffic emission and dust from other construction sites	A.001.12T	14514
29-Apr-12	16:00	30-Apr-12	16:00	Sunny	2.7771	2.8453	10126.84	10150.84	24.00	1.3470	1.3470	1.3470	35	207	260	Dust from Project site, traffic emission and dust from other construction sites	A.001.12T	14550
													Min.	29				
													Max.	88				
													Average	51				

AM7

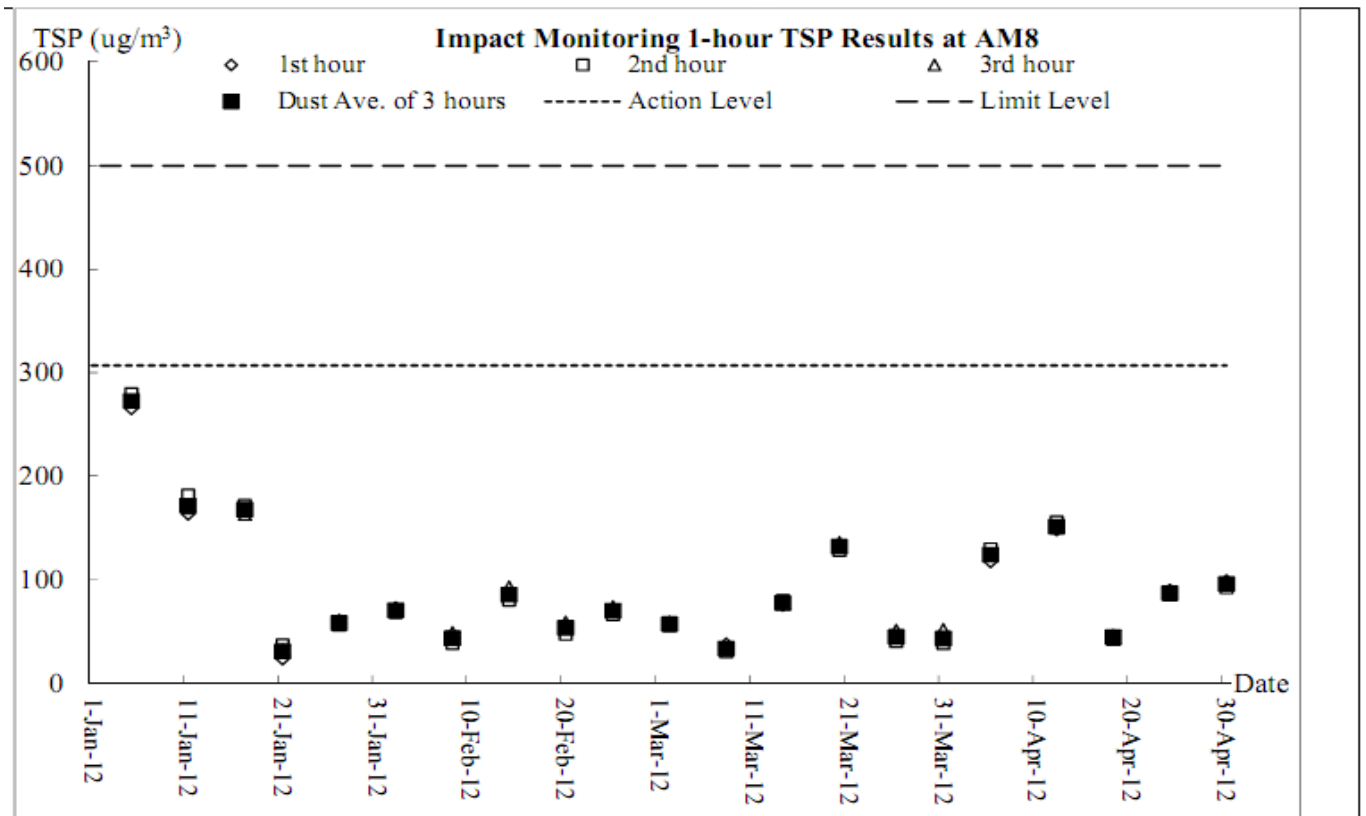


HATS Stage 2A - Construction of Interconnection Tunnel and Diaphragm Wall for Main Pumping Station at SCISTW
Graphical Presentation of 24-hour TSP Monitoring Results

SCALE	N.T.S.	DATE	May-12
CHECK	ENFL	DRAWN	PWYN
JOB NO.	60143571	APPENDIX No. D	Rev. -

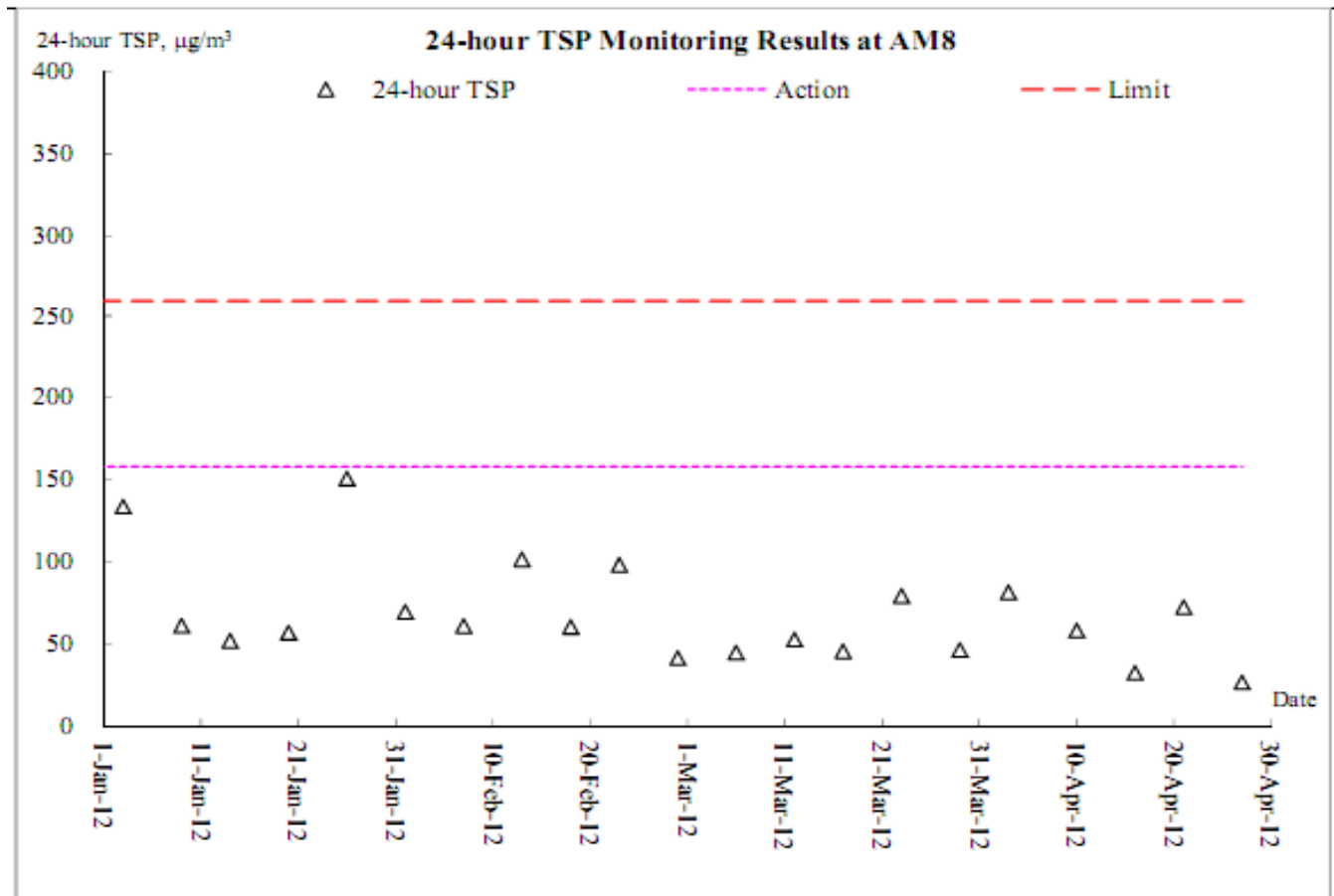
**Summary of 1-hour TSP Monitoring Results
 – AM8 as Monitored by DE/2009/02**

1-hour TSP ($\mu\text{g}/\text{m}^3$)				
Date	Start Time	1 st hour measured	2 nd hour measured	3 rd hour measured
5-Apr-12	9:25	148	156	150
12-Apr-12	15:10	46	45	42
18-Apr-12	15:20	90	86	85
24-Apr-12	14:25	99	92	96
30-Apr-12	15:38	35	32	30
Average (Range)		82 (30 - 156)		



Summary of 24-hour TSP Monitoring Results – AM8 as Monitored by DE/2009/02

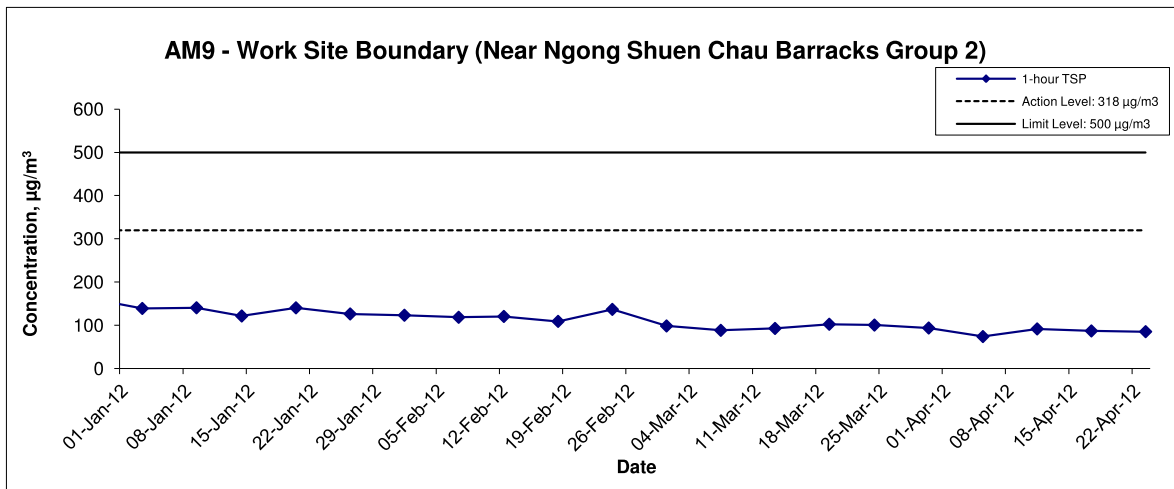
DATE	SAMPLE NUMBER	ELAPSED TIME INITIAL	ELAPSED TIME FINAL	ELAPSED TIME (min)	MIN CHART READING	MAX CHART READING	AVG CHART READING	AVG TEMP (°C)	STANDARD			INITIAL FILTER WEIGHT (g)	FINAL FILTER WEIGHT (g)	WEIGHT DUST COLLECTED (g)	DUST 24-hour TSP IN AIR (ug/m ³)
									AVG PRESS (hPa)	FLOW RATE (m ³ /min)	AIR VOLUME (std m ³)				
3-Apr-12	24626	11053.75	11077.9	1449.00	33	36	34.5	24.5	1016.9	0.91	1320	2.7952	2.9028	0.1076	82
10-Apr-12	24670	11077.90	11101.75	1431.00	32	35	33.5	23.8	1013.8	0.88	1266	2.8059	2.8797	0.0738	58
16-Apr-12	24665	11101.75	11125.55	1428.00	33	37	35.0	26	1008.5	0.92	1311	2.8046	2.8473	0.0427	33
21-Apr-12	24673	11125.55	11149.55	1440.00	35	37	36.0	23.3	1008.8	0.95	1365	2.8048	2.9039	0.0991	73
27-Apr-12	24698	11149.55	11173.87	1459.20	32	34	33.0	22.3	1009.5	0.87	1273	2.773	2.8071	0.0341	27



Appendix D - 1-hour TSP Monitoring Results

Location AM9 - Work Site Boundary (Near Ngong Shuen Chau Barracks Group 2)			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
5-Apr-12	14:00	Rainy	73.3
5-Apr-12	15:00	Rainy	74.2
5-Apr-12	16:00	Rainy	74.4
11-Apr-12	9:00	Sunny	91.8
11-Apr-12	10:00	Sunny	92.5
11-Apr-12	11:00	Sunny	90.7
17-Apr-12	14:00	Cloudy	87.9
17-Apr-12	15:00	Cloudy	85.6
17-Apr-12	16:00	Cloudy	87.4
23-Apr-12	9:00	Cloudy	82.1
23-Apr-12	10:00	Cloudy	87.1
23-Apr-12	11:00	Cloudy	86.7
		Average	84.5
		Maximum	92.5
		Minimum	73.3

1-hr TSP Concentration Levels



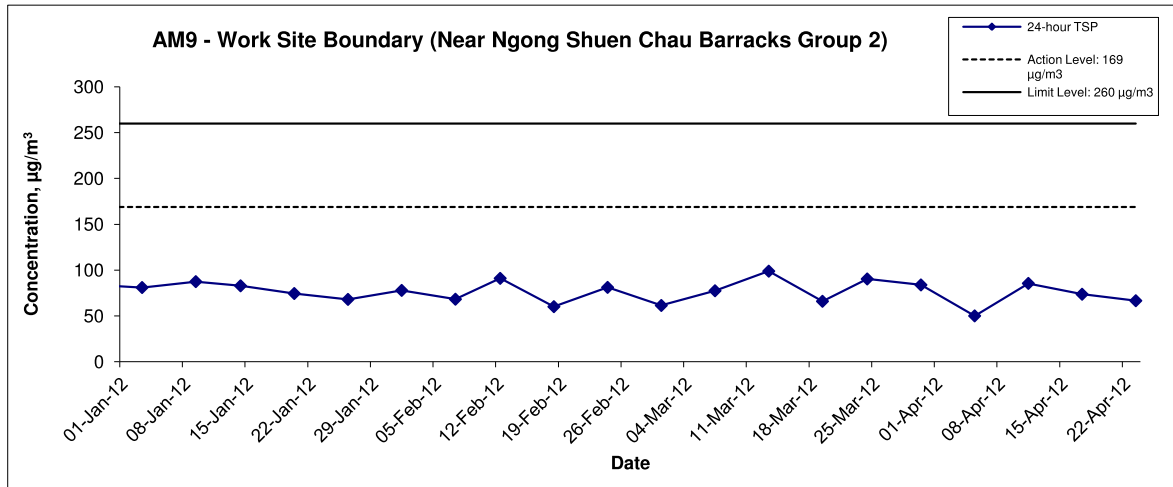
Title	Contract No. DC/2009/18 HATS 2A – Upgrading Works at SCISTW– Effluent Tunnel and Disinfection Facilities	Scale N.T.S	Project No. MA11043	CINOTECH
	Graphical Presentation of 1-hour TSP Monitoring Results	Date Apr 12	Appendix D	

Appendix D - 24-hour TSP Monitoring Results

Location AM9 - Work Site Boundary (Near Ngong Shuen Chau Barracks Group 2)

Start Date	Weather Condition	Air Temp. (K)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
			Initial	Final		Initial	Final		Initial	Final			
5-Apr-12	Rainy	293.0	3.4124	3.4987	0.0863	1351.7	1375.7	24.0	1.20	1.19	1.20	1723.4	50.1
11-Apr-12	Sunny	293.5	3.5841	3.7321	0.1480	1375.7	1399.7	24.0	1.21	1.20	1.20	1731.0	85.5
17-Apr-12	Cloudy	288.0	3.4658	3.5942	0.1284	1399.7	1423.7	24.0	1.21	1.21	1.21	1742.5	73.7
23-Apr-12	Cloudy	294.6	3.7625	3.8774	0.1149	1423.7	1447.7	24.0	1.20	1.19	1.20	1724.5	66.6
												Min	50.1
												Max	85.5
												Average	69.0

24-hr TSP Concentration Levels



Title	Contract No. DC/2009/18 HATS 2A – Upgrading Works at SCISTW– Effluent Tunnel and Disinfection Facilities	Scale N.T.S	Project No. MA11043	CINOTECH
	Graphical Presentation of 24-hour TSP Monitoring Results	Date Apr 12	Appendix D	

**APPENDIX E
NOISE MONITORING RESULTS AND
GRAPHICAL PRESENTATIONS**

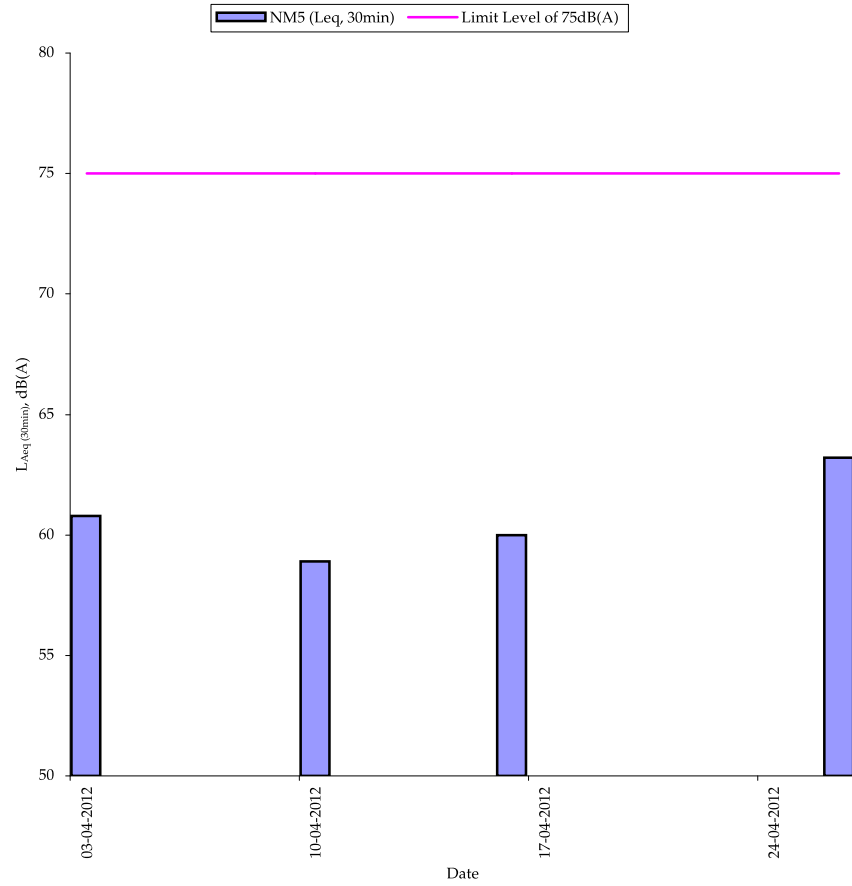
Appendix E - Noise Monitoring Results and Graphical Presentations

Restricted Hours Noise Monitoring Results

Station NM5

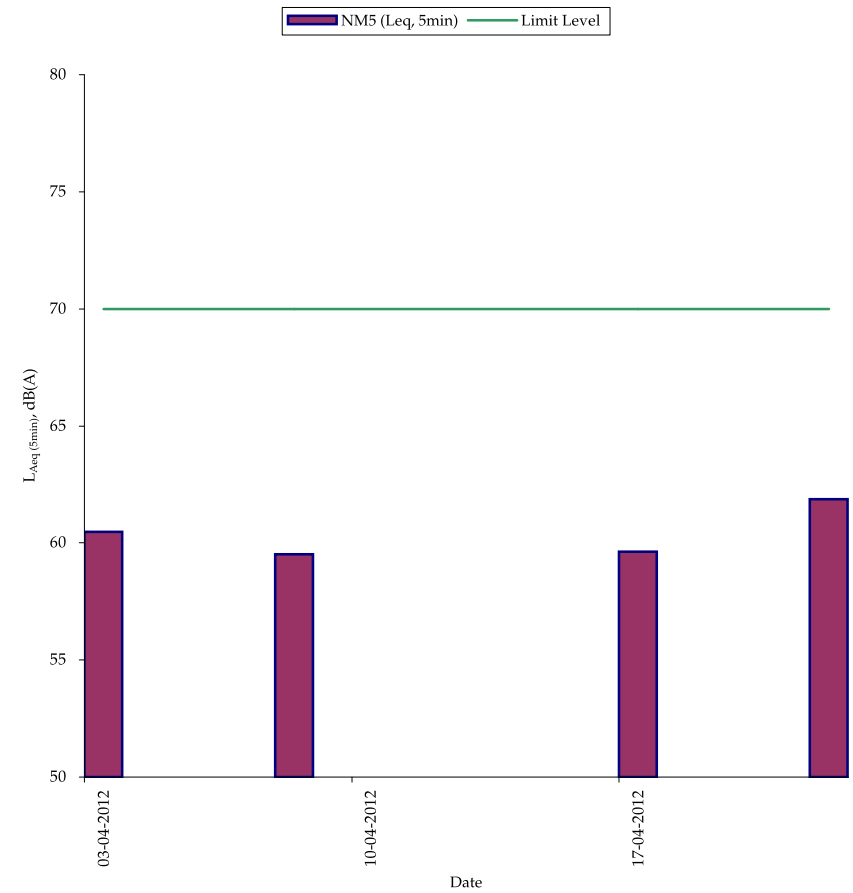
Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
03-Apr-12	19:05	19:10	Cloudy	59.8	61.4	58.1	Drill rig	Traffic noise & aircraft noise	-	23	0.4	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	19:10	19:15	Cloudy	60.5	62.2	58.2			-				
	19:15	19:20	Cloudy	61.0	62.6	58.2			-				
	19:05	19:20	Cloudy	60.5	62.1	58.2			-				
08-Apr-12	15:00	15:05	Cloudy	59.5	60.7	58.0	.	Traffic noise & aircraft noise	-	21	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	15:05	15:10	Cloudy	59.2	60.4	57.7			-				
	15:10	15:15	Cloudy	59.8	61.1	58.3			-				
	15:00	15:15	Cloudy	59.5	60.7	58.0			-				
17-Apr-12	19:40	19:45	Cloudy	59.8	61.9	58.0	Drill rig	Traffic noise & aircraft noise	-	21	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	19:45	19:50	Cloudy	59.6	61.5	57.7			-				
	19:50	19:55	Cloudy	59.5	61.4	57.4			-				
	19:40	19:55	Cloudy	59.6	61.6	57.7			-				
22-Apr-12	14:00	14:05	Cloudy	61.5	62.9	59.9	Drill rig	Traffic noise & aircraft noise	-	22	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	14:05	14:10	Cloudy	61.3	62.8	60.0			-				
	14:10	14:15	Cloudy	62.7	64.8	60.0			-				
	14:00	14:15	Cloudy	61.9	63.6	60.0			-				
				Min.	59.2								
				Max.	62.7								

Normal Weekdays Noise Monitoring Results at NM5 ($L_{eq, 30min}$)



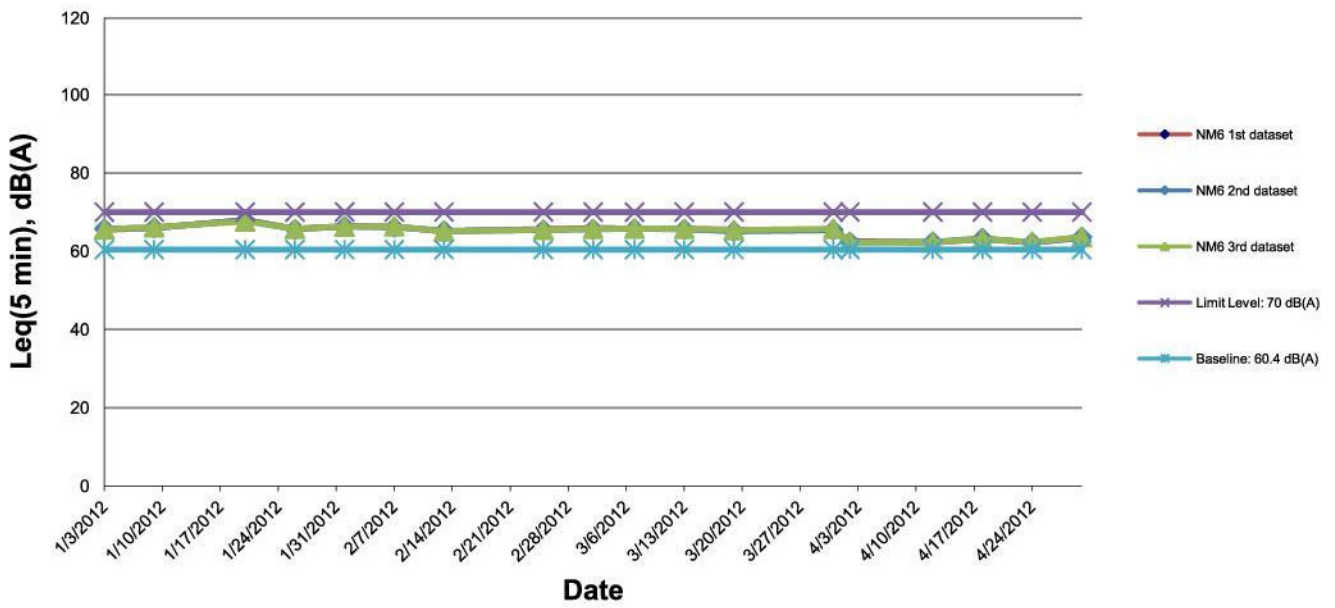
Remark:
- 75dB(A) was adopted as the Limit Level during normal weekdays in the reporting period

Restricted Hours Noise Monitoring Results at NM5 ($L_{eq, 5min}$)



Remark:
- 70dB(A) was adopted as the Limit Level during restricted hours in the reporting period

NM6



HATS Stage 2A - Construction of Interconnection Tunnel and Diaphragm Wall for Main Pumping Station at SCISTW

Graphical Presentation of Evening Noise Monitoring Results on Normal Weekdays

SCALE

N.T.S.

DATE

May-12

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APPENDIX No. E

Rev.

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Appendix E - Noise Monitoring Results and Graphical Presentations

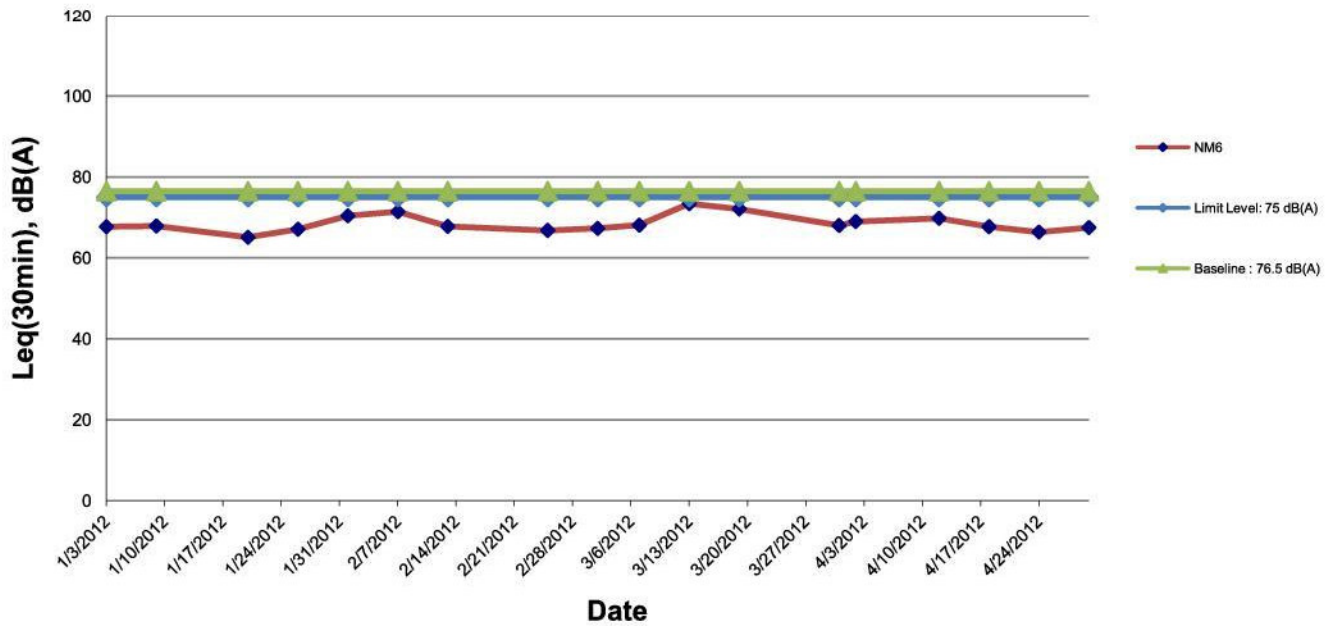
Location : NM6 Customs' Marine Base (Block H of Government Dockyard) Rooftop

Daytime (07:00-19:00 hrs) Noise Monitoring Results on Normal Weekdays

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 min ⁺			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Mean Temp. (°C)	Mean Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
2-Apr-12	9:31	10:01	Fine	69.0	72.4	65.3	excavation in process; crane in operation	other construction site nearby; road traffic noise	-	21.9	<5 m/s	Rion NL-31	Rion NC-73
12-Apr-12	13:39	14:09	Fine	69.8	73.5	66.5	excavation in process; crane in operation	other construction site nearby; road traffic noise	-	25.5	<5 m/s	Rion NL-31	Rion NC-73
18-Apr-12	10:45	11:15	Sunny	67.7	69.5	65.5	excavation in process; crane in operation	other construction site nearby; road traffic noise	-	22.0	<5 m/s	Rion NL-31	Rion NC-73
24-Apr-12	10:56	11:26	Fine	66.4	67.2	65.0	excavation in process; crane in operation	other construction site nearby; road traffic noise	-	27.1	<5 m/s	Rion NL-31	Rion NC-73
30-Apr-12	13:40	14:10	Sunny	67.5	68.4	66.0	excavation in process; crane in operation	other construction site nearby; road traffic noise	-	28.5	<5 m/s	Rion NL-31	Rion NC-73
				Min.	66.4								
				Max.	69.8								

⁺ - Façade measurement

NM6



HATS Stage 2A - Construction of Interconnection Tunnel and Diaphragm Wall for Main Pumping Station at SCISTW

Graphical Presentation of Daytime Noise Monitoring Results on Normal Weekdays

SCALE

N.T.S.

DATE

May-12

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APPENDIX No. E

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Appendix E - Noise Monitoring Results and Graphical Presentations

Location : NM6 Customs' Marine Base (Block H of Government Dockyard) Rooftop

Evening time (19:00-23:00 hrs) Noise Monitoring Results on Normal Weekdays

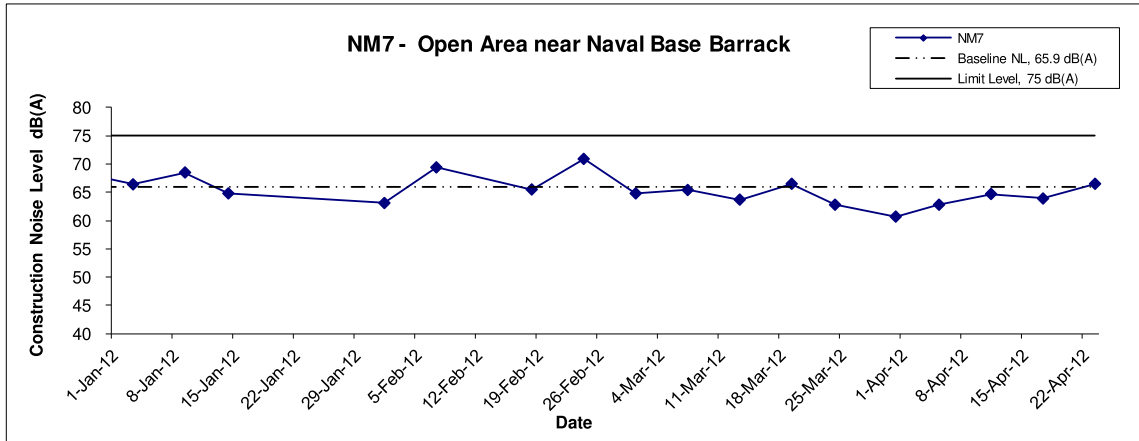
Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min [†]			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Mean Temp. (°C)	Mean Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
2-Apr-12	19:03	19:08	Fine	62.6	63.5	61.5	excavation in process	traffic noise from nearby pier; other construction site nearby	-	21.9	<5 m/s	B&K 2238	B&K 4231
	19:08	19:13		62.3	63.0	61.5							
	19:13	19:18		62.3	63.0	61.5							
12-Apr-12	21:21	21:26	Fine	62.2	63.0	61.5	excavation in process	traffic noise from nearby pier; other construction site nearby	-	25.5	<5 m/s	B&K 2238	B&K 4231
	21:26	21:31		62.4	63.0	61.5							
	21:31	21:36		62.3	63.0	61.5							
18-Apr-12	20:39	20:44	Fine	63.1	64.0	62.0	excavation in process	traffic noise from nearby pier; other construction site nearby	-	22.0	<5 m/s	B&K 2238	B&K 4231
	20:44	20:49		63.3	64.0	62.0							
	20:49	20:54		63.1	64.0	62.0							
24-Apr-12	19:01	19:06	Fine	62.2	63.0	61.5	excavation in process	traffic noise from nearby pier; other construction site nearby	-	27.1	<5 m/s	B&K 2238	B&K 4231
	19:06	19:11		62.2	63.0	61.5							
	19:11	19:16		62.4	63.0	61.5							
30-Apr-12	19:01	19:06	Fine	63.4	64.5	62.5	excavation in process	traffic noise from nearby pier; other construction site nearby	-	28.5	<5 m/s	B&K 2238	B&K 4231
	19:06	19:11		63.6	65.0	62.5							
	19:11	19:16		63.6	64.5	62.5							
				Min.	62.2								
				Max.	63.6								

[†] - Façade measurement

Appendix E - Noise Monitoring Results

Location NM7 - Open Area near Naval Base Barrack					
Date	Time	Weather	Unit: dB (A) (30-min)		
			Measured Noise Level		
			L _{eq}	L ₁₀	L ₉₀
5-Apr-12	14:30	Cloudy	62.8	63.7	61.4
11-Apr-12	09:30	Sunny	64.7	65.6	62.6
17-Apr-12	14:30	Cloudy	63.9	65.3	61.2
23-Apr-12	09:30	Cloudy	66.5	67.3	65.5
		Minimum	62.8		
		Maximum	66.5		

Noise Levels



Title	Contract No. DC/2009/18 HATS 2A – Upgrading Works at SCISTW– Effluent Tunnel and Disinfection Facilities	Scale	N.T.S	Project No.	MA11060	CINOTECH
	Graphical Presentation of Noise Monitoring Result (NM7)	Date	Apr 12	Appendix	E	

**APPENDIX F
ENVIRONMENTAL PERMITS AND
LICENSES**

APPENIDX F –Environmental Permits and Licenses

Table F.1 Summary of Environmental Licensing and Permit Status for Contract DC/2007/23

Permit No.	Valid Period		Details	Status
	From	To		
Wastewater Discharge License				
WT00005069-2009	11/8/2010	31/10/2014	Location: Stonecutters Island Production Shaft and Riser Shaft	Valid
Chemical Waste Producer Registration				
5213-269-G2449-07	--	--	Location: Stonecutters Island Production Shaft and Riser Shaft	Valid
Construction Noise Permit				
GW-RW0755-11	2/11/2011	30/04/2012	Location: Stonecutters Island Production Shaft and Riser Shaft	Superseded by CNP No. GW-RW-0925-11
GW-RW0925-11	4/1/2012	29/6/2012	Location: Stonecutters Island Production Shaft and Riser Shaft	Valid

Table F.2 Summary of Environmental Licensing and Permit Status for Contract DC/2009/05

Permit No.	Valid Period		Details	Status
	From	To		
Wastewater Discharge License				
WT00005755-2010	21/4/2011	31/1/2015	Discharge of Construction Runoff from Contract DC/2009/05	Valid
Registered Chemical Waste Producer				
WPN5213-269-C3572-01	23/10/2009	N/A	Whole Construction Site for Contract DC/2009/05	Valid
Waste Charges A/C: 7009440	N/A	N/A	Whole Construction Site for Contract DC/2009/05	Valid
Air Pollution Control Ordinance				
NA notification	09/11/09	--	Whole Construction Site for Contract DC/2009/05	Valid
Construction Noise Permit				
GW-RW0903-12	08/02/11	05/08/12	Construction Site at Portion 2,3, 4 and 6 for Contract DC/2009/05	Valid
GW-RW0900-11	29/12/11	21/06/12	Construction Site at Portion 2,3, 4 and 6 for Contract DC/2009/05	Valid
GW-RW0163-12	09/03/12	08/09/12	Construction Site at Portion K for Contract DC/2009/05	Valid
Marine Dumping Permit (Excavated Sediment Requiring Type 1 – Open Sea Disposal)				
EP/MD/12-090	16/11/11	15/05/12	Excavated material from Construction Site at Portion 2, 3 and 4 for Contract DC/2009/05	Valid

Table F.3 Summary of Environmental Licensing and Permit Status for Contract DE/2009/02

Permit No.	Valid Period		Details	Status
	From	To		
Wastewater Discharge License				
WT0000643-2010	--	30/4/2015	--	Expired
Registered Chemical Waste Producer				
5213-269-A2605-01	--	--	--	Valid
Construction Noise Permit				
GW-RW0841-11	3/12/2011	1/06/2012	--	Valid
Air Pollution Control Ordinance				
NA Notification	N/A	N/A	Notified EPD on 9 March 2010	N/A
Billing Account for Disposal of Construction Waste				
A/C No:7009673	N/A	N/A	Approved by EPD on 9 November 2009	N/A

Table F.4 Summary of Environmental Licensing and Permit Status for Contract DC/2009/17

Permit No.	Valid Period		Details	Status
	From	To		
Water Discharge License				
WT00007763-2010	22/10/2010	31/10/2015	Location: Portion 5	Valid
WT00007921-2010	23/11/2010	30/11/2015	Location: Portion C	Valid
WT00007982-2010	3/12/2010	31/12/2015	Location: Portion 3&4	Valid
Registered Chemical Waste Producer				
5213-239-C3388-02	19/10/2010	N/A	Major chemical waste types are: Spent battery, waste mechanical oil and spent lubricant.	Valid
Billing Account for Disposal of Construction Waste				
A/C No.7011408	16/09/2010	N/A	N/A	Valid
Notification of Works Under APCO				
Ref:321235	7/09/2010	N/A	--	Valid
Construction Noise Permit				
GW-RW0242-12	21/4/2012	20/10/2012	Location: Portion 4	Valid

Table F.5 Summary of Environmental Licensing and Permit Status for Contract DC/2009/10

Reference Number	Valid Period		Details	Status
	From	To		
Water Discharge License				
WT00009245-2011	1/6/2011	30/6/2016	The application was approved on 1-6-2011.	Valid
WT00012151-2012	28/2/2012	28/2/2017	The application was approved on 28-2-2012.	Valid
Registered Chemical Waste Producer				
WPN5213-269-S3584-01	N/A	N/A	The application was approved on 4-5-2011.	Valid
Billing Account for Disposal of Construction Waste				
CSW01444	16/3/2011	N/A	The application was approved on 16-3-2011.	Valid
Notification of Works Under APCO				
327427	N/A	N/A	Notice form received by EPD on 2-3-2011.	N/A
Construction Noise Permit for Percussive Piling(driving steel pile)				
PP-RW0018-11	2/11/2011	1/8/2012	The application was approved on 1-11-2011.	Valid
PP-RW0004-12	10/4/2012	9/1/2013	The application was approved on 21-3-2012.	Valid
GW-RW0204-12	4/4/2012	3/10/2012	Renewal of CNP GW-RW0651-11.	Valid
GW-RW0080-12	3-2-2012	31/7/2012	The application was approved on 2-2-2012	Valid
Application of Admission Ticket for Disposal of Special Waste (Grit) at Landfills				
No.9756	1/2/2012	31/7/2012	Valid from 1-2-2012 to 31-7-2012	Valid

Table F.6 Summary of Environmental Licensing and Permit Status for Contract DC/2009/18

Permit/ A/C Number	Valid Period		Details	Status
	From	To		
Water Discharge License				
WT00010571-2011	13/10/2011	31/10/2016	Location: Portion 7A and 15A	Valid
Registered Chemical Waste Producer				
5213-269-C3689-01	8/9/2011	N/A	Site Area under the Project	Valid
Billing Account for Disposal of Construction Waste				
7013233	18/7/2011	N/A	N/A	Valid
Notification of Works Under APCO				
Ref: 332427	15/7/2011	N/A	N/A	N/A
Construction Noise Permit				
GW-RW0761-11	1/12/2011	31/5/2012	Location: Construction site at Stonecutters Island Sewage treatment works.	Valid
GW-RW0142-12	1/3/2012	31/8/2012	Location: Construction site at Stonecutters Island Sewage treatment works.	Valid
GW-RW0344-12	4/5/2012	3/11/2012	Location: Construction site at Stonecutters Island Sewage treatment works.	Valid

**APPENDIX G
SUMMARY OF EXCEEDANCE**

APPENIDX G – SUMMARY OF EXCEEDANCE

Reporting Month: April 2012

- a) Exceedance Report for 1-hr TSP (NIL)**
- b) Exceedance Report for 24-hr TSP (NIL)**
- c) Exceedance Report for Construction Noise (NIL)**

No Exceedance of Action/Limit Level for normal working hours and restricted hours was recorded.

**APPENDIX H
SITE AUDIT SUMMARY**

Weekly site inspections were carried out by representatives of the Contractor, Engineer and the ET. Site inspections were conducted on 5, 12, 19 and 25 April 2012. The representative of the IEC joined the site inspection on 25 April 2012. There was no non-compliance recorded during the site inspections.

Major findings and recommendations are summarised as follows:

Riser Shaft

- Nil.

Production Shaft

- On 5 April, muddy water was observed inside the noise enclosure near the winder. The Contractor was reminded to remove the muddy water.
- On 5 April, oil stain was observed on floor inside the noise enclosure near the winder. The Contractor was reminded to remove the oil stain and dispose of it as chemical waste.
- On 12 April, stagnant water was observed on the tarpaulin sheets near the emulsifier store and inside the drainage channel behind the noise enclosure. The Contractor was reminded to remove the stagnant water.
- On 12 April, chemical bottles without drip tray were observed being stored next to the sedimentation tank. The Contractor was reminded to provide drip tray for the chemical bottles.
- On 19 April, general refuses were observed inside the noise enclosure near the winder and behind the noise enclosure near the tree protection zone. The Contractor was reminded to remove the general refuses.

7.7

ENVIRONMENTAL NON-CONFORMANCE

~~7.7.1 Summary of Monitoring Exceedance~~

No exceedance of the Action and Limit Levels of 1-hour average TSP and 24-hour average TSP was recorded at monitoring station during the reporting period.

No exceedance of the Noise Limit Levels was recorded at monitoring station during both normal working hours and restricted hours in the reporting period.

7.7.2 Summary of Environmental Non-Compliance

No non-compliance event was recorded during the reporting period.

5 ENVIRONMENTAL SITE INSPECTION AND AUDIT

5.1 Site Inspection

5.1.1 Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. In the reporting month, 4 site inspections were carried out on 3, 10, 17 and 24 April 2012. Particular observations are described below.

5.1.2 The Contractor has rectified all observations as identified during environmental site inspection in the reporting month within agreed time frame.

5.1.3 Air Quality Impact

- Over 20 bags of cement were observed placed on ground without impervious sheet covering in Launching Shaft Works Area. The Contractor was reminded that every stock of more than 20 bags of cement should be covered by impervious sheeting properly or placed in an area sheltered on the top and the 3 sides.

5.1.4 Construction Noise Impact

- Nil.

5.1.5 Water Quality Impact

- Mitigation measures for mud storage area at Inlet Chamber Works Area and at Launching Shaft Works Area were observed insufficient. The Contractor was reminded to enhance the height of bunds/sand bags at the mud storage area. Mud accumulated outside the bunds at Inlet Chamber Works Area should be removed as soon as possible. Proper mitigation measure should be also provided for all storage area to prevent any muddy water runoff from the area to the public drain due to rainfall. Moreover, the Contractor was recommended to review the effectiveness of bunds/sand bags/channels at the mud storage area, site boundaries, soil stockpile area and works areas regularly.
- Silt near the site entrance of Launching Shaft Works Area and slurry/surface run-off near the excavator in Inlet Chamber Works Area were observed. Mitigation measures provided in the works area in Inlet Chamber Works Area were insufficient. Proper bunds/sand bags/channels at the site boundaries, soil stockpile areas and works area, cover the gullies or other means should be provided to intercept storm runoff and construction runoff from construction works flowing outside the works area and discharging to public drain. The Contractor was reminded to clear the slurry/surface run-off accumulated in works area regularly and treated properly. The Contractor was also reminded to remove the silt as soon as possible to prevent any silty water surface runoff from construction area to public drain due to rain. The Contractor was recommended to maintain the drainage system properly and regularly.
- Debris was accumulated inside the u-channel at Inlet Chamber Works Area. The Contractor was reminded to remove the debris from the u-channel regularly and maintain the drainage system properly.

5.1.6 Chemical and Waste Management

- Oil drum placed on ground in Inlet Chamber Works Area was stored without drip trays. Drip trays or equivalent measures should be provided to oil drums stored within works areas to retain any oil leakage effectively.

- Oil leakage were observed from an engine and excavator parked at Inlet Chamber Works Area respectively. Oil stains were also observed on ground at Inlet Chamber Works Area. Although the ground was paved, it is recommended to provide drip trays or equivalent measures to intercept any oil leakage. Oil stains on ground should be cleared and dispose of as chemical waste. Any kinds of maintenance works should be carried out in paved and roofed works area with proper mitigation measures to handle any oil leakage.

5.1.7 Landscape and Visual Impact

- Nil.

5.1.8 Other

- Nil.

6 SITE INSPECTION

According to the Project Environmental Monitoring and Audit Manual, the environmental site inspection should be formulated by the ET Leader. Regular environmental site inspections had been carried out by the ET to confirm the environmental performance. **Four** site inspections were carried out on **4, 11, 17 and 25 April 2012** with the Representatives of the Engineer and the Contractor to evaluate the site environmental performance in this Reporting Month. No non-compliance was noted.

Observations for the site inspections and monthly audit within this Reporting Month are summarized in *Table 6-1* and inspection checklist is attached in *Annex M*.

Table 6-1 Observations for weekly site inspection in the Reporting Month

Date	Findings / Deficiencies	Follow-Up Status
4 April 2012	<ul style="list-style-type: none"> No environmental issue was observed during the site inspection. 	<ul style="list-style-type: none"> N.A.
11 April 2012	<ul style="list-style-type: none"> Stagnant water cumulated inside the drip tray was observed, the contractor was remind to clean to prevent leakage. 	<ul style="list-style-type: none"> Stagnant water inside the drip tray was removed on 17 April 2012.
17 April 2012	<ul style="list-style-type: none"> No environmental issue was observed during the site inspection. 	<ul style="list-style-type: none"> N.A.
25 April 2012	<ul style="list-style-type: none"> Construction waste cumulated on site was observed, the contractor was reminded to clean and sorting the waste before dispose. 	<ul style="list-style-type: none"> The construction waste was found to be removed on 3 May 2012.

4. ENVIRONMENTAL AUDIT**Site Audits**

- 4.1 Site audits were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.
- 4.2 Environmental site audits were conducted on 3, 12, 19 and 26 April 2012 for the Project. No non-compliance was observed during the site audits.
- 4.3 Site inspections were undertaken to ensure and check that the implementation and maintenance of landscape and visual mitigation measures are being properly carried out in the reporting month in accordance to section 14.1 of the EM&A Manual. No non-compliance was observed during the site inspections.
- 4.4 The summaries of site audits are attached in **Appendix C**.

Implementation Status of Environmental Mitigation Measures

- 4.5 Details of the implementation of mitigation measures are provided in the **Appendix F**.
- 4.6 During the weekly environmental site inspections in the reporting period, no non-conformance was identified. The observations of the site audit for the Projects are summarized in **Table 4.1**.

Table 4.1 Observations of Site Audit

Parameters	Date/Ref. Number	Observations	Follow Up Action
Water Quality	12/4/2012 O-01	Ponding water should be cleared at Portion 4 and Portion 5.	Ponding water was cleared at Portion 4 and Portion 5.
	19/4/2012 O-01	Ponding water should be avoided at Portion 4 after raining.	Ponding water in Portion 4 was cleared by the Contractor.
	26/4/2012 O-01	Bund should be set up at the boundary of Portion 4 (near to the sea area), to prevent the wastewater /ponding water from spillage.	The bottom of bund was sealed by concrete to prevent wastewater spillage from site.
Air Quality	3/4/2012 O-01	Adequate water spraying should be provided in Portion 5 to reduce dust generation	Water was sprayed in Portion 5 to reduce dust generation.
Waste/ Chemical Management	12/4/2012 O-02	House-keeping practice should be done regularly at Portion 5.	House-keeping practice was done at portion 5, no general waste was observed.
Landscape and Visual	N/A	There was no observation in the reporting period.	N/A
Noise	N/A	There was no observation in the reporting period.	N/A
Permit/ Licenses	N/A	There was no observation in the reporting period.	N/A

4. ENVIRONMENTAL AUDIT**Site Audits**

- 4.1 Site audits were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.
- 4.2 Environmental site audits were conducted on 3, 13, 18 and 25 April 2012 for the Project. No non-compliance was observed during the site audits.
- 4.3 Site inspections were undertaken to ensure and check that the implementation and maintenance of landscape and visual mitigation measures are being properly carried out in the reporting month in accordance to section 14.1 of the EM&A Manual. No non-compliance was observed during the site inspections.
- 4.4 The summaries of site audits are attached in **Appendix C**.

Implementation Status of Environmental Mitigation Measures

- 4.5 Details of the implementation of mitigation measures are provided in the **Appendix F**.
- 4.6 During the weekly environmental site inspections in the reporting period, no non-conformance was identified. The observations of the site audit for the Projects are summarized in **Table 4.1**.

Table 4.1 Observations of Site Audit

Parameters	Date/Ref. Number	Observations	Follow Up Action
Water Quality	3/4/2012 O-02	Proper bund should be provided to Portion 3 to prevent wastewater spillage in wet season.	Concrete bund was constructed at the site boundary of Portion 3.
	13/4/2012 O-01	Drip tray should be provided to contain oil drums in Portion 3,4, and oil stain should be cleared.	Now labels were provided to chemical containers by the Contractor.
	18/4/2012 O-04	Proper temporarily drainage system should be provided in Portion 3.	The blockage in the drainage in Portion 3 was removed by the Contractor.
	25/4/2012 O-01	Mud trail was observed at the exit of Portion 3 next to the wheel washing bay. The Contractor was reminded to clear it regularly.	Mud trail at the exit of Portion 3 was cleared by the Contractor.
	25/4/2012 O-02	Sediment was accumulated in the temporarily drainage channel in Portion 3. The Contractor was reminded to provide regularly maintenance and clearing of sediment regularly.	Refer to the photo provided by the Contractor, the sediment in the temporarily drainage channel in Portion 3 was clearing by the worker.
	25/4/2012 O-03	Oil stain and oily water were observed in Portion 4. The Contractor was reminded to clear it to prevent it from entering the drainage channel.	The oil stains were cleared by the Contractor.
Air Quality	3/4/2012 O-01	To enhance dust suppression measures in Portion 3 and 4.	Water sprayed was observed during the site inspection.

	3/4/2012 O-03	To clear the mud-trail near the wheel washing bay in Portion 3.	The mud-trail was cleared by the Contractor.
	3/4/2012 O-04	Proper covering should be provided before the disposal of empty bags in Portion 3.	Cement bags was disposed of by the Contractor.
Waste/ Chemical Management	13/4/2012 O-01	Drip tray should be provided to contain oil drums in Portion 3,4 and oil stain should be cleared.	Drip tray was provided to contain oil drums.
	13/4/2012 O-02	Proper label should be provided to identify the chemicals in Portion 4.	Now labels were provided to chemical containers by the Contractor.
	13/4/2012 O-04	Plastic bottles were found in yellow recycling bin. The Contractor was reminded to enhance the recycling practices.	This item was found outstanding and will be followed up in the next site inspection.
	13/4/2012 O-05	Oil leakage from the equipment should be prevented. (Portion 3)	This item was found outstanding and will be followed up in the next site inspection.
	13/4/2012 O-06	Chemical containers should be treated as chemicals waste and dispose of properly.	The empty chemical containers were removed by the Contractor from the sorting area.
	18/4/2012 O-02	Plastic bottles were found in yellow-recycling bin. The Contractor was reminded to enhance the recycling practices.	No plastic bottles were found in yellow-recycling bin during the site inspection.
	18/4/2012 O-03	Oil leakage from the equipment should be prevented. (Portion 3)	The machine was stopped for usage and waiting for repairing.
	18/4/2012 O-05	Drip tray in Portion 4 should be properly sealed to prevent leakage.	Drip tray was sealed and no oil leakage was observed.
	18/4/2012 O-06	Oil stains in Portion 4 should be cleared.	The oil stains were cleared by the Contractor.
	Landscape and Visual	13/4/2012 O-03	Tree Protection fence should be erected and materials in tree protection zone should be removed. (Next to Portion 3)
18/4/2012 O-01		Tree protection fence should be erected. (Next to Portion 3)	Tree protection fence was erected by the Contractor.
Noise	N/A	There was no observation in the reporting month.	N/A
Permit/ Licenses	N/A	There was no observation in the reporting month.	N/A

Review of Environmental Monitoring Procedures

- 4.7 The monitoring works conducted by the monitoring teams of Contracts DC/2007/23, DC/2009/05 and DE/2009/02. The monitoring procedures were reviewed by their respective ETs.

Status of Environmental Licensing and Permitting

- 4.8 All permits/licenses obtained for the Contract DC/2009/10 are summarized in **Table 4.2**.

4 ENVIRONMENTAL AUDIT

Site Audits

- 4.1 Site audits were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.
- 4.2 Environmental site audits were conducted on 5, 11, 18 and 27 April 2012 for the Project. No non-compliance was observed during the site audits.
- 4.3 Site inspections were undertaken to ensure and check that the implementation and maintenance of landscape and visual mitigation measures are being properly carried out in the reporting month in accordance to section 14.1 of the EM&A Manual. No non-compliance was observed during the site inspections.
- 4.4 The summaries of site audits are attached in **Appendix G**.

Review of Environmental Monitoring Procedures

- 4.5 The monitoring works conducted by the monitoring team were inspected regularly. The following observations have been recorded for the monitoring works:

Air Quality Monitoring

- The monitoring team recorded all observations around the monitoring stations within and outside the construction site.
- The monitoring team recorded the temperature and weather conditions on the monitoring days.

Noise Monitoring

- The monitoring team recorded all observations around the monitoring stations, which might affect the monitoring result.
- Major noise sources were identified and recorded. Other intrusive noise attributing to the result was trimmed off by pausing the monitoring temporarily.

Water Quality Monitoring

- The monitoring team recorded all observations around the monitoring stations, which might affect the monitoring result.
- The monitoring team recorded the weather condition on the monitoring day.

Status of Environmental Licensing and Permitting

- 4.6 All permits/licenses obtained for the Contract DC/2009/18 are summarized in **Table 4.1**.

Table 4.1 Summary of Environmental Licensing and Permit Status for Contract DC/2009/18

Permit/ A/C Number	Valid Period		Details	Status
	From	To		
Water Discharge License				
WT00010571-2011	13/10/2011	31/10/2016	Location: Portion 7A and 15A	Valid
Registered Chemical Waste Producer				
5213-269-C3689-01	8/9/2011	N/A	Site Area under the Project	Valid
Billing Account for Disposal of Construction Waste				
7013233	18/7/2011	N/A	N/A	Valid
Notification of Works Under APCO				
Ref: 332427	15/7/2011	N/A	N/A	N/A
Construction Noise Permit				
GW-RW0761-11	1/12/2011	31/5/2012	Location: Construction site at Stonecutters Island Sewage treatment works.	Valid
GW-RW0142-12	1/3/2012	31/8/2012	Location: Construction site at Stonecutters Island Sewage treatment works.	Valid
GW-RW0344-12	4/5/2012	3/11/2012	Location: Construction site at Stonecutters Island Sewage treatment works.	Valid

Status of Waste Management

- 4.7 The amount of wastes generated by the activities of the Project in the reporting month is shown in **Appendix H**.

Implementation Status of Environmental Mitigation Measures

- 4.8 Details of the implementation of mitigation measures are provided in the **Appendix J**.
- 4.9 During the weekly environmental site inspections in the reporting period, no non-conformance was identified. The observations of the site audit for the Projects are summarized in **Table 4.2**.

Table 4.2 Observations of Site Audit

Parameters	Date/Ref. Number	Observations	Follow Up Action
Water Quality	120405-002	Sediment in the blocked channel in Portion 3 should be cleared regularly to prevent overflowing in wet season.	Sediment in blocked channel in Portion 3 was cleared by the Contractor.
	120405-004	Wheel washing facilities should be provided in Portion 7.	This item was found outstanding and will be followed up in the next site inspection.
	120405-005	Proper drainage system should be provided and the sediment in drainage channel should be cleared in Portion 7.	This item was found outstanding and will be followed up in the next site inspection.
	120411-001	Oil stain should be cleaned and oil leakage from the equipment should be prevented in Portion 3.	Oil stain were cleared by the Contractor in Portion 3.

	120411-O04	Wheel washing facilities should be provided at Portion 7.	This item was found outstanding and will be followed up in the next site inspection.
	120411-O05	Proper bund should be surrounded Portion 7 to prevent waste water spillage.	A section of addition bund was constructed for next to the drilling area in Portion 7.
	120411-O06	Proper drainage system should be provided and sediment in channel should be cleared in Portion 7.	This item was found outstanding and will be followed up in the next site inspection.
	120418-O01	Oil stain should be cleared in Portion 3.(next to the site exit)	Oil stains were cleared by the Contractor in Portion 3.
	120418-O03	Stockpile in Portion 3 should be regularly cleared to reduce surface run-off generation in wet season.	Stockpile was cleared and the pilling area was surrounded by sand bags.
	120418-O04	Wheels washing facilities should be provided in Portion 7.	This item was found outstanding and will be followed up in the next site inspection.
	120418-O05	Proper bund should be provided to confine the wastewater in Portion 7.	This item was found outstanding and will be followed up in the next site inspection.
	120418-O06	Proper drainage system and wastewater treatment facilities should be provided in Portion 7.	Drainage system and wastewater treatment facilities were provided at Portion 7 and will be installed in the coming week.
	120427-O02	Bund should be repaired and extended next the storage tank No.1 to prevent wastewater spillage. (Portion 3)	Bund was extended next to the storage tank and the wastewater was cleared.
	120427-O03	Sediment should be cleared regularly in the drainage channel next the site entrance of Portion3.	Sediment in the drainage channel in Portion 3 was cleared.
	120427-O04	Wheel washing facilities should be provided in Portion 7.	This item was found outstanding and will be followed up in the next site inspection.
	120427-O05	The bund should be continued to set up to surround Portion 7 to prevent wastewater spillage.	This item was found outstanding and will be followed up in the next site inspection.
Air Quality	120405-O01	Empty cement bags were observed in Portion 3 without covering. The Contractor should dispose them of regularly to reduce dust emission.	Disposing of empty cement bags was observed during the site inspection.
	120427-O01	The opened and used cements bags at the demolishing concrete mixer should be cleared to reduce dust emission. (near the site entrance of Portion 3.)	This item was found outstanding and will be followed up in the next site inspection.
Waste/ Chemical Management	120405-O03	Oil stains should be cleared and leakage of oil from equipment should be prevented in Portion 3 and 7.	This item was found outstanding and will be followed up in the next site inspection.
	120411-O01	Oil stain should be cleaned and oil leakage from the equipment should be prevented in Portion 3.	Oil stain were cleared by the Contractor in Portion 3.
	120411-O02	Empty/Wasted chemical containers should be properly stored in Portion 3.	Empty/Wasted chemical containers were cleared by the Contractor in Portion 3.
	120411-O03	Drip tray should be provided to contain oil drum to prevent leakage and stagnant oily water in drip tray should be cleared regularly as chemical waste.(Portion 3)	Materials and the oily water was cleared by the Contractor in Portion 3.

	120418-O01	Oil stain should be cleared in Portion 3.(next to the site exit)	Oil stains were cleared by the Contractor in Portion 3.
	120418-O02	The sediment mixed with oily water in blocked channel should be cleared and treated as chemical waste.	The Contractor was clearing the sediment during the site inspection.
Landscape and Visual	N/A	There was no observation in the reporting period.	N/A
Noise	N/A	There was no observation in the reporting period.	N/A
Permit/ Licenses	N/A	There was no observation in the reporting period.	N/A

Implementation Status of Event Action Plans

4.10 The Event Action Plans for air quality and noise are presented in **Appendix I**.

1-hr TSP

4.11 No Action/Limit Level exceedance was recorded.

24-hr TSP

4.12 No Action/Limit Level exceedance was recorded.

Construction Noise

4.13 No Action/Limit Level exceedance was recorded.

Landscape and Visual

4.14 No non-compliance was recorded.

Summary of Complaints and Prosecutions

4.15 No environmental complaint and prosecution was received for the Project in the reporting month.

4.16 There were no environmental complaint and prosecution received since the commencement of the Project. The Complaint Log is presented in **Appendix K**.

**APPENDIX I
EVENT ACTION PLANS**

APPENDIX I – Event / Action Plans

Table I-1 Event / Action Plan For Air Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor’s working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial	1. Check monitoring data submitted by ET; 2. Check Contractor’s working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented	1. Submit proposals for remedial to ER within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional monitoring			
LIMIT LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 5. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Table I-2 Event / Action Plan For Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded	<ol style="list-style-type: none"> 1. Notify ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals
Limit Level being exceeded	<ol style="list-style-type: none"> 1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 5. Carry out analysis of Contractor's working procedures; 6. Discuss with the IEC, Contractor and ER on remedial measures required; 7. Assess effectiveness of 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring		until the exceedance is abated	the ER until the exceedance is abated

**APPENDIX J
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)**

APPENDIX J IMPLEMENTATION SCHEDULE OF ENVIRONMENTAL MITIGATION MEASURES (EMIS)

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract					
			DC/2007/23	DC/2009/05	DE/2009/02	DC/2009/17	DC/2009/10	DC/2009/18
A	Air Quality							
3.74	Skip hoist for material transport should be totally enclosed by impervious sheeting.	All construction sites	^	^	^	^	*	^
	Vehicle washing facilities should be provided at every vehicle exit point.		^	^	^	^	*	#
	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 hardcore.		^	^	^	^	^	^
	Where a site boundary adjoins a road, streets or other areas accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit.		N/A	^	N/A	N/A	N/A	N/A
	Use of regular watering, with complete coverage, to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.		^	^	^	^	*	*
	Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.		^	^	^	^	*	#
	Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs		^	^	^	^	^	^
	Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.		^	^	^	^	^	^
	Imposition of speed controls for vehicles on unpaved site roads. Ten kilometers per hour is the recommended limit.		^	^	^	^	^	^
	Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an		^	@	^	^	*	*

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract					
			DC/2007/23	DC/2009/05	DE/2009/02	DC/2009/17	DC/2009/10	DC/2009/18
	area sheltered on the top and the 3 sides.							
	Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.			^	^	^	^	^
3.74	Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.	All construction sites		^	^	^	^	^
B	Airborne Noise							
4.56–4.61	Use of quiet PME, movable barriers and acoustic mats.	All construction sites	^	^	^	^	^	^
4.67	Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program.		^	^	^	^	^	^
	Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program.		^	^	^	^	^	^
	Mobile plant, if any, shall be sited as far away from NSRs as possible.		^	^	^	^	^	^
	Machines and plant (such as trucks) that may be in intermittent use shall be shut down between works periods or shall be throttled down to a minimum.		^	^	^	^	^	^
4.67	Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.		^	^	^	^	^	^
	Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities.		^	^	^	^	^	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract						
			DC/2007/23	DC/2009/05	DE/2009/02	DC/2009/17	DC/2009/10	DC/2009/18	
C	Water Quality								
6.349 to 6.375	Construction Site Runoff and General Construction Activities The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable.	All construction sites	^	@	*	*	*	#	
6.376	Effluent Discharge There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes.		^	^	^	^	^	*	
6.377	Accidental Spillage of Chemicals Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.		<>	^	^	^	*	^	
6.378	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should		<>	^	^	^	^	^	

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract						
			DC/2007/23	DC/2009/05	DE/2009/02	DC/2009/17	DC/2009/10	DC/2009/18	
	only be undertaken within the areas appropriately equipped to control these discharges.								
6.379	<p>Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows:</p> <ul style="list-style-type: none"> • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 		^	@	^	^	*	*	
6.380	<p>Construction Works in Close Proximity of Storm Drains or Seafront</p> <p>To minimize the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.</p> <ul style="list-style-type: none"> • The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during 	All construction sites	^	@	^	^	^	#	

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract					
			DC/2007/23	DC/2009/05	DE/2009/02	DC/2009/17	DC/2009/10	DC/2009/18
	<p>carrying out of the construction works.</p> <ul style="list-style-type: none"> • Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. Construction activities, which generate large amount of wastewater, should be carried out in a distance • away from the waterfront, where practicable. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea. 							
D	Waste Management							
9.107	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimize wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimize the use of timber formwork.	All construction sites	^	^	^	^	^	^
9.109	<p>All waste materials should be segregated into categories covering:</p> <ul style="list-style-type: none"> • excavated materials suitable for reuse on-site; • excavated materials suitable for public filling facilities; • remaining C&D waste for landfill; • chemical waste; and • general refuse for landfill. 	All construction sites	<>	^	^	^	^	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract					
			DC/2007/23	DC/2009/05	DE/2009/02	DC/2009/17	DC/2009/10	DC/2009/18
9.113	Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals;		^	N/A	^	^	^	^
	Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.		^	^	^	^	^	^
	Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force.		^	^	^	^	*	^
	Any unused chemicals or those with remaining functional capacity shall be recycled.		^	^	^	^	^	^
	Proper storage and site practices to minimise the potential for damage or contamination of construction materials.		^	@	^	^	^	^
9.115	Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.		^	^	^	*	^	^
	Training of site personnel in proper waste management and chemical waste handling procedures.		^	^	^	^	^	^
	Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials.		^	^	^	^	^	^
	Provision of sufficient waste disposal points and regular collection of waste.		^	*	^	^	*	^
	Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.		@	^	^	^	^	^
9.125	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage"	All construction sites	^	^	^	^	^	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract					
			DC/2007/23	DC/2009/05	DE/2009/02	DC/2009/17	DC/2009/10	DC/2009/18
9.131	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.		^	^	^	^	^	^
9.133	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.		^	^	^	^	^	^
9.135	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.		^	^	^	*	*	^
9.137	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.		^	@	^	^	^	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract					
			DC/2007/23	DC/2009/05	DE/2009/02	DC/2009/17	DC/2009/10	DC/2009/18
9.142	Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results.		^	^	^	N/A	N/A	N/A
E	Terrestrial Ecology							
10.94	To implement effective noise mitigation measures as recommended in Section 4 of EIA.	All construction sites	^	^	^	N/A	N/A	N/A
10.95	Dust control practices such as regular watering, complete coverage of any aggregate or dusty material storage piles, and re-schedule of dusty activities during high-wind conditions as well as other measures recommended in Section 3 of EIA, should be implemented.		^	^	^	^	^	^
10.96	Fences/hoardings should be erected and installed along the boundary of the works areas.		^	^	^	^	^	^
10.97	Standard good site practices as suggested in Section 10 of EIA should be implemented.		^	^	^	N/A	N/A	N/A
10.98	Provision of proper drainage system and runoff control measures such as use of sand/silt traps, oil/grease separators, sedimentation tanks, etc.		^	@	^	^	^	^
F	Landscape and Visual							
Table 13.7	Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical.	All construction sites	<>	N/A	N/A	^	^	^
	Existing trees to be retained on site should be carefully protected during construction.		^	^	^	*	^	
	Trees unavoidably affected by the works should be transplanted where practical.		^	^	^	^	^	

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract					
			DC/2007/23	DC/2009/05	DE/2009/02	DC/2009/17	DC/2009/10	DC/2009/18
	Compensatory tree planting should be provided to compensate for felled trees. Control of night-time lighting.			N/A	N/A	^	^	^
Table 13.7	Erection of decorative screen hoarding compatible with the surrounding setting.	All construction sites		N/A	N/A	N/A	N/A	N/A
G	Marine Ecology							
11.137	To minimize the potential indirect impacts on water quality from construction site runoff and various construction activities, the practices outlined in ProPECC PN 1/94 Construction Site Drainage should be adopted.	All construction sites	^	^	^	^	^	^
H	Hazard to Life							
14A.201	Limiting use of cranes in terms of locations, lifting height, swing angle and setting up safety zone.	Exact location will be determined on construction site by the engineer	^	^	^	^	^	^

Remarks:	^ Compliance of mitigation measure;
	<> Compliance of mitigation measure but need improvement';
	N/A Not Applicable;
	* Recommendation was made during site audit but improved/rectified by the contractor.
	@ partially implemented
	X Non-compliance of mitigation measure;
	• Non-compliance but rectified by the contractor;
	# Recommendation was made during site audit and to be improved / rectified by the contractor.

**APPENDIX K
COMPLAINT LOG**

APPENDIX K – COMPLAINT LOG

Reporting Month: April 2012

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

Remarks: No environmental complaint was received in the reporting month.

APPENDIX L
CONSTRUCTION PROGRAMME

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	% Comp	2010	2011	2012	2013	2014
HATS Stage 2A - Contract DC/2007/23										
Stonecutters Island STW Production Shaft										
Preliminaries Works										
SCPS10070	SCPS: Construct/Install Blast Protection	2	22SEP10	24SEP10	0					
SCPS10075	SCPS: Site Inspection from Mines	1	25SEP10	25SEP10	0					
SCPS10080	SCPS: Issue Blasting Permit	1	27SEP10	27SEP10	0					
EBS, Env. & Geotechnical Instrumentations										
Markers/UMP's/Others(Same note as Piez.)										
SCPS0391	SCPS: Install GS Markers (17 Nos.)	74	01SEP09A	01FEB10	85					
SCPS0393	SCPS: JointSurvey&EstablishBaseline Readings GSM	14	02FEB10	20FEB10	0					
Piezometers(NearbyPTWorPScovered inthisInstalln)										
SCPS0375	SCPS: BH907 Piezometer Baseline Establishment	26	10NOV09A	23JAN10	85					
SCPS0381	SCPS: BH908 Piezometer Baseline Establishment	26	10NOV09A	27JAN10	73					
SCPS0387	SCPS: BH906 Piezometer Baseline Establishment	26	15JAN10A	06FEB10	40					
Electrical & Mechanical Installations										
SCPS0620	SCPS: Installation Works for 11KV Application	60	08APR10	18JUN10	0					
SCPS0625	SCPS: 11 KV Connection & Power On	4	19JUN10	23JUN10	0					
Marine Dumping Permit										
SCPS0370	SCPS: Request for Disposal Site&Get Permit	24	02JAN10A	05FEB10	38					
Diaphragm Wall										
SCPS0279	SCPS: Excavate 3rd Panel to Formation Level	12	16JAN10A	20JAN10	92					
SCPS0281	SCPS: 3rd Panel Desanding & Preparation Works	4	21JAN10	25JAN10	0					
SCPS0282	SCPS: Grouting Works Phase 1	45	21JAN10	17MAR10	0					
SCPS0283	SCPS: 3rd Panel Rebar Cage Installation	3	26JAN10	28JAN10	0					
SCPS0285	SCPS: 3rd Panel Concreting Works	1	29JAN10	29JAN10	0					
SCPS0287	SCPS: Excavate 4th Panel to Formation Level	23	30JAN10	01MAR10	0					
SCPS0289	SCPS: 4th Panel Desanding & Preparation Works	9	02MAR10	11MAR10	0					
SCPS0291	SCPS: 4th Panel Rebar Cage Installation	6	12MAR10	18MAR10	0					
SCPS0292	SCPS: Grouting Works Phase 2	45	18MAR10	11MAY10	0					
SCPS0293	SCPS: 4th Panel Concreting Works	1	19MAR10	19MAR10	0					
SCPS0297	SCPS: Excavate 5th Panel to Formation Level	8	20MAR10	29MAR10	0					
SCPS0299	SCPS: 5th Panel Desanding & Preparation Works	3	30MAR10	01APR10	0					
SCPS0301	SCPS: 5th Panel Rebar Cage Installation	2	02APR10	03APR10	0					
SCPS0303	SCPS: 5th Panel Concreting Works	1	06APR10	06APR10	0					
SCPS0307	SCPS: Excavate 6th Panel to Formation Level	23	07APR10	04MAY10	0					
SCPS0309	SCPS: 6th Panel Desanding & Preparation Works	9	05MAY10	14MAY10	0					
SCPS0310	SCPS: Grouting Works Phase 3	50	12MAY10	10JUL10	0					
SCPS0311	SCPS: 6th Panel Rebar Cage Installation	6	15MAY10	21MAY10	0					
SCPS0313	SCPS: 6th Panel Concreting Works	1	22MAY10	22MAY10	0					
SCPS0317	SCPS: Excavate 7th Panel to Formation Level	8	24MAY10	01JUN10	0					
SCPS0319	SCPS: 7th Panel Desanding & Preparation Works	3	02JUN10	04JUN10	0					
SCPS0321	SCPS: 7th Panel Rebar Cage Installation	2	05JUN10	07JUN10	0					
SCPS0323	SCPS: 7th Panel Concreting Works	1	08JUN10	08JUN10	0					
SCPS0327	SCPS: Excavate 8th Panel to Formation Level	8	09JUN10	18JUN10	0					
SCPS0329	SCPS: 8th Panel Desanding & Preparation Works	3	19JUN10	22JUN10	0					
SCPS0331	SCPS: 8th Panel Rebar Cage Installation	2	23JUN10	24JUN10	0					
SCPS0333	SCPS: 8th Panel Concreting Works	1	25JUN10	25JUN10	0					
SCPS0335	SCPS: Install Dewatering Wells for Pump-test	12	05JUL10	17JUL10	0					
SCPS0337	SCPS: Pumping Test	6	19JUL10	24JUL10	0					
SCPS0338	SCPS: Submission of Pumping Test Report	6	26JUL10	31JUL10	0					
SCPS0341	SCPS: Demobilization	6	26JUL10	31JUL10	0					
Shaft Excavation										
SCPS0500	SCPS: Construct Capping Beam & Shaft Collar	12	26JUL10	07AUG10	0					
SCPS0510	SCPS: Initial Excavation of Shaft (7m)	4	09AUG10	12AUG10	0					
SCPS0520	SCPS: Set-Up Equipment for Shaft Sink	12	13AUG10	26AUG10	0					
SCPS0525	SCPS: Erect Noise Enclosure at Shaft Top	12	13AUG10	26AUG10	0					
SCPS0530	SCPS: Excavate Soil & Ring Beams (50m)	22	27AUG10	21SEP10	0					
SCPS0575	SCPS: Probe, Grout, D&B Rock, Muck Out (87m)	100	28SEP10	26JAN11	0					
SCPS0640	SCPS: Construct Sump at Shaft Bottom	2	27JAN11	28JAN11	0					
SCPS0665	SCPS: Erect Tunnel Hoist & Muck Out System	10	29JAN11	12FEB11	0					
Backfill, Reinstatement & Landscaping										
SCPS0910	SCPS: Backfill Shaft (20%)	8	12SEP13	21SEP13	0					
SCPS0920	SCPS: Backfill Shaft (40%)	8	23SEP13	02OCT13	0					
SCPS0930	SCPS: Backfill Shaft (60%)	8	03OCT13	11OCT13	0					
SCPS0940	SCPS: Backfill Shaft (80%)	8	12OCT13	22OCT13	0					
SCPS0950	SCPS: Backfill Shaft (100%)	8	23OCT13	31OCT13	0					
SCPS0960	SCPS: Reinstatement Around PS Area	12	01NOV13	14NOV13	0					
SCPS0970	SCPS: Demobilise Clear Area	6	15NOV13	21NOV13	0					
SCPS0975	SCPS: Complete All Works at SCI PS (KD-11)	0	21NOV13	21NOV13	0					
SCPS0980	SCPS: Landscaping & Planting Works	60	22NOV13*	20JAN14	0					
SCPS0990	SCPS: Period of Establishment Works	360	21JAN14	15JAN15	0					
SCPS1000	SCPS: End of Establishment Period	0	15JAN15	15JAN15	0					

Start Date 31JUL09
 Finish Date 15JAN15
 Data Date 20JAN10
 Run Date 01FEB10 10:42

Early Bar
 Progress Bar
 Critical Activity

WPU7 Sheet 1 of 1
 Harbour Area Treatment Scheme Stage 2A
 Contract No. DC/2007/23 - Construction of Sewage
 Conveyance from North Point to Stonecutters Island
 Programme
 Annex G8 Construction Programme for the Project



Date	Revision	Checked/Approved

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	% Comp	2010	2011	2012	2013	2014
HATS Stage 2A - Contract DC/2007/23										
Stonecutters Island STW Riser Shaft										
Marine Dumping Permit										
SCRS0370	SCRS: Request for Disposal Site&Get Permit	24	05JAN10A	06FEB10	33	SCRS: Request for Disposal Site&Get Permit				
Diaphragm Wall										
SCRS0287	SCRS: Excavate 4th Panel to Formation Level	7	09JAN10A	23JAN10	50	SCRS: Excavate 4th Panel to Formation Level				
SCRS0289	SCRS: 4th Panel Desanding & Preparation Works	3	25JAN10	27JAN10	0	SCRS: 4th Panel Desanding & Preparation Works				
SCRS0291	SCRS: 4th Panel Rebar Cage Installation	2	28JAN10	29JAN10	0	SCRS: 4th Panel Rebar Cage Installation				
SCRS0293	SCRS: 4th Panel Concreting Works	1	30JAN10	30JAN10	0	SCRS: 4th Panel Concreting Works				
SCRS0295	SCRS: Excavate 5th Panel to Formation Level	7	01FEB10	08FEB10	0	SCRS: Excavate 5th Panel to Formation Level				
SCRS0297	SCRS: 5th Panel Desanding & Preparation Works	3	09FEB10	11FEB10	0	SCRS: 5th Panel Desanding & Preparation Works				
SCRS0299	SCRS: 5th Panel Rebar Cage Installation	2	12FEB10	13FEB10	0	SCRS: 5th Panel Rebar Cage Installation				
SCRS0301	SCRS: 5th Panel Concreting Works	1	18FEB10	18FEB10	0	SCRS: 5th Panel Concreting Works				
SCRS0303	SCRS: Excavate 6th Panel to Formation Level	7	19FEB10	26FEB10	0	SCRS: Excavate 6th Panel to Formation Level				
SCRS0305	SCRS: 6th Panel Desanding & Preparation Works	3	27FEB10	02MAR10	0	SCRS: 6th Panel Desanding & Preparation Works				
SCRS0306	SCRS: Grouting Works Phase 1	40	03MAR10	19APR10	0	SCRS: Grouting Works Phase 1				
SCRS0307	SCRS: 6th Panel Rebar Cage Installation	2	03MAR10	04MAR10	0	SCRS: 6th Panel Rebar Cage Installation				
SCRS0309	SCRS: 6th Panel Concreting Works	1	05MAR10	05MAR10	0	SCRS: 6th Panel Concreting Works				
SCRS0311	SCRS: Excavate 7th Panel to Formation Level	7	06MAR10	13MAR10	0	SCRS: Excavate 7th Panel to Formation Level				
SCRS0313	SCRS: 7th Panel Desanding & Preparation Works	3	15MAR10	17MAR10	0	SCRS: 7th Panel Desanding & Preparation Works				
SCRS0315	SCRS: 7th Panel Rebar Cage Installation	2	18MAR10	19MAR10	0	SCRS: 7th Panel Rebar Cage Installation				
SCRS0317	SCRS: 7th Panel Concreting Works	1	20MAR10	20MAR10	0	SCRS: 7th Panel Concreting Works				
SCRS0319	SCRS: Excavate 8th Panel to Formation Level	7	22MAR10	29MAR10	0	SCRS: Excavate 8th Panel to Formation Level				
SCRS0321	SCRS: 8th Panel Desanding & Preparation Works	3	30MAR10	01APR10	0	SCRS: 8th Panel Desanding & Preparation Works				
SCRS0323	SCRS: 8th Panel Rebar Cage Installation	2	02APR10	03APR10	0	SCRS: 8th Panel Rebar Cage Installation				
SCRS0325	SCRS: 8th Panel Concreting Works	1	06APR10	06APR10	0	SCRS: 8th Panel Concreting Works				
SCRS0327	SCRS: Excavate 9th Panel to Formation Level	7	07APR10	14APR10	0	SCRS: Excavate 9th Panel to Formation Level				
SCRS0329	SCRS: 9th Panel Desanding & Preparation Works	3	15APR10	17APR10	0	SCRS: 9th Panel Desanding & Preparation Works				
SCRS0331	SCRS: 9th Panel Rebar Cage Installation	2	19APR10	20APR10	0	SCRS: 9th Panel Rebar Cage Installation				
SCRS0332	SCRS: Grouting Works Phase 2	40	21APR10	07JUN10	0	SCRS: Grouting Works Phase 2				
SCRS0333	SCRS: 9th Panel Concreting Works	1	21APR10	21APR10	0	SCRS: 9th Panel Concreting Works				
SCRS0335	SCRS: Excavate 10th Panel to Formation Level	7	22APR10	29APR10	0	SCRS: Excavate 10th Panel to Formation Level				
SCRS0337	SCRS: 10th Panel Desanding & Preparation Works	3	30APR10	04MAY10	0	SCRS: 10th Panel Desanding & Preparation Works				
SCRS0339	SCRS: 10th Panel Rebar Cage Installation	2	05MAY10	06MAY10	0	SCRS: 10th Panel Rebar Cage Installation				
SCRS0341	SCRS: 10th Panel Concreting Works	1	07MAY10	07MAY10	0	SCRS: 10th Panel Concreting Works				
SCRS0343	SCRS: Excavate 11th Panel to Formation Level	7	08MAY10	15MAY10	0	SCRS: Excavate 11th Panel to Formation Level				
SCRS0345	SCRS: 11th Panel Desanding & Preparation Works	3	17MAY10	19MAY10	0	SCRS: 11th Panel Desanding & Preparation Works				
SCRS0347	SCRS: 11th Panel Rebar Cage Installation	2	20MAY10	21MAY10	0	SCRS: 11th Panel Rebar Cage Installation				
SCRS0349	SCRS: 11th Panel Concreting Works	1	22MAY10	22MAY10	0	SCRS: 11th Panel Concreting Works				
SCRS0351	SCRS: Excavate 12th Panel to Formation Level	7	24MAY10	31MAY10	0	SCRS: Excavate 12th Panel to Formation Level				
SCRS0353	SCRS: 12th Panel Desanding & Preparation Works	3	01JUN10	03JUN10	0	SCRS: 12th Panel Desanding & Preparation Works				
SCRS0355	SCRS: 12th Panel Rebar Cage Installation	2	04JUN10	05JUN10	0	SCRS: 12th Panel Rebar Cage Installation				
SCRS0356	SCRS: Grouting Works Phase 3	40	08JUN10	26JUL10	0	SCRS: Grouting Works Phase 3				
SCRS0357	SCRS: 12th Panel Concreting Works	1	07JUN10	07JUN10	0	SCRS: 12th Panel Concreting Works				
SCRS0359	SCRS: Excavate 13th Panel to Formation Level	7	08JUN10	15JUN10	0	SCRS: Excavate 13th Panel to Formation Level				
SCRS0361	SCRS: 13th Panel Desanding & Preparation Works	3	17JUN10	19JUN10	0	SCRS: 13th Panel Desanding & Preparation Works				
SCRS0365	SCRS: 13th Panel Concreting Works	1	23JUN10	23JUN10	0	SCRS: 13th Panel Concreting Works				
SCRS0366	SCRS: 13th Panel Rebar Cage Installation	2	21JUN10	22JUN10	0	SCRS: 13th Panel Rebar Cage Installation				
SCRS0367	SCRS: Excavate 14th Panel to Formation Level	7	24JUN10	02JUL10	0	SCRS: Excavate 14th Panel to Formation Level				
SCRS0369	SCRS: 14th Panel Desanding & Preparation Works	3	03JUL10	06JUL10	0	SCRS: 14th Panel Desanding & Preparation Works				
SCRS0371	SCRS: 14th Panel Rebar Cage Installation	2	07JUL10	08JUL10	0	SCRS: 14th Panel Rebar Cage Installation				
SCRS0373	SCRS: 14th Panel Concreting Works	1	09JUL10	09JUL10	0	SCRS: 14th Panel Concreting Works				
SCRS0380	SCRS: Install Dewatering Wells for Pump-test	12	20JUL10	02AUG10	0	SCRS: Install Dewatering Wells for Pump-test				
SCRS0390	SCRS: Pumping Test	6	03AUG10	09AUG10	0	SCRS: Pumping Test				
SCRS0392	SCRS: Submission of Pumping Test Report	6	10AUG10	16AUG10	0	SCRS: Submission of Pumping Test Report				
SCRS0394	SCRS: Demobilization for D'wall	6	10AUG10	16AUG10	0	SCRS: Demobilization for D'wall				
Shaft Excavation										
SCRS0400	SCRS: Construct Capping Beam & Shaft Collar	6	17AUG10	23AUG10	0	SCRS: Construct Capping Beam & Shaft Collar				
SCRS0410	SCRS: Excavate Soil & Ring Beams (58.4m)	42	24AUG10	13OCT10	0	SCRS: Excavate Soil & Ring Beams (58.4m)				
SCRS0420	SCRS: Construct Levelling Pad	3	14OCT10	18OCT10	0	SCRS: Construct Levelling Pad				
SCRS0430	SCRS: Pre-excavation Grout for Raise Bore	90	19OCT10	02FEB11	0	SCRS: Pre-excavation Grout for Raise Bore				
SCRS0440	SCRS: In-fill Concrete for Pilot Hole	12	07FEB11	19FEB11	0	SCRS: In-fill Concrete for Pilot Hole				
Raised Boring										
SCRS0700	SCRS: Rig Up Hole 1	5	07AUG12	11AUG12	0	SCRS: Rig Up Hole 1				
SCRS0710	SCRS: Pilot Drill 140 mtrs	16	13AUG12	30AUG12	0	SCRS: Pilot Drill 140 mtrs				
SCRS0720	SCRS: Attach reamer and Collar	3	31AUG12	03SEP12	0	SCRS: Attach reamer and Collar				
SCRS0730	SCRS: Ream 90 metres @ 3.5 mtr dia	35	04SEP12	16OCT12	0	SCRS: Ream 90 metres @ 3.5 mtr dia				
SCRS0740	SCRS: Lower Reamer and Remove	3	17OCT12	19OCT12	0	SCRS: Lower Reamer and Remove				
SCRS0750	SCRS: De Rig Raise borer	5	20OCT12	26OCT12	0	SCRS: De Rig Raise borer				
Lower Shaft Construction										
SCRS0835	SCRS: Blinding Layer & Base Slab for LS	6	27OCT12	02NOV12	0	SCRS: Blinding Layer & Base Slab for LS				
SCRS0840	SCRS: Bank shunt concreting	18	03NOV12	23NOV12	0	SCRS: Bank shunt concreting				
SCRS0875	SCRS: Constr VERT-SHIFT to Tun Invert -136.5mPD	9	24NOV12	04DEC12	0	SCRS: Constr VERT-SHIFT to Tun Invert -136.5mPD				
SCRS0885	SCRS: Install System Form for LS -136.5mPD	9	05DEC12	14DEC12	0	SCRS: Install System Form for LS -136.5mPD				
SCRS0935	SCRS: Construct Transition & Vert Shaft -136mPD	15	15DEC12	03JAN13	0	SCRS: Construct Transition & Vert Shaft -136mPD				
SCRS0940	SCRS: Construct Shaft -136 to -30.5mPD	55	04JAN13	12MAR13	0	SCRS: Construct Shaft -136 to -30.5mPD				
Upper Shaft Construction										
SCRS0975	SCRS: Construct Vert Shift to Tun Invert -30.5mPD	9	13MAR13	22MAR13	0	SCRS: Construct Vert Shift to Tun Invert -30.5mPD				
SCRS0995	SCRS: Install System Form for LS -30.5mPD	9	23MAR13	02APR13	0	SCRS: Install System Form for LS -30.5mPD				
SCRS1045	SCRS: Construct Upper Shaft	36	03APR13	16MAY13	0	SCRS: Construct Upper Shaft				
SCRS1065	SCRS: Clear Area & Install Multi-Part Cover	3	17MAY13	20MAY13	0	SCRS: Clear Area & Install Multi-Part Cover				
Miscellaneous Works										
SCRS2010	SCRS: Install E&M Services	18	21MAY13	10JUN13	0	SCRS: Install E&M Services				
SCRS2020	SCRS: Reinstatement & Clear RS Area	12	11JUN13	25JUN13	0	SCRS: Reinstatement & Clear RS Area				
SCRS2025	SCRS: Complete All Works at SCI RS (KD-11)	0	0	25JUN13	0	SCRS: Complete All Works at SCI RS (KD-11)				
SCRS2030	SCRS: Landscaping & Planting Works	60	08SEP13*	06NOV13	0	SCRS: Landscaping & Planting Works				




Start Date: 31JUL09
 Finish Date: 15JAN15
 Data Date: 20JAN10
 Run Date: 01FEB10 10:50

WPU7 Sheet 1 of 2
Labour Area Treatment Scheme Stage 2A
 Contract No. DC/2007/23 - Construction of Sewage Conveyance from North Point to Stonecutters Island Programme
 Annex G8 Construction Programme for the Project

Date	Revision	Checked/Approved

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	% Comp	2010												2011												2012												2013												2014											
SCRS2060	SCRS: Period of Establishment Works	360	07NOV13	01NOV14	0																									SCRS: Period of Establishment Works																																			
SCRS2070	SCRS: End of Establishment Period	0		01NOV14	0																																					SCRS: End of Establishment Period																							
Connecting Adit																																																																	
SCRS2040	SCRS: Construct RS Connecting Adit	192	14OCT10	03JUN11	0																									SCRS: Construct RS Connecting Adit																																			
SCRS2050	SCRS: Complete Excav & Lining at SCI RS Adit	0		03JUN11	0																									SCRS: Complete Excav & Lining at SCI RS Adit																																			

Start Date 31JUL09
 Finish Date 15JAN15
 Data Date 20JAN10
 Run Date 01FEB10 10:50

 Early Bar
 Progress Bar
 Critical Activity

WPU7 Sheet 2 of 2
Harbour Area Treatment Scheme Stage 2A
 Contract No. DC/2007/23 - Construction of Sewage
 Conveyance from North Point to Stonecutters Island
 Programme
 Annex G8 Construction Programme for the Project



Date	Revision	Checked	Approved

Act ID	Description	Orig Dur	Target Start	Target Finish	Start	Finish	Rem Dur	Total Float	Gantt Chart																																																							
									2009													2010													2011													2012													2013			
Key Dates																																																																
(For All Works Under the Contract)																																																																
General																																																																
KD-1000	Letter of Acceptance	0	03SEP09		03SEP09 A		0			◆ Letter of Acceptance																																																						
KD-2000	Contract Commencement	0	17SEP09		17SEP09 A		0			◆ Contract Commencement																																																						
KD-2500	Revised Contract Completion	0		25FEB12		20MAY12	0	-85d		◆ Revised Contract Completion																																																						
KD-2600	Revised End of Maintenance Period	0		25FEB13		22MAY13	0	-85d		◆ Revised End of Main																																																						
Portion Handover																																																																
KD-6000	Portion 2 (1 day)	0	17SEP09		17SEP09 A		0			◆ Portion 2 (1 day)																																																						
KD-6100	Portion 3 (1 day)	0	17SEP09		17SEP09 A		0			◆ Portion 3 (1 day)																																																						
KD-6200	Portion 4 (1 day)	0	17SEP09		17SEP09 A		0			◆ Portion 4 (1 day)																																																						
KD-6300	Portion 5 (Latest Possession 549 days)	0	19MAR11		11APR11 A		0			◆ Portion 5 (Latest Possession 549 days)																																																						
KD-6400	Portion 6 (1 day)	0	17SEP09		17SEP09 A		0			◆ Portion 6 (1 day)																																																						
KD-6500	Portion A (1 day)	0	17SEP09		17SEP09 A		0			◆ Portion A (1 day)																																																						
KD-6600	Portion B (1 day)	0	17SEP09		17SEP09 A		0			◆ Portion B (1 day)																																																						
KD-6700	Portion C (1 day)	0	17SEP09		17SEP09 A		0			◆ Portion C (1 day)																																																						
Section I of the Works (387 days)																																																																
KD-3000	Section I of the Works (Extended)	0		31DEC10		07DEC10 A	0			◆ Section I of the Works (Extended)																																																						
KD-3010	EOT1 granted for Claims 1,3,4,6,8 & 9	11	08OCT10	20OCT10	08OCT10 A	20OCT10 A	0			■ EOT1 granted for Claims 1,3,4,6,8 & 9																																																						
KD-3020	EOT2 granted for Claim 12,14,17&18	47	21OCT10	06DEC10	21OCT10 A	06DEC10 A	0			■ EOT2 granted for Claim 12,14,17&18																																																						
KD-3030	EOT3 granted for Claim 19, 20, 21 & 24	1		07DEC11 A	07DEC11 A		0			EOT3 granted for Claim 19, 20, 21 & 24																																																						
Section II of the Works (730 days)																																																																
KD-4000	Section II of the Works (Extended)	0		23NOV11		17JAN12 A	0			◆ Section II of the Works (Extended)																																																						
KD-4010	EOT1 granted for Claims 1,3,4,6,8 & 9	10	16SEP11	27SEP11	16SEP11 A	27SEP11 A	0			■ EOT1 granted for Claims 1,3,4,6,8 & 9																																																						
KD-4020	EOT2 granted for Claim 12,14,17&18	49	28SEP11	15NOV11	28SEP11 A	15NOV11 A	0			■ EOT2 granted for Claim 12,14,17&18																																																						
KD-4030	EOT3 granted for Claim 19, 20, 21 & 24	1		16NOV11 A	16NOV11 A		0			EOT3 granted for Claim 19, 20, 21 & 24																																																						
KD-4040	EOT4 granted for Claim 25,27, 29 & 31	8		17NOV11 A	23NOV11 A		0			■ EOT4 granted for Claim 25,27, 29 & 31																																																						
Section III of the Works (823 days)																																																																
KD-5000	Section III of the Works (Extended)	0		25FEB12		20MAY12	0	-85d		◆ Section III of the Works (Extended)																																																						
KD-5010	EOT1 granted for Claims 1,3,4,6,8 & 9	11	19DEC11	30DEC11	19DEC11 A	30DEC11 A	0			■ EOT1 granted for Claims 1,3,4,6,8 & 9																																																						
KD-5020	EOT2 granted for Claim 12,14,17&18	49	31DEC11	17FEB12	31DEC11 A	17FEB12 A	0			■ EOT2 granted for Claim 12,14,17&18																																																						
KD-5060	EOT4 granted for Claim 25,27, 29 & 31	8		18FEB12 A	25FEB12 A		0			■ EOT4 granted for Claim 25,27, 29 & 31																																																						
Section IV (1) of the Additional Works (131 days)																																																																
KD-5030	Section IV (1) - Part of Section Hand Over to ST	0		25AUG10		25AUG10 A	0			◆ Section IV (1) - Part of Section Hand Over to ST																																																						
Section IV (2) of the Additional Works (199 days)																																																																
KD-5040	Section IV (2) - Part of Section Hand Over to ST	0		15OCT10		15OCT10 A	0			◆ Section IV (2) - Part of Section Hand Over to ST																																																						
Section IV (3) of the Additional Works (199 days)																																																																
KD-5050	Section IV (3) Completion of Additional Works	0		30DEC10		30DEC10 A	0			◆ Section IV (3) Completion of Additional Works																																																						
Preliminaries and General Requirement																																																																
General Requirement																																																																
General																																																																
PG/00010	General Preliminaries Requirement	148 *	17SEP09	11FEB10	17SEP09 A	11FEB10 A	0 *			■ General Preliminaries Requirement																																																						
PG/00020	General Site Clearance	14	17SEP09	30SEP09	17SEP09 A	30SEP09 A	0			■ General Site Clearance																																																						
PG/00030	Establish Cont & Eng's Temp Site Office	14	17SEP09	30SEP09	17SEP09 A	30SEP09 A	0			■ Establish Cont & Eng's Temp Site Office																																																						
PG/00040	Initial Survey of Site	21	17SEP09	07OCT09	17SEP09 A	07OCT09 A	0			■ Initial Survey of Site																																																						
PG/00050	Construction of Steel Fencing & Gates	28	17SEP09	14OCT09	17SEP09 A	14OCT09 A	0			■ Construction of Steel Fencing & Gates																																																						
PG/00060	Construction of Contractor Accommodation	71	17SEP09	26NOV09	17SEP09 A	26NOV09 A	0			■ Construction of Contractor Accommodation																																																						
PG/00070	Provision of Interim Engineer Office	14	17SEP09	30SEP09	17SEP09 A	30SEP09 A	0			■ Provision of Interim Engineer Office																																																						
PG/00080	Submit Engineer Accommodation Proposal	32	17SEP09	18OCT09	17SEP09 A	18OCT09 A	0			■ Submit Engineer Accommodation Proposal																																																						
PG/00090	Approval for Engineer's Accommodation Proposal	80	19OCT09	31DEC09	19OCT09 A	31DEC09 A	0			■ Approval for Engineer's Accommodation Proposal																																																						
PG/00100	Construction of Engineer Accommodation	125	22OCT09	11FEB10	22OCT09 A	11FEB10 A	0			■ Construction of Engineer Accommodation																																																						
PG/00110	Take Over Control Gate No.2 from ADF Contractor	1	15OCT09	15OCT09	15OCT09 A	15OCT09 A	0			Take Over Control Gate No.2 from ADF Contractor																																																						
PG/00120	Handover Portion 3 to MPS Contractor	1	24FEB12	24FEB12	31JAN12 A	27JAN12 A	0			Handover Portion 3 to MPS Contractor																																																						
PG/00130	Handover Control Gate No2 to 4 to MPS Contractor	1	11APR12	11APR12	21MAY12	21MAY12	1	280d		Handover Control Gate No2 to 4 to MPS Contractor																																																						
PG/00140	Handover Portions 2 & 4 to MPS Contractor	1	11APR12	11APR12	21MAY12	21MAY12	1	-72d		Handover Portions 2 & 4 to MPS Contractor																																																						
PG/00150	Handover Portions A & D to MPS Contractor	1	11APR12	11APR12	21MAY12	21MAY12	1	280d		Handover Portions A & D to MPS Contractor																																																						
PG/00160	Handover Eng Accommodation to MPS Contractor	1	11APR12	11APR12	21MAY12	21MAY12	1	280d		Handover Eng Accommodation to MPS Contractor																																																						

Start date 03SEP09
Finish date 22MAY13
Data date 30APR12
Run date 27APR12
Page number 1A
Project name MRS31
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■ Early bar
■ Progress bar
■ Critical bar
■ Summary bar
◆ Start milestone point
◆ Finish milestone point

Act ID	Description	Orig Dur	Target Start	Target Finish	Start	Finish	Rem Dur	Total Float	Gantt Chart																																																			
									2009					2010					2011					2012					2013																															
									S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
PG/00170	Handover Switchboard to MPS Contractor(deleted)	0	11APR12	11APR12	21MAY12	20MAY12	0	281d	Handover Switchboard to MPS Contractor(deleted)																																																			
Submission, Approvals and Permits																																																												
General																																																												
PG/00210	Submission and Permits	199 *	03SEP09	24MAR10	03SEP09 A	24MAR10 A	0 *		Submission and Permits																																																			
PG/00220	Submission of Initial Works Programme	19	03SEP09	21SEP09	03SEP09 A	21SEP09 A	0		Submission of Initial Works Programme																																																			
PG/00230	Engineer's Approval of Works Programme	31	22SEP09	22OCT09	22SEP09 A	22OCT09 A	0		Engineer's Approval of Works Programme																																																			
PG/00240	Submission of Detailed Works Programme	150	23OCT09	24MAR10	23OCT09 A	24MAR10 A	0		Submission of Detailed Works Programme																																																			
PG/00250	Submission of 1st 3Mths Rolling Programme	14	17SEP09	17SEP09	17SEP09 A	17SEP09 A	0		Submission of 1st 3Mths Rolling Programme																																																			
PG/00260	Submission of Draft Safety Plan	14	03SEP09	16SEP09	03SEP09 A	16SEP09 A	0		Submission of Draft Safety Plan																																																			
PG/00270	Submission of Final Safety Plan	35	03SEP09	07OCT09	03SEP09 A	07OCT09 A	0		Submission of Final Safety Plan																																																			
PG/00280	Submission of Staff/ Organisation Chart	14	17SEP09	30SEP09	17SEP09 A	30SEP09 A	0		Submission of Staff/ Organisation Chart																																																			
PG/00290	Submission of Subcontractor Management Plan	30	03SEP09	02OCT09	03SEP09 A	02OCT09 A	0		Submission of Subcontractor Management Plan																																																			
PG/00300	Submit Draft Environmental Management Plan	21	03SEP09	23SEP09	03SEP09 A	23SEP09 A	0		Submit Draft Environmental Management Plan																																																			
PG/00310	Submit Final Environmental Management Plan	45	03SEP09	17OCT09	03SEP09 A	17OCT09 A	0		Submit Final Environmental Management Plan																																																			
PG/00320	Submission of Initial Survey Records	14	01OCT09	14OCT09	01OCT09 A	14OCT09 A	0		Submission of Initial Survey Records																																																			
PG/00330	Submission of WaterProofing Concrete	14	17SEP09	30SEP09	17SEP09 A	30SEP09 A	0		Submission of WaterProofing Concrete																																																			
PG/00340	Engineer's Approval of W.P Concrete	135	01OCT09	04JAN10	01OCT09 A	04JAN10 A	0		Engineer's Approval of W.P Concrete																																																			
PG/00350	Establish Site Liaison Group SLG	30	17SEP09	16OCT09	17SEP09 A	16OCT09 A	0		Establish Site Liaison Group SLG																																																			
Section 1																																																												
(For All Works Under the Contract)																																																												
Key Dates																																																												
KD3000	Achievement of Section I	0		30JAN11		07DEC10 A	0		Achievement of Section I																																																			
Portion Handover																																																												
KD6200	Portion 4 (1 day)	0	17SEP09		17SEP09 A		0		Portion 4 (1 day)																																																			
Inlet Chamber																																																												
Diaphragm Wall																																																												
S1/02010	Diaphragm Wall for Inlet Chamber	328 *	23MAR10	07JAN11	23MAR10 A	17FEB11 A	0 *		Diaphragm Wall for Inlet Chamber																																																			
S1/02040	Mobilization of Plant and Labours	130	06OCT09	22MAR10	06OCT09 A	22MAR10 A	0		Mobilization of Plant and Labours																																																			
S1/02050	Establishment of Slurry Treatment Plant	60	06OCT09	14DEC09	06OCT09 A	14DEC09 A	0		Establishment of Slurry Treatment Plant																																																			
S1/02060	C1-C13,P1-P3&P41-P42 (18 nos. Panels)	129	23MAR10	06JAN11	23MAR10 A	23MAR11 A	0		C1-C13,P1-P3&P41-P42 (18 nos. Panels)																																																			
S1/02070	Inlet Chamber: Preparation for DW construction	1	22MAR10	22MAR10	22MAR10 A	22MAR10 A	0		Inlet Chamber: Preparation for DW construction																																																			
S1/02080	Inlet Chamber: DW Panel P42	13	23MAR10	03MAY10	23MAR10 A	03MAY10 A	0		Inlet Chamber: DW Panel P42																																																			
S1/02090	Inlet Chamber: DW Panel P2	14	04MAY10	17MAY10	04MAY10 A	17MAY10 A	0		Inlet Chamber: DW Panel P2																																																			
S1/02100	Inlet Chamber: DW Panel C3	10	18MAY10	29MAY10	18MAY10 A	29MAY10 A	0		Inlet Chamber: DW Panel C3																																																			
S1/02110	Inlet Chamber: DW Panel C11	10	19MAY10	04JUN10	19MAY10 A	04JUN10 A	0		Inlet Chamber: DW Panel C11																																																			
S1/02120	Inlet Chamber: DW Panel C7	10	04JUN10	10JUL10	04JUN10 A	10JUL10 A	0		Inlet Chamber: DW Panel C7																																																			
S1/02130	Inlet Chamber: DW Panel P1	4	07JUN10	19JUN10	07JUN10 A	19JUN10 A	0		Inlet Chamber: DW Panel P1																																																			
S1/02140	Inlet Chamber: DW Panel P41+C1	13	11JUL10	02AUG10	11JUL10 A	02AUG10 A	0		Inlet Chamber: DW Panel P41+C1																																																			
S1/02150	Inlet Chamber: DW Panel C9	13	23JUL10	22OCT10	23JUL10 A	22OCT10 A	0		Inlet Chamber: DW Panel C9																																																			
S1/02160	Inlet Chamber: DW Panel C5	13	06AUG10	08SEP10	06AUG10 A	08SEP10 A	0		Inlet Chamber: DW Panel C5																																																			
S1/02170	Inlet Chamber: DW Panel P3+C13	13	05AUG10	31AUG10	05AUG10 A	31AUG10 A	0		Inlet Chamber: DW Panel P3+C13																																																			
S1/02180	Inlet Chamber: DW Panel C2	13	25SEP10	07JAN11	25SEP10 A	15JAN11 A	0		Inlet Chamber: DW Panel C2																																																			
S1/02190	Inlet Chamber: DW Panel C10	4	29OCT10	22NOV10	29OCT10 A	22NOV10 A	0		Inlet Chamber: DW Panel C10																																																			
S1/02200	Inlet Chamber: DW Panel C6	4	19NOV10	26NOV10	19NOV10 A	26NOV10 A	0		Inlet Chamber: DW Panel C6																																																			
S1/02210	Inlet Chamber: DW Panel C12	4	27SEP10	29NOV10	27SEP10 A	29NOV10 A	0		Inlet Chamber: DW Panel C12																																																			
S1/02220	Inlet Chamber: DW Panel C4	4	03NOV10	09DEC10	03NOV10 A	09DEC10 A	0		Inlet Chamber: DW Panel C4																																																			
S1/02230	Inlet Chamber: DW Panel C8	4	27NOV10	07JAN11	27NOV10 A	17FEB11 A	0		Inlet Chamber: DW Panel C8																																																			
S1/02250	Toe Grouting for Inlet Chamber	92 *	10DEC10	30JAN11	10DEC10 A	15MAR11 A	0 *		Toe Grouting for Inlet Chamber																																																			
S1/02260	Carry Out Toe Grouting	48	10DEC10	29JAN11	10DEC10 A	14MAR11 A	0		Carry Out Toe Grouting																																																			
S1/02262	Dummy for Toe Grouting	0	30JAN11	30JAN11	15MAR11 A	15MAR11 A	0		Dummy for Toe Grouting																																																			
S1/02270	Submission of As-built Record of Diaphragm Wall	28	08JAN11	08FEB11	20MAR11 A	09SEP11 A	0		Submission of As-built Record of Diaphragm Wall																																																			
S1/02280	Access Date to penetrate Dwall by SCS Contractor	2	30JAN11	01FEB11	01DEC10 A	01DEC10 A	0		Access Date to penetrate Dwall by SCS Contractor																																																			
Initial Works / Associated Submission																																																												
S1/01010	Initial Works for Inlet Chamber	354 *	17SEP09	30NOV10	17SEP09 A	30NOV10 A	0 *		Initial Works for Inlet Chamber																																																			
S1/01020	Site Clearance (Portion 4)	21	17SEP09	13OCT09	17SEP09 A	13OCT09 A	0		Site Clearance (Portion 4)																																																			
S1/01030	Precondition Survey of Existing Structures	21	17SEP09	13OCT09	17SEP09 A	13OCT09 A	0		Precondition Survey of Existing Structures																																																			
S1/01040	Erection of Steel Fencing & Entrance Gate	21	17SEP09	13OCT09	17SEP09 A	13OCT09 A	0		Erection of Steel Fencing & Entrance Gate																																																			

Start date	03SEP09
Finish date	22MAY13
Date date	30APR12
Run date	27APR12
Page number	2A
Project name	MRS1
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■	Early bar
■	Progress bar
■	Critical bar
■	Summary bar
◆	Start milestone point
◆	Finish milestone point

Act ID	Description	Orig Dur	Target Start	Target Finish	Start	Finish	Rem Dur	Total Float	Gantt Chart																																																											
									2009												2010												2011												2012												2013											
									S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D								
S1/01050	Pre-drilling Works of Diaphragm Wall	28	14OCT09	16NOV09	14OCT09 A	16NOV09 A	0		■ Pre-drilling Works of Diaphragm Wall																																																											
S1/01060	Confirm Founding Level of Diaphragm Wall	135	17NOV09	30NOV10	30NOV10 A	30NOV10 A	0		■ Confirm Founding Level of Diaphragm Wall																																																											
S1/01070	Submission of Diaphragm Wall M.S.	14	17SEP09	05OCT09	17SEP09 A	05OCT09 A	0		■ Submission of Diaphragm Wall M.S.																																																											
S1/01080	Engineer's Review of Diaphragm Wall M.S.	14	06OCT09	21OCT09	06OCT09 A	21OCT09 A	0		■ Engineer's Review of Diaphragm Wall M.S.																																																											
S1/01090	Submission of Ground Treatment M.S.	14	17SEP09	05OCT09	17SEP09 A	05OCT09 A	0		■ Submission of Ground Treatment M.S.																																																											
S1/01100	Engineer's Approval of Ground Treatment M.S.	14	06OCT09	21OCT09	06OCT09 A	21OCT09 A	0		■ Engineer's Approval of Ground Treatment M.S.																																																											
S1/01110	Construction of Guide Wall	28	22OCT09	02NOV09	22OCT09 A	02NOV09 A	0		■ Construction of Guide Wall																																																											
S1/01120	Installation of Geotechnical Instruments	40	14OCT09	30NOV09	14OCT09 A	30NOV09 A	0		■ Installation of Geotechnical Instruments																																																											
Utilities and Services																																																																				
General																																																																				
S1/01000	Underground Utilities Detection & Trial Holes	14	17SEP09	13OCT09	17SEP09 A	13OCT09 A	0		■ Underground Utilities Detection & Trial Holes																																																											
Section 2																																																																				
(For All Works Under the Contract)																																																																				
Key Dates																																																																				
KD4000	Achievement of Section II	0		23FEB12		17JAN12 A	0		◆ Achievement of Section II																																																											
Portion Handover																																																																				
KD6100	Portion 3 (1 day)	0	17SEP09		17SEP09 A		0		◆ Portion 3 (1 day)																																																											
Main Pumping Station																																																																				
Diaphragm Wall																																																																				
S2/03510	Diaphragm Wall /Testing for Main Pumping Station	433 *	15DEC09	31DEC10	15DEC09 A	28FEB11 A	0 *		■ Diaphragm Wall /Testing for Main Pumping Station																																																											
S2/03550	P4 to P40 (37 nos. Panels)	234	15DEC09	31DEC10	15DEC09 A	31DEC10 A	0		■ P4 to P40 (37 nos. Panels)																																																											
S2/03560	Main Pumping Station: DW Panel P24	21	15DEC09	04JAN10	15DEC09 A	04JAN10 A	0		■ Main Pumping Station: DW Panel P24																																																											
S2/03570	Main Pumping Station: DW Panel P36	21	23DEC09	12JAN10	23DEC09 A	12JAN10 A	0		■ Main Pumping Station: DW Panel P36																																																											
S2/03580	Main Pumping Station: DW Panel P26	19	05JAN10	23JAN10	05JAN10 A	23JAN10 A	0		■ Main Pumping Station: DW Panel P26																																																											
S2/03590	Main Pumping Station: DW Panel P16	14	14JAN10	27JAN10	14JAN10 A	27JAN10 A	0		■ Main Pumping Station: DW Panel P16																																																											
S2/03600	Main Pumping Station: DW Panel P30	16	20JAN10	04FEB10	20JAN10 A	04FEB10 A	0		■ Main Pumping Station: DW Panel P30																																																											
S2/03610	Main Pumping Station: DW Panel P40	13	28JAN10	09FEB10	28JAN10 A	09FEB10 A	0		■ Main Pumping Station: DW Panel P40																																																											
S2/03620	Main Pumping Station: DW Panel P22	18	02FEB10	23FEB10	02FEB10 A	23FEB10 A	0		■ Main Pumping Station: DW Panel P22																																																											
S2/03630	Main Pumping Station: DW Panel P14	22	04FEB10	01MAR10	04FEB10 A	01MAR10 A	0		■ Main Pumping Station: DW Panel P14																																																											
S2/03640	Main Pumping Station: DW Panel P28	15	19FEB10	05MAR10	19FEB10 A	05MAR10 A	0		■ Main Pumping Station: DW Panel P28																																																											
S2/03650	Main Pumping Station: DW Panel P34	10	02MAR10	11MAR10	02MAR10 A	11MAR10 A	0		■ Main Pumping Station: DW Panel P34																																																											
S2/03660	Main Pumping Station: DW Panel P18	15	03MAR10	17MAR10	03MAR10 A	17MAR10 A	0		■ Main Pumping Station: DW Panel P18																																																											
S2/03670	Main Pumping Station: DW Panel P38	14	09MAR10	22MAR10	09MAR10 A	22MAR10 A	0		■ Main Pumping Station: DW Panel P38																																																											
S2/03680	Main Pumping Station: DW Panel P25	16	23MAR10	30MAR10	23MAR10 A	30MAR10 A	0		■ Main Pumping Station: DW Panel P25																																																											
S2/03690	Main Pumping Station: DW Panel P17	8	23MAR10	02APR10	23MAR10 A	02APR10 A	0		■ Main Pumping Station: DW Panel P17																																																											
S2/03700	Main Pumping Station: DW Panel P29	10	26MAR10	09APR10	26MAR10 A	09APR10 A	0		■ Main Pumping Station: DW Panel P29																																																											
S2/03710	Main Pumping Station: DW Panel P23	10	08APR10	13APR10	08APR10 A	13APR10 A	0		■ Main Pumping Station: DW Panel P23																																																											
S2/03720	Main Pumping Station: DW Panel P6	16	02APR10	16APR10	02APR10 A	16APR10 A	0		■ Main Pumping Station: DW Panel P6																																																											
S2/03730	Main Pumping Station: DW Panel P15	10	07APR10	19APR10	07APR10 A	19APR10 A	0		■ Main Pumping Station: DW Panel P15																																																											
S2/03740	Main Pumping Station: DW Panel P27	15	15APR10	26APR10	15APR10 A	26APR10 A	0		■ Main Pumping Station: DW Panel P27																																																											
S2/03750	Main Pumping Station: DW Panel P35	10	18APR10	06MAY10	18APR10 A	06MAY10 A	0		■ Main Pumping Station: DW Panel P35																																																											
S2/03760	Main Pumping Station: DW Panel P20	10	23APR10	08MAY10	23APR10 A	08MAY10 A	0		■ Main Pumping Station: DW Panel P20																																																											
S2/03770	Main Pumping Station: DW Panel P39	10	27APR10	25MAY10	27APR10 A	25MAY10 A	0		■ Main Pumping Station: DW Panel P39																																																											
S2/03780	Main Pumping Station: DW Panel P10	116	05MAR10	06JUN10	05MAR10 A	06JUN10 A	0		■ Main Pumping Station: DW Panel P10																																																											
S2/03782	Main Pumping Station: P10 Panel Excavation 1	15	05MAR10	19MAR10	05MAR10 A	19MAR10 A	0		■ Main Pumping Station: P10 Panel Excavation 1																																																											
S2/03784	Main Pumping Station: P10 Panel Excavation 2	20	30APR10	05JUN10	30APR10 A	05JUN10 A	0		■ Main Pumping Station: P10 Panel Excavation 2																																																											
S2/03786	Main Pumping Station: P10 Concrete	4	10JUN10	10JUN10	10JUN10 A	10JUN10 A	0		■ Main Pumping Station: P10 Concrete																																																											
S2/03790	Main Pumping Station: DW Panel P32	15	04MAY10	24JUN10	04MAY10 A	24JUN10 A	0		■ Main Pumping Station: DW Panel P32																																																											
S2/03800	Main Pumping Station: DW Panel P8	15	16AUG10	28SEP10	16AUG10 A	28SEP10 A	0		■ Main Pumping Station: DW Panel P8																																																											
S2/03810	Main Pumping Station: DW Panel P4	141	23FEB10	17JUL10	23FEB10 A	17JUL10 A	0		■ Main Pumping Station: DW Panel P4																																																											
S2/03820	Main Pumping Station: P4 Excavation	25	23FEB10	19MAR10	23FEB10 A	19MAR10 A	0		■ Main Pumping Station: P4 Excavation																																																											
S2/03830	Main Pumping Station: P4 Backfill with Agg /Conc	3	27MAR10	29MAR10	27MAR10 A	29MAR10 A	0		■ Main Pumping Station: P4 Backfill with Agg /Conc																																																											
S2/03840	Main Pumping Station: P4 Submit Method Statement	21	10MAY10	09JUL10	10MAY10 A	09JUL10 A	0		■ Main Pumping Station: P4 Submit Method Statement																																																											
S2/03850	Main Pumping Station: P4 Engineer Approval on MS	6	10JUL10	13JUL10	10JUL10 A	13JUL10 A	0		■ Main Pumping Station: P4 Engineer Approval on MS																																																											
S2/03860	Main Pumping Station: P4 Reconstruction	18	04JUN10	17JUL10	04JUN10 A	17JUL10 A	0		■ Main Pumping Station: P4 Reconstruction																																																											
S2/03870	Main Pumping Station: DW Panel P12	15	12JUN10	19AUG10	12JUN10 A	19AUG10 A	0		■ Main Pumping Station: DW Panel P12																																																											
S2/03880	Main Pumping Station: DW Panel P33	8	16JUL10	28JUL10	16JUL10 A	28JUL10 A	0		■ Main Pumping Station: DW Panel P33																																																											

Start date 03SEP09
Finish date 22MAY13
Data date 30APR12
Run date 27APR12
Page number 36
Project name MR31
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Monthly Progress Updated - 30 April 2012

■ Early bar
■ Progress bar
■ Critical bar
■ Summary bar
◆ Start milestone point
◆ Finish milestone point

Act ID	Description	Orig Dur	Target Start	Target Finish	Start	Finish	Rem Dur	Total Float	Gantt Chart																																																																
									2009													2010													2011													2012													2013												
									S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D													
S2/03890	Main Pumping Station: DW Panel P37	8	02MAY10	09JUN10	02MAY10 A	09JUN10 A	0		Main Pumping Station: DW Panel P37																																																																
S2/03900	Main Pumping Station: DW Panel P31	8	02JUL10	14JUL10	02JUL10 A	14JUL10 A	0		Main Pumping Station: DW Panel P31																																																																
S2/03910	Main Pumping Station: DW Panel P21	8	12MAY10	30JUN10	12MAY10 A	30JUN10 A	0		Main Pumping Station: DW Panel P21																																																																
S2/03920	Main Pumping Station: DW Panel P19	8	21DEC10	30DEC10	21DEC10 A	30DEC10 A	0		Main Pumping Station: DW Panel P19																																																																
S2/03930	Main Pumping Station: DW Panel P5	8	29JUL10	09AUG10	29JUL10 A	09AUG10 A	0		Main Pumping Station: DW Panel P5																																																																
S2/03940	Main Pumping Station: DW Panel P7	8	07OCT10	04DEC10	07OCT10 A	04DEC10 A	0		Main Pumping Station: DW Panel P7																																																																
S2/03950	Main Pumping Station: DW Panel P9	8	06OCT10	16DEC10	06OCT10 A	16DEC10 A	0		Main Pumping Station: DW Panel P9																																																																
S2/03960	Main Pumping Station: DW Panel P11	8	13SEP10	06NOV10	13SEP10 A	06NOV10 A	0		Main Pumping Station: DW Panel P11																																																																
S2/03970	Main Pumping Station: DW Panel P13	8	01NOV10	16NOV10	01NOV10 A	16NOV10 A	0		Main Pumping Station: DW Panel P13																																																																
S2/03980	Main Pumping Station: Demobilization of Plant	5	27DEC10	31DEC10	27DEC10 A	28FEB11 A	0		Main Pumping Station: Demobilization of Plant																																																																
S2/04020	Sonic Test to P14 and P30	1	17MAR10	17MAR10	17MAR10 A	17MAR10 A	0		Sonic Test to P14 and P30																																																																
S2/04030	All Test including Sonic Test to completed Dwall	75	01FEB10	15DEC10	01FEB10 A	15DEC10 A	0		All Test including Sonic Test to completed Dwall																																																																
S2/04040	Toe Grouting and Pumping Test	242 *	19AUG10	28MAR11	19AUG10 A	21APR11 A	0 *		Toe Grouting and Pumping Test																																																																
S2/04050	Carry out Toe Grouting	75	19AUG10	14JAN11	19AUG10 A	27FEB11 A	0		Carry out Toe Grouting																																																																
S2/04070	Capping Beam	20	15JAN11	08FEB11	15JAN11 A	21APR11 A	0		Capping Beam																																																																
S2/04080	Install PumpWells,Recharge&Observation Wells	21	14DEC10	15FEB11	14DEC10 A	23MAR11 A	0		Install PumpWells,Recharge&Observation Wells																																																																
S2/04090	Pumping Test (Inlet Chamber Inclusive)	21	15MAR11	28MAR11	15MAR11 A	28MAR11 A	0		Pumping Test (Inlet Chamber Inclusive)																																																																
S2/04100	Submission of As-built Record of Diaphragm Wall	21	15JAN11	08FEB11	03MAY11 A	28JUN11 A	0		Submission of As-built Record of Diaphragm Wall																																																																
Initial Works / Associated Submission																																																																									
S2/03110	Initial Work/Submission for Main Pumping Station	575 *	17SEP09	14MAR11	17SEP09 A	02SEP11 A	0 *		Initial Work/Submission for Main Pumping Station																																																																
S2/03120	Site Clearance (Portion 3)	21	17SEP09	13OCT09	17SEP09 A	13OCT09 A	0		Site Clearance (Portion 3)																																																																
S2/03130	Tree Survey	21	17SEP09	13OCT09	17SEP09 A	13OCT09 A	0		Tree Survey																																																																
S2/03140	Assign a Location for Trees Transplant	14	14OCT09	30OCT09	14OCT09 A	30OCT09 A	0		Assign a Location for Trees Transplant																																																																
S2/03150	Demolition of Existing Storage Shed	30	02OCT09	03NOV09	02OCT09 A	03NOV09 A	0		Demolition of Existing Storage Shed																																																																
S2/03160	Precondition Survey of Existing Structures	30	17SEP09	23OCT09	17SEP09 A	23OCT09 A	0		Precondition Survey of Existing Structures																																																																
S2/03170	Erection of Steel Fencing & Entrance Gates	21	17SEP09	13OCT09	17SEP09 A	13OCT09 A	0		Erection of Steel Fencing & Entrance Gates																																																																
S2/03180	Predrilling Works of Diaphragm Wall	30	14OCT09	16NOV09	14OCT09 A	16NOV09 A	0		Predrilling Works of Diaphragm Wall																																																																
S2/03190	Confirm Founding level of Diaphragm Wall	14	19NOV09	20NOV09	19NOV09 A	20NOV09 A	0		Confirm Founding level of Diaphragm Wall																																																																
S2/03200	Construction of Guild Wall	52	14OCT09	14DEC09	14OCT09 A	14DEC09 A	0		Construction of Guild Wall																																																																
S2/03210	Installation of Geotechnical Instruments	45	14OCT09	30NOV09	14OCT09 A	30NOV09 A	0		Installation of Geotechnical Instruments																																																																
S2/03220	Relocation of Materials Possessed by ST2/DSD	8	17NOV09	24NOV09	17NOV09 A	24NOV09 A	0		Relocation of Materials Possessed by ST2/DSD																																																																
S2/03230	Reprovision of Store Shed	28	05OCT09	16NOV09	05OCT09 A	16NOV09 A	0		Reprovision of Store Shed																																																																
S2/03240	Transplant of Existing Trees	7	05FEB10	27FEB10	05FEB10 A	27FEB10 A	0		Transplant of Existing Trees																																																																
S2/03250	Predrilling for Mini-piles (at Ground Level)	200	19NOV09	14MAR11	19NOV09 A	23MAR11 A	0		Predrilling for Mini-piles (at Ground Level)																																																																
S2/03260	Predrilling for Mini-piles (9 nos)	51	19NOV09	20JAN10	19NOV09 A	20JAN10 A	0		Predrilling for Mini-piles (9 nos)																																																																
S2/03270	Predrilling for Mini-piles (24 nos)	60	02JUL10	28FEB11	02JUL10 A	24AUG11 A	0		Predrilling for Mini-piles (24 nos)																																																																
S2/03280	Confirm Founding level of Mini-piles	7	01MAR11	14MAR11	25AUG11 A	02SEP11 A	0		Confirm Founding level of Mini-piles																																																																
Other Works																																																																									
S2/05010	Excavation, Minipile and Pilecap for MPS	292 *	09MAR11	23FEB12	28MAR11 A	15JAN12 A	0 *		Excavation, Minipile and Pilecap for MPS																																																																
S2/05020	Excavation +5.5mPD to -16mPD (51,054 m3)	15	09MAR11	23MAR11	28MAR11 A	27MAY11 A	0		Excavation +5.5mPD to -16mPD (51,054 m3)																																																																
S2/05030	Construction of 1st Layer Ringbeam at -14.5mPD	17	24MAR11	09APR11	28MAY11 A	13JUN11 A	0		Construction of 1st Layer Ringbeam at -14.5mPD																																																																
S2/05040	Excavation down to -24mPD (18,997 m3)	18	10APR11	27APR11	17JUN11 A	12JUL11 A	0		Excavation down to -24mPD (18,997 m3)																																																																
S2/05050	Construction of 2nd Layer Ringbeam at -23.5mPD	17	28APR11	14MAY11	13JUL11 A	20JUL11 A	0		Construction of 2nd Layer Ringbeam at -23.5mPD																																																																
S2/05060	Excavation Down to -30mPD (14,248 m3)	14	15MAY11	28MAY11	20JUL11 A	07AUG11 A	0		Excavation Down to -30mPD (14,248 m3)																																																																
S2/05070	Construction of 3rd Layer Ringbeam, at -28.5mPD	14	29MAY11	19JUN11	08AUG11 A	21AUG11 A	0		Construction of 3rd Layer Ringbeam, at -28.5mPD																																																																
S2/05075	2nd Stage of Pre-drilling	20			08AUG11 A	27AUG11 A	0		2nd Stage of Pre-drilling																																																																
S2/05080	Exc to Final Formation Level -35mPD (11,874m3)	14	20JUN11	03JUL11	22AUG11 A	02SEP11 A	0		Exc to Final Formation Level -35mPD (11,874m3)																																																																
S2/05090	Mini-piles Installation (303 nos.)	169	22JUL11	06JAN12	06SEP11 A	14DEC11 A	0		Mini-piles Installation (303 nos.)																																																																
S2/05100	Mobilization of Piling Rig	6	30JUN11	05JUL11	07SEP11 A	12OCT11 A	0		Mobilization of Piling Rig																																																																
S2/05110	Mini-Pile Rig 1: 16 Piles	32	22JUL11	29SEP11	07SEP11 A	16OCT11 A	0		Mini-Pile Rig 1: 16 Piles																																																																
S2/05120	Mini-Pile Rig 1: 16 Piles	32	30SEP11	08DEC11	17OCT11 A	17NOV11 A	0		Mini-Pile Rig 1: 16 Piles																																																																
S2/05130	Mini-Pile Rig 2: 16 Piles	32	22JUL11	29SEP11	07SEP11 A	16OCT11 A	0		Mini-Pile Rig 2: 16 Piles																																																																
S2/05140	Mini-Pile Rig 2: 20 Piles	40	30SEP11	08DEC11	17OCT11 A	17NOV11 A	0		Mini-Pile Rig 2: 20 Piles																																																																
S2/05150	Mini-Pile Rig 3: 20 Piles	40	22JUL11	29SEP11	07SEP11 A	24OCT11 A	0		Mini-Pile Rig 3: 20 Piles																																																																
S2/05160	Mini-Pile Rig 3: 22 Piles	44	30SEP11	08DEC11	25OCT11 A	29NOV11 A	0		Mini-Pile Rig 3: 22 Piles																																																																
S2/05170	Mini-Pile Rig 4: 20 Piles	40	22JUL11	27SEP11	07SEP11 A	24OCT11 A	0		Mini-Pile Rig 4: 20 Piles																																																																
S2/05180	Mini-Pile Rig 4: 22 Piles	44	28SEP11	01DEC11	25OCT11 A	09DEC11 A	0		Mini-Pile Rig 4: 22 Piles																																																																

Start date 03SEP09
Finish date 22MAY13
Data date 30APR12
Run date 27APR12
Page number 4A
Project name MR31
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Legend:
■ Early bar
■ Progress bar
■ Critical bar
■ Summary bar
● Start milestone point
● Finish milestone point

Act ID	Description	Orig Dur	Target Start	Target Finish	Start	Finish	Rem Dur	Total Float	2009												2010												2011												2012												2013																							
									S O N D J F M A M J J A S O N D												S O N D J F M A M J J A S O N D												S O N D J F M A M J J A S O N D												S O N D J F M A M J J A S O N D												S O N D J F M A M J J A S O N D																							
S2/05190	Mini-Pile Rig 5: 21 Piles	42	22JUL11	24SEP11	15SEP11 A	29OCT11 A	0																																																														■ Mini-Pile Rig 5: 21 Piles											
S2/05200	Mini-Pile Rig 5: 21 Piles	42	25SEP11	01DEC11	30OCT11 A	11DEC11 A	0																																																														■ Mini-Pile Rig 5: 21 Piles											
S2/05210	Mini-Pile Rig 6: 20 Piles	40	22JUL11	29SEP11	15SEP11 A	29OCT11 A	0																																																														■ Mini-Pile Rig 6: 20 Piles											
S2/05220	Mini-Pile Rig 6: 21 Piles	42	30SEP11	26NOV11	30OCT11 A	11DEC11 A	0																																																														■ Mini-Pile Rig 6: 21 Piles											
S2/05222	Mini Pile Rig 7: 19 Piles	38		04OCT11 A	09NOV11 A		0																																																														■ Mini Pile Rig 7: 19 Piles											
S2/05224	Mini Pile Rig 7: 16 Piles	32		10NOV11 A	14DEC11 A		0																																																														■ Mini Pile Rig 7: 16 Piles											
S2/05226	Mini Pile Rig 8: 17 Piles	34		12OCT11 A	09NOV11 A		0																																																														■ Mini Pile Rig 8: 17 Piles											
S2/05228	Mini Pile Rig 8: 16 Piles	32		10NOV11 A	14DEC11 A		0																																																														■ Mini Pile Rig 8: 16 Piles											
S2/05230	Demobilization of Rig 1 to 2	2	02DEC11	03DEC11	13NOV11 A	15NOV11 A	0																																																														I Demobilization of Rig 1 to 2											
S2/05240	Loading Test (7 nos.) & Proof Drilling	44	19OCT11	06JAN12	15NOV11 A	28DEC11 A	0																																																														■ Loading Test (7 nos.) & Proof Drilling											
S2/05250	Proof Drilling 6 nos	34	29OCT11	27DEC11	15NOV11 A	28DEC11 A	0																																																														■ Proof Drilling 6 nos											
S2/05260	Loading Test 1 to 3	12	05DEC11	14DEC11	15NOV11 A	06DEC11 A	0																																																														■ Loading Test 1 to 3											
S2/05270	Loading Test 4 to 6	12	15DEC11	24DEC11	07DEC11 A	18DEC11 A	0																																																														■ Loading Test 4 to 6											
S2/05280	Loading Test 7	7	25DEC11	03JAN12	12DEC11 A	20DEC11 A	0																																																														■ Loading Test 7											
S2/05300	Demobilization of Loading Equipment	2	04JAN12	05JAN12	21DEC11 A	22DEC11 A	0																																																														I Demobilization of Loading Equipment											
S2/05310	Construction of Pile Cap	47	03JAN12	16FEB12	06DEC11 A	15JAN12 A	0																																																														■ Construction of Pile Cap											
S2/05320	Formation and Blinding	20	03JAN12	22JAN12	06DEC11 A	18DEC11 A	0																																																														■ Formation and Blinding											
S2/05330	Main Pumping Station Pilecap Bay 1 (1312m3)	7	06JAN12	12JAN12	17DEC11 A	25DEC11 A	0																																																														■ Main Pumping Station Pilecap Bay 1 (1312m3)											
S2/05340	Main Pumping Station Pilecap Bay 2 (1548m3)	7	13JAN12	19JAN12	20DEC11 A	01JAN12 A	0																																																														■ Main Pumping Station Pilecap Bay 2 (1548m3)											
S2/05350	Main Pumping Station Pilecap Bay 3 (2660m3)	7	20JAN12	26JAN12	29DEC11 A	08JAN12 A	0																																																														■ Main Pumping Station Pilecap Bay 3 (2660m3)											
S2/05360	Main Pumping Station Pilecap Bay 4 (1640m3)	7	27JAN12	02FEB12	06JAN12 A	15JAN12 A	0																																																														■ Main Pumping Station Pilecap Bay 4 (1640m3)											
S2/05370	Main Pumping Station Pilecap Bay 5 (included)	7	03FEB12	09FEB12	08JAN12 A	08JAN12 A	0																																																														I Main Pumping Station Pilecap Bay 5 (included)											
S2/05380	Main Pumping Station Pilecap Bay 6 (included)	7	10FEB12	16FEB12	15JAN12 A	15JAN12 A	0																																																														I Main Pumping Station Pilecap Bay 6 (included)											
S2/05390	Reinstatement of Wall Openings of Base Slab	14	10FEB12	23FEB12	01JAN12 A	15JAN12 A	0																																																														■ Reinstatement of Wall Openings of Base Slab											
S2/05400	Handover Section II Works to MPS Contractor	1	02FEB12	02FEB12	31JAN12 A	17JAN12 A	0																																																														I Handover Section II Works to MPS Contractor											
Utilities and Services																																																																																
General																																																																																
S2/03010	MPS:Underground Utilities Detection & Trial Holes	21	17SEP09	13OCT09	17SEP09 A	13OCT09 A	0																																																														■ MPS:Underground Utilities Detection & Trial Holes											
S2/03020	MPS: Diversion of Existing CLP Cables(By Others)	36	17SEP09	31OCT09	17SEP09 A	31OCT09 A	0																																																														■ MPS: Diversion of Existing CLP Cables(By Others)											
S2/03040	MPS: Demolish Existing Abandoned Sewerage	18	09MAR11	29MAR11	07APR11 A	17MAY11 A	0																																																														■ MPS: Demolish Existing Abandoned Sewerage											
Section 3																																																																																
(For All Works Under the Contract)																																																																																
Key Dates																																																																																
KD5000	Achievement of Section III	0		10APR12		20MAY12	0	-85d																																																													◆ Achievement of Section III											
Portion Handover																																																																																
KD6000	Portion 2 (1 day)	0	17SEP09		17SEP09 A		0																																																														◆ Portion 2 (1 day)											
KD6300	Portion 5 (Latest Possession 549 days)	0	19MAR11		09APR11 A		0																																																														◆ Portion 5 (Latest Possession 549 days)											
General Requirement																																																																																
General																																																																																
S3/06010	IC: Ground Stabilization Works at Inlet Chamber	100	09MAR11	16JUN11	29MAR11 A	30MAY11 A	0																																																														■ IC: Ground Stabilization Works at Inlet Chamber											
S3/06020	Handover Section III Works to MPS Contractor	1	11APR12	11APR12	21MAY12	21MAY12	1	-72d																																																													I Handover Section III Works to MPS Contractor											
Inlet Chamber																																																																																
General																																																																																
S3/06110	Construction of Inlet Chamber	393 *	04JUL11	03FEB12	01JUN11 A	29JUN12	61 *	-85d																																																													■ Construction of Inlet Chamber											
S3/06120	Excavation down to Formation -30mPD	87	04JUL11	28SEP11	01JUN11 A	28MAR12 A	0																																																														■ Excavation down to Formation -30mPD											
S3/06130	Inlet Chamber: Excavate Down to +2.5mpd (473 m3)	4	04JUL11	07JUL11	31MAY11 A	10JUN11 A	0																																																														■ Inlet Chamber: Excavate Down to +2.5mpd (473 m3)											
S3/06140	Inlet Chamber: Install Temp Strut at +3 mpd	2	08JUL11	09JUL11	28JUN11 A	30JUL11 A	0																																																														■ Inlet Chamber: Install Temp Strut at +3 mpd											
S3/06150	Inlet Chamber: Excavate Down to -0mpd (665 m3)	10	10JUL11	19JUL11	31AUG11 A	09SEP11 A	0																																																														■ Inlet Chamber: Excavate Down to -0mpd (665 m3)											
S3/06160	Inlet Chamber: Construct Beam at +1.5mPD (115m3)	4	20JUL11	21JUL11	10SEP11 A	18SEP11 A	0																																																														■ Inlet Chamber: Construct Beam at +1.5mPD (115m3)											
S3/06165	IC: Curing for Walling Beam at +1.5mPD	3			19SEP11 A	21SEP11 A	0																																																														I IC: Curing for Walling Beam at +1.5mPD											
S3/06168	IC: Remove Temp Strut at +3.7mPD	2			22SEP11 A	23SEP11 A	0																																																														I IC: Remove Temp Strut at +3.7mPD											
S3/06170	Inlet Chamber: Excavate to -6.5 mpd (1,030m3)	5	22JUL11	02AUG11	24SEP11 A	07OCT11 A	0																																																														■ Inlet Chamber: Excavate to -6.5 mpd (1,030m3)											
S3/06180	Inlet Chamber: Construct Walling Beam -6.0mPD	5	03AUG11	04AUG11	08OCT11 A	12OCT11 A	0																																																														I Inlet Chamber: Construct Walling Beam -6.0mPD											
S3/06185	IC: Curing for Walling Beam at -6mPD	3			13OCT11 A	15OCT11 A	0																																																														I IC: Curing for Walling Beam at -6mPD											
S3/06190	Inlet Chamber: Excavate to -13 mpd (1,030 m3)	6	05AUG11	14AUG11	17OCT11 A	30OCT11 A	0																																																														■ Inlet Chamber: Excavate to -13 mpd (1,030 m3)											
S3/06200	Inlet Chamber: Construct Walling Beam +12.5 mPD	5	15AUG11	16AUG11	31OCT11 A	05NOV11 A	0																																																														I Inlet Chamber: Construct Walling Beam +12.5 mPD											
S3/06205	IC: Curing for Walling Beam at -12.5mPD	5			05NOV11 A	10NOV11 A	0																																																														I IC: Curing for Walling Beam at -12.5mPD											

Start date 03SEP09
Finish date 22MAY13
Data date 30APR12
Run date 27APR12
Page number 54
Project name MR31
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■ Early bar
■ Progress bar
■ Critical bar
■ Summary bar
◆ Start milestone point
◆ Finish milestone point

Act ID	Description	Orig Dur	Target Start	Target Finish	Start	Finish	Rem Dur	Total Float	Gantt Chart																																																																
									2009													2010													2011													2012													2013												
									S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D													
S3/07710	Resubmit Segment Annulus Grouting	14	29NOV10	06JAN11	29NOV10 A	06APR11 A	0		Resubmit Segment Annulus Grouting																																																																
S3/07720	Engineer Approval on Segment Annulus Grouting	14	07JAN11	20JAN11	07APR11 A	13JAN12 A	0		Engineer Approval on Segment Annulus Grouting																																																																
S3/07730	Submit Temp Work Design for Tunnel	60	31DEC10	04MAR11	15SEP10 A	27OCT10 A	0		Submit Temp Work Design for Tunnel																																																																
S3/07740	Engineer Review on Temp Work Design for Tunnel	28	05MAR11	01APR11	28OCT10 A	05DEC10 A	0		Engineer Review on Temp Work Design for Tunnel																																																																
S3/07750	Resubmit Temp Work Design for Tunnel	14	02APR11	15APR11	07DEC10 A	03JAN11 A	0		Resubmit Temp Work Design for Tunnel																																																																
S3/07760	Engineer Approval on Temp Work Design for Tunnel	14	16APR11	29APR11	15APR11 A	14NOV11 A	0		Engineer Approval on Temp Work Design for Tunnel																																																																
S3/07770	Submit Method for Tunnel Movement Monitoring	60	31DEC10	04MAR11	28FEB11 A	24MAY11 A	0		Submit Method for Tunnel Movement Monitoring																																																																
S3/07780	Eng Review Method for Tunnel Movement Monitoring	28	05MAR11	01APR11	25MAY11 A	09JUN11 A	0		Eng Review Method for Tunnel Movement Monitoring																																																																
S3/07790	Re-submit Method for Tunnel Movement Monitoring	14	02APR11	15APR11	18JUL11 A	08AUG11 A	0		Re-submit Method for Tunnel Movement Monitoring																																																																
S3/07800	Approval Method for Tunnel Movement Monitoring	14	16APR11	29APR11	09AUG11 A	22AUG11 A	0		Approval Method for Tunnel Movement Monitoring																																																																
S3/07810	Submit Method to Control Infiltration	60	31DEC10	04MAR11	28FEB11 A	09JUN11 A	0		Submit Method to Control Infiltration																																																																
S3/07820	Eng Review on Method to Control Infiltration	28	05MAR11	01APR11	10JUN11 A	17JUL11 A	0		Eng Review on Method to Control Infiltration																																																																
S3/07830	Re-submit Method to Control Infiltration	14	18JUL11	08AUG11	18JUL11 A	08AUG11 A	0		Re-submit Method to Control Infiltration																																																																
S3/07840	Eng Approval on Method to Control Infiltration	14	16APR11	29APR11	09AUG11 A	22AUG11 A	0		Eng Approval on Method to Control Infiltration																																																																
S3/07850	Tunnel Lining Detail Design	90	25AUG10	15NOV10	25AUG10 A	15NOV10 A	0		Tunnel Lining Detail Design																																																																
S3/07860	Engineer's Approval on Lining Design	18	16NOV10	30NOV10	16NOV10 A	30NOV10 A	0		Engineer's Approval on Lining Design																																																																
S3/07870	Address Engineer's Comments	20	30NOV10	30NOV10	30NOV10 A	30NOV10 A	0		Address Engineer's Comments																																																																
Launching Shaft Construction																																																																									
S3/08010	Diaphragm Wall and Testing for Launching Shaft	432 *	25MAR10	30MAR11	25MAR10 A	03JUN11 A	0 *		Diaphragm Wall and Testing for Launching Shaft																																																																
S3/08020	Mobilisation of Plant & Equipments	24	25MAR10	24APR10	25MAR10 A	24APR10 A	0		Mobilisation of Plant & Equipments																																																																
S3/08030	Erection of Silo System	24	01APR10	05MAY10	01APR10 A	05MAY10 A	0		Erection of Silo System																																																																
S3/08035	Ground Improvement	40	14JUN10	31JUL10	14JUN10 A	31JUL10 A	0		Ground Improvement																																																																
S3/08038	Preparation work to commence D-wall	14	03MAY10	16AUG10	03MAY10 A	16AUG10 A	0		Preparation work to commence D-wall																																																																
S3/08040	Diaphragm Wall Installation	120	16AUG10	06MAR11	16AUG10 A	26APR11 A	0		Diaphragm Wall Installation																																																																
S3/08050	Launching Shaft: DW Panel L1	12	20DEC10	24DEC10	20DEC10 A	24DEC10 A	0		Launching Shaft: DW Panel L1																																																																
S3/08060	Launching Shaft: DW Panel L5	5	31DEC10	04JAN11	28DEC10 A	07JAN11 A	0		Launching Shaft: DW Panel L5																																																																
S3/08070	Launching Shaft: DW Panel L9	5	06OCT10	30OCT10	06OCT10 A	30OCT10 A	0		Launching Shaft: DW Panel L9																																																																
S3/08080	Launching Shaft: DW Panel L3	5	26NOV10	07DEC10	26NOV10 A	07DEC10 A	0		Launching Shaft: DW Panel L3																																																																
S3/08090	Launching Shaft: DW Panel L7	5	17NOV10	20DEC10	17NOV10 A	20DEC10 A	0		Launching Shaft: DW Panel L7																																																																
S3/08100	Launching Shaft: DW Panel L11	5	26NOV10	28DEC10	26NOV10 A	28DEC10 A	0		Launching Shaft: DW Panel L11																																																																
S3/08110	Launching Shaft: DW Panel L2	5	05JAN11	09JAN11	19JAN11 A	10FEB11 A	0		Launching Shaft: DW Panel L2																																																																
S3/08120	Launching Shaft: DW Panel L13	5	02SEP10	17SEP10	02SEP10 A	17SEP10 A	0		Launching Shaft: DW Panel L13																																																																
S3/08130	Launching Shaft: DW Panel L4	5	10JAN11	14JAN11	15MAR11 A	19MAR11 A	0		Launching Shaft: DW Panel L4																																																																
S3/08140	Launching Shaft: DW Panel L15	5	31OCT10	12NOV10	31OCT10 A	12NOV10 A	0		Launching Shaft: DW Panel L15																																																																
S3/08150	Launching Shaft: DW Panel L6	5	15JAN11	19JAN11	23FEB11 A	04MAR11 A	0		Launching Shaft: DW Panel L6																																																																
S3/08160	Launching Shaft: DW Panel L17	5	16AUG10	01SEP10	16AUG10 A	01SEP10 A	0		Launching Shaft: DW Panel L17																																																																
S3/08170	Launching Shaft: DW Panel L8	14	20JAN11	24JAN11	28MAR11 A	26APR11 A	0		Launching Shaft: DW Panel L8																																																																
S3/08180	Launching Shaft: DW Panel L19	5	20SEP10	05OCT10	20SEP10 A	05OCT10 A	0		Launching Shaft: DW Panel L19																																																																
S3/08190	Launching Shaft: DW Panel L10	5	25JAN11	29JAN11	15FEB11 A	19FEB11 A	0		Launching Shaft: DW Panel L10																																																																
S3/08200	Launching Shaft: DW Panel L21	5	14NOV10	24NOV10	14NOV10 A	24NOV10 A	0		Launching Shaft: DW Panel L21																																																																
S3/08210	Launching Shaft: DW Panel L12	5	30JAN11	07FEB11	04JAN11 A	14JAN11 A	0		Launching Shaft: DW Panel L12																																																																
S3/08220	Launching Shaft: DW Panel L18	22	08FEB11	12FEB11	23MAR11 A	19APR11 A	0		Launching Shaft: DW Panel L18																																																																
S3/08230	Launching Shaft: DW Panel L14	5	13FEB11	17FEB11	10FEB11 A	15FEB11 A	0		Launching Shaft: DW Panel L14																																																																
S3/08240	Launching Shaft: DW Panel L20	5	26DEC10	21FEB11	26DEC10 A	17JAN11 A	0		Launching Shaft: DW Panel L20																																																																
S3/08250	Launching Shaft: DW Panel L16	5	22FEB11	26FEB11	10JAN11 A	21JAN11 A	0		Launching Shaft: DW Panel L16																																																																
S3/08260	Launching Shaft: DW Panel L22	5	27FEB11	03MAR11	19FEB11 A	23FEB11 A	0		Launching Shaft: DW Panel L22																																																																
S3/08270	Launching Shaft: Demobilization of Plant	3	03MAR11	06MAR11	30APR11 A	02MAY11 A	0		Launching Shaft: Demobilization of Plant																																																																
S3/08280	All Test including Sonic Test to completed Dwall	24	07MAR11	30MAR11	16MAY11 A	03JUN11 A	0		All Test including Sonic Test to completed Dwall																																																																
S3/08310	Excavation & Base Slab for Launching Shaft	112 *	07MAR11	05JUN11	10JUN11 A	29SEP11 A	0 *		Excavation & Base Slab for Launching Shaft																																																																
S3/08320	Excavation & Construction of Temp Base Slab	77	07MAR11	04JUN11	10JUN11 A	29SEP11 A	0		Excavation & Construction of Temp Base Slab																																																																
S3/08330	LS: Excavate to 500mm Below Top Ring Beam(116m3)	2	07MAR11	08MAR11	10JUN11 A	27JUN11 A	0		LS: Excavate to 500mm Below Top Ring Beam(116m3)																																																																
S3/08340	LS: Construct Top Ring Beam at +5.5mpd	10	09MAR11	18MAR11	28JUN11 A	09JUL11 A	0		LS: Construct Top Ring Beam at +5.5mpd																																																																
S3/08350	LS: Excavation down to -17.0mPD (5,104 m3)	10	19MAR11	07APR11	09JUL11 A	30JUL11 A	0		LS: Excavation down to -17.0mPD (5,104 m3)																																																																
S3/08360	LS: Construct Middle Ring Beam at -16.45mpd	8	08APR11	22APR11	31JUL11 A	05AUG11 A	0		LS: Construct Middle Ring Beam at -16.45mpd																																																																
S3/08370	LS: Excavation down to -24.0 mPD (1,624 m3)	7	23APR11	02MAY11	06AUG11 A	11AUG11 A	0		LS: Excavation down to -24.0 mPD (1,624 m3)																																																																
S3/08380	LS: Construct Middle Ring Beam at -23.05mpd	8	03MAY11	17MAY11	12AUG11 A	18AUG11 A	0		LS: Construct Middle Ring Beam at -23.05mpd																																																																
S3/08390	LS: Excavation down to -26.6mPD (604 m3)	5	18MAY11	22MAY11	19AUG11 A	22AUG11 A	0		LS: Excavation down to -26.6mPD (604 m3)																																																																

Start date 03SEP09
 Finish date 22MAY13
 Data date 30APR12
 Run date 27APR12
 Page number 7A
 Project name MR31
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■ Early bar
■ Progress bar
■ Critical bar
■ Summary bar
◆ Start milestone point
◆ Finish milestone point

Act ID	Description	Orig Dur	Target Start	Target Finish	Start	Finish	Rem Dur	Total Float	Gantt Chart																																																																
									2009													2010													2011													2012													2013												
									S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D													
S3/08400	LS: Formation and Blinding	6	23MAY11	28MAY11	23AUG11 A	25AUG11 A	0		■ LS: Formation and Blinding																																																																
S3/08410	LS: Construct Base Slab to -25.50mPD	7	29MAY11	04JUN11	26AUG11 A	06SEP11 A	0		■ LS: Construct Base Slab to -25.50mPD																																																																
S3/08415	LS: Const Mid Ring Beam (1.0m x 1.50m) at -23.05	12			09SEP11 A	16SEP11 A	0		■ LS: Const Mid Ring Beam (1.0m x 1.50m) at -23.05																																																																
S3/08417	LS: Construct Thrust Wall	7			17SEP11 A	29SEP11 A	0		■ LS: Construct Thrust Wall																																																																
S3/08420	Dummy	0	05JUN11	05JUN11	29SEP11 A	29SEP11 A	0		■ Dummy																																																																
Bored Tunnel																																																																									
S3/08510	Preparation Work for Bored Tunnel	70 *		18AUG11	16AUG11 A	24OCT11 A	0 *		■ Preparation Work for Bored Tunnel																																																																
S3/08520	Production of Lining Form	60	15SEP10	02JAN11	15SEP10 A	25MAY11 A	0		■ Production of Lining Form																																																																
S3/08530	Inspection and modification of Lining Form	14	03JAN11	16JAN11	12MAY11 A	25MAY11 A	0		■ Inspection and modification of Lining Form																																																																
S3/08540	Initial Casting for Precast Segment Lining	40	17JAN11	01MAR11	15MAY11 A	09JUN11 A	0		■ Initial Casting for Precast Segment Lining																																																																
S3/08550	Casting for Pre-cast Segment Lining	206	26FEB11	09OCT11	01AUG11 A	03JAN12 A	0		■ Casting for Pre-cast Segment Lining																																																																
S3/08560	Precast Segment Lining for ch0 to ch90	76	26FEB11	12MAY11	01AUG11 A	30SEP11 A	0		■ Precast Segment Lining for ch0 to ch90																																																																
S3/08570	Precast Segment Lining for ch90 to ch170	50	13MAY11	31JUL11	30SEP11 A	11NOV11 A	0		■ Precast Segment Lining for ch90 to ch170																																																																
S3/08580	Precast Segment Lining for ch170 to ch236	40	01AUG11	09OCT11	12NOV11 A	03JAN12 A	0		■ Precast Segment Lining for ch170 to ch236																																																																
S3/08600	Soil Improvement for TBM Retrieving	60	07MAR11	20MAY11	19MAR12 A	05MAY12	5	-53d	■ Soil Improvement for TBM Retrieving																																																																
S3/08610	Surface Preparation (Muck Pit&Crawler Crane)	55	27MAY11	01AUG11	15OCT11 A	20JAN12 A	0		■ Surface Preparation (Muck Pit&Crawler Crane)																																																																
S3/08625	Set up drilling Rig/ Direction drilling	40			16AUG11 A	15OCT11 A	0		■ Set up drilling Rig/ Direction drilling																																																																
S3/08630	Preparation in Launching Shaft (Concrete Cradle)	25	05JUN11	18AUG11	16OCT11 A	24OCT11 A	0		■ Preparation in Launching Shaft (Concrete Cradle)																																																																
S3/08635	Freezing Installation (incl.pipe pressurization)	30			22SEP11 A	26OCT11 A	0		■ Freezing Installation (incl.pipe pressurization)																																																																
S3/08640	Ground freezing	40	04APR11	31AUG11	24OCT11 A	15JAN12 A	0		■ Ground freezing																																																																
S3/08645	Establish Plant for TBM Excavation	45	15JUL11	28AUG11	25OCT11 A	15JAN12 A	0		■ Establish Plant for TBM Excavation																																																																
S3/08650	TBM Assembly	45	18JUL11	31AUG11	25OCT11 A	15JAN12 A	0		■ TBM Assembly																																																																
S3/08700	Construction of Bored Tunnel	140 *	01SEP11	10APR12	16JAN12 A	03JUN12	35 *	-84d	■ Construction of Bored Tunnel																																																																
S3/08710	Initial Drive (50m)	25	01SEP11	04OCT11	16JAN12 A	04MAR12 A	0		■ Initial Drive (50m)																																																																
S3/08720	Convert to Main Drive	21	05OCT11	25OCT11	05MAR12 A	21MAR12 A	0		■ Convert to Main Drive																																																																
S3/08730	Main Drive (34m)	12	26OCT11	14NOV11	22MAR12 A	08APR12 A	0		■ Main Drive (34m)																																																																
S3/08740	Main Drive (102m)	30	15NOV11	24DEC11	09APR12 A	07MAY12	8	-85d	■ Main Drive (102m)																																																																
S3/08745	Preparation Works for TBM Breakthrough	15			03MAY12	14MAY12	12	-85d	■ Preparation Works for TBM Breakthrough																																																																
S3/08750	Main Drive (50m)	18	25DEC11	17JAN12	08MAY12	17MAY12	10	-85d	■ Main Drive (50m)																																																																
S3/08770	Post Condition Survey for Bored Tunnel	21	18JAN12	07FEB12	18MAY12	27MAY12	10	-85d	■ Post Condition Survey for Bored Tunnel																																																																
S3/08780	Dismantle TBM	30	18JAN12	16FEB12	18MAY12	28MAY12	11	-85d	■ Dismantle TBM																																																																
S3/08790	Removing Sleeper&Rail,Cleaning Works	14	17FEB12	08MAR12	29MAY12	03JUN12	6	-85d	■ Removing Sleeper&Rail,Cleaning Works																																																																
S3/08800	Connection Joints with Inlet Chamber	14	29FEB12	20MAR12	29MAY12	03JUN12	6	-84d	■ Connection Joints with Inlet Chamber																																																																
S3/08810	Final Touching Up&Cleaning of Inlet Chamber	0	21MAR12	10APR12	04JUN12	03JUN12	0	-84d	■ Final Touching Up&Cleaning of Inlet Chamber																																																																
S3/08820	Submission of As-built Record for Bored Tunnel	30	21MAR12	19APR12	04JUN12	03JUL12	30	237d	■ Submission of As-built Record for Bored Tunnel																																																																
Initial Works / Associated Submission																																																																									
S3/07010	Initial Works and Submission for Bored Tunnel	254 *	17SEP09	31JUL10	17SEP09 A	31JUL10 A	0 *		■ Initial Works and Submission for Bored Tunnel																																																																
S3/07020	Site Clearance (Portion 2)	14	17SEP09	13OCT09	17SEP09 A	13OCT09 A	0		■ Site Clearance (Portion 2)																																																																
S3/07030	Relocation of Existing Car Park	30	17SEP09	23OCT09	17SEP09 A	23OCT09 A	0		■ Relocation of Existing Car Park																																																																
S3/07040	Underground Utilities Detection&Trial Holes	21	08OCT09	02NOV09	08OCT09 A	02NOV09 A	0		■ Underground Utilities Detection&Trial Holes																																																																
S3/07050	Transplant of Existing Trees	21	01FEB10	04FEB10	01FEB10 A	04FEB10 A	0		■ Transplant of Existing Trees																																																																
S3/07060	Erection of Chain Link Fence	21	17SEP09	13OCT09	17SEP09 A	13OCT09 A	0		■ Erection of Chain Link Fence																																																																
S3/07070	Ground Investigation Works	30	19NOV09	26NOV09	19NOV09 A	26NOV09 A	0		■ Ground Investigation Works																																																																
S3/07080	Submission of Launching Shaft Design	145	17SEP09	15MAR10	17SEP09 A	15MAR10 A	0		■ Submission of Launching Shaft Design																																																																
S3/07090	Approval of Launching Shaft Design	45	16MAR10	26MAY10	16MAR10 A	26MAY10 A	0		■ Approval of Launching Shaft Design																																																																
S3/07100	Construction of Guide Wall	21	26MAR10	03MAY10	26MAR10 A	03MAY10 A	0		■ Construction of Guide Wall																																																																
S3/07110	Proposed TTM for Gate No.4	30	17SEP09	23OCT09	17SEP09 A	23OCT09 A	0		■ Proposed TTM for Gate No.4																																																																
S3/07120	Approval of Proposal for Gate No.4	90	24OCT09	19FEB10	24OCT09 A	19FEB10 A	0		■ Approval of Proposal for Gate No.4																																																																
S3/07130	Construction of Gate No.4	21	12JUL10	31JUL10	12JUL10 A	31JUL10 A	0		■ Construction of Gate No.4																																																																
S3/07140	Obtain As-built Pile Record from STDF Contractor	6	19MAR11	25MAR11	10JUL11 A	17JUL11 A	0		■ Obtain As-built Pile Record from STDF Contractor																																																																
S3/07150	Review Piling Record Against Tunnel Alignment	6	26MAR11	01APR11	18JUL11 A	25JUL11 A	0		■ Review Piling Record Against Tunnel Alignment																																																																
Mined Tunnel																																																																									
S3/09010	Preparation Works for Mined Tunnel	181 *			05OCT11 A	15MAY12	13 *	-68d	■ Preparation Works for Mined Tunnel																																																																
S3/09020	Preparation before Drilling new Launching Shaft	21	07JUN11	13SEP11	17OCT11 A	24OCT11 A	0		■ Preparation before Drilling new Launching Shaft																																																																
S3/09030	Drill Horizontal Freezing from Launching Shaft	30	14JUN11	13JUL11	14OCT11 A	24NOV11 A	0		■ Drill Horizontal Freezing from Launching Shaft																																																																
S3/09040	Freezing installation & pipe pressurization at LS	45	04SEP11	02NOV11	25NOV11 A	07JAN12 A	0		■ Freezing installation & pipe pressurization at LS																																																																
S3/09060	Access to Existing Riser Shaft	30	08JUN11	07JUL11	05OCT11 A	19NOV11 A	0		■ Access to Existing Riser Shaft																																																																

Start date 03SEP09
Finish date 22MAY13
Data date 30APR12
Run date 27APR12
Page number 84
Project name MR31
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Monthly Progress Updated - 30 April 2012

■ Early bar
■ Progress bar
■ Critical bar
■ Summary bar
● Start milestone point
● Finish milestone point

Act ID	Description	Orig Dur	Target Start	Target Finish	Start	Finish	Rem Dur	Total Float	Gantt Chart																																																											
									2009												2010												2011												2012												2013											
									S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D								
S3/09070	Drill Horizontal Freezing from Extg Riser Shaft	30	08JUL11	01SEP11	21NOV11 A	07JAN12 A	0		■ Drill Horizontal Freezing from Extg Riser Shaft																																																											
S3/09080	Freezing Installation & pipe pressurization at RS	45	02SEP11	31OCT11	08JAN12 A	15MAR12 A	0		■ Freezing Installation & pipe pressurization at RS																																																											
S3/09090	Stabilize Ground at Existing Riser Shaft Wall	50	04DEC11	01FEB12	16MAR12 A	15MAY12	16	-85d	■ Stabilize Ground at Existing Riser Shaft Wall																																																											
S3/09095	Ground Freezing/Stabilization at Launching Shaft	50			29MAR12 A	15MAY12	16	-85d	■ Ground Freezing/Stabilization at Launching Shaft																																																											
S3/09100	Construction of Mined Tunnel	68 *	02FEB12	09APR12	16MAY12	22JUL12	68 *	-85d	■ Construction of Mined Tunnel																																																											
S3/09110	Construct Mined Tunnel	53	02FEB12	25MAR12	16MAY12	07JUL12	53	-85d	■ Construct Mined Tunnel																																																											
S3/09115	Grouting for Thaw Settlement	30			08JUN12	07JUL12	30	-85d	■ Grouting for Thaw Settlement																																																											
S3/09120	Demobilization General Cleaning Works	15	26MAR12	09APR12	08JUL12	22JUL12	15	-85d	■ Demobilization General Cleaning Works																																																											
S3/09130	Submission of As-built Record for Mined Tunnel	30	26MAR12	24APR12	08JUL12	06AUG12	30	3d	■ Submission of As-built Record for Mined Tunnel																																																											
S3/09140	Post Condition Survey for Mined Tunnel	21	26MAR12	15APR12	08JUL12	28JUL12	21	212d	■ Post Condition Survey for Mined Tunnel																																																											
Supplementary Agreement																																																																				
Utilities and Services																																																																				
Cable Works																																																																				
V1/02010	Cable Trough for Section IV(3)	260 *	16APR10	31DEC10	16APR10 A	31DEC10 A	0 *		■ Cable Trough for Section IV(3)																																																											
V1/02020	Cable Trough	150	16APR10	31DEC10	16APR10 A	31DEC10 A	0		■ Cable Trough																																																											
V1/02030	Mobilization	6	16APR10	21APR10	16APR10 A	21APR10 A	0		■ Mobilization																																																											
V1/02035	Detect Existing Utilities	6	16APR10	21APR10	16APR10 A	21APR10 A	0		■ Detect Existing Utilities																																																											
V1/02040	Phase A: TTA for Cable Trough ch0 to 20	1	22APR10	22APR10	22APR10 A	22APR10 A	0		■ Phase A: TTA for Cable Trough ch0 to 20																																																											
V1/02050	Phase A: Excavation and Blinding ch0 to 15	5	23APR10	05MAY10	23APR10 A	05MAY10 A	0		■ Phase A: Excavation and Blinding ch0 to 15																																																											
V1/02055	Phase A: Sheet Piling / Exc ch15 to 80	30	06MAY10	18JUN10	06MAY10 A	18JUN10 A	0		■ Phase A: Sheet Piling / Exc ch15 to 80																																																											
V1/02060	Phase A: Base Slab ch0 to 20	6	13MAY10	05JUN10	13MAY10 A	05JUN10 A	0		■ Phase A: Base Slab ch0 to 20																																																											
V1/02070	Phase A: Wall Stem ch0 to 20	5	13MAY10	05JUN10	13MAY10 A	05JUN10 A	0		■ Phase A: Wall Stem ch0 to 20																																																											
V1/02080	Phase A: Base Slab ch20 to 40	4	04JUN10	14JUN10	04JUN10 A	14JUN10 A	0		■ Phase A: Base Slab ch20 to 40																																																											
V1/02090	Phase A: Wall Stem ch20 to 40	4	04JUN10	14JUN10	04JUN10 A	14JUN10 A	0		■ Phase A: Wall Stem ch20 to 40																																																											
V1/02100	Phase A: Backfill and Reinstatement ch0 to 40	6	10JUN10	03JUL10	10JUN10 A	03JUL10 A	0		■ Phase A: Backfill and Reinstatement ch0 to 40																																																											
V1/02110	Phase A: Single Cell Cable Trough ch40 to 80	14	07JUN10	18SEP10	07JUN10 A	18SEP10 A	0		■ Phase A: Single Cell Cable Trough ch40 to 80																																																											
V1/02120	Phase D: Single Cell Cable Trough ch80 to 120	14	28SEP10	29DEC10	28SEP10 A	29DEC10 A	0		■ Phase D: Single Cell Cable Trough ch80 to 120																																																											
V1/02130	Phase D: Single Cell Cable Trough ch120 to 160	14	28OCT10	29DEC10	28OCT10 A	29DEC10 A	0		■ Phase D: Single Cell Cable Trough ch120 to 160																																																											
V1/02140	Phase D: Single Cell Cable Trough ch160 to 200	14	28SEP10	29DEC10	28SEP10 A	29DEC10 A	0		■ Phase D: Single Cell Cable Trough ch160 to 200																																																											
V1/02190	Phase B: TTA for Cable Trough ch220 to 260	1	18MAY10	18MAY10	18MAY10 A	18MAY10 A	0		■ Phase B: TTA for Cable Trough ch220 to 260																																																											
V1/02200	Phase B: Sheet Piling / Exc ch220 to 260	14	31MAY10	15JUN10	31MAY10 A	15JUN10 A	0		■ Phase B: Sheet Piling / Exc ch220 to 260																																																											
V1/02210	Phase B: Single Cell Cable Trough ch220 to 260	14	01JUN10	19OCT10	01JUN10 A	19OCT10 A	0		■ Phase B: Single Cell Cable Trough ch220 to 260																																																											
V1/02215	Phase B: Single Cell Cable Trough ch260 to 300	14	05JUN10	19OCT10	05JUN10 A	19OCT10 A	0		■ Phase B: Single Cell Cable Trough ch260 to 300																																																											
V1/02220	Phase E: Single Cell Cable Trough ch300 to 340	14	12JUN10	31DEC10	12JUN10 A	31DEC10 A	0		■ Phase E: Single Cell Cable Trough ch300 to 340																																																											
V1/02230	Phase E: Single Cell Cable Trough ch340 to 380	14	19JUL10	01JAN11	19JUL10 A	31DEC10 A	0		■ Phase E: Single Cell Cable Trough ch340 to 380																																																											
V1/02240	Phase E: Single Cell Cable Trough ch380 to 420	21	01NOV10	02JAN11	01NOV10 A	31DEC10 A	0		■ Phase E: Single Cell Cable Trough ch380 to 420																																																											
V1/02250	Phase C: TTA for Cable Trough ch420 to 460	1	28JUN10	28JUN10	28JUN10 A	28JUN10 A	0		■ Phase C: TTA for Cable Trough ch420 to 460																																																											
V1/02260	Phase C: Single Cell Cable Trough ch420 to 460	25	29JUN10	22OCT10	29JUN10 A	22OCT10 A	0		■ Phase C: Single Cell Cable Trough ch420 to 460																																																											
V1/02270	Phase C: Single Cell Cable Trough ch460 to 510	25	18AUG10	22OCT10	18AUG10 A	22OCT10 A	0		■ Phase C: Single Cell Cable Trough ch460 to 510																																																											
V1/02280	Phase F: TTA for Cable Trough ch280 to 300	1	13AUG10	13AUG10	13AUG10 A	13AUG10 A	0		■ Phase F: TTA for Cable Trough ch280 to 300																																																											
V1/02290	Phase F: Single Cell Cable Trough ch280 to 300	30	16AUG10	31DEC10	16AUG10 A	31DEC10 A	0		■ Phase F: Single Cell Cable Trough ch280 to 300																																																											
V1/02300	Phase F: Single Cell Cable Trough ch200 to 280	47	16AUG10	30NOV10	16AUG10 A	30NOV10 A	0		■ Phase F: Single Cell Cable Trough ch200 to 280																																																											
V1/02340	Phase G: TTA for Cable Trough ch220 to 180	1	18OCT10	18OCT10	18OCT10 A	18OCT10 A	0		■ Phase G: TTA for Cable Trough ch220 to 180																																																											
V1/02350	Phase G: Sheet Piling / Exc ch220 to 180	14	19OCT10	12NOV10	19OCT10 A	12NOV10 A	0		■ Phase G: Sheet Piling / Exc ch220 to 180																																																											
V1/02360	Phase G: Single Cell Cable Trough ch220 to 180	14	30OCT10	22DEC10	30OCT10 A	22DEC10 A	0		■ Phase G: Single Cell Cable Trough ch220 to 180																																																											
V1/02370	Phase G: Single Cell Cable Trough ch180 to 140	14	30OCT10	22DEC10	30OCT10 A	22DEC10 A	0		■ Phase G: Single Cell Cable Trough ch180 to 140																																																											
V1/02380	Phase G: Single Cell Cable Trough ch140 to 135	0	22DEC10	22DEC10	22DEC10 A	22DEC10 A	0		■ Phase G: Single Cell Cable Trough ch140 to 135																																																											
V1/02390	Phase G: Single Cell Cable Trough ch135 to 95	0	22DEC10	22DEC10	22DEC10 A	22DEC10 A	0		■ Phase G: Single Cell Cable Trough ch135 to 95																																																											
V1/02400	Phase G: Single Cell Cable Trough ch95 to 80	0	22DEC10	22DEC10	22DEC10 A	22DEC10 A	0		■ Phase G: Single Cell Cable Trough ch95 to 80																																																											
Key Dates																																																																				
KD7000	Commencement for Section IV (Variation Order)	0	16APR10		16APR10 A		0		◆ Commencement for Section IV (Variation Order)																																																											
KD7100	Completion of Section IV (1) : 131 days	0		25AUG10		25AUG10 A	0		◆ Completion of Section IV (1) : 131 days																																																											
KD7200	Completion of Section IV (2) : 260 days	0		31DEC10		31DEC10 A	0		◆ Completion of Section IV (2) : 260 days																																																											
KD7300	Completion of Section IV (3) : 260 days	0		31DEC10		31DEC10 A	0		◆ Completion of Section IV (3) : 260 days																																																											
Pipe Works																																																																				
V1/01110	Pipe Drain & Sludge Feed Pipe for Section IV (1)	130 *	16APR10	23AUG10	16APR10 A	23AUG10 A	0 *		■ Pipe Drain & Sludge Feed Pipe for Section IV (1)																																																											
V1/01120	Pipe Drain / Sludge Feed Pipe for Section IV (1)	120	16APR10	07AUG10	16APR10 A	07AUG10 A	0		■ Pipe Drain / Sludge Feed Pipe for Section IV (1)																																																											

- Early bar
- Progress bar
- Critical bar
- Summary bar
- ◆ Start milestone point
- ◆ Finish milestone point

Monthly Progress Updated - 30 April 2012

Start date	03SEP09
Finish date	22MAY13
Date date	30APR12
Run date	27APR12
Page number	90
Project name	MRS1
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Act ID	Description	Orig Dur	Target Start	Target Finish	Start	Finish	Rem Dur	Total Float	Gantt Chart																																																			
									2009					2010													2011													2012													2013							
									S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
V1/01125	Detect Existing Utilities	6	16APR10	21APR10	16APR10 A	21APR10 A	0		■ Detect Existing Utilities																																																			
V1/01130	Sewer bet F10 to F9 and Manhole (Part 1)	46	16APR10	26JUN10	16APR10 A	26JUN10 A	0		■ Sewer bet F10 to F9 and Manhole (Part 1)																																																			
V1/01140	Sewer bet F9 to F7	35	05MAY10	03JUL10	05MAY10 A	03JUL10 A	0		■ Sewer bet F9 to F7																																																			
V1/01150	Storm Drain bet S1B to S1C	14	05JUN10	10JUL10	05JUN10 A	10JUL10 A	0		■ Storm Drain bet S1B to S1C																																																			
V1/01160	DN600 Sludge Feed Pipe (SF2) - 70m	8	14JUL10	07AUG10	14JUL10 A	07AUG10 A	0		■ DN600 Sludge Feed Pipe (SF2) - 70m																																																			
V1/01170	DN400 Sludge Feed Pipe (SF1) - 70m	8	05JUL10	17JUL10	05JUL10 A	17JUL10 A	0		■ DN400 Sludge Feed Pipe (SF1) - 70m																																																			
V1/01180	Storm Drain bet S1B to S13	32	13JUL10	18AUG10	13JUL10 A	18AUG10 A	0		■ Storm Drain bet S1B to S13																																																			
V1/01190	Reinstatement of Area / Access	7	09AUG10	23AUG10	09AUG10 A	23AUG10 A	0		■ Reinstatement of Area / Access																																																			
V1/01200	TTA for F10 to F9 (Part 2)	1	16APR10	16APR10	16APR10 A	16APR10 A	0		■ TTA for F10 to F9 (Part 2)																																																			
V1/01210	Sewer bet F10 to F9 (Part 2)	31	16APR10	28JUN10	16APR10 A	28JUN10 A	0		■ Sewer bet F10 to F9 (Part 2)																																																			
V1/01220	Storm Drain bet S1A to S1B and Manholes	31	20JUL10	19AUG10	20JUL10 A	19AUG10 A	0		■ Storm Drain bet S1A to S1B and Manholes																																																			
V1/01230	Pipe Drain & Sludge Feed Pipe for Section IV (2)	260 *	16APR10	31DEC10	16APR10 A	31DEC10 A	0 *		■ Pipe Drain & Sludge Feed Pipe for Section IV (2)																																																			
V1/01235	Pipe Drain / Sludge Feed Pipe for Section IV (2)	150	16APR10	07AUG10	16APR10 A	07AUG10 A	0		■ Pipe Drain / Sludge Feed Pipe for Section IV (2)																																																			
V1/01240	Sewer bet F7 to F4 & Manhole	52	20APR10	16JUL10	20APR10 A	16JUL10 A	0		■ Sewer bet F7 to F4 & Manhole																																																			
V1/01250	Sewer bet F4 to F3 & Manholes	50	30JUN10	30NOV10	30JUN10 A	30NOV10 A	0		■ Sewer bet F4 to F3 & Manholes																																																			
V1/01260	12DN600 Sludge Feed Pipe (SF2) - 10m	22	23JUL10	07AUG10	23JUL10 A	07AUG10 A	0		■ 12DN600 Sludge Feed Pipe (SF2) - 10m																																																			
V1/01270	Sewer bet F3 to F2	24	23AUG10	30OCT10	23AUG10 A	30OCT10 A	0		■ Sewer bet F3 to F2																																																			
V1/01290	Storm Drain bet S1C to S1D & Manholes S1C/S1C2	56	20AUG10	12OCT10	20AUG10 A	12OCT10 A	0		■ Storm Drain bet S1C to S1D & Manholes S1C/S1C2																																																			
V1/01300	Storm Drain bet S1D to S1E & Manhole (Part 1)	90	16APR10	31JUL10	16APR10 A	31JUL10 A	0		■ Storm Drain bet S1D to S1E & Manhole (Part 1)																																																			
V1/01305	Storm Drain bet S1D to S1E (Part 2)	56	25OCT10	31DEC10	25OCT10 A	31DEC10 A	0		■ Storm Drain bet S1D to S1E (Part 2)																																																			
V1/01310	Storm Drain bet S1E to S6 & Manholes S1E / S6	52	30OCT10	31DEC10	30OCT10 A	31DEC10 A	0		■ Storm Drain bet S1E to S6 & Manholes S1E / S6																																																			
V1/01320	Storm Drain bet S6 to S7A & Manhole S7A	45	26AUG10	15DEC10	26AUG10 A	15DEC10 A	0		■ Storm Drain bet S6 to S7A & Manhole S7A																																																			
V1/01330	Storm Drain bet S7 to S7A & Manhole S7 (Part 1)	50	23AUG10	15OCT10	23AUG10 A	15OCT10 A	0		■ Storm Drain bet S7 to S7A & Manhole S7 (Part 1)																																																			
V1/01340	Storm Drain bet S7 to S7A & Manhole S7 (Part 2)	38	13OCT10	05NOV10	13OCT10 A	05NOV10 A	0		■ Storm Drain bet S7 to S7A & Manhole S7 (Part 2)																																																			
V1/01350	Sewer bet F2 to F1	24	20NOV10	15DEC10	20NOV10 A	15DEC10 A	0		■ Sewer bet F2 to F1																																																			

Three Months Rolling Programme for Contract No. DE/2009/02 Provision of Covers and Deodourisation Facilities to the Existing Sedimentation Tanks at Stonecutters Island Sewage Treatment Works (Apr12 to Jun12) (Revision 0)

ID	Task Name	Duration	Early Start	Start	Finish	Late Finish	Free Slack	Total Slack	Predecessors	Successors	2012											
											J	A	S	O	N	D	J	F	M	A	M	J
0	DE/2009/02 Contract Duration	1009 d	30/10/09	30/10/09	3/8/12	3/8/12	0 d	0 d			----->											
1	Project Commencement Date	0 d	30/10/09	30/10/09	30/10/09	30/10/09	0 d	0 d		3,4FS+39 d,13FS+90 d,15,162FS+153 d,108FS+425	----->											
2	Site Preparation	67 d	30/10/09	30/10/09	4/1/10	13/7/12	45 d	45 d			----->											
13	Submission of ICE Certified Detailed Design	0 d	27/11/10	27/11/10	27/11/10	3/8/12	919 d	919 d	1FS+90 d		----->											
14	Preliminary and Detailed Design Submission	955 d	30/10/09	30/10/09	10/6/12	13/7/12	0 d	0 d			----->											
15	Preparation of Preliminary Design Submission and Submit to the Engineer	20 d	30/10/09	30/10/09	18/11/09	18/11/09	0 d	0 d	1	16	----->											
16	First review and comment Preliminary Design by the Engineer	14 d	19/11/09	19/11/09	2/12/09	2/12/09	0 d	0 d	15	17,19,55,57FS+43 d,58FS+43 d,60FS+65 d,63FS+65 d,65FS+95	----->											
17	Revise Preliminary Design (PD) Submission	14 d	3/12/09	3/12/09	16/12/09	16/12/09	0 d	0 d	16	18	----->											
18	Review and Approval of revised PD by the Engineer	14 d	17/12/09	17/12/09	30/12/09	30/12/09	0 d	0 d	17	67FS+75 d,147FS+120 d,19,164,59FS+545 d,61FS+595	----->											
19	Preparation of Detailed Design (DD) Submission	24 d	31/12/09	31/12/09	23/1/10	23/1/10	0 d	0 d	16,18	20	----->											
20	Obtain of ICE Certificate of DD Submission and Submit to the Engineer	3 d	24/1/10	24/1/10	26/1/10	26/1/10	0 d	0 d	19	21	----->											
21	First review and comment DD by the Engineer	30 d	27/1/10	27/1/10	25/2/10	25/2/10	0 d	0 d	20	22	----->											
22	Revise DD Submission & obtain ICE Certificate and Submit to the Engineer	30 d	26/2/10	26/2/10	27/3/10	27/3/10	0 d	0 d	21	23	----->											
23	Review and Approval of revised DD by the Engineer	21 d	28/3/10	28/3/10	17/4/10	17/4/10	0 d	0 d	22	40,166FS-19 d	----->											
24	Preparation of Preliminary General Building Plan (GBP) Design Submission	90 d	11/2/10	11/2/10	11/5/10	14/9/10	0 d	126 d	1FS+104 d	25	----->											
25	Obtain ICE Certificate of Preliminary GBP Submission and Submit to the Engineer	14 d	12/5/10	12/5/10	25/5/10	28/9/10	0 d	126 d	24	26	----->											
26	First review and comment Preliminary GBP Design by the Engineer	90 d	26/5/10	26/5/10	23/8/10	27/12/10	0 d	126 d	25	27	----->											
27	Review Preliminary GBP Design Submission	163 d	24/8/10	24/8/10	2/2/11	8/6/11	0 d	126 d	26	28	----->											
28	Review and Approval of Detailed GBP Design by the Engineer	23 d	3/2/11	3/2/11	25/2/11	1/7/11	0 d	126 d	27	29	----->											
29	Obtain of Final ICE Certificate of Detailed GBP Submission and Submit to the Engineer	7 d	26/2/11	26/2/11	4/3/11	8/7/11	15 d	126 d	28	136,137,152,153	----->											
30	Preparation of Preliminary Foundation Design Submission and Method Statement	21 d	5/2/10	5/2/10	25/2/10	3/3/10	0 d	6 d	118	31	----->											
31	Obtain ICE Certificate of Preliminary Foundation Design Submission and Method Statement and Submit to the Engineer	14 d	26/2/10	26/2/10	11/3/10	17/3/10	0 d	6 d	30	32,123,124,127,128	----->											
32	First review and comment Preliminary Foundation Design by the Engineer	15 d	12/3/10	12/3/10	26/3/10	6/5/10	0 d	41 d	31	33	----->											
33	Revise Preliminary Foundation Design Submission and Method statement	14 d	27/3/10	27/3/10	9/4/10	20/5/10	0 d	41 d	32	34	----->											
34	Obtain ICE Certificate of Revised Foundation Design Submission and Method Statement and Submit to the Engineer	14 d	10/4/10	10/4/10	23/4/10	3/6/10	0 d	41 d	33	35,36FS+123 d	----->											
35	Review and Approval of revised Foundation Design and Method Statement by the Engineer	14 d	24/4/10	24/4/10	7/5/10	17/6/10	7 d	41 d	34	124,128	----->											
36	Preparation of Pile Load Test Method Statement and Submit to the Engineer	14 d	25/8/10	25/8/10	7/9/10	29/1/11	0 d	144 d	34FS+123 d	37	----->											
37	Review and Approval of Pile Load Test Method Statement	14 d	8/9/10	8/9/10	21/9/10	12/2/11	0 d	144 d	36	38,125,129	----->											
38	Preparation of method statement of construction of pile cap and control room and Submit to the Engineer	14 d	22/9/10	22/9/10	5/10/10	19/3/11	0 d	165 d	37	39	----->											

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

Three Months Rolling Programme for Contract No. DE/2009/02
Provision of Covers and Deodourisation Facilities to the Existing Sedimentation Tanks at Stonecutters Island Sewage Treatment Works (Apr12 to Jun12)
 (Revision 0)

ID	Task Name	Duration	Early Start	Start	Finish	Late Finish	Free Slack	Total Slack	Predecessors	Successors	2012															
											J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	
39	Review and Approval of method statement of construction of pile cap and control room	14 d	6/10/10	6/10/10	19/10/10	24/11	97 d	165 d	38	136,137,138,149,151,150																
40	Preparation of Preliminary Odour Duct Bridge Design Submission	60 d	18/4/10	18/4/10	16/6/10	16/6/10	0 d	0 d	23	41																
41	Obtain ICE Certificate of Preliminary Odour Duct Bridge Design Submission and Submit to the Engineer	14 d	17/6/10	17/6/10	30/6/10	30/6/10	0 d	0 d	40	42																
42	First review and comment Preliminary Odour Duct Bridge Design Submission	30 d	17/7/10	17/7/10	30/7/10	30/7/10	0 d	0 d	41	43																
43	Review Preliminary Odour Duct Bridge Design Submission	60 d	31/7/10	31/7/10	28/9/10	28/9/10	0 d	0 d	42	44																
44	Obtain ICE Certificate of Revised Odour Duct Bridge Design Submission and Submit to the Engineer	14 d	29/9/10	29/9/10	12/10/10	12/10/10	0 d	0 d	43	45																
45	Review and Approval of Revised Odour Duct Bridge Design Submission	30 d	13/10/10	13/10/10	11/11/10	11/11/10	0 d	0 d	44	158,159,87,46,88FS+210 d																
46	Preparation of method statement of erection of odour duct bridge (TTA included) and Submit to the Engineer	14 d	12/11/10	12/11/10	25/11/10	3/1/11	0 d	39 d	45	47																
47	Review and Approval of method statement of erection of odour duct bridge (TTA included)	28 d	26/11/10	26/11/10	23/12/10	31/1/11	0 d	39 d	46	158,159,48FS+120 d																
48	Preparation of Commissioning Test Plan and Submit to the Engineer	45 d	23/4/11	23/4/11	6/6/11	15/7/11	0 d	39 d	47FS+120 d	49																
49	Review and Approval of Commissioning Test Plan by the Engineer	90 d	7/6/11	7/6/11	4/9/11	13/10/11	0 d	39 d	48	50,370,377,379																
50	Preparation of Training Plan and Submit to the Engineer	160 d	5/9/11	5/9/11	11/2/12	29/2/12	0 d	18 d	49	51																
51	Review and Approval of Training Plan by the Engineer	120 d	12/2/12	12/2/12	10/6/12	28/6/12	18 d	18 d	50	378																
52	Preparation of As-built drawings and Submit to the Engineer	120 d	30/10/11	30/10/11	26/2/12	14/4/12	0 d	48 d	1FS+730 d	53																
53	Review and Approval of As-built drawings	90 d	27/2/12	27/2/12	26/5/12	13/7/12	48 d	48 d	52	380																
54	Equipment Submission and Approval	688 d	3/12/09	3/12/09	21/10/11	9/12/11	0 d	0 d																		
55	Odour Containment System (FRP Cover) - Prototype	30 d	3/12/09	3/12/09	1/1/10	1/1/10	0 d	0 d	16	164FS+12 d																
56	Odour Containment System (FRP Cover) - Other Covers / walkway	80 d	15/1/10	15/1/10	4/4/10	4/4/10	0 d	0 d	16FS+43 d	75,76																
57	Deodourizing System	70 d	15/1/10	15/1/10	25/3/10	4/4/10	10 d	10 d	16FS+43 d	75,76																
58	LV Switchboard	80 d	15/1/10	15/1/10	4/4/10	6/4/10	0 d	2 d	16FS+43 d	92,93																
59	FRP Cover at Rapid Mix Tank (VO12)	90 d	29/6/11	29/6/11	26/9/11	27/9/11	0 d	1 d	18FS+545 d	98FS+30 d,99FS+30 d,100FS+30 d																
60	Modification proposal of SCADA System (VO13)	520 d	6/2/10	6/2/10	10/7/11	19/8/11	0 d	40 d	16FS+65 d	94																
61	FRP Cover at Flow Distribution Chamber (VO14)	60 d	18/8/11	18/8/11	16/10/11	7/12/11	0 d	52 d	18FS+595 d	102FS+15 d,103FS+15 d,104FS+15 d																
62	Isolation Stopboard for Scum Pit and Effluent Drop Structure (VO15)	60 d	23/8/11	23/8/11	21/10/11	9/12/11	0 d	49 d	18FS+600 d	106,107																
63	FRP Ductwork and Support	70 d	6/2/10	6/2/10	16/4/10	19/4/10	0 d	3 d	16FS+65 d	78FS+180 d																
64	CCTV System	90 d	29/1/10	29/1/10	28/4/10	12/12/10	0 d	228 d	16FS+57 d	95																
65	Electrical Accessories	60 d	8/3/10	8/3/10	6/5/10	23/9/11	0 d	505 d	16FS+95 d	96																
66	Statutory Submission and Inspection	571 d	16/3/10	16/3/10	7/10/11	3/8/12	301 d	301 d																		
67	Preparation of revised FS Plan including DG goods store application	28 d	16/3/10	16/3/10	12/4/10	5/4/12	0 d	724 d	18FS+75 d	68																

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

Three Months Rolling Programme for Contract No. DE/2009/02 Provision of Covers and Deodourisation Facilities to the Existing Sedimentation Tanks at Stonecutters Island Sewage Treatment Works (Apr12 to Jun12) (Revision 0)

ID	Task Name	Duration	Early Start	Start	Finish	Late Finish	Free Slack	Total Slack	Predecessors	Successors	2012														
											J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
68	Approval of revised FS Plan including DG goods store application by FSD	45 d	13/4/10	13/4/10	27/5/10	20/5/12	444 d	724 d	67	69															
69	Submission of Form 501 for FS Inspection	0 d	15/8/11	15/8/11	15/8/11	11/6/12	0 d	301 d	68	70FS+30 d															
70	First FS Inspection	0 d	13/9/11	13/9/11	13/9/11	11/7/12	0 d	301 d	69FS+30 d	71															
71	Defect rectification following to the first FS Inspection	14 d	14/9/11	14/9/11	27/9/11	3/7/12	0 d	280 d	70	72															
72	Final FS Inspection and Issue of FS Certificate	10 d	28/9/11	28/9/11	7/10/11	13/7/12	280 d	280 d	71																
73	Equipment Manufacturing, Factory Testing, Shipment and Delivery other than FRP Covers & Accessories for Containment System	700 d	5/4/10	5/4/10	4/3/12	20/5/12	0 d	0 d																	
74	Deodourization System	460 d	5/4/10	5/4/10	8/7/11	21/9/11	0 d	0 d																	
75	Deodourization System (DOU2)	430 d	5/4/10	5/4/10	8/6/11	8/6/11	0 d	0 d	57,56	316															
76	Deodorization System (DOU1)	460 d	5/4/10	5/4/10	8/7/11	7/8/11	0 d	30 d	57,56	317															
77	FRP Ductwork and Support	360 d	14/10/10	14/10/10	8/10/11	12/3/12	46 d	46 d																	
78	FRP Ductwork and Support (33-45)	45 d	14/10/10	14/10/10	27/11/10	30/11/10	0 d	3 d	63FS+180 d	306FS+110 d,79															
79	FRP Ductwork and Support (21-31)	45 d	28/11/10	28/11/10	11/1/11	4/5/11	0 d	113 d	78	80															
80	FRP Ductwork and Support (9-19)	45 d	12/1/11	12/1/11	25/2/11	18/6/11	0 d	113 d	79	81															
81	FRP Ductwork and Support (1-7)	45 d	26/2/11	26/2/11	11/4/11	2/8/11	0 d	113 d	80	82															
82	FRP Ductwork and Support (2-8)	45 d	12/4/11	12/4/11	26/5/11	16/9/11	0 d	113 d	81	83															
83	FRP Ductwork and Support (10-20)	45 d	27/5/11	27/5/11	10/7/11	31/10/11	0 d	113 d	82	84															
84	FRP Ductwork and Support (22-32)	45 d	11/7/11	11/7/11	24/8/11	15/12/11	0 d	113 d	83	85															
85	FRP Ductwork and Support(34-46)	45 d	25/8/11	25/8/11	8/10/11	29/1/12	112 d	113 d	84	313															
86	Odour Duct Bridge	451 d	12/11/10	12/11/10	5/2/12	7/3/12	31 d	31 d																	
87	Fabrication of individual parts of Odour Duct Bridge at DOU1	190 d	12/11/10	12/11/10	20/5/11	20/12/11	0 d	214 d	45	89															
88	Fabrication of individual parts of Odour Duct Bridge at DOU2	211 d	10/6/11	10/6/11	6/1/12	6/1/12	0 d	0 d	45FS+210 d	90															
89	Shipment and Delivery of Odour Duct Bridge at DOU1	50 d	21/5/11	21/5/11	9/7/11	8/2/12	0 d	214 d	87	158															
90	Shipment and Delivery of Odour Duct Bridge at DOU2	30 d	7/1/12	7/1/12	5/2/12	5/2/12	0 d	0 d	88	159															
91	Electrical and Building Services Equipment	552 d	5/4/10	5/4/10	8/10/11	21/1/12	2 d	2 d																	
92	LV Switchboard (DOU1)	440 d	5/4/10	5/4/10	18/6/11	13/12/11	0 d	178 d	58	319															
93	LV Switchboard (DOU2)	500 d	5/4/10	5/4/10	17/8/11	19/8/11	2 d	2 d	58	320															
94	Modification proposal of SCADA System (VO13)	90 d	11/7/11	11/7/11	8/10/11	17/11/11	40 d	40 d	60	323															
95	CCTV System	210 d	29/4/10	29/4/10	24/11/10	31/7/11	249 d	249 d	64	330															
96	Electrical Accessories	120 d	7/5/10	7/5/10	3/9/10	21/1/12	480 d	505 d	65	321															

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

Three Months Rolling Programme for Contract No. DE/2009/02

Provision of Covers and Deodourisation Facilities to the Existing Sedimentation Tanks at Stonecutters Island Sewage Treatment Works (Apr12 to Jun12)

(Revision 0)

ID	Task Name	Duration	Early Start	Start	Finish	Late Finish	Free Slack	Total Slack	Predecessors	Successors	2012															
											J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	
97	FRP Cover at Rapid Mix Tank (VO12)	130 d	27/10/11	27/10/11	4/3/12	15/4/12	42 d	42 d																		
98	Rapid Mix Tank Cover	130 d	27/10/11	27/10/11	4/3/12	8/4/12	0 d	35 d	59FS+30 d	332																
99	Air Ductwork & Duct Support	130 d	27/10/11	27/10/11	4/3/12	8/4/12	0 d	35 d	59FS+30 d	333																
100	Influent Area Cover	130 d	27/10/11	27/10/11	4/3/12	8/4/12	0 d	35 d	59FS+30 d	334																
101	FRP Cover at Flow Distribution Chamber (VO14)	40 d	1/11/11	1/11/11	10/12/11	20/5/12	97 d	97 d																		
102	FDC Cover	30 d	1/11/11	1/11/11	30/11/11	10/2/12	0 d	72 d	61FS+15 d	336																
103	Air Ductwork & Duct Sport	40 d	1/11/11	1/11/11	10/12/11	10/2/12	0 d	62 d	61FS+15 d	337																
104	Temporary DOU	40 d	1/11/11	1/11/11	10/12/11	15/2/12	0 d	67 d	61FS+15 d	338																
105	Isolation Stopboard for Scum Pit and Effluent Drop Structure (VO15)	60 d	22/10/11	22/10/11	20/12/11	27/12/11	7 d	7 d																		
106	Support Frame Work	60 d	22/10/11	22/10/11	20/12/11	8/3/12	0 d	79 d	62	340																
107	FRP Stopboard	60 d	22/10/11	22/10/11	20/12/11	8/3/12	0 d	79 d	62	341																
108	Completion of Piling and Concrete Base Slabs for the Two Deodourisation Units	0 d	28/12/10	28/12/10	28/12/10	3/8/12	584 d	584 d	1FS+425 d																	
109	Civil Construction	806 d	28/12/09	28/12/09	12/3/12	12/3/12	0 d	0 d																		
110	Condition Survey	80 d	28/12/09	28/12/09	17/3/10	17/3/10	0 d	0 d																		
116	Piling Works	433 d	5/1/10	5/1/10	13/3/11	18/3/11	5 d	5 d																		
130	Construction of Concrete Plinth for DOU2	576 d	30/12/09	30/12/09	28/7/11	19/8/11	22 d	22 d																		
131	Underground Utility Survey at DOU2	7 d	30/12/09	30/12/09	5/1/10	20/3/11	439 d	439 d	142SS	132																
132	Excavation including temporary works and safety measures	50 d	21/3/11	21/3/11	9/5/11	9/5/11	0 d	0 d	125FS+7 d,131	133																
133	Pile Cap	29 d	10/5/11	10/5/11	7/6/11	7/6/11	0 d	0 d	132,39	134,139																
134	Concrete Plinth	7 d	8/6/11	8/6/11	14/6/11	14/6/11	0 d	0 d	133	317,140,135,159																
135	Backfill to Ground Level	7 d	15/6/11	15/6/11	21/6/11	13/7/11	0 d	22 d	134	136																
136	Pour 2a - Wall of Control Room	14 d	22/6/11	22/6/11	5/7/11	27/7/11	0 d	22 d	39,29,135	137																
137	Pour 2b - Roof of Control Room	16 d	6/7/11	6/7/11	21/7/11	12/8/11	0 d	22 d	136,39,29	138,327																
138	Block work wall of Control Room and Finishing works	7 d	22/7/11	22/7/11	28/7/11	19/8/11	22 d	22 d	137,39	161																
139	Watermain laying works	30 d	8/6/11	8/6/11	7/7/11	19/8/11	43 d	43 d	133	161																
140	Reinstatement of road and drainage	66 d	15/6/11	15/6/11	19/8/11	19/8/11	0 d	0 d	134	161																
141	Construction of Concrete Plinth for DOU1	487 d	30/12/09	30/12/09	30/4/11	19/8/11	111 d	111 d																		
142	Underground Utility Survey at DOU1	7 d	30/12/09	30/12/09	5/1/10	17/5/10	0 d	132 d	9FS+17 d	131SS,144																
143	Tree transplant	50 d	6/1/10	6/1/10	24/2/10	6/7/10	132 d	132 d	7FS+30 d																	

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Task		Progress		Summary		External Tasks		Group By Summary	
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Three Months Rolling Programme for Contract No. DE/2009/02
Provision of Covers and Deodourisation Facilities to the Existing Sedimentation Tanks at Stonecutters Island Sewage Treatment Works (Apr12 to Jun12)
 (Revision 0)

ID	Task Name	Duration	Early Start	Start	Finish	Late Finish	Free Slack	Total Slack	Predecessors	Successors	2012												
											J	A	S	O	N	D	J	F	M	A	M	J	J
147	Diversion of underground utilities including concrete service duct	270 d	30/4/10	30/4/10	24/1/11	24/1/11	0 d	68 d	18FS+120 d,146	149,148FS-18 d													
148	Excavation including temporary works and safety measures	20 d	7/1/11	7/1/11	26/1/11	7/4/11	3 d	71 d	129,147FS-18 d	149FS-5 d													
149	Pile Cap	43 d	25/1/11	25/1/11	8/3/11	15/5/11	0 d	68 d	148FS-5 d,39,147	151,150,155													
150	Concrete Plinth	6 d	9/3/11	9/3/11	14/3/11	21/5/11	0 d	68 d	149,39	316,156,151,158													
151	Backfill to Ground Level	5 d	15/3/11	15/3/11	19/3/11	8/7/11	0 d	111 d	149,39,150	152													
152	Pour 1a - Wall of Control Room	21 d	20/3/11	20/3/11	9/4/11	29/7/11	0 d	111 d	39,29,151	153													
153	Pour 2b - Roof of Control Room	14 d	10/4/11	10/4/11	23/4/11	12/8/11	0 d	111 d	152,29	154,326													
154	Block work wall of Control Room and Finishing works	7 d	24/4/11	24/4/11	30/4/11	19/8/11	43 d	111 d	153	160													
155	Watermain laying works	90 d	9/3/11	9/3/11	6/6/11	19/8/11	6 d	74 d	149	160													
156	Reinstatement of road and drainage	90 d	15/3/11	15/3/11	12/6/11	19/8/11	0 d	68 d	150	160													
157	Erection of Odour Bridge	247 d	10/7/11	10/7/11	12/3/12	12/3/12	0 d	0 d															
158	Odour Bridge connecting DOU1	5 d	10/7/11	10/7/11	14/7/11	13/2/12	198 d	214 d	45,89,47,150	313													
159	Odour Bridge connecting DOU2	36 d	6/2/12	6/2/12	12/3/12	12/3/12	0 d	0 d	45,90,47,134	313													
160	Site Availability of the Plinth and Control Room for DOU1	0 d	12/6/11	12/6/11	12/6/11	19/8/11	0 d	68 d	154,155,156	328,330FS-19 d,343,319													
161	Site Availability of the Plinth and Control Room for DOU2	0 d	19/8/11	19/8/11	19/8/11	19/8/11	0 d	0 d	138,139,140	329,330FS-19 d,344,320													
162	Completion of Installation of Prototype Covers on Tank 43	0 d	31/3/10	31/3/10	31/3/10	3/8/12	856 d	856 d	1FS+153 d														
163	Delivery and Installation of FRP Covers & Accessories for Containment System	873 d	14/1/10	14/1/10	4/6/12	4/6/12	0 d	0 d															
164	Delivery and Manufacture of Sedimentation Tank No.43	33 d	14/1/10	14/1/10	15/2/10	15/2/10	0 d	0 d	16,55FS+12 d,18	165FS-21 d													
165	Installation and Testing of Containment System of Sedimentation Tank No.43	63 d	26/1/10	26/1/10	29/3/10	29/3/10	0 d	0 d	164FS-21 d	7,166,169,171,173,175,1													
166	Delivery and Manufacture of Sedimentation Tank No.33	30 d	30/3/10	30/3/10	28/4/10	28/4/10	0 d	0 d	165,23FS-19 d	167FS+11 d,168FS-10 d													
167	Installation and Testing of Containment System of Sedimentation Tank No.33	66 d	10/5/10	10/5/10	14/7/10	14/7/10	0 d	0 d	166FS+11 d,165	177,179													
168	Delivery and Manufacture of Sedimentation Tank No.35	31 d	19/4/10	19/4/10	19/5/10	19/5/10	0 d	0 d	166FS-10 d	169FS+10 d,170FS-10 d													
169	Installation and Testing of Containment System of Sedimentation Tank No.35	221 d	30/5/10	30/5/10	5/1/11	5/1/11	0 d	0 d	165,168FS+10 d	181FS-35 d													
170	Delivery and Manufacture of Sedimentation Tank No.37	27 d	10/5/10	10/5/10	5/6/10	5/6/10	0 d	0 d	168FS-10 d,165	171FS+20 d,172FS-10 d													
171	Installation and Testing of Containment System of Sedimentation Tank No.37	196 d	26/6/10	26/6/10	7/1/11	7/1/11	0 d	0 d	170FS+20 d,165	183FS-30 d													
172	Delivery and Manufacture of Sedimentation Tank No.39	33 d	27/5/10	27/5/10	28/6/10	28/6/10	0 d	0 d	170FS-10 d	173FS+20 d,174FS-10 d													
173	Installation and Testing of Containment System of Sedimentation Tank No.39	120 d	19/7/10	19/7/10	15/11/10	15/11/10	0 d	0 d	172FS+20 d,165	185													
174	Delivery and Manufacture of Sedimentation Tank No.41	21 d	19/6/10	19/6/10	9/7/10	9/7/10	0 d	0 d	172FS-10 d	175FS+20 d,176FS-10 d													
175	Installation and Testing of Containment System of Sedimentation Tank No.41	94 d	30/7/10	30/7/10	31/10/10	31/10/10	0 d	0 d	174FS+20 d,165	187													

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

Three Months Rolling Programme for Contract No. DE/2009/02

Provision of Covers and Deodourisation Facilities to the Existing Sedimentation Tanks at Stonecutters Island Sewage Treatment Works (Apr12 to Jun12)

(Revision 0)

ID	Task Name	Duration	Early Start	Start	Finish	Late Finish	Free Slack	Total Slack	Predecessors	Successors	2012												
											J	A	S	O	N	D	J	F	M	A	M	J	J
176	Delivery and Manufacture of Sedimentation Tank No.21	33 d	30/6/10	30/6/10	1/8/10	1/8/10	0 d	0 d	174FS-10 d	177FS+20 d,178FS-15 d													
177	Installation and Testing of Containment System of Sedimentation Tank No.21	66 d	22/8/10	22/8/10	26/10/10	26/10/10	0 d	0 d	176FS+20 d,167	189													
178	Delivery and Manufacture of Sedimentation Tank No.23	30 d	18/7/10	18/7/10	16/8/10	16/8/10	0 d	0 d	176FS-15 d	179FS+10 d,180FS-15 d													
179	Installation and Testing of Containment System of Sedimentation Tank No.23	67 d	27/8/10	27/8/10	1/11/10	1/11/10	0 d	0 d	178FS+10 d,167	191FS+10 d													
180	Delivery and Manufacture of Sedimentation Tank No.25	27 d	2/8/10	2/8/10	28/8/10	28/8/10	0 d	0 d	178FS-15 d	181FS+10 d,182FS-15 d													
181	Installation and Testing of Containment System of Sedimentation Tank No.25	79 d	2/12/10	2/12/10	18/2/11	18/2/11	0 d	0 d	180FS+10 d,169FS-35 d	193													
182	Delivery and Manufacture of Sedimentation Tank No.27	32 d	14/8/10	14/8/10	14/9/10	14/9/10	0 d	0 d	180FS-15 d	183FS+30 d,184FS-15 d													
183	Installation and Testing of Containment System of Sedimentation Tank No.27	72 d	9/12/10	9/12/10	18/2/11	18/2/11	0 d	0 d	182FS+30 d,171FS-30 d	195FS-10 d													
184	Delivery and Manufacture of Flocculation Tank No.1	42 d	31/8/10	31/8/10	11/10/10	11/10/10	0 d	0 d	182FS-15 d	185FS+10 d,186FS-15 d													
185	Installation and Testing of Containment System of Flocculation Tank No.1	164 d	16/11/10	16/11/10	28/4/11	28/4/11	0 d	0 d	184FS+10 d,173	197													
186	Delivery and Manufacture of Flocculation Tank No.3	30 d	27/9/10	27/9/10	26/10/10	26/10/10	0 d	0 d	184FS-15 d	187FS+5 d,188FS-15 d													
187	Installation and Testing of Containment System of Flocculation Tank No.3	179 d	1/11/10	1/11/10	28/4/11	28/4/11	0 d	0 d	186FS+5 d,175	199													
188	Delivery and Manufacture of Sedimentation Tank No.17	30 d	12/10/10	12/10/10	10/11/10	10/11/10	0 d	0 d	186FS-15 d	189FS+20 d,190FS-15 d													
189	Installation and Testing of Containment System of Sedimentation Tank No.17	139 d	1/12/10	1/12/10	18/4/11	18/4/11	0 d	0 d	188FS+20 d,177	201													
190	Delivery and Manufacture of Sedimentation Tank No.19	34 d	27/10/10	27/10/10	29/11/10	29/11/10	0 d	0 d	188FS-15 d	191,192FS-15 d													
191	Installation and Testing of Containment System of Sedimentation Tank No.19	140 d	30/11/10	30/11/10	18/4/11	18/4/11	0 d	0 d	190,179FS+10 d	203													
192	Delivery and Manufacture of Flocculation Tank No.2	49 d	15/11/10	15/11/10	2/1/11	2/1/11	0 d	0 d	190FS-15 d	193FS-20 d,194FS-15 d													
193	Installation and Testing of Containment System of Flocculation Tank No.2	94 d	19/2/11	19/2/11	23/5/11	23/5/11	0 d	0 d	192FS-20 d,181	205													
194	Delivery and Manufacture of Flocculation Tank No.4	32 d	19/12/10	19/12/10	19/1/11	19/1/11	0 d	0 d	192FS-15 d	195FS+15 d,196FS-15 d,260,262													
195	Installation and Testing of Containment System of Flocculation Tank No.4	104 d	9/2/11	9/2/11	23/5/11	23/5/11	0 d	0 d	194FS+15 d,183FS-10 d	207													
196	Delivery and Manufacture of Sedimentation Tank No.13	37 d	5/1/11	5/1/11	10/2/11	10/2/11	0 d	0 d	194FS-15 d	198FS-15 d,197FS-20 d													
197	Installation and Testing of Containment System of Sedimentation Tank No.13	29 d	29/4/11	29/4/11	27/5/11	27/5/11	0 d	0 d	196FS-20 d,185	209													
198	Delivery and Manufacture of Sedimentation Tank No.15	45 d	27/1/11	27/1/11	12/3/11	12/3/11	0 d	0 d	196FS-15 d	199FS-20 d,200FS-15 d													
199	Installation and Testing of Containment System of Sedimentation Tank No.15	29 d	29/4/11	29/4/11	27/5/11	27/5/11	0 d	0 d	198FS-20 d,187	211													
200	Delivery and Manufacture of Sedimentation Tank No.11	21 d	26/2/11	26/2/11	18/3/11	18/3/11	0 d	0 d	198FS-15 d	201FS-20 d,202FS-15 d													
201	Installation and Testing of Containment System of Sedimentation Tank No.11	90 d	19/4/11	19/4/11	17/7/11	17/7/11	0 d	0 d	200FS-20 d,189	213													
202	Delivery and Manufacture of Sedimentation Tank No.9	37 d	4/3/11	4/3/11	9/4/11	9/4/11	0 d	0 d	200FS-15 d	204FS-15 d,203FS-20 d													
203	Installation and Testing of Containment System of Sedimentation Tank No.9	90 d	19/4/11	19/4/11	17/7/11	17/7/11	0 d	0 d	202FS-20 d,191	215													
204	Delivery and Manufacture of Sedimentation Tank No.45	31 d	26/3/11	26/3/11	25/4/11	25/4/11	0 d	0 d	202FS-15 d	206FS-15 d,205FS+10 d													

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

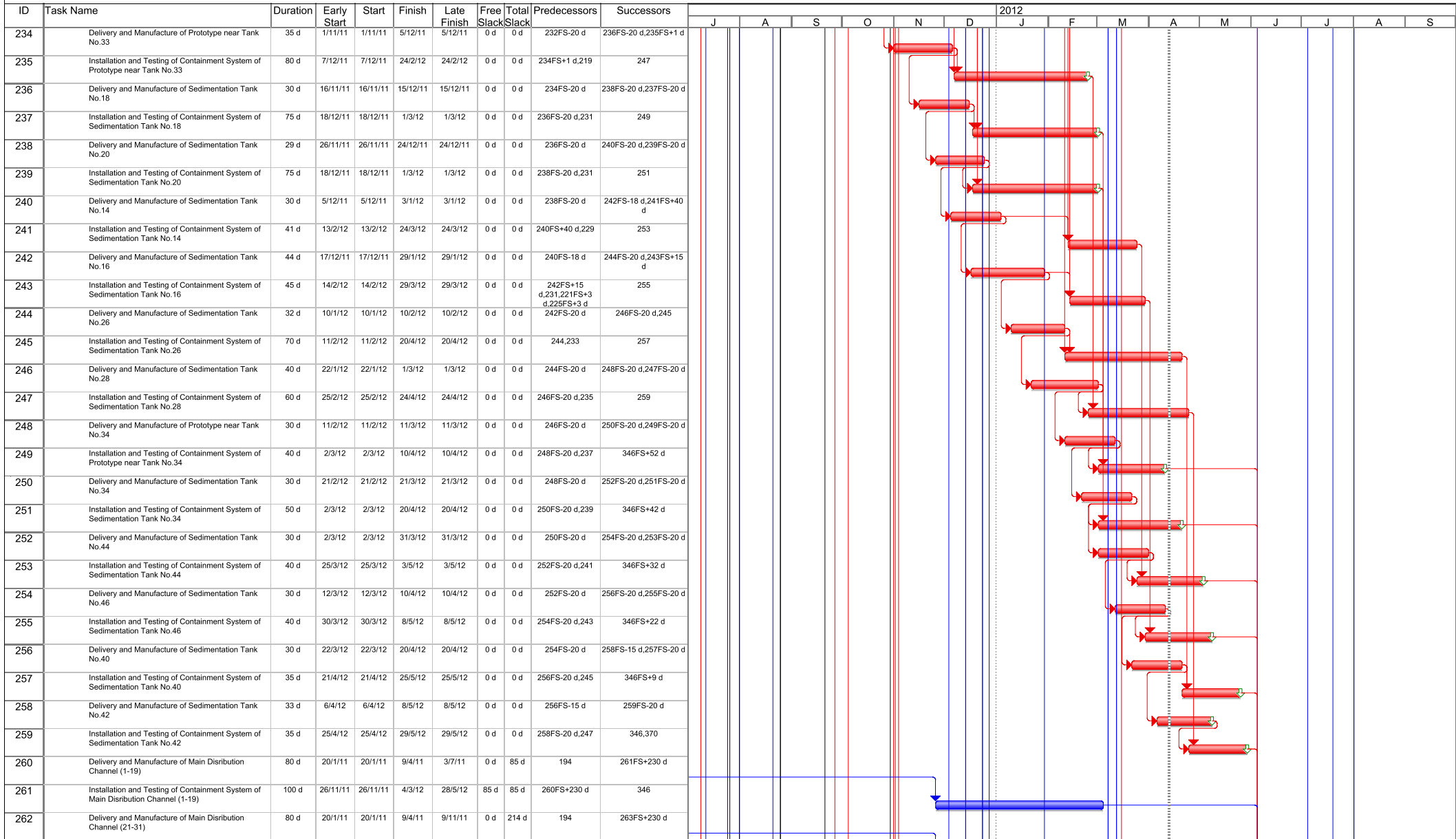
Three Months Rolling Programme for Contract No. DE/2009/02 Provision of Covers and Deodourisation Facilities to the Existing Sedimentation Tanks at Stonecutters Island Sewage Treatment Works (Apr12 to Jun12) (Revision 0)

ID	Task Name	Duration	Early Start	Start	Finish	Late Finish	Free Slack	Total Slack	Predecessors	Successors	2012															
											J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	
205	Installation and Testing of Containment System of Sedimentation Tank No 45	86 d	24/5/11	24/5/11	17/8/11	17/8/11	0 d	0 d	204FS+10 d,193	217																
206	Delivery and Manufacture of Sedimentation Tank No 31	32 d	11/4/11	11/4/11	12/5/11	12/5/11	0 d	0 d	204FS-15 d	208FS-15 d,207FS-20 d																
207	Installation and Testing of Containment System of Sedimentation Tank No 31	86 d	24/5/11	24/5/11	17/8/11	17/8/11	0 d	0 d	206FS-20 d,195	217																
208	Delivery and Manufacture of Sedimentation Tank No 29	32 d	28/4/11	28/4/11	29/5/11	29/5/11	0 d	0 d	206FS-15 d	210FS-15 d,209FS-20 d,272FS+120 d																
209	Installation and Testing of Containment System of Sedimentation Tank No 29	84 d	28/5/11	28/5/11	19/8/11	19/8/11	0 d	0 d	208FS-20 d,197	219																
210	Delivery and Manufacture of Flocculation Tank 5	31 d	15/5/11	15/5/11	14/6/11	14/6/11	0 d	0 d	208FS-15 d	211FS-20 d,212FS-15 d																
211	Installation and Testing of Containment System of Flocculation Tank 5	127 d	28/5/11	28/5/11	1/10/11	1/10/11	0 d	0 d	210FS-20 d,199	221,264																
212	Delivery and Manufacture of Flocculation Tank No.7	30 d	31/5/11	31/5/11	29/6/11	29/6/11	0 d	0 d	210FS-15 d	214FS-15 d,213FS-20 d																
213	Installation and Testing of Containment System of Flocculation Tank No.7	104 d	18/7/11	18/7/11	29/10/11	29/10/11	0 d	0 d	212FS-20 d,201	223,266																
214	Delivery and Manufacture of Flocculation Tank No.6	29 d	15/6/11	15/6/11	13/7/11	13/7/11	0 d	0 d	212FS-15 d	216FS-15 d,215FS-20 d																
215	Installation and Testing of Containment System of Flocculation Tank No.6	130 d	18/7/11	18/7/11	24/11/11	24/11/11	0 d	0 d	214FS-20 d,203	223																
216	Delivery and Manufacture of Flocculation Tank 8	32 d	29/6/11	29/6/11	30/7/11	30/7/11	0 d	0 d	214FS-15 d	218FS-15 d,217FS-20 d																
217	Installation and Testing of Containment System of Flocculation Tank 8	72 d	18/8/11	18/8/11	28/10/11	28/10/11	0 d	0 d	216FS-20 d,205,207	225,227,268,229,231																
218	Delivery and Manufacture of Sedimentation Tank No.38	33 d	16/7/11	16/7/11	17/8/11	17/8/11	0 d	0 d	216FS-15 d	220FS-15 d,219FS-20 d																
219	Installation and Testing of Containment System of Sedimentation Tank No.38	73 d	20/8/11	20/8/11	31/10/11	31/10/11	0 d	0 d	218FS-20 d,209	270,233,235																
220	Delivery and Manufacture of Sedimentation Tank No.36	31 d	3/8/11	3/8/11	2/9/11	2/9/11	0 d	0 d	218FS-15 d	222FS-15 d,221FS-20 d																
221	Installation and Testing of Containment System of Sedimentation Tank No.36	64 d	2/10/11	2/10/11	4/12/11	4/12/11	0 d	0 d	220FS-20 d,211	243FS+3 d																
222	Delivery and Manufacture of Sedimentation Tank No.22	25 d	19/8/11	19/8/11	12/9/11	12/9/11	0 d	0 d	220FS-15 d	224FS-15 d,223FS-20 d																
223	Installation and Testing of Containment System of Sedimentation Tank No.22	35 d	25/11/11	25/11/11	29/12/11	29/12/11	0 d	0 d	222FS-20 d,213,215	377																
224	Delivery and Manufacture of Sedimentation Tank No.24	21 d	29/8/11	29/8/11	18/9/11	18/9/11	0 d	0 d	222FS-15 d	226FS-15 d,225FS-20 d																
225	Installation and Testing of Containment System of Sedimentation Tank No.24	60 d	29/10/11	29/10/11	27/12/11	27/12/11	0 d	0 d	224FS-20 d,217	243FS+3 d																
226	Delivery and Manufacture of Sedimentation Tank No.30	32 d	4/9/11	4/9/11	5/10/11	5/10/11	0 d	0 d	224FS-15 d	228FS-15 d,227FS-20 d																
227	Installation and Testing of Containment System of Sedimentation Tank No.30	79 d	29/10/11	29/10/11	15/1/12	15/1/12	0 d	0 d	226FS-20 d,217																	
228	Delivery and Manufacture of Sedimentation Tank No.32	34 d	21/9/11	21/9/11	24/10/11	24/10/11	0 d	0 d	226FS-15 d	230FS-15 d,229FS-20 d																
229	Installation and Testing of Containment System of Sedimentation Tank No.32	45 d	29/10/11	29/10/11	12/12/11	12/12/11	0 d	0 d	228FS-20 d,217	241																
230	Delivery and Manufacture of Sedimentation Tank No.10	31 d	10/10/11	10/10/11	9/11/11	9/11/11	0 d	0 d	228FS-15 d	232FS-20 d,231FS-20 d																
231	Installation and Testing of Containment System of Sedimentation Tank No.10	50 d	29/10/11	29/10/11	17/12/11	17/12/11	0 d	0 d	230FS-20 d,217	243,237,239																
232	Delivery and Manufacture of Sedimentation Tank No.12	31 d	21/10/11	21/10/11	20/11/11	20/11/11	0 d	0 d	230FS-20 d	234FS-20 d,233FS-20 d																
233	Installation and Testing of Containment System of Sedimentation Tank No.12	75 d	1/11/11	1/11/11	14/1/12	14/1/12	0 d	0 d	232FS-20 d,219	245																

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

Three Months Rolling Programme for Contract No. DE/2009/02 Provision of Covers and Deodourisation Facilities to the Existing Sedimentation Tanks at Stonecutters Island Sewage Treatment Works (Apr12 to Jun12) (Revision 0)



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

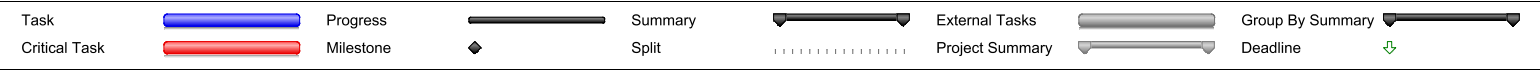
Three Months Rolling Programme for Contract No. DE/2009/02

Provision of Covers and Deodourisation Facilities to the Existing Sedimentation Tanks at Stonecutters Island Sewage Treatment Works (Apr12 to Jun12)

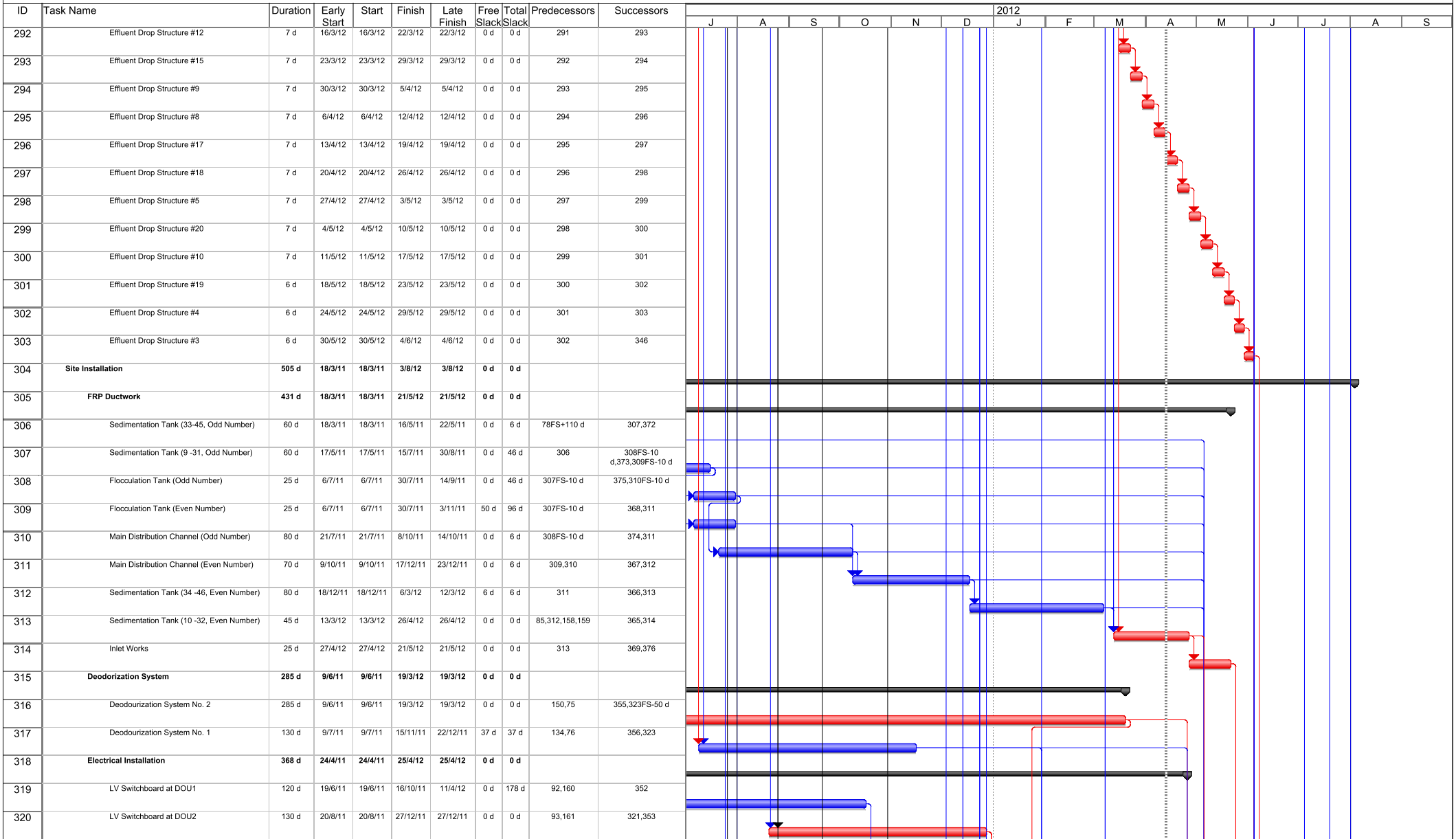
(Revision 0)

ID	Task Name	Duration	Early Start	Start	Finish	Late Finish	Free Slack	Total Slack	Predecessors	Successors	2012																
											J	A	S	O	N	D	J	F	M	A	M	J	J	A	S		
263	Installation and Testing of Containment System of Main Distribution Channel (21-31)	100 d	26/11/11	26/11/11	4/3/12	28/5/12	85 d	85 d	262FS+230 d	346																	
264	Delivery and Manufacture of Main Distribution Channel (33-45)	45 d	2/10/11	2/10/11	15/11/11	19/1/12	0 d	65 d	211	265FS+30 d																	
265	Installation and Testing of Containment System of Main Distribution Channel (33-45)	100 d	16/12/11	16/12/11	24/3/12	28/5/12	65 d	65 d	264FS+30 d	346																	
266	Delivery and Manufacture of Main Distribution Channel (22-32)	45 d	30/10/11	30/10/11	13/12/11	18/2/12	0 d	67 d	213	267																	
267	Installation and Testing of Containment System of Main Distribution Channel (22-32)	100 d	14/12/11	14/12/11	22/3/12	28/5/12	67 d	67 d	266	346																	
268	Delivery and Manufacture of Main Distribution Channel (34-46)	45 d	29/10/11	29/10/11	12/12/11	18/2/12	0 d	68 d	217	269																	
269	Installation and Testing of Containment System of Main Distribution Channel (34-46)	100 d	13/12/11	13/12/11	21/3/12	28/5/12	68 d	68 d	268	346																	
270	Delivery and Manufacture of Main Distribution Channel (2-20)	45 d	1/11/11	1/11/11	15/12/11	18/2/12	0 d	65 d	219	271																	
271	Installation and Testing of Containment System of Main Distribution Channel (2-20)	100 d	16/12/11	16/12/11	24/3/12	28/5/12	65 d	65 d	270	346																	
272	Delivery and Manufacture of Scum Pit and Effluent Drop Structure	90 d	27/9/11	27/9/11	25/12/11	25/12/11	0 d	0 d	208FS+120 d	274FS+25 d,284FS+25 d																	
273	Installation and Testing of Containment System of Scum Pit and Effluent Drop Structure	137 d	20/1/12	20/1/12	4/6/12	4/6/12	0 d	0 d																			
274	Scum Pit S#4	10 d	20/1/12	20/1/12	29/1/12	19/2/12	0 d	21 d	272FS+25 d	275																	
275	Scum Pit S#1	10 d	30/1/12	30/1/12	8/2/12	29/2/12	0 d	21 d	274	276																	
276	Scum Pit S#6	12 d	9/2/12	9/2/12	20/2/12	12/3/12	0 d	21 d	275	277																	
277	Scum Pit S#7	12 d	21/2/12	21/2/12	3/3/12	6/3/12	0 d	3 d	276	278																	
278	Scum Pit S#8	15 d	4/3/12	4/3/12	18/3/12	21/3/12	0 d	3 d	277	279																	
279	Scum Pit S#9	15 d	19/3/12	19/3/12	2/4/12	5/4/12	0 d	3 d	278	280																	
280	Scum Pit S#5	15 d	3/4/12	3/4/12	17/4/12	20/4/12	0 d	3 d	279	281																	
281	Scum Pit S#3	15 d	18/4/12	18/4/12	2/5/12	5/5/12	0 d	3 d	280	282																	
282	Scum Pit S#2	15 d	3/5/12	3/5/12	17/5/12	20/5/12	0 d	3 d	281	283																	
283	Scum Pit S#10	15 d	18/5/12	18/5/12	1/6/12	4/6/12	3 d	3 d	282	346																	
284	Effluent Drop Structure #7	7 d	20/1/12	20/1/12	26/1/12	26/1/12	0 d	0 d	272FS+25 d	285																	
285	Effluent Drop Structure 14	7 d	27/1/12	27/1/12	2/2/12	2/2/12	0 d	0 d	284	286																	
286	Effluent Drop Structure #11	7 d	3/2/12	3/2/12	9/2/12	9/2/12	0 d	0 d	285	287																	
287	Effluent Drop Structure #16	7 d	10/2/12	10/2/12	16/2/12	16/2/12	0 d	0 d	286	288																	
288	Effluent Drop Structure #2	7 d	17/2/12	17/2/12	23/2/12	23/2/12	0 d	0 d	287	289																	
289	Effluent Drop Structure #1	7 d	24/2/12	24/2/12	1/3/12	1/3/12	0 d	0 d	288	290																	
290	Effluent Drop Structure #13	7 d	2/3/12	2/3/12	8/3/12	8/3/12	0 d	0 d	289	291																	
291	Effluent Drop Structure #6	7 d	9/3/12	9/3/12	15/3/12	15/3/12	0 d	0 d	290	292																	

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Provision of Covers and Deodourisation Facilities to the Existing Sedimentation Tanks at Stonecutters Island Sewage Treatment Works (Apr12 to Jun12)
(Revision 0)**



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

Three Months Rolling Programme for Contract No. DE/2009/02
Provision of Covers and Deodourisation Facilities to the Existing Sedimentation Tanks at Stonecutters Island Sewage Treatment Works (Apr12 to Jun12)
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ID	Task Name	Duration	Early Start	Start	Finish	Late Finish	Free Slack	Total Slack	Predecessors	Successors	2012																	
											J	A	S	O	N	D	J	F	M	A	M	J	J	A	S			
321	Cabling Laying and Termination for DOU and SCADA	95 d	28/12/11	28/12/11	31/3/12	25/4/12	0 d	25 d	96,320	354																		
322	Modification of SCADA System (VO13)	87 d	30/1/12	30/1/12	25/4/12	25/4/12	0 d	0 d																				
323	Programming Works	70 d	30/1/12	30/1/12	8/4/12	8/4/12	0 d	0 d	94,317,316FS-50 d	324																		
324	Factory Acceptance Test	2 d	9/4/12	9/4/12	10/4/12	10/4/12	0 d	0 d	323	325																		
325	Site Modification Works	15 d	11/4/12	11/4/12	25/4/12	25/4/12	0 d	0 d	324	355,356,357																		
326	Earthing Installation at DOU1	150 d	24/4/11	24/4/11	20/9/11	5/2/12	0 d	138 d	153	348,328																		
327	Earthing Installation at DOU2	100 d	22/7/11	22/7/11	29/10/11	27/11/11	0 d	29 d	137	349,329																		
328	Lightning Installation at DOU1	60 d	21/9/11	21/9/11	19/11/11	5/4/12	0 d	138 d	160,326	350																		
329	Lightning Installation at DOU2	60 d	30/10/11	30/10/11	28/12/11	26/1/12	0 d	29 d	161,327	351																		
330	CCTV System and associated cabling work	340 d	1/8/11	1/8/11	5/7/12	5/7/12	0 d	0 d	95,161FS-19 d,160FS-19 d	359																		
331	FRP Cover at Rapid Mix Tank (VO12)	55 d	5/3/12	5/3/12	28/4/12	4/6/12	37 d	37 d																				
332	Rapid Mix Tank Cover	55 d	5/3/12	5/3/12	28/4/12	4/6/12	37 d	37 d	98	346,370,377																		
333	Air Ductwork & Duct Support	55 d	5/3/12	5/3/12	28/4/12	4/6/12	37 d	37 d	99	346,370,377																		
334	Influent Area Cover	55 d	5/3/12	5/3/12	28/4/12	4/6/12	37 d	37 d	100	346,370,377																		
335	FRP Cover at Flow Distribution Chamber (VO14)	25 d	1/12/11	1/12/11	25/12/11	4/6/12	107 d	107 d																				
336	FDC Cover	15 d	1/12/11	1/12/11	15/12/11	4/6/12	166 d	172 d	102	346,370																		
337	Air Ductwork & Duct Support	15 d	11/12/11	11/12/11	25/12/11	31/3/12	97 d	97 d	103	355,356,357,346																		
338	Temporary DOU	10 d	11/12/11	11/12/11	20/12/11	31/3/12	102 d	102 d	104	355,356,357,346																		
339	Isolation Stopboard for Scum Pit and Effluent Drop Structure (VO15)	160 d	21/12/11	21/12/11	28/5/12	4/6/12	7 d	7 d																				
340	Support Frame Work	160 d	21/12/11	21/12/11	28/5/12	4/6/12	1 d	7 d	106	346																		
341	FRP Stopboard	160 d	21/12/11	21/12/11	28/5/12	4/6/12	1 d	7 d	107	346																		
342	BS Installation	283 d	13/6/11	13/6/11	21/3/12	25/5/12	65 d	65 d																				
343	Building Services and FS Equipment Installation at DOU1	140 d	13/6/11	13/6/11	30/10/11	25/5/12	0 d	208 d	160	362																		
344	Building Services and FS Equipment Installation at DOU2	215 d	20/8/11	20/8/11	21/3/12	25/5/12	0 d	65 d	161	361																		
345	Testing and Commissioning	303 d	21/9/11	21/9/11	19/7/12	19/7/12	0 d	0 d																				
346	Overall Testing and Commissioning of Containment System	30 d	5/6/12	5/6/12	4/7/12	4/7/12	0 d	0 d	259,249FS+52 d,251FS+42 d,253FS+32	379																		
347	Electrical Installation	258 d	21/9/11	21/9/11	4/6/12	4/6/12	0 d	0 d																				
348	Earthing Installation at DOU1	45 d	21/9/11	21/9/11	4/11/11	25/4/12	148 d	173 d	326	354																		
349	Earthing Installation at DOU2	55 d	30/10/11	30/10/11	23/12/11	25/4/12	99 d	124 d	327	354																		

Contract No. DE/2009/02
 Revision: 0
 Date: 16 Apr 2012

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


Three Months Rolling Programme for Contract No. DE/2009/02 Provision of Covers and Deodourisation Facilities to the Existing Sedimentation Tanks at Stonecutters Island Sewage Treatment Works (Apr12 to Jun12)

(Revision 0)

ID	Task Name	Duration	Early Start	Start	Finish	Late Finish	Free Slack	Total Slack	Predecessors	Successors	2012												
											J	A	S	O	N	D	J	F	M	A	M	J	J
350	Lightning Installation at DOU1	20 d	20/11/11	20/11/11	9/12/11	25/4/12	113 d	138 d	328	354													
351	Lightning Installation at DOU2	90 d	29/12/11	29/12/11	27/3/12	25/4/12	4 d	29 d	329	354													
352	LV Switchboard at DOU1	14 d	17/10/11	17/10/11	30/10/11	25/4/12	153 d	178 d	319	354													
353	LV Switchboard at DOU2	120 d	28/12/11	28/12/11	25/4/12	25/4/12	0 d	0 d	320	354													
354	Power Energization for DOU2	0 d	25/4/12	25/4/12	25/4/12	26/4/12	0 d	0 d	53,348,349,350,35	356,357,355,358													
355	Deodourization System No. 2	10 d	26/4/12	26/4/12	5/5/12	5/5/12	0 d	0 d	54,316,338,337,329,378,376,372,373,374,375														
356	Deodourization System No. 1	10 d	26/4/12	26/4/12	5/5/12	5/5/12	0 d	0 d	54,317,338,337,329,357,378,365,366,368,367														
357	SCADA System	30 d	6/5/12	6/5/12	4/6/12	4/6/12	0 d	0 d	1,355,356,338,337,2	370,377,378													
358	Manual Operation of DOU2	0 d	5/5/12	5/5/12	5/5/12	22/5/12	0 d	16 d	355,354	376,372,373,374,375													
359	CCTV System	14 d	6/7/12	6/7/12	19/7/12	19/7/12	0 d	0 d	330	380,378													
360	BS & FS Installation	153 d	31/10/11	31/10/11	31/3/12	4/6/12	65 d	65 d															
361	Building Services and FS Equipment Installation at DOU2	10 d	22/3/12	22/3/12	31/3/12	4/6/12	65 d	65 d	344	370													
362	Building Services and FS Equipment Installation at DOU1	10 d	31/10/11	31/10/11	9/11/11	4/6/12	208 d	208 d	343	377													
363	System Performance Test	90 d	6/5/12	6/5/12	3/8/12	3/8/12	0 d	0 d															
364	Deodourization System No. 1	60 d	6/5/12	6/5/12	4/7/12	4/7/12	0 d	0 d															
365	Sedimentation Tank (34 -46, Even Number)	14 d	6/5/12	6/5/12	19/5/12	4/6/12	16 d	16 d	356,313	370													
366	Sedimentation Tank (10 -32, Even Number)	14 d	6/5/12	6/5/12	19/5/12	4/6/12	16 d	16 d	312,356	370													
367	Main Distribution Channel (Even Number)	14 d	6/5/12	6/5/12	19/5/12	4/6/12	16 d	16 d	356,311	370													
368	Flocculation Tank (Even number)	14 d	6/5/12	6/5/12	19/5/12	4/6/12	16 d	16 d	356,309	370													
369	Inlet Works	14 d	22/5/12	22/5/12	4/6/12	4/6/12	0 d	0 d	314	370													
370	Final DOU1 System Acceptance Test	30 d	5/6/12	5/6/12	4/7/12	4/7/12	0 d	0 d	357,49,361,367,259	379,380													
371	Deodourization System No. 2	60 d	6/5/12	6/5/12	4/7/12	4/7/12	0 d	0 d															
372	Sedimentation Tank (33-45, Odd Number)	14 d	6/5/12	6/5/12	19/5/12	4/6/12	16 d	16 d	306,355,358	377													
373	Sedimentation Tank (9 -31, Odd Number)	14 d	6/5/12	6/5/12	19/5/12	4/6/12	16 d	16 d	307,355,358	377													
374	Main Distribution Channel (odd number)	14 d	6/5/12	6/5/12	19/5/12	4/6/12	16 d	16 d	310,355,358	377													
375	Flocculation Tank (odd number)	14 d	6/5/12	6/5/12	19/5/12	4/6/12	16 d	16 d	308,355,358	377													
376	Inlet Works	14 d	22/5/12	22/5/12	4/6/12	4/6/12	0 d	0 d	355,314,358	377													
377	Final DOU2 System Acceptance Test	30 d	5/6/12	5/6/12	4/7/12	4/7/12	0 d	0 d	362,374,376,375,2	379,380													
378	Training of Employer's Staff	15 d	20/7/12	20/7/12	3/8/12	3/8/12	0 d	0 d	51,355,356,357,359	380													

Contract No. DE/2009/02
Revision: 0
Date: 16 Apr 2012

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

Three Months Rolling Programme for Contract No. DE/2009/02
Provision of Covers and Deodourisation Facilities to the Existing Sedimentation Tanks at Stonecutters Island Sewage Treatment Works (Apr12 to Jun12)
 (Revision 0)

ID	Task Name	Duration	Early Start	Start	Finish	Late Finish	Free Slack	Total Slack	Predecessors	Successors	2012														
											J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
379	Overall Acceptance Test for Covers and Air Extraction System	30 d	5/7/12	5/7/12	3/8/12	3/8/12	0 d	0 d	377,49,370,346	380															
380	Project Substantial Completion Date	0 d	3/8/12	3/8/12	3/8/12	3/8/12	0 d	0 d	70,377,359,1FS+97 d,8,12,53,378,379																

Contract No. DE/2009/02
 Revision: 0
 Date: 16 Apr 2012

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

Activity ID	Activity Name	Ong Dur	Start	Finish	Rem Dur	2012				
						May	Jun	Jul	Aug	
Works Programme Update Apr 2012										
KEY DATE										
Contract Dates										
Commencement and Completion										
AD000100	Possession of Portion F of the Site (565 days)	0	30-Apr-12		0					
AD000110	Possession of Portion G of the Site (565 days)	0	30-Apr-12		0					
Preliminaries and General Requirement										
General										
Initial Works										
PG000172	Maintenance and Security for Portion F	1481	30-Apr-12	19-May-16	1481					
PG000190	Environmental Impact Monitoring	1600	04-Dec-10 A	19-May-16	1192					
PG000260	Maintenance and Upkeeping of Portion D	2095	25-Aug-10 A	19-May-16	1481					
PG000300	Maintenance and Security in Portion E	2095	25-Aug-10 A	19-May-16	1481					
PG000310	Maintenance and Security in Portion G	1481	01-May-12	20-May-16	1481					
PG000410	HAZOP Studies and Report	15	30-Apr-12	17-May-12	15					
PG000420	Approval on HAZOP Studies and Report	13	18-May-12	04-Jun-12	13					
Interface and Liaison										
Interface with Contractor of DC/2009/19										
PG000382	Eng Approve IMP & DID bet SDF / SHD Contractor	15	30-Apr-12	17-May-12	15					
Interface with Contractor of DC/2009/10										
PG000388	Eng Approve IMP & DID bet SDF / MPS Contractor	15	30-Apr-12	17-May-12	15					
Interface with Contractor of DC/2009/18										
PG000394	Eng Approve IMP & DID bet SDF / ETF Contractor	15	30-Apr-12	17-May-12	15					
Design of Permanent Works										
Design Submission and Approval										
Detailed Design Approval (DDA) for Civil / Builder Work										
Package										
DDA1 (SDB, DOU6, DGS and Transformer Bay)										
Sub-Package - C										
DP024065	DDA: SDB/DOU6&DGS - Bldg/ Architectural Design & Appr...	250	28-Dec-11 A	26-Sep-12	150					
DP024070	DDA: SDB - Submit Building Work Design	110	28-Dec-11 A	09-May-12	10					
DP024080	DDA: SDB - ICE Approve Building Work Design	21	10-May-12	30-May-12	21					
DP024091	DDA: SDB - Eng Comment on Building Work Design	42	31-May-12	11-Jul-12	42					
DP024092	DDA: SDB - Finalize Building Work Design	56	12-Jul-12	05-Sep-12	56					
Sub-Package - D										
DP024100	DDA: SDB/DOU6&DGS - Submit Architecture Design	110	31-Dec-11 A	09-May-12	10					
DP024110	DDA: SDB/DOU6&DGS - ICE Approve Architecture Design	21	10-May-12	30-May-12	21					
DP024112	DDA: SDB/DOU6&DGS - Eng Comment on Architecture De...	42	31-May-12	11-Jul-12	42					
DP024113	DDA: SDB/DOU6&DGS - Finalize Architecture Design	56	12-Jul-12	05-Sep-12	56					
DP029200	DDA: TB - Architecture / Bldg Work Design and Approval	77	31-Dec-11 A	04-Jun-12	36					
DP029230	DDA: TB - Eng Comment Architecture / Bldg Work Design	21	28-Jan-12 A	07-May-12	8					
DP029240	DDA: TB - Finalize Architecture / Bldg Work Design	14	08-May-12	21-May-12	14					
DP029250	DDA: TB - Eng Approve Architecture / Bldg Work Design	14	22-May-12	04-Jun-12	14					
Sub-Package - E										
DP024125	SDB - Civil Provision for E&M Work	77	30-Apr-12	15-Jul-12	77					
DP024130	SDB - Submit Civil Provision for E&M Work	28	30-Apr-12	27-May-12	28					
DP024142	SDB - Eng Comment Civil Provision for E&M Work	21	28-May-12	17-Jun-12	21					
DP024144	SDB - Finalize Civil Provision for E&M Work	14	18-Jun-12	01-Jul-12	14					
DP024150	SDB - Eng Approve Civil Provision for E&M Work	14	02-Jul-12	15-Jul-12	14					
DP025300	DOU6&DGS - Civil Provision for E&M Work	56	25-Jan-12 A	08-Jun-12	40					
DP025310	DOU6&DGS - Submit Civil Provision for E&M Work	21	25-Jan-12 A	04-May-12	5					
DP025330	DOU6&DGS - Eng Comment Civil Provision -E&M Work	14	05-May-12	18-May-12	14					
DP025340	DOU6&DGS - Finalize Civil Provision -E&M	14	19-May-12	01-Jun-12	14					
DP025350	DOU6&DGS - Eng Approve Civil Provision -E&M Work	7	02-Jun-12	08-Jun-12	7					
Sub-Package - F										
DP024155	DDA: SDB - Misc Work Design and Approval	112	30-Apr-12	19-Aug-12	112					
DP024160	DDA: SDB - Submit Miscellaneous Work Design	28	30-Apr-12	27-May-12	28					
DP024170	DDA: SDB - ICE Approve Miscellaneous Work Design	14	28-May-12	10-Jun-12	14					
DP024172	DDA: SDB - Eng Comment Miscellaneous Work Design	21	11-Jun-12	01-Jul-12	21					
DP024174	DDA: SDB - Finalize Miscellaneous Work Design	28	02-Jul-12	29-Jul-12	28					
DP024180	DDA: SDB - Eng Approve Miscellaneous Work Design	21	30-Jul-12	19-Aug-12	21					
DP025400	DDA: DOU6&DGS - Misc Work Design and Approval	112	25-Jan-12 A	13-Aug-12	106					
DP025410	DDA: DOU6&DGS - Submit Miscellaneous Work Design	28	25-Jan-12 A	21-May-12	22					
DP025420	DDA: DOU6&DGS - ICE Approve Miscellaneous Design	14	22-May-12	04-Jun-12	14					
DP025430	DDA: DOU6&DGS - Eng Comment Miscellaneous Design	21	05-Jun-12	25-Jun-12	21					
DP025440	DDA: DOU6&DGS - Finalize Miscellaneous Design	28	26-Jun-12	23-Jul-12	28					
DP025450	DDA: DOU6&DGS - Eng Approve Miscellaneous Design	21	24-Jul-12	13-Aug-12	21					
DP029400	DDA: TB - Miscellaneous Work Design and Approval	77	30-Apr-12	15-Jul-12	77					
DP029410	DDA: TB - Submit Miscellaneous Work Design	21	30-Apr-12	20-May-12	21					
DP029420	DDA: TB - ICE Comment Miscellaneous Work Design	7	21-May-12	27-May-12	7					
DP029430	DDA: TB - Eng Comment Miscellaneous Work Design	21	28-May-12	17-Jun-12	21					
DP029440	DDA: TB - Finalize Miscellaneous Work Design	14	18-Jun-12	01-Jul-12	14					
DP029450	DDA: TB - Eng Approve Miscellaneous Work Design	14	02-Jul-12	15-Jul-12	14					
DDA2 (N&S Sludge Cake Silos)										
Sub-Package - C										
DP026300	DDA: N&S SCS - Building Work Design and Approval	240	25-Dec-11 A	06-Oct-12	160					
DP026310	DDA: N&S SCS - Submit Building Work Design	100	25-Dec-11 A	19-May-12	20					

█ Actual Work ◆ Baseline Milestone
█ Remaining Work ◆ Milestone
█ Critical Remaining Work

3-Months Rolling Programme - May to July 2012

Date	Revision	Checked	Approved

Activity ID	Activity Name	Ong Dur	Start	Finish	Rem Dur	2012			
						May	Jun	Jul	Aug
DP026320	DDA: N&S SCS - ICE Comment Building Work Design	21	20-May-12	09-Jun-12	21				
DP026330	DDA: N&S SCS - Eng Comment Building Work Design	42	10-Jun-12	21-Jul-12	42				
DP026340	DDA: N&S SCS - Finalize Building Work Design	56	22-Jul-12	15-Sep-12	56				
Sub-Package - D									
DP026405	DDA: N&S SCS - Architecture Work Design and Approval	240	30-Nov-11 A	21-Sep-12	145				
DP026410	DDA: N&S SCS - Submit Architecture Design	100	30-Nov-11 A	04-May-12	5				
DP026420	DDA: N&S SCS - ICE Comment Architecture Design	21	05-May-12	25-May-12	21				
DP026430	DDA: N&S SCS - Eng Comment Architecture Design	42	26-May-12	06-Jul-12	42				
DP026440	DDA: N&S SCS - Finalize Architecture Design	56	07-Jul-12	31-Aug-12	56				
Sub-Package - E									
DP026500	N&S SCS - Civil Provision for E&M Work	77	25-Jan-12 A	22-Jun-12	54				
DP026510	N&S SCS - Submit Civil Provision for E&M Work	28	25-Jan-12 A	04-May-12	5				
DP026530	N&S SCS - Eng Comment Civil Provision for E&M	21	05-May-12	25-May-12	21				
DP026540	N&S SCS - Finalize Civil Provision for E&M Work	14	26-May-12	08-Jun-12	14				
DP026550	N&S SCS - Eng Approve Civil Provision for E&M	14	09-Jun-12	22-Jun-12	14				
Sub-Package - F									
DP026605	DDA: N&S SCS - Miscellaneous Work Design	112	25-Jan-12 A	27-Jul-12	89				
DP026610	DDA: N&S SCS - Submit Miscellaneous Work Design	28	25-Jan-12 A	04-May-12	5				
DP026620	DDA: N&S SCS - ICE Comment Miscellaneous Design	14	05-May-12	18-May-12	14				
DP026630	DDA: N&S SCS - Eng Comment Miscellaneous Design	21	19-May-12	08-Jun-12	21				
DP026640	DDA: N&S SCS - Finalize Miscellaneous Design	28	09-Jun-12	06-Jul-12	28				
DP026650	DDA: N&S SCS - Eng Approve Miscellaneous Design	21	07-Jul-12	27-Jul-12	21				
DDA3 (N&S Sludge Conveyor Bridges)									
Sub-Package - B									
DP027160	DDA: N&S SCB - Eng Approve Structural Design	21	28-Dec-11 A	30-Apr-12	1				
Sub-Package - C									
DP027200	DDA: N&S SCB - Bldg / Architectural Design and Approval	236	22-Dec-11 A	08-Oct-12	162				
DP027210	DDA: N&S SCB - Submit Building Work Design	75	22-Dec-11 A	30-Apr-12	1				
DP027220	DDA: N&S SCB - ICE Comment Building Work Design	21	01-May-12	21-May-12	21				
DP027230	DDA: N&S SCB - Eng Comment Building Work Design	56	22-May-12	16-Jul-12	56				
DP027240	DDA: N&S SCB - Finalize Building Work Design	56	17-Jul-12	10-Sep-12	56				
Sub-Package - D									
DP027310	DDA: N&S SCB - Submit Architecture Design	75	30-Nov-11 A	12-May-12	13				
DP027320	DDA: N&S SCB - ICE Comment Architecture Design	21	13-May-12	02-Jun-12	21				
DP027330	DDA: N&S SCB - Eng Comment Architecture Design	56	03-Jun-12	28-Jul-12	56				
DP027340	DDA: N&S SCB - Finalize Architecture Design	56	29-Jul-12	22-Sep-12	56				
Sub-Package - E									
DP027400	N&S SCB - Civil Provision for E&M Work	35	30-Apr-12	03-Jun-12	35				
DP027410	N&S SCB - Submit Civil Provision for E&M Work	14	30-Apr-12	13-May-12	14				
DP027430	N&S SCB - Eng Comment Civil Provision for E&M	7	14-May-12	20-May-12	7				
DP027440	N&S SCB - Finalize Civil Provision for E&M Work	7	21-May-12	27-May-12	7				
DP027450	N&S SCB - Eng Approve Civil Provision - E&M	7	28-May-12	03-Jun-12	7				
Sub-Package - F									
DP027500	DDA: N&S SCB - Misc Work Design and Approval	119	30-Apr-12	26-Aug-12	119				
DP027510	DDA: N&S SCB - Submit Miscellaneous Work Design	28	30-Apr-12	27-May-12	28				
DP027520	DDA: N&S SCB - ICE Comment Miscellaneous Design	21	28-May-12	17-Jun-12	21				
DP027530	DDA: N&S SCB - Eng Comment Miscellaneous Design	21	18-Jun-12	08-Jul-12	21				
DP027540	DDA: N&S SCB - Finalize Miscellaneous Design	28	09-Jul-12	05-Aug-12	28				
DDA5 (PWST & Pumping System)									
Sub-Package - A									
DP030105	DDA: PWST&PS - Piling Design and Approval	70	17-May-12	26-Jul-12	70				
DP030110	DDA: PWST&PS - Submit Piling Design	14	17-May-12	31-May-12	14				
DP030120	DDA: PWST&PS - ICE Comment Piling Design	7	31-May-12	07-Jun-12	7				
DP030130	DDA: PWST&PS - Eng Comment Piling Design	21	07-Jun-12	28-Jun-12	21				
DP030140	DDA: PWST&PS - Finalize Piling Design	14	28-Jun-12	12-Jul-12	14				
DP030150	DDA: PWST&PS - Eng Approve Piling Design	14	12-Jul-12	26-Jul-12	14				
Sub-Package - B									
DP030200	DDA: PWST&PS - Structure Design and Approval	98	26-Jul-12	01-Nov-12	98				
DP030210	DDA: PWST&PS - Submit Structure Design	28	26-Jul-12	23-Aug-12	28				
DDA6 (Sludge Feed Pipework Chambers)									
Sub-Package - A									
DP031105	DDA: SFP Chamber - Fdn/ Struct Design & Approval	70	30-Apr-12	08-Jul-12	70				
DP031110	DDA: SFP Chamber - Submit Fdn / Struct Design	14	30-Apr-12	13-May-12	14				
DP031120	DDA: SFP Chamber - ICE Comment Fdn/Struct Design	14	14-May-12	27-May-12	14				
DP031130	DDA: SFP Chamber - Eng Comment Fdn/Struct Design	14	28-May-12	10-Jun-12	14				
DP031140	DDA: SFP Chamber - Finalize Fdn/Struct Design	14	11-Jun-12	24-Jun-12	14				
DP031150	DDA: SFP Chamber - Eng Approve Fdn/Struct Design	14	25-Jun-12	08-Jul-12	14				
Sub-Package - B									
DP031210	DDA: SFP Chamber - Civil Provision for E&M	35	09-Jun-12	13-Jul-12	35				
DP031220	DDA: SFP Chamber - Submit Civil Provision - E&M	14	09-Jun-12	22-Jun-12	14				
DP031230	DDA: SFP Chamber - Eng Comment Civil Provision-E&M	7	23-Jun-12	29-Jun-12	7				
DP031240	DDA: SFP Chamber - Finalize Civil Provision-E&M	7	30-Jun-12	06-Jul-12	7				
DP031250	DDA: SFP Chamber - Eng Approve Civil Provision-E&M	7	07-Jul-12	13-Jul-12	7				
Sub-Package - C									
DP031300	DDA: SFP Chamber - Submit Miscellaneous Work Design and Approval	70	09-Jun-12	17-Aug-12	70				
DP031310	DDA: SFP Chamber - Submit Miscellaneous Design	14	15-Jun-12	28-Jun-12	14				

■ Actual Work ◆ Baseline Milestone
■ Remaining Work ◆ Milestone
■ Critical Remaining Work

3-Months Rolling Programme - May to July 2012

Date	Revision	Checked	Approved

Activity ID	Activity Name	Ong Dur	Start	Finish	Rem Dur	2012			
						May	Jun	Jul	Aug
DP031320	DDA: SFP Chamber - ICE Comment Miscellaneous Design	14	29-Jun-12	12-Jul-12	14				
DP031330	DDA: SFP Chamber - Eng Comment Miscellaneous Design	14	13-Jul-12	26-Jul-12	14				
DP031340	DDA: SFP Chamber - Finalize Miscellaneous Design	14	27-Jul-12	09-Aug-12	14				
Detailed Design Approval (DDA) Submission									
Submission and Approval of DDA 30 (Sludge Cakes Silos System)									
DP007890	DDA: Re-submission for Sliding Frame, Conveyor & PVWM	7	30-Apr-12	06-May-12	7				
DP007900	DDA: Engineer Approval for Sliding Frame, Conveyor & PV...	18	07-May-12	24-May-12	18				
Submission and Approval of DDA 36 (Building Services System)									
DP009015	DDA: BS (E&M) - Comment, Review and Approval	63	23-Jan-12 A	07-May-12	8				
DP009060	DDA: BS (E&M)- Engineer Approval	14	26-Mar-12 A	07-May-12	8				
SECTION 3 OF THE WORKS									
NORTHERN SLUDGE CAKE SILO									
Design and Manufacture									
Manufacture and Delivery									
S3000245	NSCS: Procurement of Steelwork (not required)	0	30-Apr-12	30-Apr-12	0				
Structure									
S3000236	NSCS: Remaining Piling and Structure	518	28-Jan-11 A	30-Jul-12	75				
Steelwork Structure Erection									
S3000400	NSCS: Erection of Steelwork (Replaced by RC Structure)	164	02-Jan-12 A	30-Jul-12	75				
Building Finishes including Landscaping									
S3000450	NSCS: Construct Vehicle Washing Facilities	60	30-Apr-12	12-Jul-12	60				
S3000485	NSCS: Install Blockwork at GL to B1 (+9.90)	50	10-Jul-12	05-Sep-12	50				
E&M Procurement, Installation/ Testing & Commissioning									
Manufacture and Delivery									
S3000600	NSCS: Procurement and Delivery of E&M Equipment/ Material	390	02-Dec-11 A	31-Dec-12	246				
S3000620	NSCS: Manufacturing of Conveyors, Valves, Air Ducts & Lifting Appliances	100	01-Mar-12 A	01-Oct-12	155				
S3000655	NSCS: Procurement of Vehicle Washing Machine	30	10-Feb-12 A	10-May-12	11				
S3000665	NSCS: Manufacturing of Vehicle Washing Machine	55	11-May-12	04-Jul-12	55				
S3000675	NSCS: Factory Acceptance Test - Vehicle Washing Machine	31	05-Jul-12	04-Aug-12	31				
E&M Installation and Testing & Commissioning									
S3000650	NSCS: Install Sludge Cake Silo (4 nos)	30	28-Jul-12	31-Aug-12	30				
SLUDGE DEWATERING BUILDING and DOU6									
Superstructure Construction									
S3001200	SDB: Remaining Piling, Structure and Finishes	484	31-Oct-11 A	17-Oct-12	140				
S3001290	SDB: DG Store	87	01-Mar-12 A	18-Jun-12	40				
Structure Ground Floor at +5.4									
S3001241	SDB: Ground Level to First Floor (+12.90)	88	31-Dec-11 A	18-Jun-12	40				
S3001244	SDB: GL 7-14 GF and Upper GF Base Slab and mass concrete fill to form trenches	30	03-Jan-12 A	17-May-12	15				
Structure First Floor at +12.90									
S3001252	SDB: Upper Structure	170	01-Feb-12 A	04-Oct-12	130				
S3001262	SDB: Construct Beam and Slab at GL7 to GL13 at +12.90	30	01-Feb-12 A	24-May-12	20				
S3001270	SDB: Construct Column GL 1 to GL 7 (+12.90 to +19.10)	30	25-May-12	29-Jun-12	30				
S3001272	SDB: Construct Beam and Slab at GL1 to GL2 +15.90	18	04-Jun-12	23-Jun-12	18				
S3001274	SDB: Construct Column GL7 to GL 13 (+12.90 to +19.10)	30	30-Jun-12	04-Aug-12	30				
Building Finishes including Landscaping									
S3001430	SDB: External Working Platform	18	25-Jun-12	16-Jul-12	18				
S3001460	SDB: DG Store Finishes	48	11-Jul-12	04-Sep-12	48				
E&M Procurement, Installation/ Testing & Commissioning									
Manufacture & Delivery									
S3001550	SDB&DOU6: Procure/ Delivery of E&M Eq1 / Matl	390	26-Nov-11 A	22-Oct-12	176				
S3001570	SDB&DOU6: Manufacturing of Centrifuge and Local Control...	260	06-Dec-11 A	28-Jul-12	90				
S3001575	SDB&DOU6: Submission/ Approval for FAT Test procedure of Centrifuge	45	14-Jun-12	28-Jul-12	45				
S3001580	SDB&DOU6: FAT Test for Centrifuge and Local Control Panel	58	26-Jun-12	22-Aug-12	58				
S3001594	SDB&DOU6: Manufacturing of DOU6	130	03-Mar-12 A	29-May-12	30				
S3001596	SDB&DOU6: Factory Acceptance Test for DOU6	40	30-May-12	08-Jul-12	40				
S3001598	SDB&DOU6: Delivery of Deodorization Odour Units (DOU6)	40	09-Jul-12	17-Aug-12	40				
S3001610	SDB&DOU6: Manufacturing of other E&M Equipment	130	24-Mar-12 A	03-Aug-12	96				
S3001650	SDB&DOU6: Manufacturing of Sludge Conveyor	120	02-Mar-12 A	18-Jul-12	80				
S3001660	SDB&DOU6: Factory Acceptance Test for Sludge Conveyor	30	19-Jul-12	17-Aug-12	30				
S3001860	SDB&DOU6: Manufacturing of Polyelectrolyte System	120	05-Mar-12 A	03-Jul-12	65				
S3001870	SDB&DOU6: FAT Test for Polyelectrolyte System	30	04-Jul-12	02-Aug-12	30				
S3001900	SDB&DOU6: Manufacturing of Sludge Feed System	120	03-Mar-12 A	03-Jul-12	65				
S3001910	SDB&DOU6: FAT Test of Sludge Feed System	30	04-Jul-12	02-Aug-12	30				
S3001935	SDB&DOU6: Manufacturing of LV Switchboard	120	12-Mar-12 A	08-Jun-12	40				
S3001995	SDB&DOU6: FAT Test for LV Switchboard	30	09-Jun-12	08-Jul-12	30				
S3002000	SDB&DOU6: Delivery of LV Switchboard	40	09-Jul-12	17-Aug-12	40				
S3002015	SDB&DOU6: Manufacture of E&M BS Eqpt/Materials	120	03-Apr-12 A	02-Aug-12	95				
S3002030	SDB&DOU6: Manufacturing of Lifting Appliances	120	05-Mar-12 A	08-Jun-12	40				
S3002035	SDB&DOU6: FAT Test for Lifting Appliances	30	09-Jun-12	08-Jul-12	30				
S3002040	SDB&DOU6: Delivery of Lifting Appliances	40	09-Jul-12	17-Aug-12	40				
S3002050	SDB&DOU6: Manufacture of Cables	120	31-Mar-12 A	23-Jul-12	85				
S3002055	SDB&DOU6: FAT Test for Cables	30	24-Jul-12	22-Aug-12	30				
NORTHERN SLUDGE CONVEYOR BRIDGE									
Procurement, Construction and Installation									
Manufacture & Delivery									

■ Actual Work ◆ Baseline Milestone
■ Remaining Work ◆ Milestone
■ Critical Remaining Work

3-Months Rolling Programme - May to July 2012

Date	Revision	Checked	Approved

Activity ID	Activity Name	Ong Dur	Start	Finish	Rem Dur	2012			
						May	Jun	Jul	Aug
S3002405	NSCB: Procurement and Delivery of Steel Material	50	30-May-12	28-Jul-12	50	[Green bar]			
S3002430	NSCB: Fabrication / Delivery of Steel Struct	60	28-Jul-12	10-Oct-12	60	[Green bar]			
Builder Works Detailed Design									
S3002420	NSCB: Shop Drawing Submission and Approval	60	16-May-12	28-Jul-12	60	[Green bar]			
S3002422	NSCB: Submit Shop Drawing	24	16-May-12	15-Jun-12	24	[Green bar]			
S3002424	NSCB: Eng Comment on Shop Drawing	12	15-Jun-12	29-Jun-12	12	[Green bar]			
S3002426	NSCB: Finalize Shop Drawing	12	29-Jun-12	14-Jul-12	12	[Green bar]			
S3002428	NSCB: Eng Approve Shop Drawing	12	14-Jul-12	28-Jul-12	12	[Green bar]			
Construction & Installation									
Structure									
S3002435	NSCB: Hot Dip of Steel Material	20	28-Jul-12	21-Aug-12	20	[Green bar]			
E&M Installation/ Testing and Commissioning									
Manufacture and Delivery									
S3002600	NSCB: Procurement & Delivery of E&M Equipment/ Material	380	31-Dec-11 A	12-Jan-13	258	[Green bar]			
S3002615	NSCB: Manufacturing of Sludge Conveyor	180	01-Mar-12 A	07-Aug-12	100	[Green bar]			
S3002645	NSCB: Procurement of Odour Duct	30	01-Jun-12	30-Jun-12	30	[Green bar]			
S3002655	NSCB: Manufacturing of Odour Duct	120	01-Jul-12	28-Oct-12	120	[Green bar]			
S3002680	NSCB: Procurement of other E&M equipment	30	07-Jun-12	06-Jul-12	30	[Green bar]			
S3002685	NSCB: Manufacturing of other E&M equipment	120	07-Jul-12	03-Nov-12	120	[Green bar]			
SLUDGE STORAGE TANK 6 & 7									
Structure									
S3005505	Piling and Structure for Sludge Storage Tank	349	28-Feb-11 A	02-Aug-12	78	[Green bar]			
S3005810	SST: Roof Slab for Tank 6	18	11-Apr-12 A	07-May-12	6	[Green bar]			
S3005820	SST: Upstand Beam for Tank 6	6	08-May-12	14-May-12	6	[Green bar]			
S3005830	SST: Water Tightness Test to Tank 6	18	12-Jun-12	03-Jul-12	18	[Green bar]			
S3006110	SST: Wall Stem for Tank 7	48	30-Mar-12 A	12-Jul-12	60	[Green bar]			
S3006210	SST: Roof Slab for Tank 7	18	13-Jul-12	02-Aug-12	18	[Green bar]			
E&M Procurement Installation/ Testing & Commissioning									
Manufacture & Delivery									
S3006450	SST: Procurement & Delivery of E&M Equipment/ Materials	290	25-Nov-11 A	21-Oct-12	175	[Green bar]			
S3006470	SST: Manufacturing of Submersible Mixers	135	01-Feb-12 A	08-Jul-12	70	[Green bar]			
S3006475	SST: Factory Acceptance Test for Submersible Mixers	45	09-Jul-12	22-Aug-12	45	[Green bar]			
S3006590	SST: Manufacturing of Pipe & Valves and other E&M Equip...	90	30-Apr-12	28-Jul-12	90	[Green bar]			
S3006600	SST: Factory Acceptance Test for Pipes & Valves	20	29-Jul-12	17-Aug-12	20	[Green bar]			
Transformer Bay									
Structure									
S3007010	TB: Structure and Finishes	168	21-Nov-11 A	07-Nov-12	158	[Green bar]			
S3007210	TB: Concrete infill to form trench	24	16-Jul-12	11-Aug-12	24	[Green bar]			
E&M Procurement, Installation & T&C									
Manufacture & Delivery									
S3007410	TB: Procurement & Delivery of E&M Eq't / Matl	398	01-Feb-12 A	23-Nov-12	208	[Green bar]			
S3007430	TB: Manufacturing of HV Power Transformer	220	13-Feb-12 A	23-Jun-12	55	[Green bar]			
S3007435	TB: Factory Acceptance Test for HV Power Transformer	50	24-Jun-12	12-Aug-12	50	[Green bar]			
S3007460	TB: Manufacturing of HV Ring Main Units	130	31-Mar-12 A	27-Aug-12	120	[Green bar]			
S3007500	TB: Manufacturing of other Equipment	120	31-Mar-12 A	27-Aug-12	120	[Green bar]			
S3007540	TB: Procurement of Cables	30	18-May-12	16-Jun-12	30	[Green bar]			
S3007550	TB: Manufacturing of Cables	90	17-Jun-12	14-Sep-12	90	[Green bar]			
System									
Initial Works									
S3008100	Temporary Traffic Diversion Scheme Submission and Approval for Stage 1 at Section 3 Works	70	31-Jan-12 A	24-May-12	20	[Green bar]			
S3008110	Temporary Traffic Arrangement (TTA) Implementation Stage 1	14	25-May-12	11-Jun-12	14	[Green bar]			
SECTION 5 OF THE WORKS									
SOUTHERN SLUDGE CAKE SILO									
Design Submission and Approval									
S5003102	SSCS: Shop Drawing Submission and Approval	88	30-Apr-12	14-Aug-12	88	[Green bar]			
S5003104	SSCS: Submit Shop Drawing	34	30-Apr-12	11-Jun-12	34	[Green bar]			
S5003106	SSCS: Eng Comment on Shop Drawing	21	12-Jun-12	06-Jul-12	21	[Green bar]			
S5003108	SSCS: Finalize Shop Drawing	21	07-Jul-12	31-Jul-12	21	[Green bar]			

█ Actual Work ◆ Baseline Milestone
█ Remaining Work ◆ Milestone
█ Critical Remaining Work

3-Months Rolling Programme - May to July 2012

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Activity % Complete	Qtr 2, 2012				Qtr 3, 2012	
							Mar	Apr	May	Jun	Jul	Aug
3 Month Rolling Programme (24 Apr 2012 to 24 Jul 2012)												
Portion of Site												
Possession/ Vacation of Portion												
PS1040	Portion 5 Handover	0	25-Apr-12		0	0%						
Civil and Geotechnical Submission												
Contractor Design, Submission and Approval												
General												
CCD00127	Installation of web cameras	60	09-Feb-12	08-Apr-12 A		100%						
CCD00137	Operation and maintenance of web cameras	1932	08-Apr-12 A	23-Jul-17	0	0.73%						
Detailed Design Approval (DDA) Submission for Structural/ Builder Works												
DDA2 (Container Maintenance Bldg)												
P100030	Approval for Design for Container Maintenance Building	45	14-Feb-12	29-Mar-12 A		100%						
DDA4 (SCIMPS2 and Inlet Chamber)												
CCD00124	Final Approval of Structural Design of RC for SCIMPS2 and Inlet chamber - Below G	30	25-Feb-12	25-Mar-12 A		100%						
CCD00125	Prepare/ Submission of Structural Design of RC for SCIMPS2 and Inlet chamber - At	150	03-Nov-11	17-Apr-12 A		100%						
CCD00135	Comment of Structural Design of RC for SCIMPS2 and Inlet chamber - Above G/F	28	18-Apr-12 A	08-May-12	202	45%						
CCD00145	Resubmission of Structural Design of RC for SCIMPS2 and Inlet chamber - Above G	21	08-May-12	29-May-12	202	0%						
CCD00155	Final Approval of Structural Design of RC for SCIMPS2 and Inlet chamber - Above G	12	29-May-12	10-Jun-12	202	0%						
CCD00315	Prepare/ Submission of structural design of Hydraulic features at wet well	10	18-Mar-12	28-Mar-12 A		100%						
CCD00325	Comment/ approval of structural design of hydraulic features at wet well	7	28-Mar-12	04-Apr-12 A		100%						
DDA5 (SCIMPS No. 1 Valve Chamber)												
CCD00131	Prepare/ Submission of Structural Design of RC for SCIMPS No.1 Valve Chamber (L	180	01-Dec-11	28-May-12	132	80%						
CCD00132	Comment of Structural Design of RC for SCIMPS No.1 Valve Chamber	45	29-May-12	12-Jul-12	132	0%						
CCD00133	Resubmission of Structural Design of RC for SCIMPS No.1 Valve Chamber	75	13-Jul-12	25-Sep-12	132	0%						
DDA6 (Switchgear Bldg)												
CCD00142	Comment of Structural Design of RC for for Switchgear Bldg	45	19-Feb-12	03-Apr-12 A		100%						
CCD00143	Resubmission of Structural Design of RC for Switchgear Bldg	75	04-Apr-12 A	17-Jun-12	76	25.33%						
CCD00144	Final Approval of Structural Design of RC for Switchgear Bldg	45	18-Jun-12	01-Aug-12	76	0%						
CCD00210	Prepare/ Submission of Cost saving design and Geotechnical Design review of Stru	65	27-Jan-12 A	02-Apr-12 A		100%						
CCD00220	Comment of Cost saving design and Geotechnical Design review of Structures	14	03-Apr-12 A	25-Apr-12	-8	85%						
CCD00230	Resubmission of Cost saving design and Geotechnical Design review of Structures	7	25-Apr-12	02-May-12	-8	0%						
CCD00240	Final Approval of Cost saving design and Geotechnical Design review of Structures	7	02-May-12	09-May-12	-8	0%						
DDA7 (Main Flow Culvert)												
CCD00151	Prepare/ Submission of Structural Design of RC for Main flow culvert (DDA7)	180	21-Dec-11	17-Jun-12	327	68.89%						
CCD00152	Comment of Structural Design of RC for for Main flow culvert	45	18-Jun-12	01-Aug-12	327	0%						
CCD00153	Resubmission of Structural Design of RC for Main flow culvert	75	02-Aug-12	15-Oct-12	327	0%						
CCD00290	Prepare/ Submission of Cost saving design and Geotechnical Design review of Stru	65	03-Feb-12	16-Apr-12 A		100%						
CCD00300	Comment of Cost saving design and Geotechnical Design review of Structures	14	17-Apr-12 A	01-May-12	197	40%						
CCD00310	Resubmission of Cost saving design and Geotechnical Design review of Structures	14	01-May-12	15-May-12	197	0%						
CCD00320	Final Approval of Cost saving design and Geotechnical Design review of Structures	14	15-May-12	29-May-12	197	0%						
CCD00530	Prepare/ Submission of temporary works design for excavation	140	31-Dec-11	05-Apr-12 A		100%						
CCD00540	Comment of temporary works design for excavation	60	06-Apr-12 A	12-Jun-12	114	15%						
CCD00550	Resubmission of temporary works design for excavation for GEO approval	45	13-Jun-12	27-Jul-12	114	0%						
CCD00560	GEO Approval of temporary works design for excavation	30	28-Jul-12	26-Aug-12	114	0%						
DDA8 (Extension of CEPT tanks)												
CCD00191	Prepare/ Submission of Structural Design of RC for CEPT tank - Below G.L. (DDA8)	180	22-Sep-11	03-Apr-12 A		100%						
CCD00192	Comment of Structural Design of RC for for CEPT tank - Below G.L.	35	04-Apr-12 A	23-Apr-12	77	97.14%						
CCD00193	Resubmission of Structural Design of RC for CEPT tank - Below G.L.	28	24-Apr-12	21-May-12	77	0%						
CCD00194	Final Approval of Structural Design of RC for CEPT tank - Below G.L.	21	22-May-12	11-Jun-12	77	0%						
CCD00195	Prepare/ Submission of Structural Design of RC for Flocculation tank and main dist	150	01-Nov-11	19-Apr-12 A		100%						
CCD00196	Comment of Structural Design of RC for for Flocculation tank and main disturbutio	35	20-Apr-12 A	03-May-12	44	68.57%						
CCD00197	Resubmission of Structural Design of RC for Flocculation tank and main disturbutio	45	04-May-12	17-Jun-12	44	0%						
CCD00198	Final Approval of Structural Design of RC for Flocculation tank and main disturbutio	28	18-Jun-12	15-Jul-12	44	0%						
CCD00570	Prepare/ Submission of Structural Design of RC for CEPT tank - Above G.L. (DDA 8)	180	19-Dec-11	15-Jun-12	73	70%						
CCD00580	Comment of Structural Design of RC for for CEPT tank - Above G.L.	45	16-Jun-12	30-Jul-12	73	0%						
CCD00590	Resubmission of Structural Design of RC for CEPT tank - Above G.L.	75	31-Jul-12	13-Oct-12	73	0%						
CCD00650	Prepare/ Submission of Structural Design of RC for Flocculation tank and main dist	180	19-Jan-12 A	16-Jul-12	188	52.78%						
CCD00660	Comment of Structural Design of RC for for Flocculation tank and main disturbutio	45	17-Jul-12	30-Aug-12	188	0%						
CCD00730	Prepare/ Submission of Cost Saving Design of Inlet Section of Flocculation tanks	120	03-Dec-11	05-Apr-12 A		100%						
CCD00740	Comment of Cost Saving Design of Inlet Section of Flocculation tanks	14	06-Apr-12 A	04-May-12	-3	20%						
CCD00750	Resubmission of Cost Saving Design of Inlet Section of Flocculation tanks	10	04-May-12	14-May-12	-3	0%						
CCD00760	Final Approval of Cost Saving Design of Inlet Section of Flocculation tanks	7	14-May-12	21-May-12	-3	0%						
DDA9 (Extension of NaHClO Bldg)												
CCD00161	Prepare/ Submission of Structural Design of RC for Extension of NaHClO Bldg (DD/	120	19-Apr-12 A	16-Aug-12	119	3.33%						
CCD00162	Comment of Structural Design of RC for for Extension of NaHClO Bldg	45	17-Aug-12	30-Sep-12	119	0%						
CCD00206	Prepare/ Submission of Structural Design for Steel Structures	120	04-May-12	31-Aug-12	228	0%						
DDA11 (DOU No. 3 and DOU No. 1b)												
CCD00201	Prepare/ Submission of Structural Design of RC for DOU No. 3 and 1b (DDA 11)	100	08-Jun-12	15-Sep-12	380	0%						
CCD00450	Prepare/ Submission of Cost saving design and Geotechnical Design review of Stru	65	27-Jan-12 A	09-May-12	175	75%						
CCD00460	Comment of Cost saving design and Geotechnical Design review of Structures	14	09-May-12	23-May-12	175	0%						
CCD00470	Resubmission of Cost saving design and Geotechnical Design review of Structures	14	23-May-12	06-Jun-12	175	0%						
CCD00480	Final Approval of Cost saving design and Geotechnical Design review of Structures	14	06-Jun-12	20-Jun-12	175	0%						
DDA12 (Odour Duct Bridge)												

■ Actual Work ◆ ◆ Milestone
■ Remaining Work
■ Critical Remaining Work

Sheet 1 of 7

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Total	Activity % Complete	Qtr 2, 2012				Qtr 3, 2012	
							Mar	Apr	May	Jun	Jul	Aug
CCD00181	Prepare/ Submission of Structural Design of RC for Odour Duct bridge (DDA 12)	100	08-Jun-11	15-Sep-12	419	0%						
CCD00490	Prepare/ Submission of Cost saving design and Geotechnical Design review of Stru	65	27-Jan-12 A	09-May-12	1860	75%						
CCD00500	Comment of Cost saving design and Geotechnical Design review of Structures	14	09-May-12	23-May-12	1860	0%						
CCD00510	Resubmission of Cost saving design and Geotechnical Design review of Structures	14	23-May-12	06-Jun-12	1860	0%						
CCD00520	Final Approval of Cost saving design and Geotechnical Design review of Structures	14	06-Jun-12	20-Jun-12	1860	0%						
Electrical & Mechanical Equipment Submission												
Contractor Design, Submission and Approval												
General												
ECD00110	Submission of interim report	14	04-Mar-12	18-Mar-12 A		100%						
ECD00120	Stage 2 Hydraulic Model Test	135	18-Mar-12	31-Jul-12	327	26.02%						
ECD00130	Submission of final report	45	31-Jul-12	14-Sep-12	327	0%						
Approved In-principle (AIP) Submission												
AIP No. 2 (Cooling water system of MPS)												
ECD00035	Preparation of AIP Submission for Cooling water system of Main Sewage Pumping s	407	24-Feb-11	05-Apr-12 A		100%						
ECD00040	Comment/ Approval of AIP for Cooling water system of Main Sewage Pumping syste	180	08-Nov-11	05-May-12	11	92.78%						
AIP No. 3 (Drainage and Sparging System at Wet Well)												
ECD00045	Preparation of AIP Submission for Drainage and Sparging System at MPS2 and Valv	432	24-Feb-11	30-Apr-12	57	98.15%						
ECD00050	Comment/ Approval of AIP for Drainage and Sparging System at MPS2 and Valve Ch	210	03-Nov-11	30-May-12	57	81.9%						
AIP No. 4 (Piping system for centrate flow/ NWK overflow pipe)												
ECD00051	Preparation of AIP Submission for piping system for centrate flow/ NWK overflow pi	415	24-Feb-11	27-Apr-12 A		100%						
ECD00052	Comment/ Approval of AIP for piping system for centrate flow/ NWK overflow pipe (/	180	16-Nov-11	22-May-12	107	88.33%						
AIP No. 5 (Air mixing System for Wet Well)												
ECD00053	Preparation of AIP Submission for air mixing system for wet well (AIP No. 5)	415	24-Feb-11	23-Apr-12	123	100%						
ECD00055	Comment/ Approval of AIP for air mixing system for wet well (AIP No. 5)	28	25-Apr-12	22-May-12	123	0%						
AIP No. 6 (Flushing water System for interconnection tunnel and valve chamber)												
ECD00056	Preparation of AIP Submission for flushing water system for interconnection tunnels	429	24-Feb-11	08-Aug-12	-100	75%						
ECD00070	Comment/ Approval of AIP for flushing water system for interconnection tunnels, val	60	29-Mar-12	07-Sep-12	-100	45%						
AIP No. 7 (Process Air Supply System for Flocculation tanks and ED culvert)												
ECD00075	Preparation of AIP Submission for Process Air Supply System for Extended CEPT T	425	24-Feb-11	23-Apr-12	62	99.76%						
ECD00080	Comment/ Approval of AIP for Process Air Supply System for Extended CEPT Tanks	75	10-Mar-12	23-May-12	62	58.67%						
AIP No. 8 (Sludge and Scum Pumping System)												
ECD00085	Preparation of AIP Submission for Sludge and Scum Pumping System (AIP No. 8)	415	24-Feb-11	13-Apr-12 A		100%						
ECD00150	Comment/ Approval of AIP for Sludge and Scum Pumping System (AIP No. 8)	95	09-Feb-12	13-May-12	61	77.89%						
AIP No. 9 (Process Air Supply System & Protected Water Supply System)												
ECD00155	Preparation of AIP Submission for Process & Protected Water and Process Drainage	436	24-Feb-11	27-Apr-12 A		100%						
ECD00160	Comment/ Approval of AIP for Process & Protected Water and Process Drainage Sy:	80	16-Mar-12	03-Jun-12	45	47.5%						
AIP No. 10 (Penstocks and Stoplogs for Extension of CEPT tanks)												
ECD00165	Preparation of AIP Submission for Penstocks and Stoplogs (AIP No. 10)	415	24-Feb-11	13-Apr-12 A		100%						
ECD00170	Comment/ Approval of AIP for Penstocks and Stoplogs (AIP No. 10)	60	15-Mar-12	13-May-12	73	65%						
AIP No. 11 (Chemical Dosing System)												
ECD00175	Preparation of AIP Submission for Chemical Storage and Dosing System (AIP No. 11)	415	24-Feb-11	13-Apr-12 A		100%						
ECD00180	Comment/ Approval of AIP for Chemical Storage and Dosing System (AIP No. 11)	60	15-Mar-12	13-May-12	63	65%						
AIP No. 12 (Sodium Hypochlorite Storage, transfer and dosing system)												
ECD00195	Preparation of AIP Submission for Sodium Hypochlorite storage, transfer and dosing	407	24-Feb-11	05-Apr-12 A		100%						
ECD00200	Comment/ Approval of AIP for Sodium Hypochlorite storage, transfer and dosing syst	60	07-Mar-12	05-May-12	30	78.33%						
AIP No. 13 (Deodourization System for MPS, CEPT tanks, NWK PS)												
ECD00205	Preparation of AIP Submission for Deodourization System DOU3 and DOU1b (AIP N	400	24-Feb-11	29-Mar-12 A		100%						
ECD00210	Comment/ Approva AIP for Deodourizati on System DOU3 and DOU1b (AIP No. 13)	75	14-Feb-12	28-Apr-12	27	92%						
AIP No. 15 (Control system Architecture for DCS at SCISTW and interfacing control system)												
ECD00225	Preparation of AIP Submission for DSC and control system at SCIMPS2 (AIP No. 15)	426	24-Feb-11	24-Apr-12	47	99.53%						
ECD00230	Comment/ Approval of AIP for DSC and control system at SCIMPS2 (AIP No. 15)	95	27-Feb-12	31-May-12	47	58.95%						
AIP No. 16 (Control System Architecture for Upgrading existing DCDAS at MPS1 and HATS stage 1 PTWs)												
ECD00235	Preparation of AIP Submission for upgrading the existing DCDAS and control system	426	24-Feb-11	24-Apr-12	72	99.53%						
ECD00240	Comment/ Approval of AIP for upgrading the existi ng DCDAS and control system (A	95	11-Feb-12	15-May-12	72	75.79%						
AIP No. 17 (Control System Architecture for upgrading existing DCS (Chlorination Plant & NWK PTW)												
ECD00245	Preparation of AIP Submission for integration of the upgraded DCDAS and control sy	426	24-Feb-11	24-Apr-12	128	99.53%						
ECD00250	Comment/ Approval of AIP for integrati on of the upgraded DCDAS and control system	95	11-Feb-12	15-May-12	128	75.79%						
AIP No. 18 (Ventilation System of MPS, valve chamber and Switchgear bldg)												
ECD00255	Preparation of AIP Submission for Ventilation System for MPS (AIP No. 18)	439	24-Feb-11	07-May-12	132	96.58%						
ECD00260	Comment/ Approval of AIP for Ventilation System for MPS (AIP No. 18)	90	09-Mar-12	06-Jun-12	132	50%						
AIP No. 19 (Fire Service Installation)												
ECD00265	Preparation of AIP Submission for Fire Hydrant, Hose Reel and Automatic Sprinkler	446	24-Feb-11	21-Jul-12	29	80%						
ECD00270	Comment/ Approval of AIP for Fire Hydrant, Hose Reel and Automatic Sprinkler Syst	90	16-Mar-12	20-Aug-12	29	42.22%						
AIP No. 20 (Plumbing System)												
ECD00275	Preparation of AIP Submission for plumbing system for potable, flushing, irrigation s	434	24-Feb-11	02-May-12	266	97.7%						
ECD00280	Comment/ Approval of AIP for plumbing system for potable, flushing, irrigation syste	70	24-Mar-12	01-Jun-12	266	42.86%						
AIP No. 21 (Drainage System)												
ECD00285	Preparation of AIP Submission for Drainage system for wastes water drainage syste	437	24-Feb-11	05-May-12	102	97.03%						
ECD00290	Comment/ Approval of AIP for Drainage system for wastes water drainage system (/	90	07-Mar-12	04-Jun-12	102	52.22%						
AIP No. 22 (Knife Gate Valves - size DN3000 & DN3600)												
ECD00300	Preparation of AIP Submission for Knife Gate Valves - size DN 3000 & DN 3600 (AIF	405	24-Feb-11	03-Apr-12 A		100%						
ECD00310	Comment/ Approval of AIP for Knife Gate Valves - size DN 3000 & DN 3600 (AIP No.	90	04-Feb-12	03-May-12	98	87.78%						
AIP No. 23 (Lifting appliance)												
ECD00410	Comment/ Approval of AIP for Lifting appliance (AIP No. 23)	75	07-Jan-12 A	21-Mar-12 A		100%						

Activity ID	Activity Name	Original Duration	Start	Finish	Total	Activity % Complete	Qtr 2, 2012				Qtr 3, 2012	
							Mar	Apr	May	Jun	Jul	Aug
Works for Section 1A												
Portion 3 (Extension of CEPT Tanks)												
Civil Works												
P300090	Construction of Chemical pipe trench (CH0-119)	130	14-Oct-11 A	20-Mar-12 A		100%						
P300250	Construction of Dia 250 watermain	130	14-Oct-11 A	20-Mar-12 A		100%						
P300255	Construction of CLP cable Trench (CHB0-80, CHC0-60)	125	09-Jan-12 A	31-Jul-12	1474	35%						
P300256	Construction of NWK DN1200 Overflow pipe (CH235-310)	125	09-Jan-12 A	03-Jul-12	1498	54%						
P904200	TTM Stage 4	1	21-Mar-12	21-Mar-12 A		100%						
P904210	Construction of CLP cable Trench (CHB0-80, CHC0-60)	55	22-Mar-12	14-Jun-12	1511	20%						
P904220	Construction of NWK DN1200 Overflow pipe (CH215-235)	55	22-Mar-12	19-Apr-12 A		100%						
Portion 9 (Permanent Storage Building)												
Contractor Design for Structural and E&M												
P900420	Submission of GBP to FSD	180	22-Sep-11	19-Mar-12 A		100%						
P900430	Approval/ Comment of GBP from FSD	28	20-Mar-12	16-Apr-12 A		100%						
P900450	Approval/ Comment of WSD submission of Portable water	90	05-Mar-12	02-Jun-12	1854	54.44%						
P900470	Approval/ comment of WSD submission of Fire services water	90	05-Mar-12	02-Jun-12	1854	54.44%						
P900500	Submission of FSD Form 314	14	17-Apr-12 A	30-Apr-12	1864	42.86%						
P900520	Submission of FSD Form 501	21	05-Jul-12	26-Jul-12	1816	0%						
Procurement/ Order/ Manufacturing/ Delivery												
P900320	Manufacturing of Travelling Cranes	49	11-Feb-12	30-Mar-12 A		100%						
P900330	Delivery of Travelling Cranes	20	31-Mar-12	12-May-12	1842	1%						
P900350	Manufacturing of Building Services Equipment	50	17-Feb-12	06-Apr-12 A		100%						
P900360	Delivery of Building Services Equipment	18	07-Apr-12 A	10-May-12	1863	1%						
RC Works												
P900210	Construction of roof floor slab	35	13-Feb-12	23-Mar-12 A		100%						
P900230	Construction of upper roof slab	21	02-Apr-12 A	02-May-12	1460	66.67%						
P900365	Dismantle falsework for roof floor slab	6	19-Apr-12 A	23-Apr-12 A		100%						
P900370	Construction of Ground floor on-grade slab	10	20-Apr-12 A	02-May-12	1498	35%						
P900380	Construction of Water tank base	6	03-May-12	09-May-12	1460	0%						
P900390	Construction of Water tank wall and soffit	10	10-May-12	21-May-12	1460	0%						
P900490	Water test	14	22-May-12	06-Jun-12	1480	0%						
Electrical and Mechanical Installation												
P900130	Travelling cranes installation	35	25-May-12	06-Jul-12	1482	0%						
P900180	F.S., MVAC, A/C and electrical works installation (G/F)	18	26-May-12	16-Jun-12	1498	0%						
P900400	FS and electrical works installation (1/F)	12	17-May-12	30-May-12	1501	0%						
P900410	A/C installation (R/F)	12	16-Jun-12	30-Jun-12	1486	0%						
P900480	F.S. Pump installation (R/F)	15	16-Jun-12	05-Jul-12	1472	0%						
P900485	Modification of MCCB board at switchroom	12	23-Apr-12	08-May-12	1519	0%						
P900510	Electrical cable laying (External)	12	07-Jun-12	20-Jun-12	1494	0%						
Builder and finishes Works												
P900135	Internal Brick works (G/F)	9	02-May-12	12-May-12	1498	0%						
P900140	Internal Finishes Works (G/F)	12	12-May-12	26-May-12	1498	0%						
P900145	Internal Finishes Works (1/F)	14	30-Apr-12	16-May-12	1482	0%						
P900155	External Finishes Works (G/F to R/F)	45	30-Apr-12	21-Jun-12	1460	0%						
P900165	Dismantle external scaffolding	9	22-Jun-12	04-Jul-12	1460	0%						
P900300	Door, window and Roller shutter installation	24	18-May-12	15-Jun-12	1499	0%						
P900305	Roof waterproofing	15	30-May-12	15-Jun-12	1472	0%						
P900310	Green Roof	12	16-Jun-12	30-Jun-12	1486	0%						
External underground works												
P901000	Electrical cable ducts laying from NWK PS (E.Power)	30	03-May-12	06-Jun-12	1494	0%						
P901010	Electrical cable ducts laying from NWK PTW	30	03-May-12	06-Jun-12	1494	0%						
P901020	Portable watermain laying	18	21-May-12	09-Jun-12	1503	0%						
P901030	F.S. watermain laying	18	21-May-12	09-Jun-12	1503	0%						
P901120	Sewage pipe laying	12	05-Jul-12	18-Jul-12	1460	0%						
P901170	Construction of Surface channel	12	19-Jul-12	01-Aug-12	1460	0%						
Testing and Commissioning												
P900150	Testing and Commissioning	6	07-Jul-12	13-Jul-12	1482	0%						
P900250	FSD inspection	6	27-Jul-12	02-Aug-12	1471	0%						
P900530	Final Testing and commissioning	10	01-Aug-12	11-Aug-12	1803	0%						
P900540	Handover to ST2	4	11-Aug-12	15-Aug-12	1803	0%						
Portion 1 (Container Maintenance Building)												
Civil Works												
P902040	Construction of underground sewer	35	30-Mar-12	16-May-12	1383	45.71%						
P902050	ELS for footing construction of CMB	10	11-Apr-12 A	26-May-12	1383	10%						
RC works												
P100040	Construction of Mass in-fill below RC footings	6	28-May-12	02-Jun-12	1383	0%						
P100045	Backfilling to bottom level of RC footings	6	04-Jun-12	09-Jun-12	1383	0%						
P100046	Construction of RC footing, column kicker and tie beams	8	11-Jun-12	19-Jun-12	1383	0%						
P100047	Backfilling to bottom level of ground beams	6	20-Jun-12	27-Jun-12	1383	0%						
P100050	Construction of RC ground beams	6	28-Jun-12	05-Jul-12	1383	0%						
P100055	Backfilling to bottom level of on grade slab	3	06-Jul-12	09-Jul-12	1383	0%						
P100060	Construction of RC on-grade slabs	6	10-Jul-12	16-Jul-12	1383	0%						
P100100	Construction of columns and roof slabs for plant rooms	12	17-Jul-12	30-Jul-12	1383	0%						
P100110	Construction of columns and roof slabs for main structures	12	24-Jul-12	06-Aug-12	1383	0%						

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Contract No. DC/2009/10
HATS Stage 2A - Upgrading works at StoneCutters Island Sewage Treatment Works
Three Months Rolling Programme (24 Apr 2012 to 24 Jul 2012)

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Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Total	Activity % Complete	Qtr 2, 2012				Qtr 3, 2012	
							Mar	Apr	May	Jun	Jul	Aug
P100400	Dismantle scaffoldings for plant rooms	4	16-Aug-12	20-Aug-12	1404	0%						
Builder and finishes Works												
P100410	External finishes	21	15-Aug-12	07-Sep-12	1429	0%						
Works for Section 2												
Portion 4 (Switchgear Building)												
Submission of Design for Structural and E&M												
P401000	DDA of HV switchboards	60	04-Mar-12	02-May-12	56	83.33%						
P401010	Approval/ Comment of DDA of HV switchboards	60	18-Apr-12 A	16-Jun-12	56	8.33%						
P401020	DDA of LV switchboards	60	04-Mar-12	02-May-12	81	83.33%						
P401030	Approval/ Comment of DDA of LV switchboards	60	18-Apr-12 A	16-Jun-12	81	8.33%						
P401040	DDA of Transformer	85	04-Mar-12	27-May-12	65	58.82%						
P401050	Approval/ Comment of DDA of Transformer	85	19-Mar-12	11-Jun-12	65	41.18%						
P401060	DDA of Gensets	90	18-Apr-12 A	16-Jul-12	61	5.56%						
P401065	EPD submission for Gensets	90	18-Apr-12 A	16-Jul-12	61	5.56%						
P401070	Approval/ Comment of DDA of Gensets	90	18-May-12	15-Aug-12	61	0%						
P401080	DDA of Lifting Appliance	90	22-Mar-12	19-Jun-12	74	35.56%						
P401090	Approval/ Comment of DDA of Lifting Appliance	90	21-Apr-12 A	19-Jul-12	74	2.22%						
P401101	DDA of Control system architecture for upgrading existing DCDAS at MPS1 and HAT	45	16-May-12	29-Jun-12	72	0%						
P401102	Approval/ comment for the DDA of Control system architecture for upgrading existin	46	15-Jun-12	30-Jul-12	72	0%						
P401103	DDA of Conctrol system architecture for upgrading existing control system (AIP No.	45	16-May-12	29-Jun-12	128	0%						
P401104	Approval/ comment for the DDA of Conctrol system architecture for upgrading existii	46	15-Jun-12	30-Jul-12	128	0%						
Procurement/ Order/ Manufacturing/ Delivery												
P302550	Procurement / Purchase Order of Control System for upgrading existing DCDAS at M	28	31-Jul-12	27-Aug-12	72	0%						
P302580	Procurement / Purchase Order of Control System for upgrading existing control syst	28	31-Jul-12	27-Aug-12	128	0%						
P402040	Procurement / Purchase Order of HV swichboards	25	17-Jun-12	11-Jul-12	56	0%						
P402050	Manufacturing of HV switchboards	250	12-Jul-12	18-Mar-13	56	0%						
P402070	Procurement / Purchase Order of LV switchboards	28	17-Jun-12	14-Jul-12	81	0%						
P402080	Manufacturing of LV switchboards	250	15-Jul-12	21-Mar-13	81	0%						
P402100	Procurement / Purchase Order of Transformers	35	12-Jun-12	16-Jul-12	65	0%						
P402110	Manufacturing of Transformers	245	17-Jul-12	18-Mar-13	65	0%						
P402130	Procurement / Purchase Order of Emergency Generator	20	16-Aug-12	04-Sep-12	61	0%						
P402160	Procurement / Purchase Order of Lifting Appliances	21	20-Jul-12	09-Aug-12	74	0%						
P402170	Manufacturing of Lifting Appliances	210	10-Aug-12	07-Mar-13	74	0%						
P402220	Procurement / Purchase order of Cables	30	12-Jun-12	11-Jul-12	82	0%						
P402230	Manufacturing of Cables	210	12-Jul-12	06-Feb-13	82	0%						
Foundation Works												
Ground investigation												
P400410	Inclined Drillholes (BH4)	16	28-Feb-12	16-Mar-12 A		100%						
P400850	Vertical Drillholes (BH8 and BH9)	10	06-Mar-12	16-Mar-12 A		100%						
P400860	Inclined Drillholes (BH12)	16	17-Mar-12	05-Apr-12 A		100%						
P400870	Vertical Drillholes (BH13 and BH 14)	10	06-Mar-12	16-Mar-12 A		100%						
P400880	Vertical Drillholes (BH15 and BH16)	10	17-Mar-12	28-Mar-12 A		100%						
P400900	Submission of Preliminary borehole log	35	16-Mar-12	20-Apr-12 A		100%						
Driven H-Pile												
P400015	Mobilization of Percussive Piling Plant	12	14-Mar-12	09-May-12	-6	85%						
P400020	Driven H-Piles	45	09-May-12	03-Jul-12	-6	0%						
P400025	Pile Load Test	12	03-Jul-12	17-Jul-12	-6	0%						
P400030	Submit/ Approval of pile load test	5	17-Jul-12	23-Jul-12	7	0%						
Excavation and Lateral Support for Substructure												
P400060	Sheetpiling Works	18	17-Jul-12	07-Aug-12	-6	0%						
P400930	Excavation down to +4.5mPD	12	31-Jul-12	14-Aug-12	-6	0%						
P400940	Install wailing and strut @ +4.3mPD	18	07-Aug-12	28-Aug-12	-6	0%						
Works for Section 3												
Portion 1 (Existing CEPT tanks)												
Submission of design of E&M works												
P106000	Submission of Design for the MEICA works for modification works of CEPT tanks	90	13-Apr-12 A	12-Jul-12	110	10.14%						
P106010	Approval/ comment of Design for the MEICA works for modification works of CEPT t	90	13-May-12	11-Aug-12	110	0%						
Procurement/ Order/ Manufacturing/ Delivery												
P106110	Procurement / Purchase Order of Scum Collection System	34	11-Aug-12	14-Sep-12	110	0%						
P106140	Procurement / Purchase Order of FRP mid tank baffles	34	11-Aug-12	14-Sep-12	110	0%						
Portion 3 (Extension of CEPT Tank)												
Submission of design of E&M works												
P301000	DDA of Process air supply system for flocculation tanks (AIP No. 7)	120	24-May-12	20-Sep-12	62	0%						
P301010	Approval/ comment for the DDA of Process air supply system for flocculation tanks	120	23-Jun-12	20-Oct-12	62	0%						
P301020	DDA of the sludge pumping and scum collection system (AIP No. 8)	120	04-May-12	31-Aug-12	61	0%						
P301030	Approval/ comment for DDA of the sludge pumping and scum collection system	120	03-Jun-12	30-Sep-12	62	0%						
P301480	DDA of the Process water flushing and protected water system (AIP No. 9)	120	04-Jun-12	01-Oct-12	45	0%						
P301490	Approval/ comment for DDA of the Process water flushing and protected water syste	120	04-Jul-12	31-Oct-12	45	0%						
P301500	DDA of the Penstock and stoplogs for CEPT tanks (AIP No. 10)	90	14-May-12	11-Aug-12	73	0%						
P301510	Approval/ comment for DDA of the Penstock and stoplogs for CEPT tanks	90	13-Jun-12	10-Sep-12	73	0%						
P301520	DDA of the Chemical (FECL3 and polymer) dosing system (AIP No. 11)	120	14-May-12	10-Sep-12	63	0%						
P301530	Approval/ comment for DDA of the Chemical (FECL3 and polymer) dosing system	120	13-Jun-12	10-Oct-12	63	0%						
P301550	DDA of the Lifting appliance (AIP No. 23)	120	22-Mar-12	19-Jul-12	10	26.67%						
P301560	Approval/ comment for DDA of the Lifting appliance	45	20-Jul-12	02-Sep-12	10	0%						

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Date	Revision	Checked	Approved

HATS Stage 2A - Upgrading works at StoneCutters Island Sewage Treatment Works

Three Months Rolling Programme (24 Apr 2012 to 24 Jul 2012)

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Activity % Complete	Qtr 2, 2012				Qtr 3, 2012	
							Mar	Apr	May	Jun	Jul	Aug
Foundation Works												
Extension/ trimming of Existing Daido Piles												
Row C, F, I & L												
P321000	Open excavation to +4.1mPD for substructure of Southern CEPT tanks	15	25-Jul-12	10-Aug-12	1	0%						
P321010	Extension L1 to L36 (36 Nos)	21	10-Aug-12	31-Aug-12	2	0%						
P902540	Extension for C65 to C70, F37 to F40, I37 to I40, L37 to L40 (18Nos)	40	06-Jun-12	24-Jul-12	1	0%						Extension for C65
Row A, D, G & J												
P902550	Open excavation to +4.1mPD for substructure of Northern CEPT tanks	15	26-Jul-12	13-Aug-12	16	0%						
P902555	Extension for J5 to J44 (40Nos)	15	13-Aug-12	30-Aug-12	16	0%						
P902620	Extension for A1 to A6, D1 to D4, G1 to G4, J1 to J4 (18Nos)	40	07-Jun-12	26-Jul-12	15	0%						Extension for A
Row B, E, H & K												
P902635	Open excavation to +4.1mPD for substructure of disturbance channel at GL 29-31, E	15	02-May-12	18-May-12	14	0%						
P902660	Extension for H1 to H7 (7Nos)	18	03-Jul-12	23-Jul-12	14	0%						Extension for H1 to
P902670	Extension for K1 to K7 (7Nos)	18	23-Jul-12	11-Aug-12	14	0%						
Prebored Rock Socketted H-Pile												
P300115	Predrilling (17 Nos)	28	26-Mar-12	23-Apr-12	19	100%						
P300121	Confirm founding level of piles (Zone 2)	3	24-Apr-12 A	24-Apr-12	19	55%						
Zone 1 - Disturbance Channel, Rig No. 1												
P310400	Prebored and install casing (MC25-36, 12Nos)	16	05-Mar-12	22-Mar-12 A		100%						
P310410	Install H-pile	14	19-Mar-12	03-Apr-12 A		100%						
P310420	Grouting for prebored H-pile (MC25-36, 12Nos)	7	31-Mar-12	12-Apr-12 A		100%						
P310430	Prebored and install casing (MC22a, 22b, 23a, 23b, 24a, 24b & 37, 7Nos)	10	13-Apr-12 A	24-Apr-12	10	80%						
P310440	Install H-pile	11	25-Apr-12	09-May-12	10	0%						
P310450	Grouting for prebored H-pile (MC22a, 22b, 23a, 23b, 24a, 24b & 37, 7Nos)	5	10-May-12	15-May-12	10	0%						
P310460	Prebored and install casing (MC38-40, 3Nos)	5	16-May-12	21-May-12	10	0%						
P310470	Install H-pile	6	19-May-12	25-May-12	10	0%						
P310480	Grouting for prebored H-pile (MC38-40, 3Nos)	2	25-May-12	26-May-12	10	0%						
P310490	Prebored and install casing (MC16, 17, 18, 19a, 19b, 20 & 21, 7Nos)	10	28-May-12	07-Jun-12	10	0%						
P310500	Install H-pile	11	08-Jun-12	20-Jun-12	10	0%						
P310510	Grouting for prebored H-pile (MC16, 17, 18, 19a, 19b, 20 & 21, 7Nos)	4	21-Jun-12	26-Jun-12	10	0%						
P310520	Prebored and install casing (MC7-MC15, 9Nos)	11	27-Jun-12	10-Jul-12	10	0%						
P310530	Install H-pile	13	06-Jul-12	20-Jul-12	10	0%						
P310540	Grouting for prebored H-pile (MC7-MC15, 9Nos)	7	18-Jul-12	25-Jul-12	10	0%						
P310550	Prebored and install casing (MC1-MC6, 6Nos)	4	26-Jul-12	30-Jul-12	10	0%						
P310560	Install H-pile	8	27-Jul-12	04-Aug-12	10	0%						
P310570	Grouting for prebored H-pile (MC1-MC6, 6Nos)	5	04-Aug-12	09-Aug-12	10	0%						
Zone 2 - Rapid Mix tank, Rig No. 2 & 3												
P310000	Mobilization of Piling Plant	10	24-Apr-12	08-May-12	19	0%						
P310001	Prebored and install casing (FT 74-79, FT85-90, 12Nos)	15	08-May-12	25-May-12	19	0%						
P310002	Install H-pile	16	18-May-12	06-Jun-12	19	0%						
P310003	Grouting for prebored H-pile (FT 74-79, FT85-90, 12Nos)	8	02-Jun-12	12-Jun-12	19	0%						
P310004	Prebored and install casing (FT 80-84, FT91-95, 10Nos)	14	12-Jun-12	29-Jun-12	19	0%						
P310005	Install H-pile	14	21-Jun-12	10-Jul-12	19	0%						
P310007	Grouting for prebored H-pile (FT 80-84, FT91-95, 10Nos)	7	06-Jul-12	14-Jul-12	19	0%						
P310010	Prebored and install casing (FT 1, 3, 5, 7, 9 & 11, 6 nos)	9	14-Jul-12	25-Jul-12	19	0%						
P310020	Install H-pile	12	20-Jul-12	03-Aug-12	19	0%						
P310030	Grouting for prebored H-pile (FT 1, 3, 5, 7, 9 & 11, 6 nos)	4	01-Aug-12	06-Aug-12	19	0%						
P310040	Prebored and install casing (FT 2, 4, 6, 8, 10, 5 nos)	8	06-Aug-12	15-Aug-12	19	0%						
P310050	Install H-pile	11	10-Aug-12	23-Aug-12	19	0%						
P310130	Prebored and install casing (FT 23, 25, 27, 29, 31, 33 & 36, 7 nos)	10	08-May-12	19-May-12	38	0%						
P310140	Install H-pile	13	15-May-12	30-May-12	38	0%						
P310150	Grouting for prebored H-pile (FT 23, 25, 27, 29, 31, 33 & 36, 7 nos)	6	28-May-12	04-Jun-12	38	0%						
P310160	Prebored and install casing (FT 24, 26, 28, 30, 32 & 34, 6 nos)	9	04-Jun-12	14-Jun-12	38	0%						
P310170	Install H-pile	12	11-Jun-12	26-Jun-12	38	0%						
P310180	Grouting for prebored H-pile (FT 24, 26, 28, 30, 32 & 34, 6 nos)	5	22-Jun-12	29-Jun-12	38	0%						
P310190	Prebored and install casing (FT 38, 41, 43, 45 & 35, 5 nos)	9	29-Jun-12	11-Jul-12	38	0%						
P310200	Install H-pile	11	07-Jul-12	20-Jul-12	38	0%						
P310210	Grouting for prebored H-pile (FT 38, 41, 43, 45 & 35, 5 nos)	4	18-Jul-12	23-Jul-12	38	0%						
P310220	Prebored and install casing (FT 39, 42, 44 & 37, 4 nos)	7	23-Jul-12	31-Jul-12	38	0%						
P310230	Install H-pile	10	28-Jul-12	09-Aug-12	38	0%						
P310240	Grouting for prebored H-pile (FT 39, 42, 44 & 37, 4 nos)	3	07-Aug-12	10-Aug-12	38	0%						
P310250	Prebored and install casing (FT 46-50, FT61-60, 8Nos)	9	10-Aug-12	21-Aug-12	38	0%						
P310260	Install H-pile	12	16-Aug-12	30-Aug-12	38	0%						
P310280	Prebored and install casing (FT 51-59, 9Nos)	11	10-Aug-12	22-Aug-12	10	0%						
P310290	Install H-pile	13	17-Aug-12	31-Aug-12	10	0%						
Driven H-Pile												
P320140	Pile load test for Driven H-pile	15	12-Apr-12 A	30-Apr-12	14	60%						
Zone 3 - CEPT Tank												
P320060	Driven H-piles (235 Nos)	85	23-Dec-11	11-Apr-12 A		100%						
Zone 4 - Inlet Section of Flocculation tank												
P904240	Driven H-piles (Approx. 18 Nos)	21	21-May-12	14-Jun-12	-2	0%						
P904250	Pile load test for Driven H-pile	15	14-Jun-12	04-Jul-12	-2	0%						
Excavation and Lateral Support for Substructure												
Cofferdam No. 1 (GL29-33, A-B)												

■ Actual Work ◆ ◆ Milestone
■ Remaining Work
■ Critical Remaining Work

Contract No. DC/2009/10
HATS Stage 2A - Upgrading works at StoneCutters Island Sewage Treatment Works
 Three Months Rolling Programme (24 Apr 2012 to 24 Jul 2012)

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Total	Activity % Complete	Qtr 2, 2012				Qtr 3, 2012	
							Mar	Apr	May	Jun	Jul	Aug
P322000	Re-excavation of Cofferdam No.1	12	19-Apr-12 A	07-May-12	15	10%						
P322008	Install 2nd layer walling and struts at +1.25mPD	15	07-May-12	24-May-12	15	0%						
P322010	Excavation down to formation level at -1.75mPD	12	24-May-12	07-Jun-12	15	0%						
P322015	Backfilling to formation level of pile cap at +1.20mPD	12	26-Jul-12	09-Aug-12	15	0%						
Cofferdam No. 2 (GL34-36, A)												
P322200	Install sheetpile cofferdam (within Portion 3)	18	04-Jul-12	25-Jul-12	27	0%						
Cofferdam No. 5 (GL29-33, D-K)												
P322500	Install sheetpile cofferdam	24	19-May-12	15-Jun-12	14	0%						
P322530	Excavation down to +1.5mPD	12	16-Jun-12	30-Jun-12	14	0%						
Cofferdam No. 6 (GL29-33, N-M)												
P322600	Re-Excavation of cofferdam No. 6	10	19-Apr-12 A	04-May-12	1	10%						
P322605	Install 2nd layer walling and struts at +1.25mPD	15	05-May-12	22-May-12	1	0%						
P322610	Excavation down to formation level at -1.75mPD	12	23-May-12	05-Jun-12	1	0%						
P322615	Backfilling to formation level of pile cap at +1.20mPD	12	25-Jul-12	07-Aug-12	31	0%						
R.C. Works												
P300180	Erection of tower crane A	30	11-Aug-12	14-Sep-12	88	0%						
P300185	Erection of tower crane B	30	13-Aug-12	17-Sep-12	118	0%						
Substructure												
GL 33-29 & GL A-B (Northern Effluent tunnel)												
P330000	R.C. works for Pile caps	16	09-Aug-12	28-Aug-12	15	0%						
GL 33-29 & GL M-N (Southern Effluent Tunnel)												
P330100	R.C. works for Pile caps	16	08-Aug-12	25-Aug-12	31	0%						
GL 33-29 & GL D-K (Disturbution Channel)												
P335000	R.C. works for pile cap (GL29-30)	18	13-Aug-12	01-Sep-12	14	0%						
Portion 4 (Main Pumping Station)												
Submission of design of E&M works												
P301100	DDA of Main Pumping, motors and VSD (AIP No. 1)	65	05-Jan-12 A	09-Mar-12 A		100%						
P301110	Approval/ comment for the DDA of Main Pumping, motors and VSD	56	04-Feb-12	30-Mar-12 A		100%						
P301120	DDA of Cooling water system for pump bearing and motors (AIP No. 2)	120	06-May-12	02-Sep-12	11	0%						
P301130	Approval/ comment for the DDA of Cooling water system for pump bearing and moto	120	05-Jun-12	02-Oct-12	11	0%						
P301220	DDA of Sparging system at wet well (AIP No. 3)	120	31-May-12	27-Sep-12	184	0%						
P301230	Approval/ comment for the DDA of Sparging system at wet well	120	30-Jun-12	27-Oct-12	184	0%						
P301231	DDA of Drainage System at Wet Well (AIP No. 3)	120	31-May-12	27-Sep-12	162	0%						
P301232	Approval/ comment for the DDA of Drainage System at wet well	90	30-Jun-12	27-Sep-12	162	0%						
P301240	DDA of Piping system for recirculation (AIP No. 4)	120	23-May-12	19-Sep-12	202	0%						
P301250	Approval/ comment for the DDA of Piping system for recirculation	120	22-Jun-12	19-Oct-12	202	0%						
P301253	DDA of Piping system for centrate flow (AIP No. 4)	120	23-May-12	19-Sep-12	107	0%						
P301254	Approval/ comment for the DDA of Piping system for centrate flow	120	22-Jun-12	19-Oct-12	107	0%						
P301255	DDA of Piping system for NWK overflow (AIP No. 4)	120	23-May-12	19-Sep-12	109	0%						
P301256	Approval/ comment for the DDA of Piping system for NWK overflow	120	22-Jun-12	19-Oct-12	109	0%						
P301260	DDA of Air Mixing system of wet well (AIP No. 5)	180	23-May-12	18-Nov-12	123	0%						
P301270	Approval/ comment for the DDA of Air Mixing system of wet well	180	22-Jun-12	18-Dec-12	123	0%						
P301300	DDA of Control system architecture for DCS and Interfacing control system (AIP No.	92	01-Jun-12	31-Aug-12	147	0%						
P301310	Approval/ comment for the DDA of Control system architecture for DCS and Interfaci	92	01-Jul-12	30-Sep-12	147	0%						
P301390	DDA of Ventilation system of MPS (AIP No. 18)	120	07-Jun-12	04-Oct-12	132	0%						
P301400	Approval/ comment for the DDA of Ventilation system of MPS2	120	07-Jul-12	03-Nov-12	132	0%						
P301410	DDA of Fire service of MPS (AIP No. 19)	171	20-Aug-12	07-Feb-13	29	0%						
P301430	DDA of Plumbing system (AIP No. 20)	201	02-Jun-12	19-Dec-12	266	0%						
P301440	Approval/ comment for the DDA of Plumbing system	201	02-Jul-12	18-Jan-13	266	0%						
P301450	DDA of Drainage system (AIP No. 21)	200	05-Jun-12	21-Dec-12	102	0%						
P301460	Approval/ comment for the DDA of Drainage system	200	05-Jul-12	20-Jan-13	102	0%						
P301470	DDA of Lifting appliance (AIP No. 23)	180	22-Mar-12	17-Sep-12	286	17.78%						
P301540	Approval/ comment for the DDA of Lifting appliance	180	21-Apr-12 A	17-Oct-12	286	1.11%						
Procurement/ Order/ Manufacturing/ Delivery												
P302250	Procurement / Purchase Order of Main Sewage Pumps	30	31-Mar-12	29-Apr-12	39	76.67%						
P302260	Manufacturing of Main Sewage Pumps	365	30-Apr-12	29-Apr-13	39	0%						
P302280	Procurement / Purchase Order of Main Sewage Pump Motors	30	31-Mar-12	29-Apr-12	361	76.67%						
P302290	Manufacturing of Main Sewage Pump Motors	365	30-Apr-12	29-Apr-13	361	0%						
P302310	Procurement / Purchase Order of VSD for Main Sewage Pumps	30	31-Mar-12	29-Apr-12	136	76.67%						
P302320	Manufacturing of VSD for Main Sewage Pumps	365	30-Apr-12	29-Apr-13	136	0%						
R.C. Works												
Access Floor No. 1 (-32.0mPD)												
Wet Well												
P400180	R.C. works for kicker of wet well (0.85m H, -32.0 to -31.15mPD)	15	05-Apr-12 A	25-Apr-12	34	80%						
P400185	R.C. works for wet well (4.6m H, -31.15 to -26.65mPD)	35	26-Apr-12	07-Jun-12	34	0%						
P400190	R.C. works for wet well (4.5m H, -26.65 to -22.15mPD)	21	08-Jun-12	04-Jul-12	34	0%						
P400195	R.C. works for wet well (4.5m H, -22.15 to -17.65mPD)	21	05-Jul-12	28-Jul-12	34	0%						
Staircase No. 1 to No. 3												
P400215	R.C. works for staircase No. 1 to No. 3 (-32.0 to -18.0mPD)	60	23-Apr-12	05-Jul-12	142	0%						
Lift Well												
P400225	R.C. works for Lift well (-32.0 to -18.0mPD)	40	08-Jun-12	26-Jul-12	275	0%						
Columns C1 (8 Nos)												
P400245	R.C. works for Column C1 (1-4) up to -18.0mPD	15	05-Apr-12 A	23-Apr-12 A		100%						
P400295	R.C. works for Column C1 (5-8) up to -18.0mPD	15	28-Mar-12	26-Apr-12	110	75%						

■ Actual Work ◆ ◆ Milestone
■ Remaining Work
■ Critical Remaining Work

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Total	Activity % Complete	Qtr 2, 2012				Qtr 3, 2012	
							Mar	Apr	May	Jun	Jul	Aug
P400255	R.C. works for pump and pipeworks plinth	24	26-Apr-12	26-May-12	1527	0%						
P400265	R.C. works for column of travelling cranes	32	07-Mar-12	11-May-12	125	56%						
P400285	R.C. works for hydraulic features at wet well (Benching and Baffle)	48	26-Apr-12	22-Jun-12	88	0%						
Access Floor No. 2 (-18.0mPD)												
Wet Well												
P400205	R.C. works for wet well and beams (4.0m H, -17.65 to -13.65mPD)	21	30-Jul-12	22-Aug-12	38	0%						
Floor slab and beams (-18.0mPD)												
P400400	R.C. works for floor slab and beam (RHS)	21	30-Jul-12	22-Aug-12	34	0%						
Portion 4 (Main flow Culvert)												
Foundation Works												
Driven H-Pile												
Zone 1, on EVA												
P903210	Driven H-Pile (For MFC)	35	18-Jul-12	28-Aug-12	-2	0%						
Zone 2, within Portion 4												
P903150	Mobilization of Percussive Piling plants	7	17-Jul-12	25-Jul-12	124	0%						
P903160	Driven H-pile (For MFC, DOU, Odour Duct Bridge)	45	23-Jul-12	13-Sep-12	124	0%						
Civil Works												
P400375	Traffic Diversion of existing traffic to temporary road (Two Stage)	12	04-Jul-12	18-Jul-12	-2	0%						
Portion 4 (Deodorization Unit No. 3 & 1b and Odour duct bridge)												
Submission of design of E&M works												
P403000	DDA of design for the DOU No. 3 & 1b (AIP No. 13)	210	29-Apr-12	24-Nov-12	27	0%						
P403010	Approval/ Comment of DDA for the DOU No. 3 & 1b	220	29-May-12	03-Jan-13	27	0%						
Portion 5 (Inlet Chamber)												
R.C. Works												
P400630	Possession of site	1	25-Apr-12	25-Apr-12	382	0%						
P400631	R.C. works for plinth of pipeworks and valves	90	26-Apr-12	13-Aug-12	399	0%						
Diaphragm Wall opening												
P400635	Breaking Diaphragm wall for twin wet well inlet pipes	60	26-Apr-12	09-Jul-12	309	0%						
Portion 6 (Valve Chamber)												
Submission of design of E&M works												
P501290	Submission of design for the MEICA & BS works for Valve chamber	150	31-May-12	27-Oct-12	57	0%						
P501300	Approval/ comment for the design of the MEICA and BS works for Valve chamber	150	30-Jun-12	26-Nov-12	57	0%						
P501310	DDA of design for knife gate valves (AIP No. 22)	90	04-May-12	01-Aug-12	98	0%						
P501320	Approval/ Comment of DDA for knife gate valves	90	03-Jun-12	31-Aug-12	98	0%						
Portion 8 (Extension of Sodium Hypochlorite Storage Compound)												
Submission of design of E&M works												
P801000	DDA of NAHClO storage, transfer and dosage system (AIP No. 12)	150	06-May-12	02-Oct-12	30	0%						
P801010	Approval/ comment of DDA for the MEICA & BS NaHClO storage compound	150	30-May-12	26-Oct-12	30	0%						
Foundation Works												
P800000	Possession of site	1	23-Apr-12	23-Apr-12	-1	0%						
P800010	Site Clearance	14	24-Apr-12	11-May-12	-1	0%						
Re-driving test for existing daido Piles												
P800020	SH-03 to 07 and SH-10 to 14 (10 Nos)	8	12-May-12	21-May-12	-1	0%						
P800030	SH-17 to 21 and SH-24 to 28 (10 Nos)	8	22-May-12	30-May-12	-1	0%						
P800040	SH-31 to 33 and SH-36 to 38 (6 Nos)	8	31-May-12	08-Jun-12	-1	0%						
Excavation and Lateral Support for Substructure												
P802000	Install sheetpile at GL1-2 & GLA-B	18	09-Jun-12	30-Jun-12	-1	0%						
P802005	Excavation down to +4.5mPD	10	03-Jul-12	13-Jul-12	-1	0%						
P802010	Install 1st layer walling and struts at +4.8mPD	12	14-Jul-12	27-Jul-12	-1	0%						
P802030	Install temporary prop at +2.9mPD	15	28-Jul-12	14-Aug-12	-1	0%						
P802040	Excavation for exposing daido pile heads	6	15-Aug-12	21-Aug-12	-1	0%						

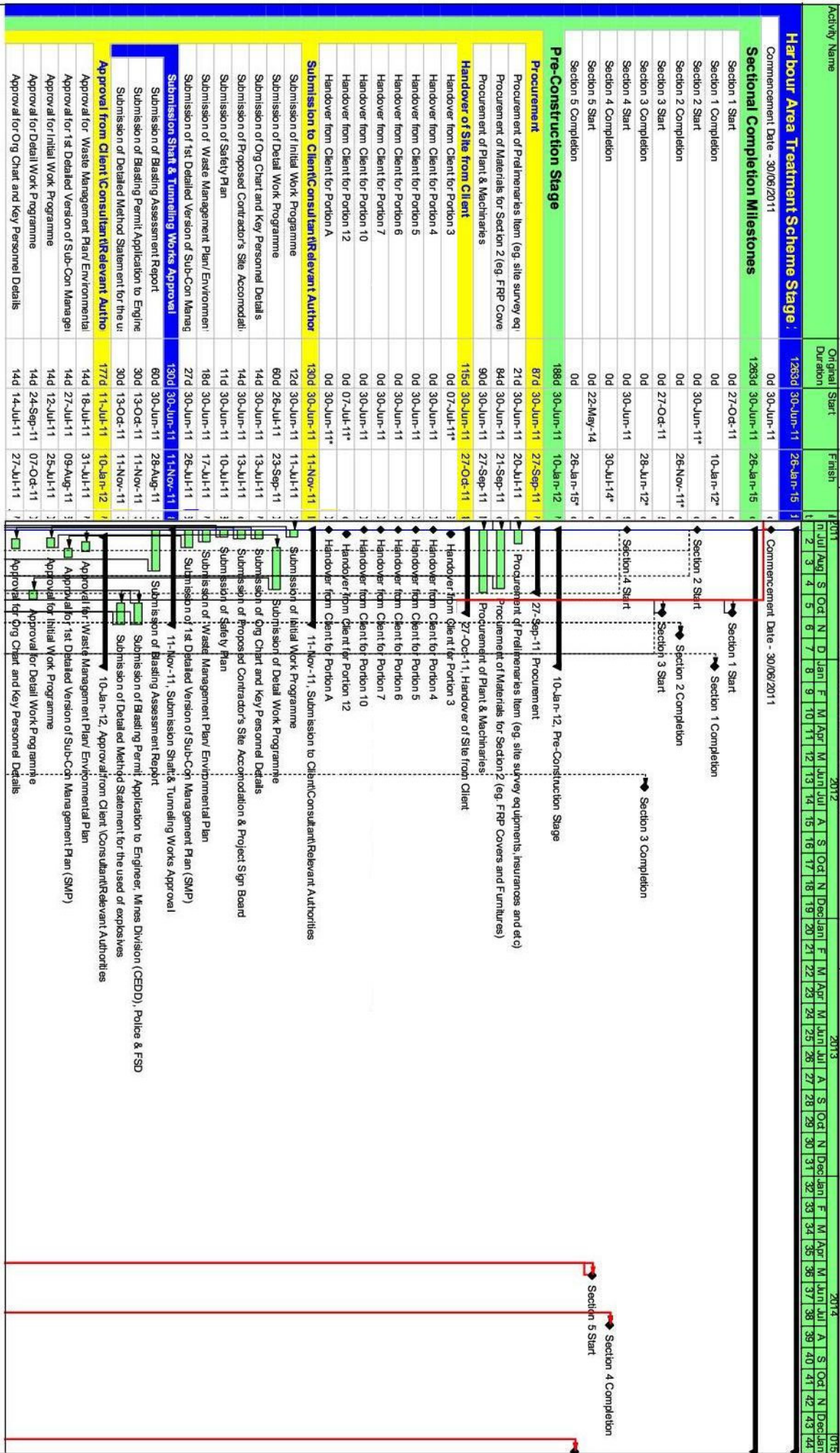
█ Actual Work ◆ ◆ Milestone
█ Remaining Work
█ Critical Remaining Work

Contract No. DC/2009/10

Sheet 7 of 7

Date	Revision	Checked	Approved

HATS Stage 2A - Upgrading works at StoneCutters Island Sewage Treatment Works
Three Months Rolling Programme (24 Apr 2012 to 24 Jul 2012)



Actual Work	Milestone	DC/2009/18 - HARBOUR AREA TREATMENT SCHEME STAGE 2A - Upgrading Works at Stonecutters Island Sewer Treatment Works - Effluent Tunnel and Disinfection Facilities	Date	Revision	Checked	Approved
Remaining Work	Summary	INITIAL WORK PROGRAMME - REV.0 (1st Submission)	11-Jul-11	Initial Work Programme		
Critical Work						

Activity Name	Original Duration	Start	Finish
Approval for Proposed Contractor's Site Accommodation	14d	14-Jul-11	27-Jul-11
Approval for Safety Plan	14d	11-Jul-11	24-Jul-11
Approval for Shaft & Tunneling Works	128d	29-Aug-11	10-Jan-12
Approval for Blasting Assessment Report	45d	29-Aug-11	12-Oct-11
Approval of Blasting Permit Application to Engineer, Mines Division (CEDD), Police & FSD	80d	12-Nov-11	10-Jan-12
Approval of Detailed Method Statement for the use of explosives	28d	12-Nov-11	09-Dec-11
Construction Stage			
Preliminaries			
Mobilisation	1262d	30-Jun-11	24-Jan-15
Photographic Record Report	24d	30-Jun-11	30-Jul-11
Site Clearance	5d	26-Jul-11	30-Jul-11
Initial Survey Works	42d	30-Jul-11	23-Sep-11
Condition Survey	24d	30-Jul-11	30-Aug-11
Initial Utility Detection	24d	30-Aug-11	30-Sep-11
Site Installation	48d	30-Jul-11	30-Sep-11
Utility Diversion and Car Park Relocation Works	36d	30-Sep-11	14-Nov-11
Recurring Items			
1282d	30-Jun-11	24-Jan-15	
Interface Management			
Connection Entry Culvert - Existing Drop Shaft	17d	01-Feb-13	19-Feb-13
Start Interface Management	0d	01-Feb-13	
End Interface Management	0d	01-Feb-13	
Chamber 8			
Supply & Install Removable Air Tight FRP Covers	42d	22-Sep-11	04-Nov-11
Supply & Install Air Tight FRP Covers	12d	22-Sep-11	07-Oct-11
Supply & Install Air Tight FRP Covers	12d	08-Oct-11	21-Oct-11
Supply & Install PC Cover	12d	22-Oct-11	04-Nov-11
Chamber 9			
Supply & Install Removable Air Tight FRP Covers	41d	08-Oct-11	18-Nov-11
Supply & Install Air Tight FRP Covers	12d	08-Oct-11	21-Oct-11
Supply & Install Air Tight FRP Covers	12d	22-Oct-11	04-Nov-11
Supply & Install PC Cover	12d	05-Nov-11	18-Nov-11
Existing Emergency Overflow Chamber			
Supply & Install Air Tight FRP Covers	33d	22-Oct-11	25-Nov-11
Supply & Install Removable Air Tight FRP Covers	12d	22-Oct-11	04-Nov-11
Supply & Install Air Tight FRP Covers	12d	05-Nov-11	18-Nov-11
Supply & Install Air Tight FRP Covers	6d	19-Nov-11	25-Nov-11
Air-Duct Works	918d	17-Oct-11	22-May-14
Section 4			
Run In - Portion 1	14d	17-Oct-11	01-Nov-11
Run In - Portion 1	13d	17-Oct-11	01-Nov-11
Shaft	767d	22-Nov-11	23-Jan-14
Riser Shaft	740d	22-Nov-11	26-Dec-13
Pipe Piles & TAM Grouting - Riser Shaft	49d	22-Nov-11	20-Jan-12

