Harbour Area Treatment Scheme Stage 2A

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

Consolidated Monthly Environmental Monitoring and Audit Report August 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.

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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 33rd 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.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 August to 31 August 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
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/DC200917/EM&A%20Report-DC200917.html
DC/2009/10	Executive Summary	At SCISTW, air quality monitoring station AM7 and noise monitoring station NM6 were monitored by ET for Contract no. DC/2009/10.
	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 and Audit Works

7. The environmental monitoring works in the Project were covered by the ETs for the Contracts: DC/2007/23, DC/2009/10, DC/2009/18 and DE/2009/02.

8. Site audits were conducted once per week for each contract by their ETs.

9. 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/2009/10	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/2009/10	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

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

24-hour TSP Monitoring

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

Construction Noise

12. 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

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

Table III Monthly Consolidated Summary Table for Key Information

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 July 2012	Submitted to EPD	No comment	---
Notifications of any summons & prosecutions received	0	--	N/A	N/A	---

Key Information in the EIA Report

14. 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 five 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/2009/10, 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 33rd consolidated monthly EM&A report summarizing the EM&A works conducted for the Project at SCISTW from 1 August to 31 August 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.

1.7 The environmental monitoring works in the Project covered by the ET of Contract No. DC/2009/05, i.e., the Air Quality Monitoring at AM7 and the Construction Noise Monitoring at NM6 had been handed over to Cinotech, the ET of Contract DC/2009/10 from August 2012.

Current Contracts at SCISTW

1.8 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/2009/10

- 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

1.9 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/2009/10
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.	Upgrading Works at SCISTW - Main Pumping Station, Sedimentation Tanks and Ancillary Facilities
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)
ER's Coordinator	Y.H. Fung (Tel: 3713 3110)	William Yu (Tel: 9705 9566)	Natalie Kwok (Tel: 6794 8844)
Independent Environmental Checker	Dr. Anne Kerr (Tel:28285757)	Dr. Anne Kerr (Tel:28285757)	Dr. Anne Kerr (Tel:28285757)

Contract No./ Position	DC/2007/23	DE/2009/02	DC/2009/10
Contractor	Gammon Construction Ltd	ATAL Engineering Ltd.	Sun Fook Kong – Biwater Joint Venture
Site Agent	Max Ko (Tel: 9033 1292)	Barry Lee (Tel:2565 7638)	Mr. Ivan Tse (Tel: 6200 2149)
Environmental Officer	Leo Chow (Tel:9300 2013)	Gary Chow (Tel: 2743 1205)	Mr. Leo Lau (Tel:9209 2703)
Environmental Team	Environmental Resources Management Ms.Winnie Ko (Tel: 2271 3000)	Action- United Environmental services and Consulting Mr. T.W.Tam (Tel: 2959 6059)	Cinotech Consultant Limited Dr. Priscilla Choy (Tel: 2151 2089)

Table 1.1(cont'd) Key Project Contacts

Contract No.	DC/2009/17	DC/2009/18
Contract Title:	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
The Engineer	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)
ER's Coordinator	Natalie Kwok (Tel: 6794 8844)	Natalie Kwok (Tel: 6794 8844)
Independent Environmental Checker	Dr. Anne Kerr (Tel:28285757)	Dr. Anne Kerr (Tel:28285757)
Contractor	China State- ATAL Joint Venture	Chun Wo – CEC Joint Venture
Site Agent	Mr. Tony Wong (Tel: 23703166)	Mr. Daniel Tai (Tel: 6688 5680)
Environmental Officer	Mr. H.S.Lui (Tel: 9050 2212)	Mr. Shelton Chan (Tel: 5395 5470)
Environmental Team	Cinotech Consultant Limited Dr. Priscilla Choy (Tel: 2151 2089)	Cinotech Consultant Limited Dr. Priscilla Choy (Tel: 2151 2089)

Construction Programme

1.10 The construction program for the five 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	Riser Shaft • Pre-excavation grouting; Production Shaft • Alimak installation; • Bunton, services and FSD ladderway installation; and • Shaft sump construction.
DE/2009/02	• Site acceptance test of booster pump and irrigation pumps at DOU No. 1 and No. 2 • Installation of walkway at main distribution chamber of CEPT Tank • Installation of cable tray and CCTV cable at Main Pumping Station

	• Site acceptance test of DCS • Overall acceptance test of DOU No. 1
DC/2009/17	Portion 3: • Concreting of R.C. piers on G/F were completed; • Concreting of walls (from +4.9 to +8.9mPD) of vehicles wash area were completed; and • Construction of temporary steel supports for sheetpiles on level B4 between GL 1-4/ B-D was in progress. Portion 4: • Concreting of columns, external walls from +16.6mPD to R/F between GL 1-5/ A1&D were completed; • Concreting of beams and slabs on R/F between GL. 1-5/ A1-D were completed; and • Concreting of plinths and kerbs on R/F between GL. 1-13/ A1-D were completed. Portion 5: • Concreting for Pour 4 and Pour 5 of SST No. 7 were completed; and • Falsework & formwork erection for top slab of SST No. 7 were in progress. External Works: • Trench excavation and shoring installation for laying of sludge feed pipes inside SDB at GL.1-2 were in progress; • Construction of Cable Draw Pit No. 21 at Area A1 was completed. Laying of cable ducts was in progress; • Trench excavation and shoring installation at Area B2 were in progress; • Trench excavation and shoring installation at Area B4 were in progress; • Construction of Access Chamber No.1 at Area C2 was completed; Laying of sludge feed pipes was in progress; • Trench excavation and shoring installation at Area C4 were completed; Laying of centrate pipes was in progress; • Trial pit excavation at Area C5 was in progress; and • Trial pit excavation for the incoming watermains supply was in progress.
DC/2009/10	• Chemical pipe trench (Bay 13 and 14) and CLP cable trench Bay B2~B4 was completed. Underground cable ducts and drawpit on access road were in progress. • Building services installation at 1/F and G/F in storage building is in progress. • Concreting of RC footing for Container Maintenance Building was completed, superstructure construction is in progress. • 24 out 48 nos of prebored H-pile at distribution channel was completed (50% completed) and 71 out of 95 nos of prebored H-pile at flocculation tank was completed (71% completed) • Daido Piles extension at cofferdam No. 6 was completed; backfilling works to the formation level of pile caps is in progress. • Diado piles extension in cofferdam 1 & 5 were in progress, excavation at cofferdam 5 was also in progress. • 4rd Concreting of wet well wall (from -21.75 to -17.10mPD) was completed on 12 Aug 2012. Erection of falsework for -18.0mPD access floor was in progress. • Driven H-pile foundation works for switchgear building was ongoing at Portion 4. All 155 nos. of H-piles have been driven and 128 out of 155 were driven final set (82% completed).
DC/2009/18	• Portion 3: ring beam installation and rock excavation; 1st blast at Riser Shaft; and • Portion 7: FDC2 H-piling works; Noise Enclosure footing construction; soft ground excavation, and pre-excavation grouting works.

Summary of EM&A Requirements

1.11 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.

1.12 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 4 of this report.

1.13 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 August to 31 August 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/2009/10	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	Model and Make			
Contract No.	DC/2007/23	DE/2009/02	DC/2009/10	DC/2009/18
Laser Dust Monitor	N/A*	TSI Dust Trak Model 8520	Sibata; Model no. LD-3B	Sibata; Model no. LD-3B
HVS Sampler	GMW GS-2310	Grasby Anderson GMWS 2310 HVS	TISCH Model no. TE-5170	TISCH Model no. TE-5170
Calibrator	CM-AIR-43	TISCH Model TE-5025A	TISCH Model TE-5025A	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	1-hour TSP	0700-1900 hrs	3 times/ every 6 days

locations	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/2009/10, 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	182	104-215	346	500
AM7	74	65-85	322	
AM8	92	35-277	307	
AM9	71	63 - 85	318	
24 hours TSP				
AM6	90	83-97	196	260
AM7	98	65-149	207	
AM8	79	40-153	158	
AM9	75	55 - 109	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/2009/10	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/2009/10	DC/2009/18
Sound Level Meter	Rion NL-31	SVANTEK Model no: SVAN 957	SVANTEK Model no: SVAN 955
Calibrator	Rion NC-73	SVANTEK Model no: SV 30A	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 min.) dB(A)	0700-1900 hrs on weekdays	Once per week
	L_{eq}(5 min.) dB(A)	During restricted hours	Weekly 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/2009/10 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	61.1-61.9	75.0
NM6	65.7-68.2	
NM7	63.2-67.5	
For the time period 1900-2300 hrs on Normal Weekdays, And 0700-2300 of Sundays and Public Holidays		
NM5	58.6-61.9	70.0
NM7	54.5-60.6	

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 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	2, 9, 16, 23 and 30 August 2012
DE/2009/02	3, 8, 14, 24 and 28 August 2012
DC/2009/10	3, 10, 15, 24 and 31 August 2012
DC/2009/17	2, 9, 17, 23 and 30 August 2012
DC/2009/18	1, 8, 15, 22 and 29 August 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 five 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 five 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	10,131.36* (Tonnes)	30.71* (Tonnes)	200	0*	0*	0*
DE/2009/02	0(m^3)	200(m^3)	0	0	0	0
DC/2009/17	322.51(m^3)	38.26 (Tonnes)	0	0	0	0
DC/2009/10	818(m^3)	1230(kg) and 15 (m^3)	0	0	0	0
DC/2009/18	906(m^3)	20.23(m^3) of general refuse and 4460(kg) of recycled metal	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 five 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. No plastics, but 8 kg of steels and 62kg of paper/cardboard packaging was sent to recyclers for recycling during the reporting period.
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 and Tseung Kwan O Area 137 Fill Bank, 4460kg of metal was sent to recyclers for recycling during the reporting period.

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

Implementation Status of Environmental Mitigation Measures

4.10 Details of the implementation of mitigation measures for five 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 five contracts in the reporting month.

4.18 There were no environmental complaint and prosecution received since the commencement of five 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 wasrecorded 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 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.

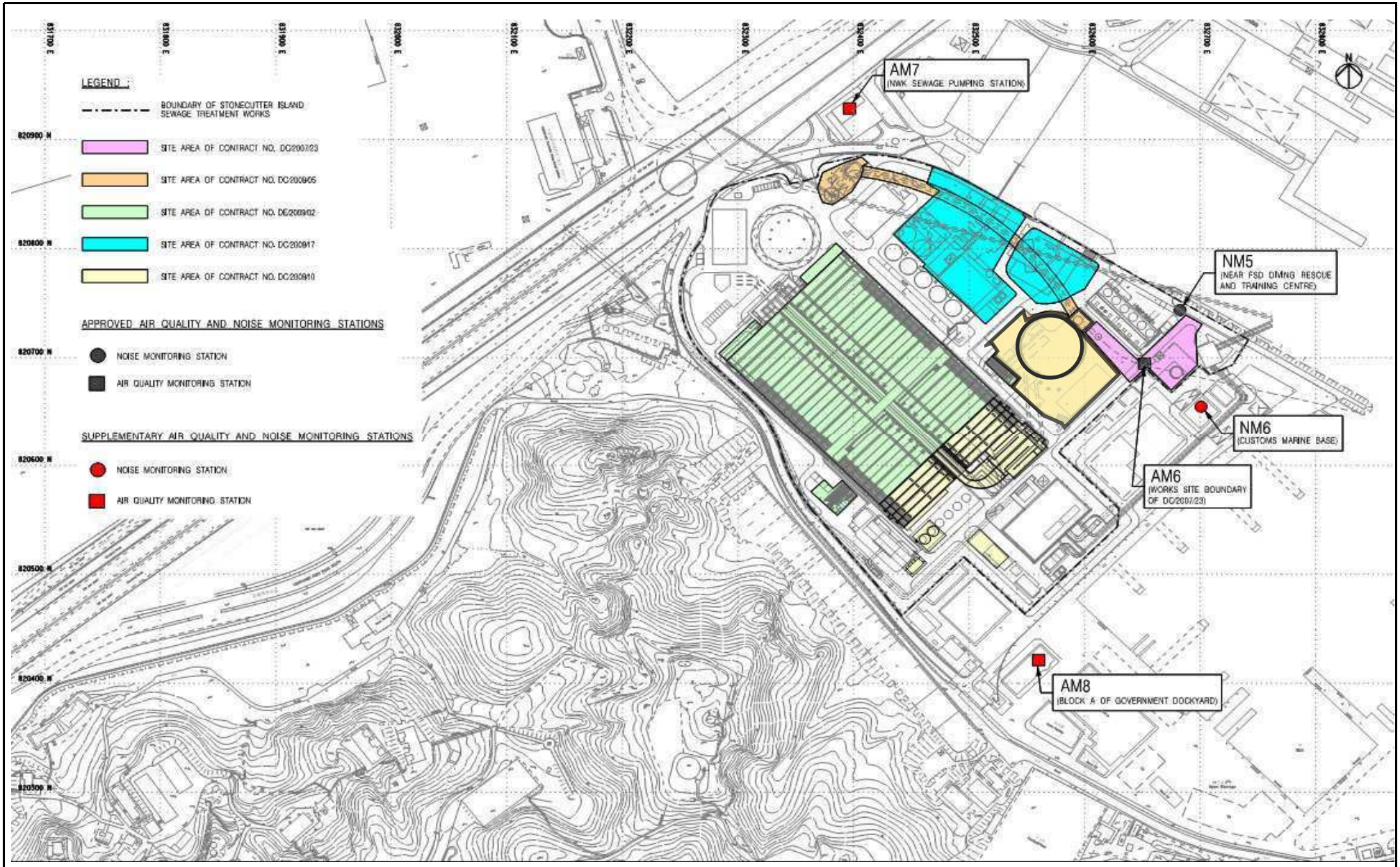
Waste/Chemical Management

- 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.

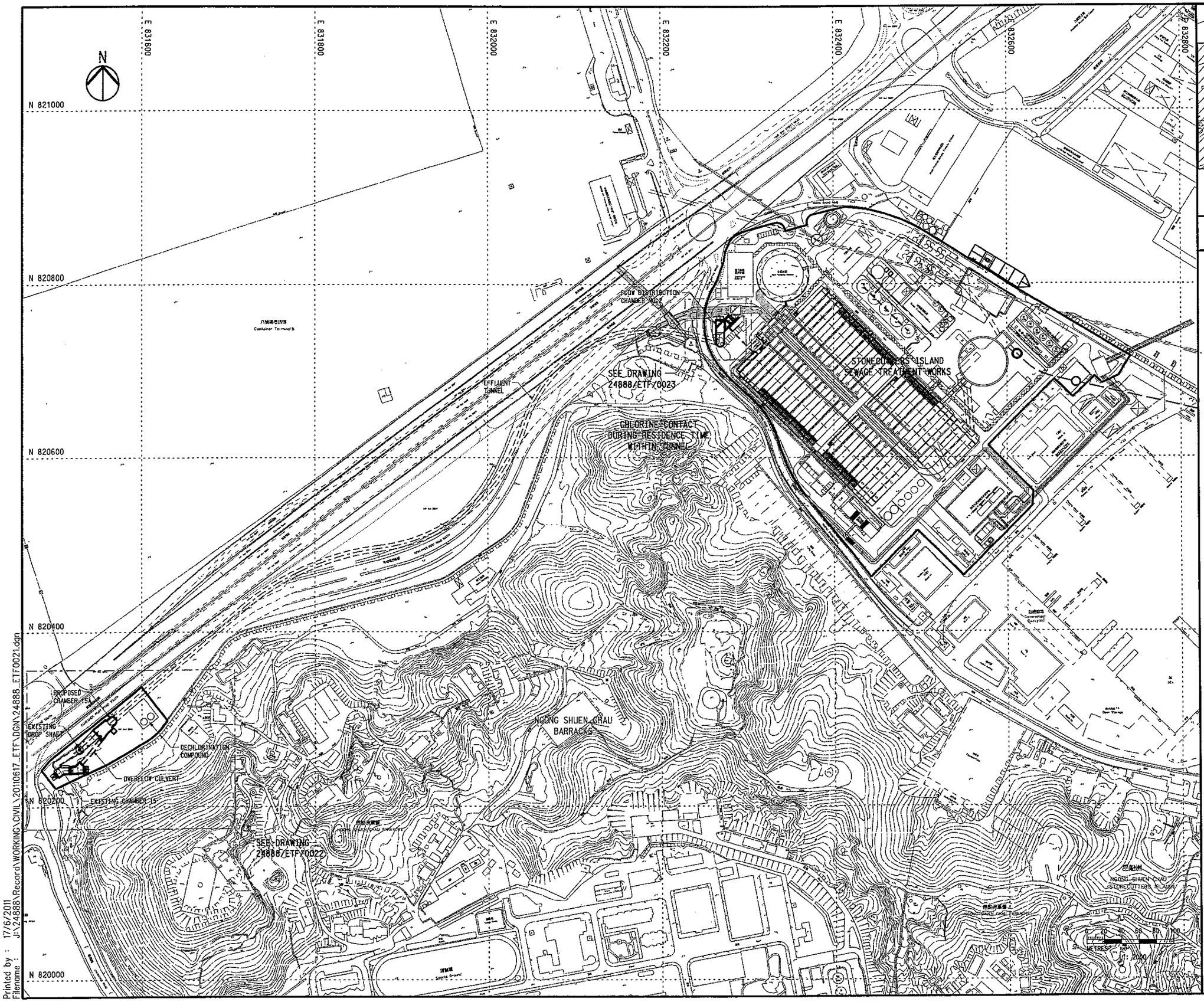
Landscape and Visual

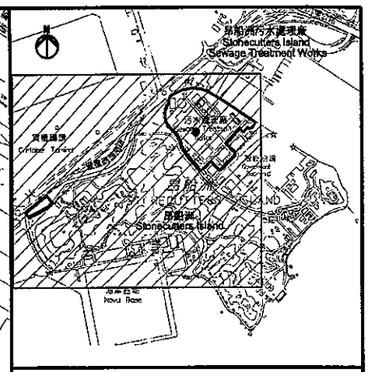
- To erect and maintain the protection fence around the retaining tree;and
- To avoid any heavy materials placed into tree protection zone.

FIGURES



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





KEY PLAN

LEGEND:

BOUNDARY OF SCISTW

ALIGNMENT OF EFFLUENT TUNNEL

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

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.			Rev.
24888/ETF/0021			0
Drawn WM	Date 08/10	Checked PW	Approved DP
Scale 1:2000 @A1		Status WORKING	

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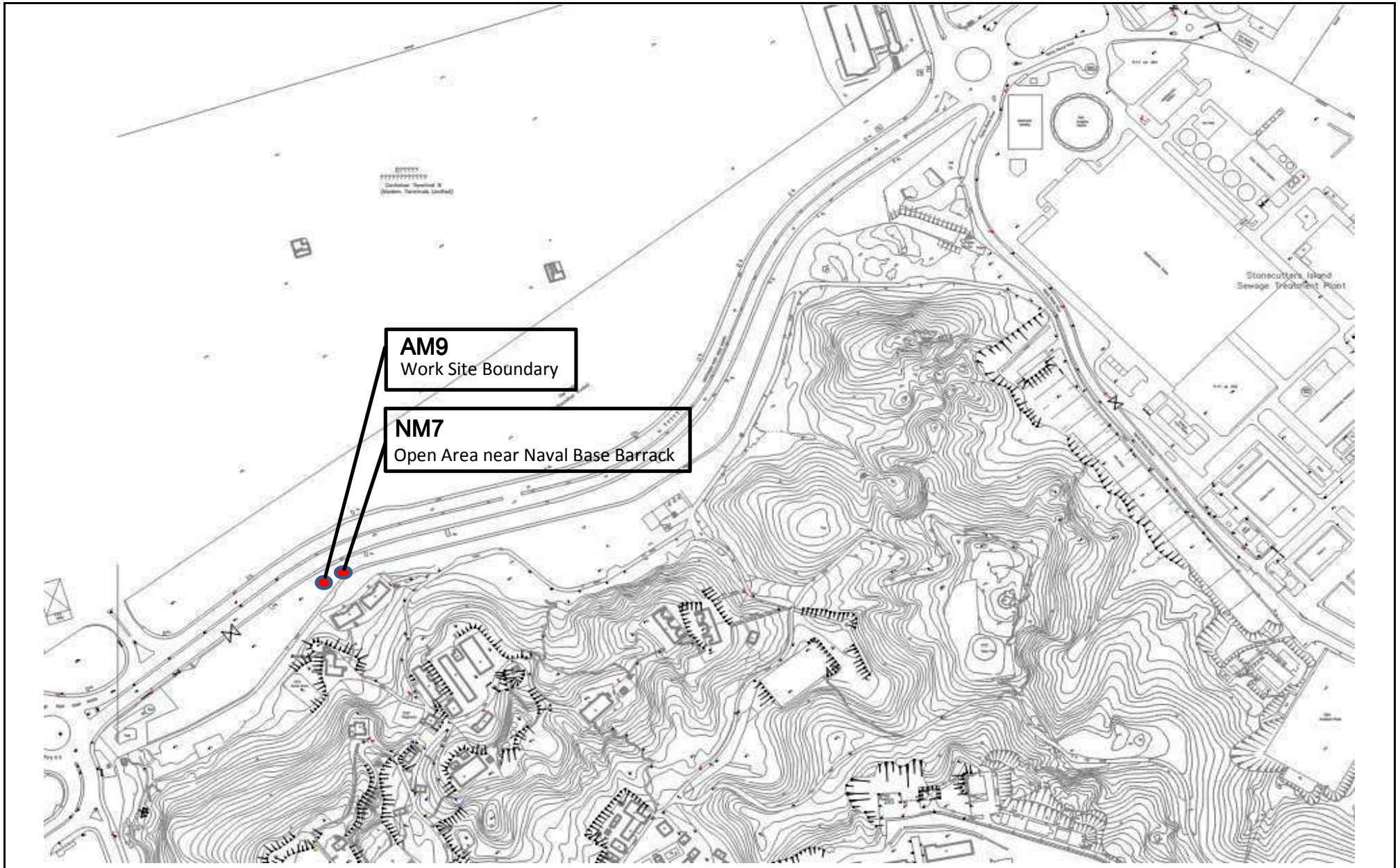
Filename : J:\24888\Record\WORKING\CIVIL\20110617_ETF\DGN\24888_ETF0021.dgn



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

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 ($\mu g/m^3$)		Limit Level ($\mu g/m^3$)	
	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
	Restricted Hours (Evening Time) All days during the evening (1900 to 2300 hours), and general holidays (including Sundays) during the day-time and evening (0700 to 2300 hours)	N/A	70(1)
	Restricted Hours (Night Time) All days during the night-time (2300 to 0700 hours)	N/A	55(1)

Note(1): Construction Noise Criteria for activity other than Percussive Pilling.

APPENDIX B
ENVIRONMENTAL MONITORING SCHEDULES

Annex G3 Monitoring Schedule of the Reporting Month and Next Month

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 : August 2012

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

Monitoring Month : September 2012

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

Annex G3 Monitoring Schedule of the Reporting Month and Next Month

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 : August 2012

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

Monitoring Month : September 2012

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

Monitoring Schedule in Reporting Month

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

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

■	Monitoring Day
	Sunday or Public Holiday

DC/2009/10 HATS 2A Upgrading Main Pumping Station, Sedimentation Tanks and Ancillary Facilities at SISTW
Impact Air Quality and Noise Monitoring Schedule (August 2012)

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

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Noise Monitoring Station

AM7 West Kowloon No.2 Sewage Pumping Station
NM6 Customs' Marine Base (Block H of Government Dockyard) Rooftop

DC/2009/10 HATS 2A Upgrading Main Pumping Station, Sedimentation Tanks and Ancillary Facilities at SISTW
Impact Air Quality and Noise Monitoring Schedule (September 2012)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Sep
2-Sep	3-Sep	4-Sep	5-Sep	6-Sep	7-Sep	8-Sep
	3 x 1 hr TSP 24 hr TSP (AM7 & AM8) Noise		24 hr TSP(AM8)	3 x 1 hr TSP(AM8)		3 x 1 hr TSP 24 hr TSP (AM7 & AM8)
9-Sep	10-Sep	11-Sep	12-Sep	13-Sep	14-Sep	15-Sep
					3 x 1 hr TSP 24 hr TSP (AM7 & AM8) Noise	
16-Sep	17-Sep	18-Sep	19-Sep	20-Sep	21-Sep	22-Sep
				3 x 1 hr TSP 24 hr TSP (AM7 & AM8) Noise		
23-Sep	24-Sep	25-Sep	26-Sep	27-Sep	28-Sep	29-Sep
			3 x 1 hr TSP 24 hr TSP (AM7 & AM8) Noise			
30-Sep						

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Noise Monitoring Station

NM6 Customs' Marine Base (Block H of Government Dockyard) Rooftop
AM7 West Kowloon No.2 Sewage Pumping Station
AM8 Block A of Government Dockyard

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 (August 2012)

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

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 (September 2012)

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

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	:	20/07/2012

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	1378
Service Date	:	22 Feb 2012
Slope (m)	:	1.99405
Intercept (b)	:	-0.00397
Correlation Coefficient(r)	:	0.99984

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1007
Ta(K)	:	303

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	9.1	2.983	1.498	62	61.3
2	13 holes	7.4	2.690	1.351	55	54.4
3	10 holes	5.8	2.381	1.196	49	48.4
4	7 holes	3.8	1.927	0.969	39	38.6
5	5 holes	2.2	1.467	0.737	29	28.7

Sampler Calibration Relationship

Slope(m):42.604 Intercept(b): -2.728 Correlation Coefficient(r): 0.9998

Checked by: Magnum Fan Date: 23/07/2012

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C123580
證書編號

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

Description / 儀器名稱 : Sound Level Meter
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-31
Serial No. / 編號 : 00410224
Supplied By / 委託者 : Envirotech Services Co.
Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 15 June 2012

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Precision Measurement Ltd., UK
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : L K Yeung

Certified By 核證 : K C Lee

Date of Issue 簽發日期 : 15 June 2012

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Certificate of Calibration
校正證書

Certificate No. : C123580
證書編號

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

2. Self-calibration 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	C120016
CL281	Multifunction Acoustic Calibrator	DC110233

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 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	93.7	± 1.1

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	93.7 (Ref.)
				104.00		103.7
				114.00		113.7

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

6.2 Time Weighting

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

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Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel 電話: 2927 2606 Fax 傳真: 2744 8986 E-mail 電郵: callab@suncreation.com Website 網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C123580
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

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

6.3.2 C-Weighting

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

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

- Uncertainties of Applied Value : 94 dB : 63 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)

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

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

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C124011
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC12-1674)

Description / 儀器名稱	:	Sound Level Calibrator
Manufacturer / 製造商	:	Rion
Model No. / 型號	:	NC-73
Serial No. / 編號	:	10997142
Supplied By / 委託者	:	Envirotech Services Co. Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 9 July 2012

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : L K Yeung

Certified By 核證 : K C Lee

Date of Issue 簽發日期 : 10 July 2012

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
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Sun Creation Engineering Limited – Calibration & Testing Laboratory
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輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
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Certificate of Calibration
校正證書

Certificate No. : C124011
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

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

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C123541
CL281	Multifunction Acoustic Calibrator	DC110233
TST150A	Measuring Amplifier	C120886

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	94.0	± 0.5	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.990	1 kHz ± 2 %	± 1

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

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

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輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel 電話: 2927 2606 Fax 傳真: 2744 8986 E-mail 電郵: callab@suncreation.com Website 網址: www.suncreation.com

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Block A of Government Dockyard Offices
Location ID : AM8

Date of Calibration: 27-Jun-12
Next Calibration Date: 27-Aug-12
Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1005.1	Corrected Pressure (mm Hg)	753.825
Temperature (°C)	29.4	Temperature (K)	302

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.02742
Model->	5025A	Qstd Intercept ->	0.02027
Calibration Date->	17-May-12	Expiry Date->	17-May-13

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.5	5.5	11	1.607	57	55.94	Slope = 33.9035
13	4.2	4.2	8.4	1.403	49	48.09	Intercept = 1.2993
10	3.1	3.1	6.2	1.204	44	43.18	Corr. coeff. = 0.9977
7	2.2	2.2	4.4	1.013	36	35.33	
5	1.6	1.6	3.2	0.862	31	30.42	

Calculations :

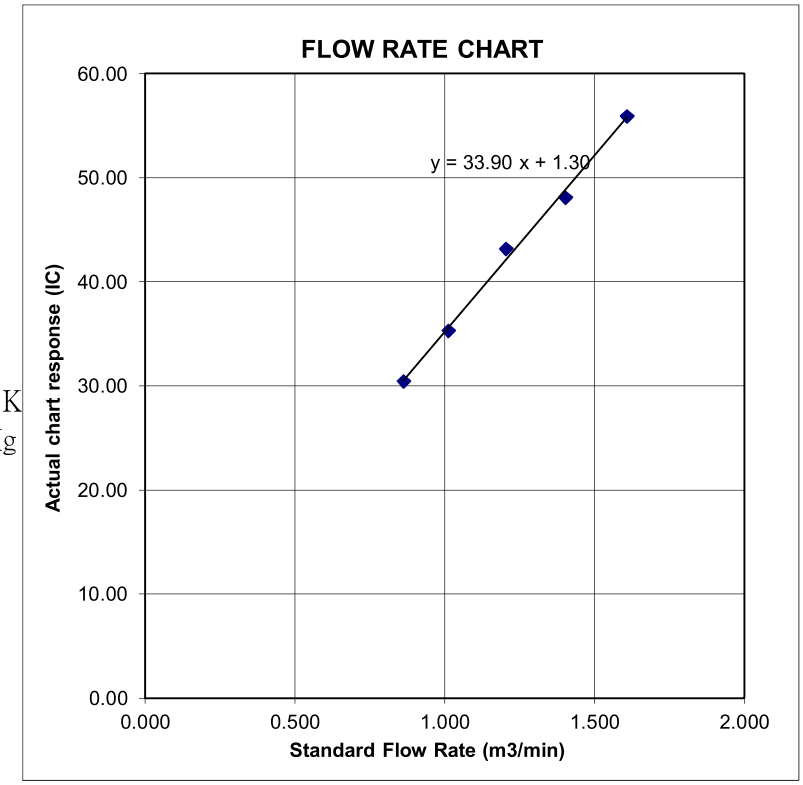
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
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)[Sqrt(298/Tav)(Pav/760)]-b)

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



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Block A of Government Dockyard Offices
Location ID : AM8

Date of Calibration: 24-Aug-12
Next Calibration Date: 24-Oct-12
Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1005	Corrected Pressure (mm Hg)	753.75
Temperature (°C)	29.9	Temperature (K)	303

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.02742
Model->	5025A	Qstd Intercept ->	0.02027
Calibration Date->	17-May-12	Expiry Date->	17-May-13

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.5	5.5	11	1.606	56	54.87	Slope = 30.8970
13	4.2	4.2	8.4	1.402	49	48.01	Intercept = 5.0190
10	3	3	6	1.183	43	42.13	Corr. coeff. = 0.9975
7	2.2	2.2	4.4	1.012	36	35.27	
5	1.5	1.5	3	0.834	32	31.35	

Calculations :

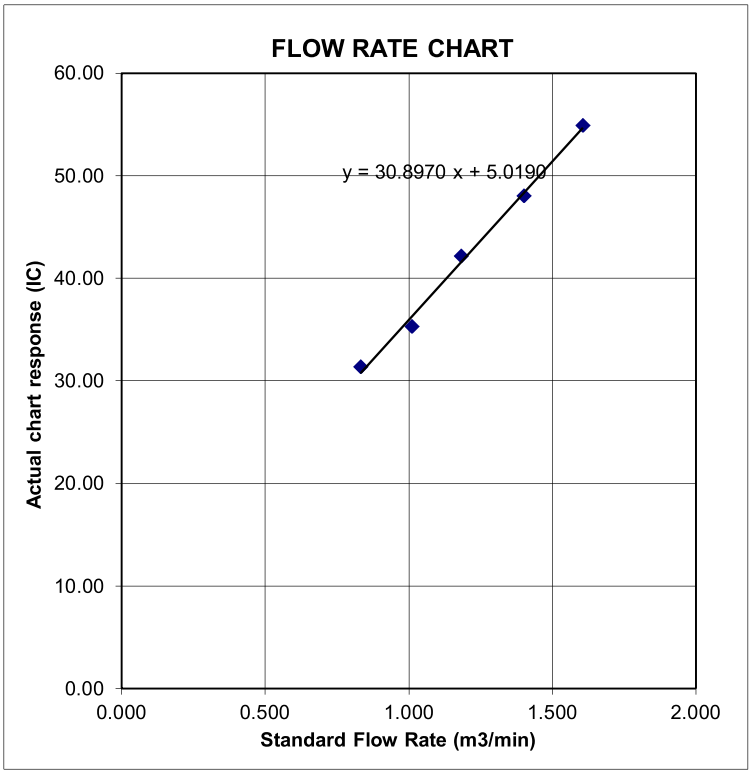
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
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)[Sqrt(298/Tav)(Pav/760)]-b)

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



TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
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WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 17, 2012 Rootsmeter S/N 0438320 Ta (K) - 294
Operator Tisch Orifice I.D. - 1483 Pa (mm) - 754.38

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4140	3.2	2.00
2	NA	NA	1.00	0.9960	6.4	4.00
3	NA	NA	1.00	0.8910	7.9	5.00
4	NA	NA	1.00	0.8510	8.7	5.50
5	NA	NA	1.00	0.7020	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0018	0.7085	1.4185		0.9957	0.7042	0.8829
0.9976	1.0016	2.0061		0.9915	0.9955	1.2486
0.9955	1.1173	2.2429		0.9894	1.1105	1.3959
0.9945	1.1686	2.3524		0.9884	1.1615	1.4641
0.9890	1.4088	2.8371		0.9830	1.4003	1.7657
Qstd slope (m) =	2.02742			Qa slope (m) =	1.26953	
intercept (b) =	-0.02027			intercept (b) =	-0.01262	
coefficient (r) =	0.99996			coefficient (r) =	0.99996	
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

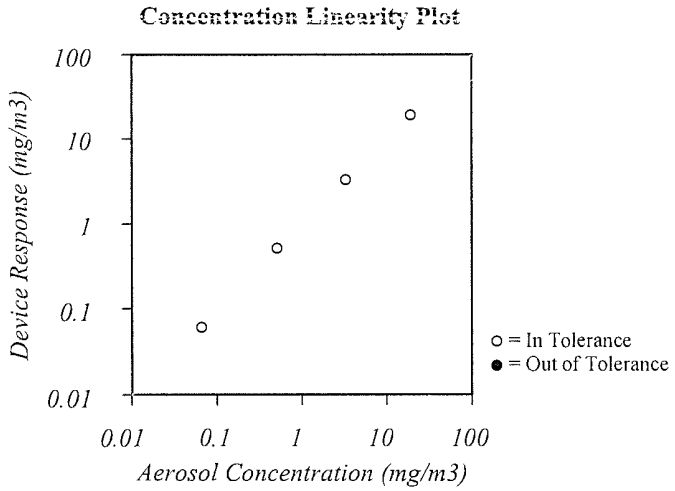
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

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

Model	**8520**
Serial Number	**23079**

☒ As Left ☐ As Found

☒ In Tolerance ☐ Out of Tolerance



System ID: DTII01-02

Zero Stability Results			
Average:	Minimum:	Maximum:	Time:
0.000 :mg/m³	0.000 :mg/m³	0.001 :mg/m³	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
Barometric Pressure	E003733	01-15-11	02-15-12
Humidity	E002873	11-24-10	11-24-11
DC Voltage	E003315	01-05-11	01-05-12
Microbalance	E001324	01-04-11	01-04-12
Flowmeter	E003769	06-13-11	06-13-12

Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E002873	11-24-10	11-24-11
DC Voltage	E003314	01-05-11	01-05-12
Photometer	E003319	07-25-11	01-25-12
Pressure	E003511	11-12-10	11-12-11

T. Thao
Calibrated

☑ Final Function Check

September 13, 2011
Date

TSI P/N 2300157

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA11043/63/0005

Project No. AM9 - Work Site Boundary (Near Ngong Shuen Chau Barracks Group 2)

Operator: WK

Date: 11-Jun-12 Next Due Date: 10-Aug-12

Equipment No.: A-01-63 Serial No. 2356

Ambient Condition			
Temperature, Ta (K)	303.3	Pressure, Pa (mmHg)	759.5

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	Orfice			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	12.4	3.49	62.19	7.6	2.73
2	11.6	3.37	60.18	6.7	2.56
3	8.6	2.91	51.92	5.2	2.26
4	5.2	2.26	40.54	3.3	1.80
5	3.3	1.80	32.45	2.0	1.40

By Linear Regression of Y on X

Slope , mw = 0.0429 **Intercept, bw =** 0.0288

Correlation coefficient* = 0.9980

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.58

Remarks:

Conducted by: Ivan Tang Signature: Kwan Date: 11/6/12

Checked by: [signature] Signature: [signature] Date: 11 June 2012

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA11043/63/0006

Project No. AM9 - Work Site Boundary (Near Ngong Shuen Chau Barracks Group 2)

Operator: WK

Date: 9-Aug-12 Next Due Date: 8-Oct-12

Equipment No.: A-01-63 Serial No. 2356

Ambient Condition			
Temperature, Ta (K)	305.5	Pressure, Pa (mmHg)	751.9

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	Orfice			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	12.8	3.51	62.64	7.7	2.73
2	11.6	3.35	59.67	6.8	2.56
3	8.7	2.90	51.77	5.3	2.26
4	5.4	2.28	40.95	3.2	1.76
5	3.2	1.76	31.70	1.9	1.35

By Linear Regression of Y on X

Slope , mw = 0.0440 **Intercept, bw =** -0.0387

Correlation coefficient* = 0.9995

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.56

Remarks:

Conducted by: WK Tang Signature: Date: 9/8/12

Checked by: Signature: Date: 9 August 2012

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

ATTN: **Mr. W. K. Tang**

Test Report No.:	C/120703/1
Date of Issue:	2012-07-03
Date Received:	2012-06-29
Date Tested:	2012-06-29
Date Completed:	2012-07-03
Next Due Date:	2012-09-02
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 853944
Sensitivity (K) 1 CPM	: 0.001 mg/m^3
Sen. Adjustment Scale Setting	: 685 CPM
Equipment No.	: A-02-04

Test Conditions:

Room Temperature	: 22 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

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18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

ATTN: **Mr. W. K. Tang**

Test Report No.:	C/120703/4
Date of Issue:	2012-07-03
Date Received:	2012-06-29
Date Tested:	2012-06-29
Date Completed:	2012-07-03
Next Due Date:	2012-09-02
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	: 22 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

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Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT:	**Cinotech Consultants Limited** **Room 1710, Technology Park,** **18 On Lai Street,** **Shatin, NT, Hong Kong**	Test Report No.: Date of Issue: Date Received: Date Tested: Date Completed: Next Due Date:	C/N/110923/4 2011-09-24 2011-09-23 2011-09-23 2011-09-24 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 Temperatre	: 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
PATRICK TSE
Laboratory Manager

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WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
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Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

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 Temperatre	: 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

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High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA11007/55/0001

Station: AM7 - North West Kowloon Sewage Pumping Station Operator: WK

Date: 4-Aug-12 Next Due Date: 3-Oct-12

Equipment No.: A-01-55 Serial No. 2355

Ambient Condition			
Temperature, Ta (K)	303	Pressure, Pa (mmHg)	751

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	Orfice			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	11.8	3.39	60.38	7.9	2.77
2	9.8	3.09	55.09	6.5	2.51
3	7.4	2.68	47.97	5.0	2.20
4	5.3	2.27	40.72	3.2	1.76
5	3.3	1.79	32.29	2.1	1.43

By Linear Regression of Y on X

Slope , mw = 0.0486 **Intercept, bw =** -0.1637

Correlation coefficient* = 0.9981

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.82**

Remarks:

Conducted by: Wk Tang Signature: [signature] Date: 4/8/12

Checked by: [signature] Signature: [signature] Date: 4 August 2012

WELLAB LIMITED
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Website: www.wellab.com.hk

TEST REPORT

APPLICANT:	**Cinotech Consultants Limited** **Room 1710, Technology Park,** **18 On Lai Street,** **Shatin, NT, Hong Kong**	Test Report No.: Date of Issue: Date Received: Date Tested: Date Completed: Next Due Date:	C/N/111010/2 2011-10-11 2011-10-10 2011-10-10 2011-10-11 2012-10-10
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 957
Serial No.	: 23851
Microphone No.	: 48532
Equipment No.	: N-08-12

Test conditions:

Room Temperatre	: 25 degree Celsius
Relative Humidity	: 59%

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
PATRICK TSE
Laboratory Manager

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

Annex G5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM6

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
03-Aug-12	13:00	14:00	Sunny	129	346	500	Construction work in progress	32	<5	1254	4811
	14:02	15:02	Sunny	104	346	500	Construction work in progress	32	<5	1254	4812
	15:04	16:04	Sunny	177	346	500	Construction work in progress	32	<5	1254	4813
09-Aug-12	9:10	10:10	Sunny	177	346	500	Construction work in progress	33	<5	1254	4815
	10:12	11:12	Sunny	195	346	500	Construction work in progress	33	<5	1254	4816
	11:14	12:14	Sunny	206	346	500	Construction work in progress	33	<5	1254	4817
15-Aug-12	13:00	14:00	Sunny	215	346	500	Construction work in progress	31	<5	1254	5083
	14:02	15:02	Sunny	185	346	500	Construction work in progress	31	<5	1254	5084
	15:04	16:04	Sunny	215	346	500	Construction work in progress	31	<5	1254	5085
21-Aug-12	13:35	14:35	Sunny	194	346	500	Construction work in progress	31	<5	1254	5087
	14:37	15:37	Sunny	210	346	500	Construction work in progress	31	<5	1254	5088
	15:39	16:39	Sunny	194	346	500	Construction work in progress	31	<5	1254	5089
27-Aug-12	13:00	14:00	Sunny	179	346	500	Construction work in progress	31	<5	1254	5091
	14:02	15:02	Sunny	196	346	500	Construction work in progress	31	<5	1254	5092
	15:04	16:04	Sunny	173	346	500	Construction work in progress	31	<5	1254	5093
31-Aug-12	13:10	14:10	Sunny	175	346	500	Construction work in progress	31	<5	1254	5095
	14:12	15:12	Sunny	183	346	500	Construction work in progress	31	<5	1254	5096
	15:14	16:14	Sunny	176	346	500	Construction work in progress	31	<5	1254	5097
			Min.	**104**							
			Max.	**215**							
			Average	**182**							

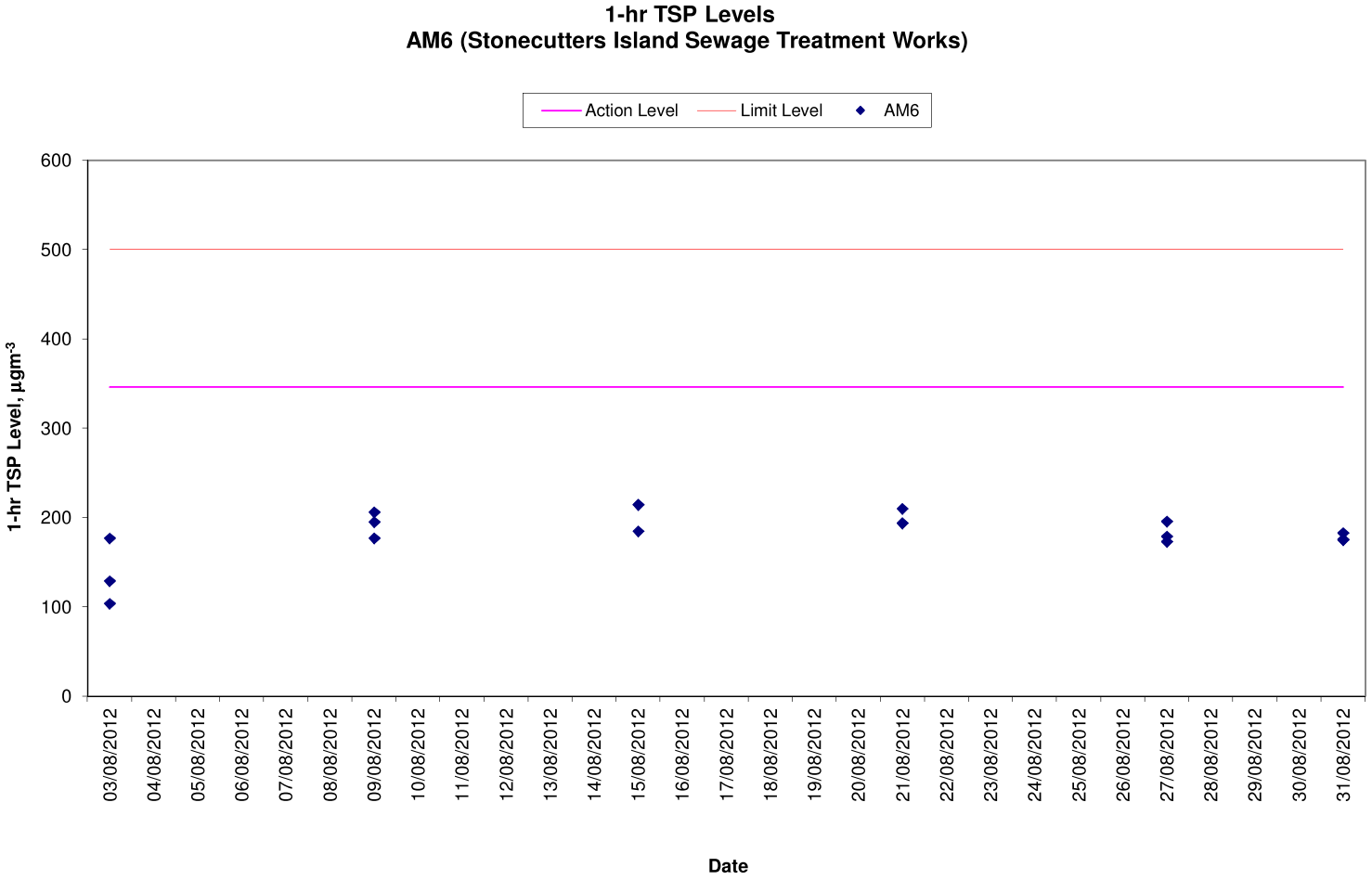
* Wind Speed data is presented in the Meteorological Data table

Annex G5 24-hour and 1-hour TSP Monitoring Results

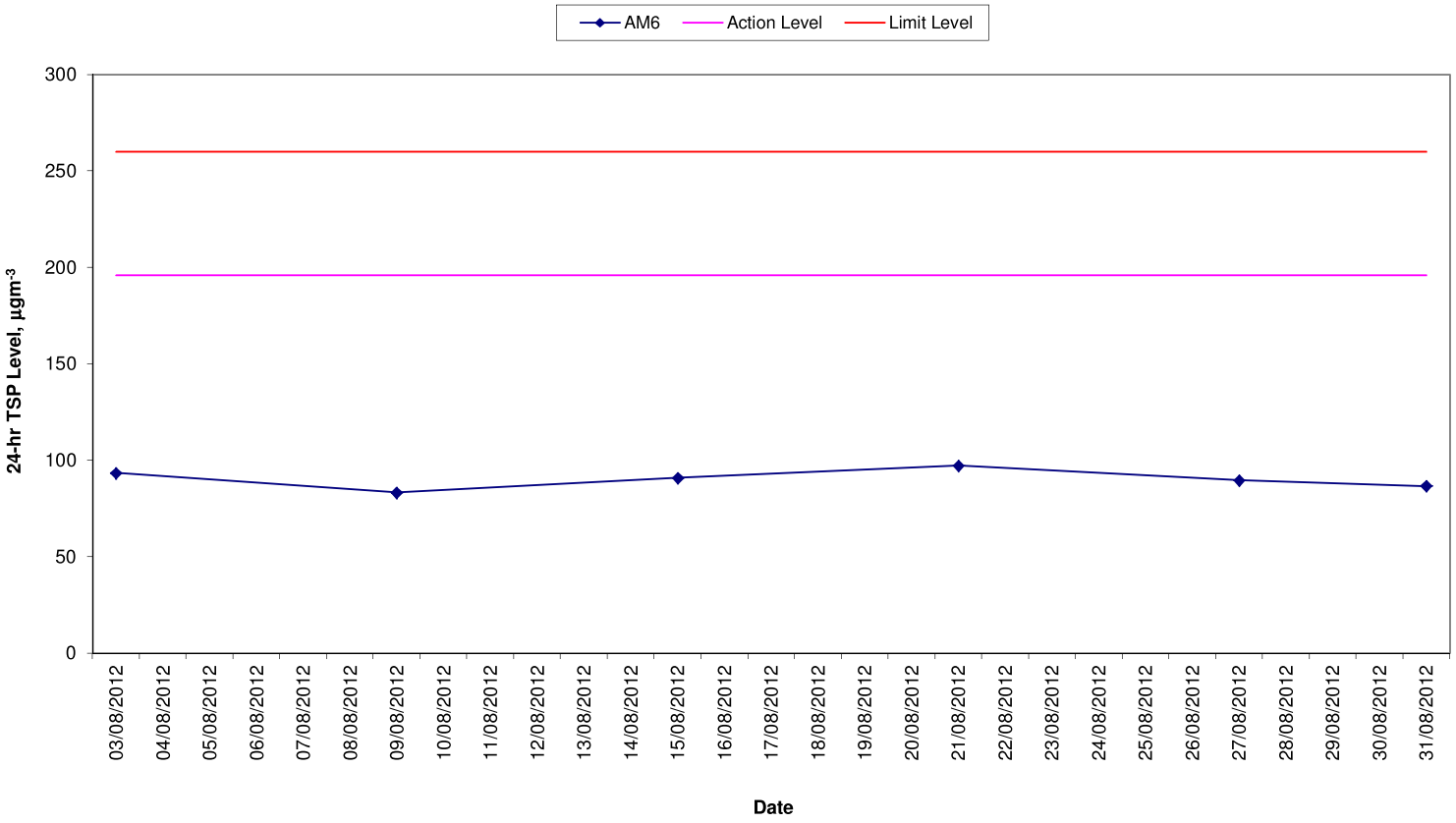
24-hour TSP Monitoring Results

Station AM6

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
03-Aug-12	16:06	04-Aug-12	16:06	Sunny	2.6912	2.8579	10221.03	10245.03	24.00	1.24	1.24	1.24	93	196	260	Construction work in progress	1254	4814
09-Aug-12	12:16	10-Aug-12	12:16	Sunny	2.7191	2.8679	10248.03	10272.03	24.00	1.24	1.24	1.24	83	196	260	Construction work in progress	1254	4818
15-Aug-12	16:06	16-Aug-12	16:06	Sunny	2.7859	2.9484	10275.03	10299.03	24.00	1.24	1.24	1.24	91	196	260	Construction work in progress	1254	5086
21-Aug-12	16:41	22-Aug-12	16:41	Sunny	2.7956	2.9691	10302.03	10326.03	24.00	1.24	1.24	1.24	97	196	260	Construction work in progress	1254	5090
27-Aug-12	16:06	28-Aug-12	16:06	Sunny	2.7741	2.9339	10329.03	10353.03	24.00	1.24	1.24	1.24	89	196	260	Construction work in progress	1254	5094
31-Aug-12	16:16	01-Sep-12	16:16	Sunny	2.7895	2.9441	10356.03	10380.03	24.00	1.24	1.24	1.24	87	196	260	Construction work in progress	1254	5098
												Min.	83					
												Max.	97					
												Average	90					

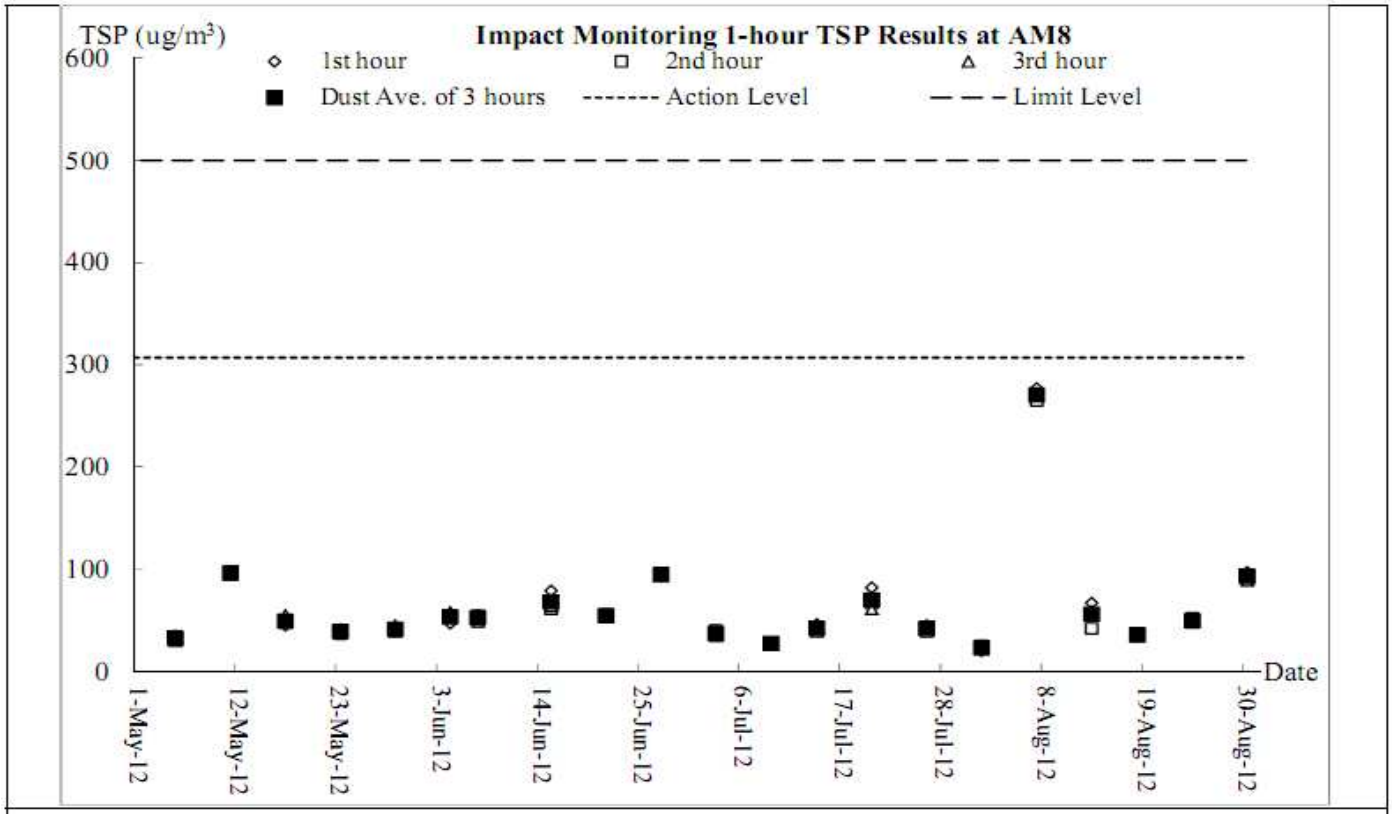

1-hr TSP Levels
AM6 (Stonecutters Island Sewage Treatment Works)
Action Level
Limit Level
AM6
1-hr TSP Level, µgm-3
600
500
400
300
200
100
0
03/08/2012
04/08/2012
05/08/2012
06/08/2012
07/08/2012
08/08/2012
09/08/2012
10/08/2012
11/08/2012
12/08/2012
13/08/2012
14/08/2012
15/08/2012
16/08/2012
17/08/2012
18/08/2012
19/08/2012
20/08/2012
21/08/2012
22/08/2012
23/08/2012
24/08/2012
25/08/2012
26/08/2012
27/08/2012
28/08/2012
29/08/2012
30/08/2012
31/08/2012
Date

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



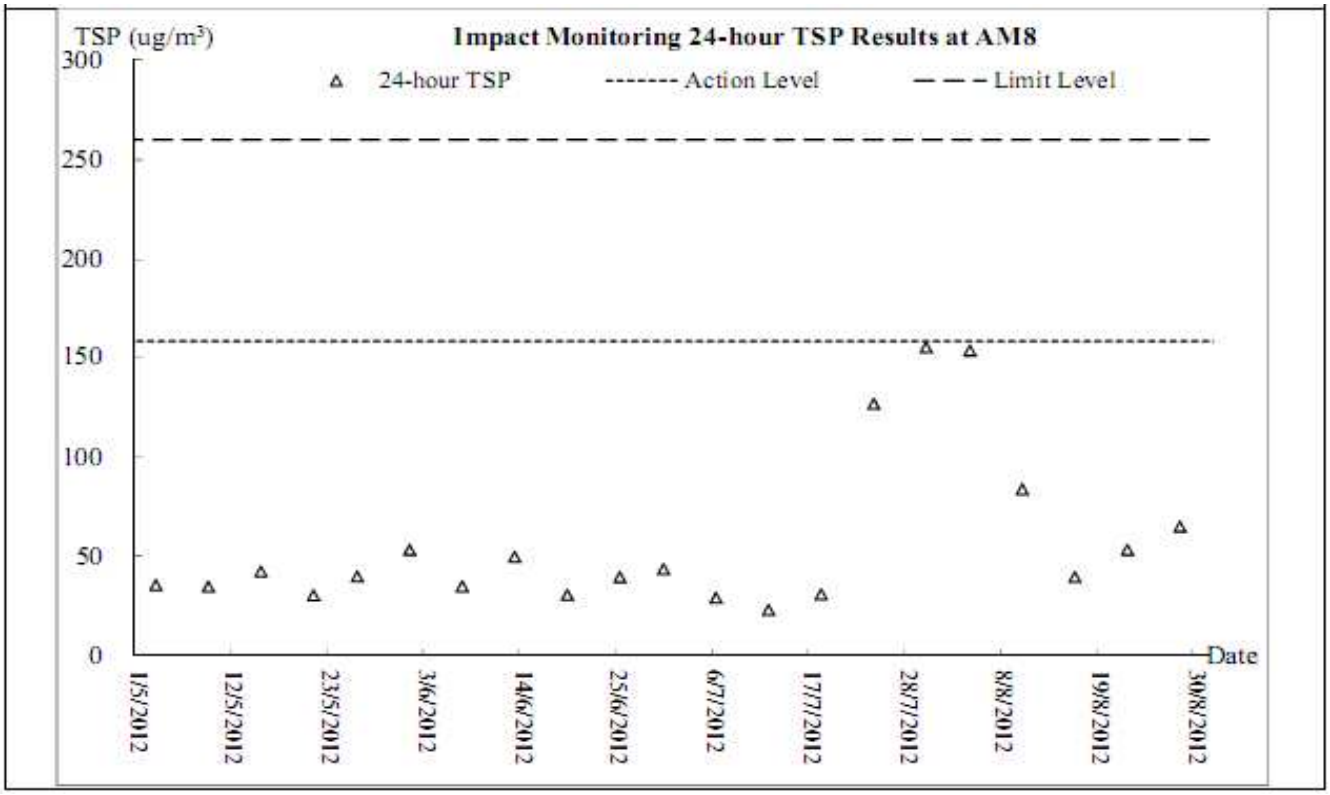
Summary of 1-hour TSP Monitoring Results – AM8 as Monitored by DE/2009/02

1-hour TSP ($\mu g/m^3$)				
Date	**Start Time**	**1st hour measured**	**2nd hour measured**	**3rd hour measured**
1-Aug-12	15:30	277	265	270
7-Aug-12	10:15	67	42	59
13-Aug-12	15:00	35	37	35
18-Aug-12	13:05	49	52	48
24-Aug-12	15:30	97	93	89
30-Aug-12	14:30	50	48	48
Average (Range)		**92 (35 - 277)**		



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 AVG PRESS (hPa)	STANDARD FLOW RATE (m^3/min)	STANDARD AIR VOLUME (std m^3)	INITIAL FILTER WEIGHT (g)	FINAL FILTER WEIGHT (g)	WEIGHT DUST COLLECTED (g)	DUST 24-hour TSP IN AIR (ug/m^3)
4-Aug-12	24964	11548.37	11573.11	1484.40	38	39	38.5	28.6	1004.6	1.09	1611	2.7646	3.0117	0.2471	153
10-Aug-12	24955	11573.11	11597.22	1446.60	33	35	34.0	29.6	1003	0.95	1377	2.7642	2.8794	0.1152	84
16-Aug-12	24907	11597.22	11621.54	1459.20	34	37	35.5	28.6	1001.5	1.00	1454	2.7864	2.8441	0.0577	40
22-Aug-12	24910	11621.54	11645.65	1446.60	35	37	36.0	28	1006.3	1.01	1468	2.7781	2.8562	0.0781	53
28-Aug-12	25012	11645.65	11669.76	1446.60	33	36	34.5	31	1004.3	0.94	1357	2.803	2.8912	0.0882	65



Appendix D - 1-hour TSP Monitoring Results

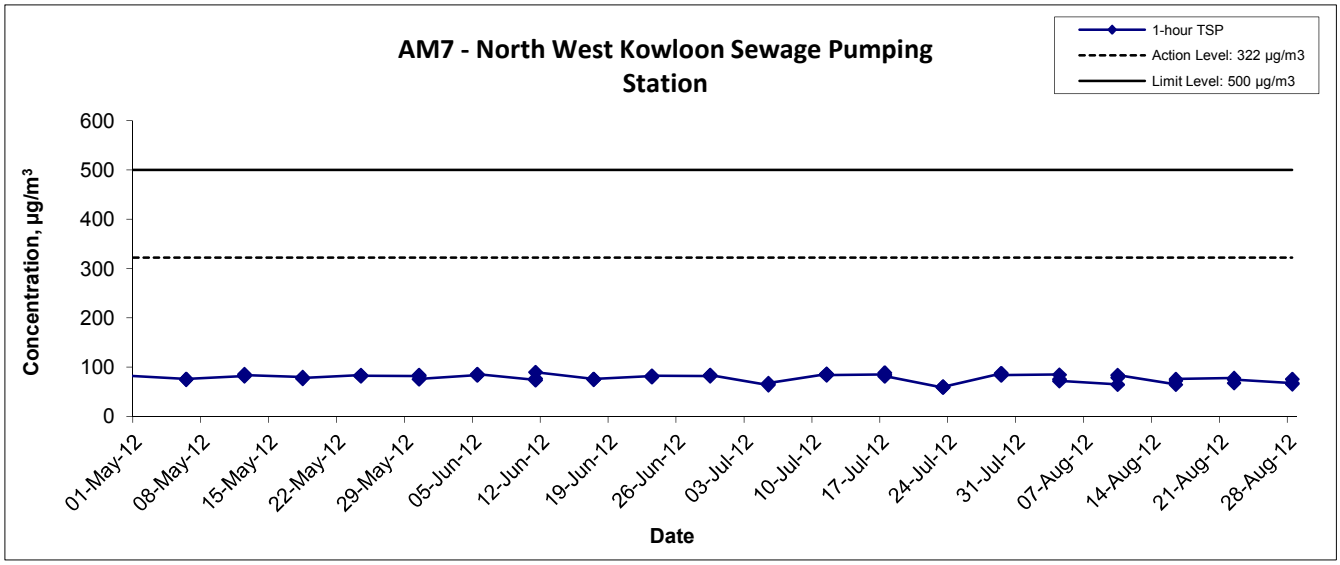
Location AM7 - North West Kowloon Sewage Pumping Station			
Date	Time	Weather	Particulate Concentration ($\mu g/m^3$)
4-Aug-12	9:00	Sunny	85
4-Aug-12	10:00	Sunny	76
4-Aug-12	11:00	Sunny	72
10-Aug-12	13:30	Cloudy	65
10-Aug-12	14:30	Cloudy	79
10-Aug-12	15:30	Cloudy	84
16-Aug-12	13:30	Cloudy	65
16-Aug-12	14:30	Cloudy	73
16-Aug-12	15:30	Cloudy	76
22-Aug-12	13:30	Cloudy	78
22-Aug-12	14:30	Cloudy	68
22-Aug-12	15:30	Cloudy	75
28-Aug-12	9:00	Sunny	68
28-Aug-12	10:00	Sunny	66
28-Aug-12	11:00	Sunny	76
		Average	74
		Maximum	85
		Minimum	65

Appendix D - 24-hour TSP Monitoring Results

Location AM7 - North West Kowloon Sewage Pumping Station

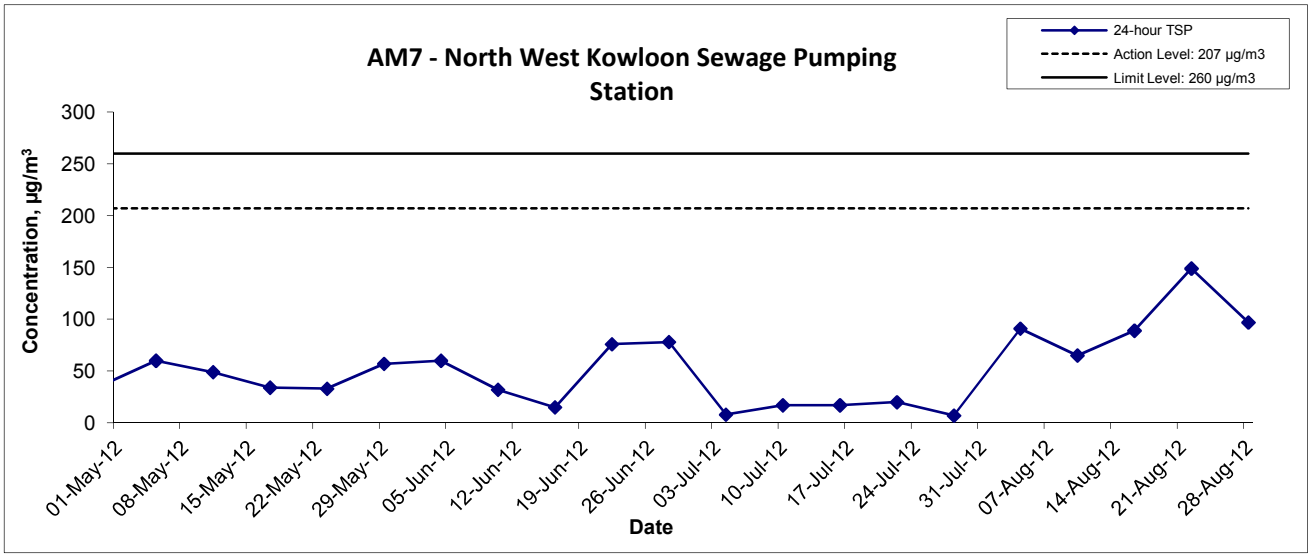
Start Date	Weather Condition	Air Temp. (K)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
			Initial	Final		Initial	Final		Initial	Final			
4-Aug-12	Sunny	302.8	3.2827	3.4414	0.1587	2684.7	2708.7	24.0	1.22	1.21	1.21	1749.5	91
10-Aug-12	Cloudy	302.1	3.2114	3.3256	0.1142	2708.7	2732.7	24.0	1.22	1.22	1.22	1755.0	65
16-Aug-12	Cloudy	302.0	3.2656	3.4216	0.1560	2732.7	2756.7	24.0	1.22	1.22	1.22	1756.1	89
22-Aug-12	Cloudy	301.3	3.2762	3.5385	0.2623	2756.7	2780.7	24.0	1.22	1.22	1.22	1760.3	149
28-Aug-12	Sunny	303.5	3.1656	3.3349	0.1693	2780.7	2804.7	24.0	1.22	1.22	1.22	1752.4	97
												Min	65
												Max	149
												Average	98

1-hr TSP Concentration Levels



Title: Contract No. DC/2009/10 HATS 2A – Upgrading Works at SCISTW– Main Pumping Station, Sedimentation Tanks and Ancillary Graphical Presentation of 1-hour TSP Monitoring Results	Scale: N.T.S Date: Aug 12	Project No.: MA11007 Appendix: D	CINOTECH

24-hr TSP Concentration Levels



Title	Contract No. DC/2009/10 HATS 2A – Upgrading Works at SCISTW– Main Pumping Station, Sedimentation Tanks and Ancillary Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S Date Aug 12	Project No. MA11007 Appendix D	CINOTECH

Appendix D - 1-hour TSP Monitoring Results

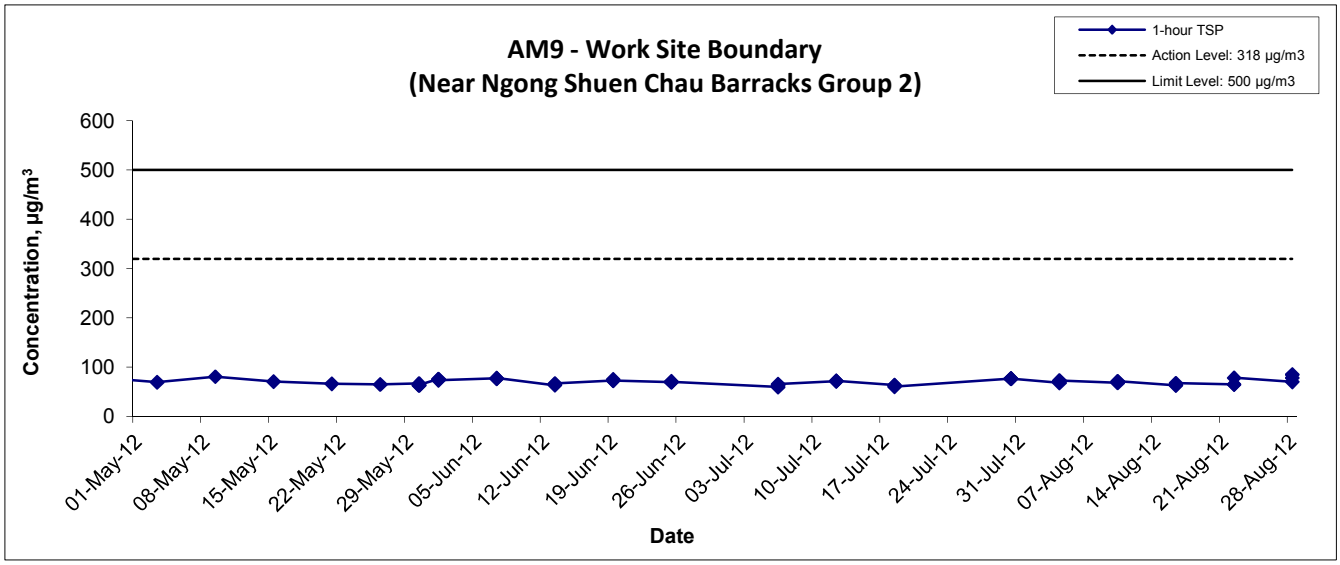
Location AM9 - Work Site Boundary (Near Ngong Shuen Chau Barracks Group 2)			
Date	Time	Weather	Particulate Concentration ($\mu g/m^3$)
4-Aug-12	9:00	Sunny	68.4
4-Aug-12	10:00	Sunny	72.7
4-Aug-12	11:00	Sunny	73.1
10-Aug-12	13:00	Cloudy	68.5
10-Aug-12	14:00	Cloudy	70.9
10-Aug-12	15:00	Cloudy	71.8
16-Aug-12	13:00	Cloudy	63.1
16-Aug-12	14:00	Cloudy	64.5
16-Aug-12	15:00	Cloudy	67.9
22-Aug-12	13:00	Cloudy	65.0
22-Aug-12	14:00	Cloudy	65.7
22-Aug-12	15:00	Cloudy	78.6
28-Aug-12	9:00	Sunny	70.5
28-Aug-12	10:00	Sunny	78.6
28-Aug-12	11:00	Sunny	85.3
		Average	71.0
		Maximum	85.3
		Minimum	63.1

Appendix D - 24-hour TSP Monitoring Results

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

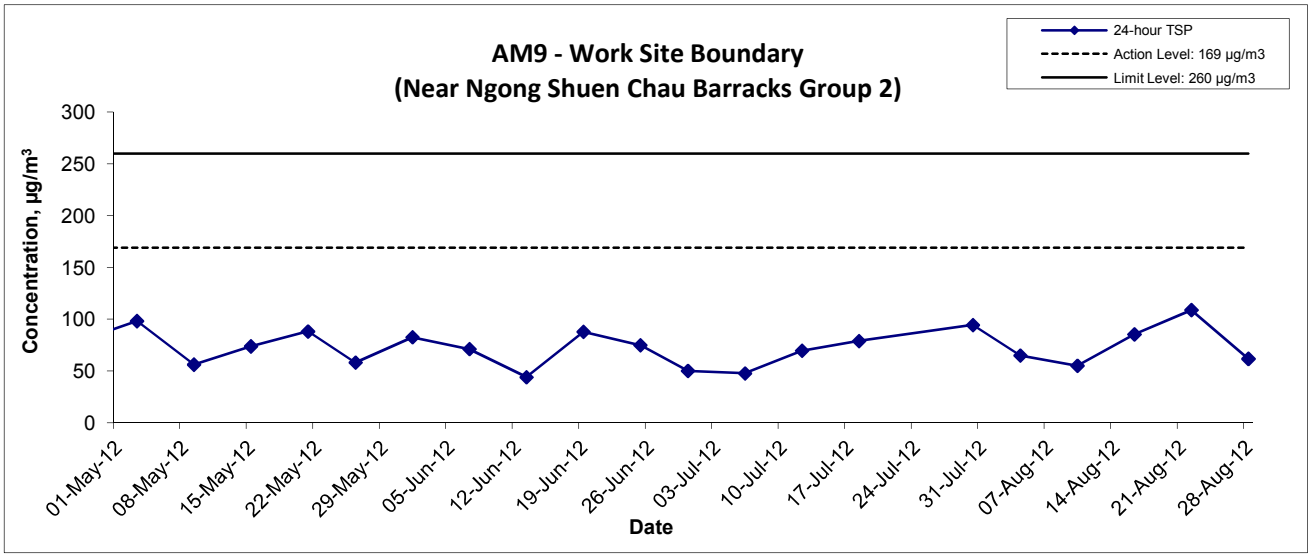
Start Date	Weather Condition	Air Temp. (K)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
			Initial	Final		Initial	Final		Initial	Final			
4-Aug-12	Sunny	302.8	3.2731	3.3868	0.1137	1735.7	1759.7	24.0	1.22	1.22	1.22	1750.3	65.0
10-Aug-12	Cloudy	302.1	3.2494	3.3473	0.0979	1759.7	1783.7	24.0	1.23	1.23	1.23	1775.0	55.2
16-Aug-12	Cloudy	302.0	3.2124	3.3642	0.1518	1783.7	1807.7	24.0	1.23	1.23	1.23	1776.2	85.5
22-Aug-12	Cloudy	301.3	3.2769	3.4708	0.1939	1807.7	1831.7	24.0	1.24	1.24	1.24	1780.8	108.9
28-Aug-12	Sunny	303.5	3.1436	3.2532	0.1096	1831.7	1855.7	24.0	1.23	1.23	1.23	1772.2	61.8
												Min	55.2
												Max	108.9
												Average	75.3

1-hr TSP Concentration Levels



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

24-hr TSP Concentration Levels



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

APPENDIX E
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Annex G6 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM5

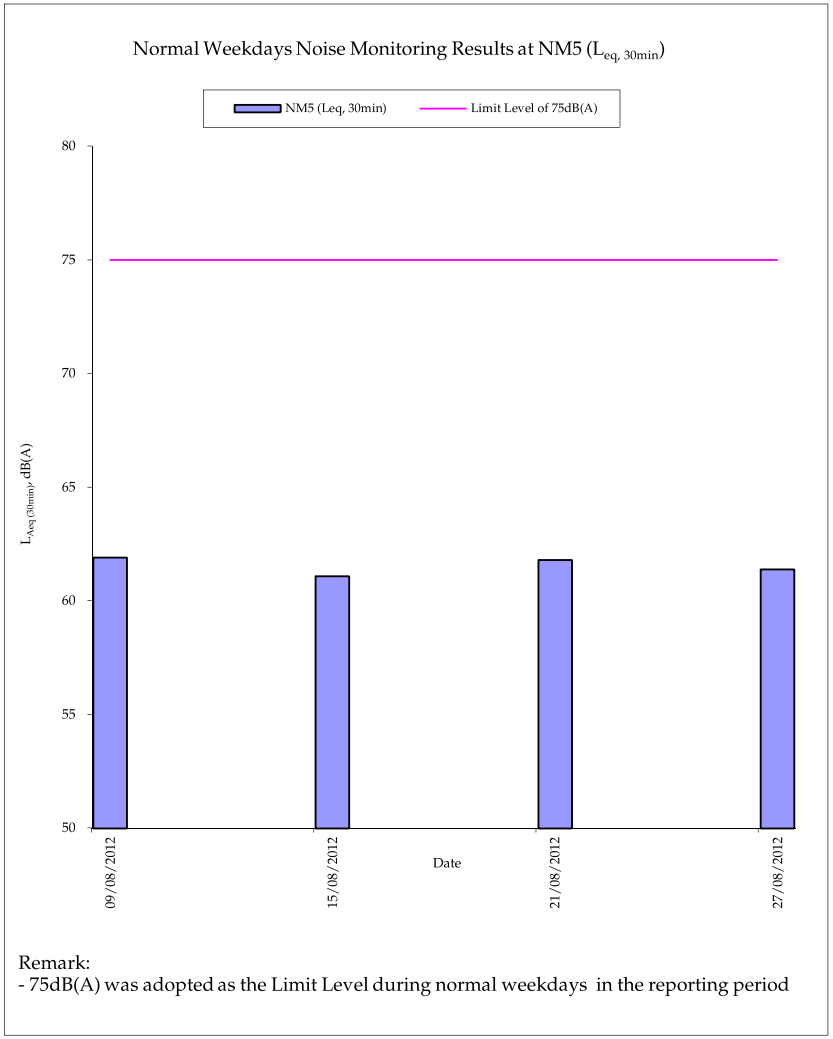
Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
09-Aug-12	11:10	11:40	Sunny	61.9	63.7	59.1	Drill rig	Traffic Noise	-	33	0.5	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
15-Aug-12	15:20	15:50	Sunny	61.1	63.0	59.3	Drill rig	Traffic Noise	-	31	0.3	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
21-Aug-12	15:20	15:50	Sunny	61.8	63.0	60.1	Drill rig, excavator	Traffic noise and aircraft noise	-	31	0.4	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
27-Aug-12	15:30	16:00	Sunny	61.4	62.7	59.3	Drill rig, excavator	Traffic noise and aircraft noise	-	31	0.3	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
			Min.	**61.1**									
			Max.	**61.9**									

Annex G6 Noise Monitoring Results

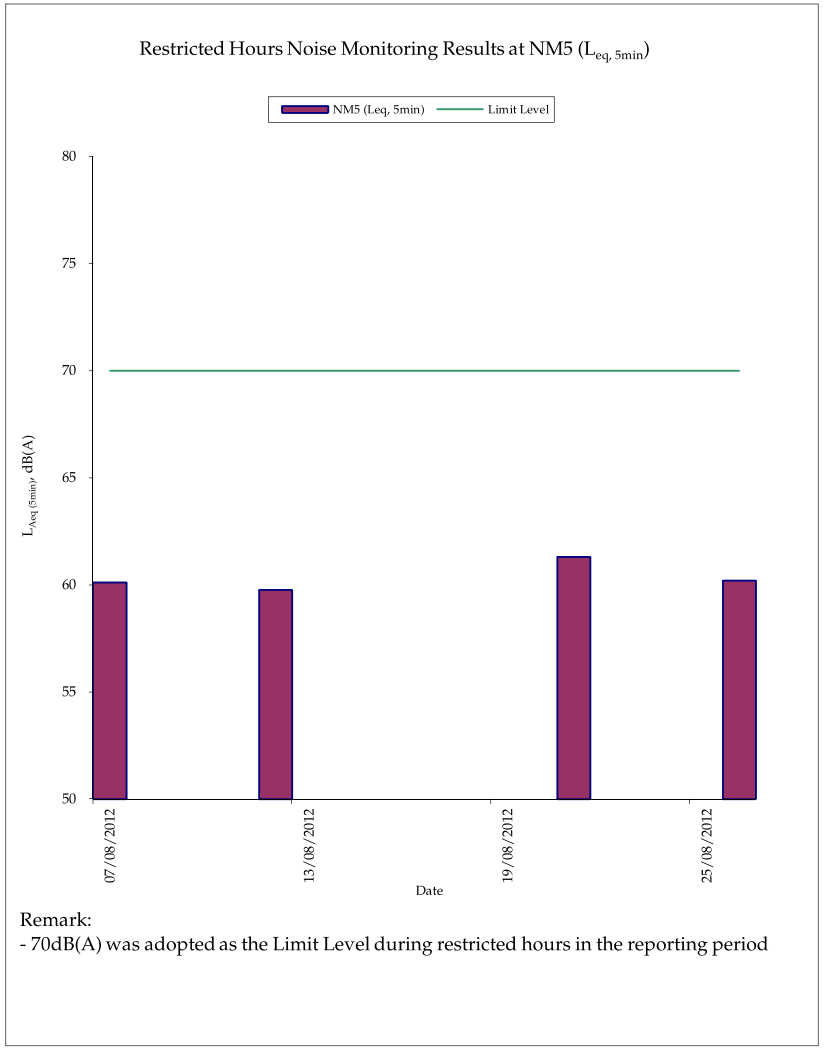
Restricted Hours Noise Monitoring Results

Station NM5

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
07-Aug-12	19:10	19:15	Cloudy	60.1	61.4	58.6	Drill rig	Traffic noise	-	31	0.4	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	19:15	19:20	Cloudy	60.1	61.5	58.4			-				
	19:20	19:25	Cloudy	60.2	61.6	58.5			-				
	19:10	19:25	Cloudy	60.1	61.5	58.5			-				
12-Aug-12	16:00	16:05	Sunny	60.6	63.6	57.4	Drill rig	Traffic noise	-	30	0.3	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	16:05	16:10	Sunny	59.9	62.3	57.1			-				
	16:10	16:15	Sunny	58.6	59.5	56.7			-				
	16:00	16:15	Sunny	59.8	62.1	57.1			-				
21-Aug-12	19:05	19:10	Sunny	61.9	62.9	59.7	Drill rig, excavator	Traffic noise & aircraft noise	-	31	0.5	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	19:10	19:15	Sunny	60.9	61.8	59.6			-				
	19:15	19:20	Sunny	61.1	62.4	59.5			-				
	19:05	19:20	Sunny	61.3	62.4	59.6			-				
26-Aug-12	15:00	15:05	Sunny	59.7	61.4	57.7	Drill rig	Traffic noise	-	31	0.3	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	15:05	15:10	Sunny	60.2	61.6	58.9			-				
	15:10	15:15	Sunny	60.7	62.4	59.0			-				
	15:00	15:15	Sunny	60.2	61.8	58.6			-				
			Min.	**58.6**									
			Max.	**61.9**									



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



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

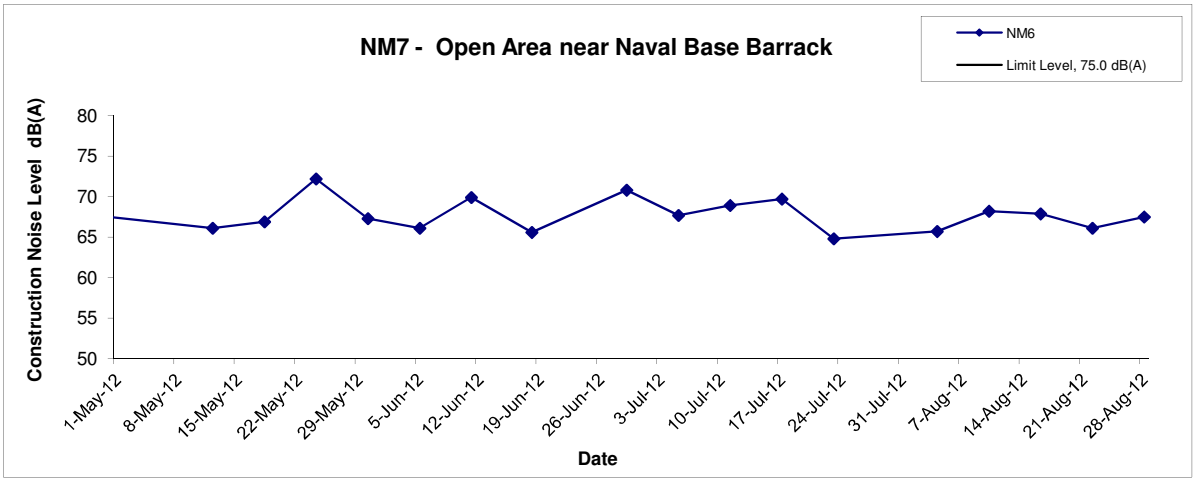
Appendix E - Noise Monitoring Results

(0700-1900 hrs on Normal Weekdays)

Location NM6 - Customs' Marine Base (Block H of Government Dockyard) Rooftop					
Date	Time	Weather	Unit: dB (A) (30-min) Measured Noise Level		
			L_{eq}	L_{10}	L_{90}
4-Aug-12	09:30	Sunny	65.7	68.4	62.1
10-Aug-12	13:30	Cloudy	68.2	70.1	65.8
16-Aug-12	13:30	Cloudy	67.9	69.8	63.8
22-Aug-12	13:30	Cloudy	66.1	68.1	65.8
28-Aug-12	09:30	Sunny	67.5	69.2	64.1

Noise Levels

(0700-1900 hrs on Normal Weekdays)



Title: Contract No. DC/2009/18 HATS 2A – Upgrading Works at SCISTW– Main Pumping Station, Sedimentation Tanks and Ancillary Facilities Graphical Presentation of Noise Monitoring Result (NM6)	Scale: N.T.S Date: Sep 12	Project No.: MA11007 Appendix: E	CINOTECH

Appendix E - Noise Monitoring Results

(0700-1900 hrs on Normal Weekdays)

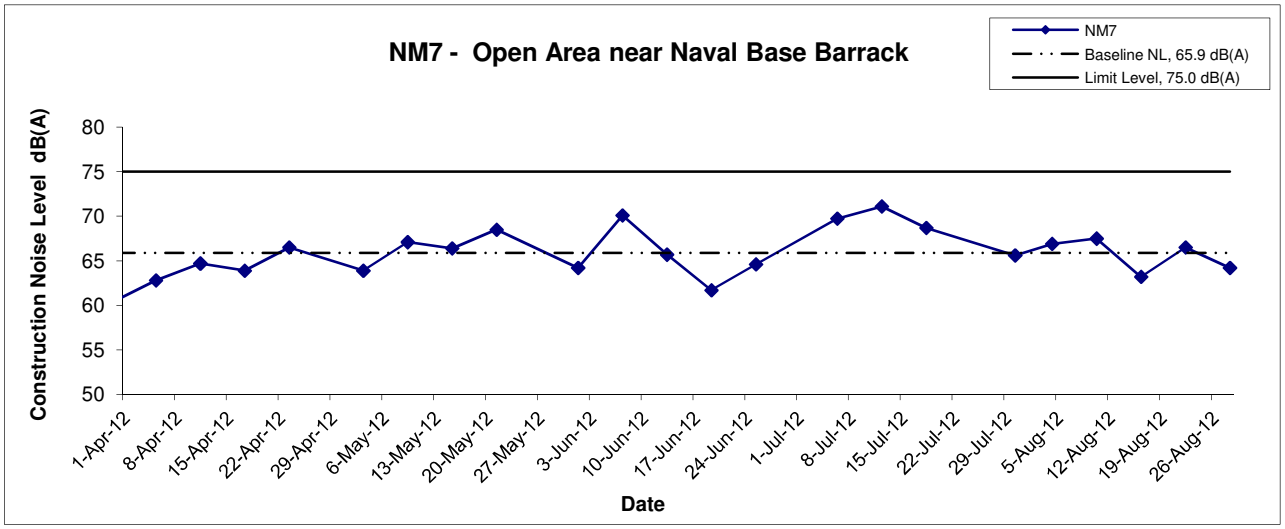
Location NM7 - Open Area near Naval Base Barrack					
Date	Time	Weather	Unit: dB (A) (30-min) Measured Noise Level		
			L_{eq}	L_{10}	L_{90}
4-Aug-12	09:00	Sunny	66.9	68.5	63.1
10-Aug-12	13:00	Cloudy	67.5	68.9	62.5
16-Aug-12	13:00	Cloudy	63.2	65.7	60.7
22-Aug-12	13:00	Cloudy	66.5	68.1	62.8
28-Aug-12	09:00	Sunny	64.2	66.9	61.0

Restricted Hours
(1900-2300 hrs on Normal Weekdays, Public Holidays and Sundays)

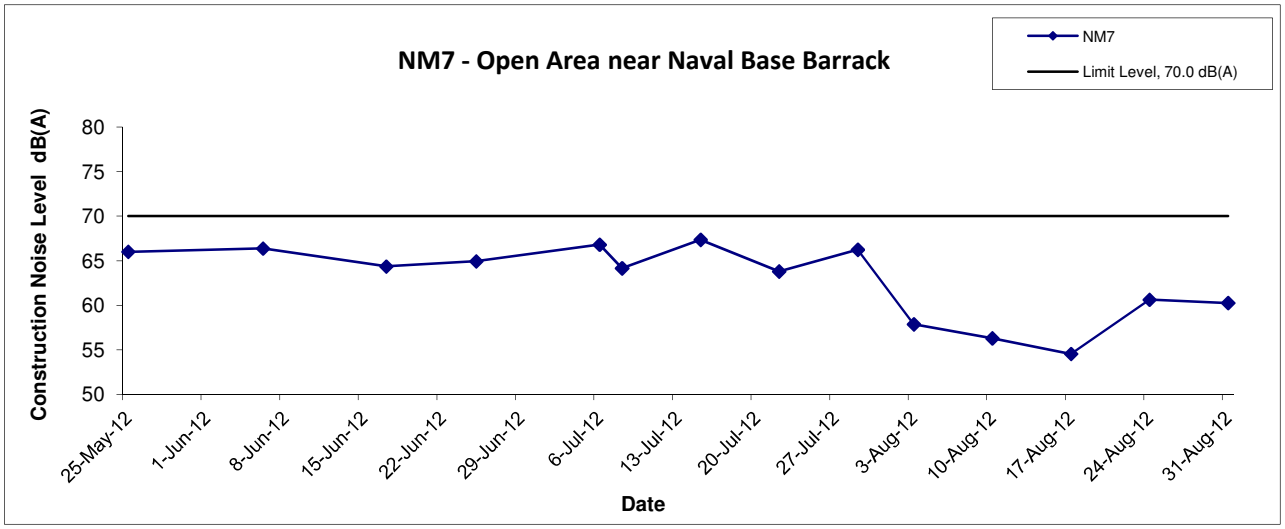
Location NM7 - Customs' Marine Base (Block H of Government Dockyard) Rooftop						
Date	Time	Weather	dB (A) (5-min)			
			L_{eq}	L_{10}	L_{90}	Average L_{eq}
3-Aug-12	20:45	Fine	57.5	59.1	55.1	57.9
	20:50		58.6	60.1	56.2	
	20:55		57.4	58.5	57.0	
10-Aug-12	20:15	Fine	54.5	56.5	52.0	56.3
	20:20		56.5	57.1	56.1	
	20:25		57.4	59.2	55.2	
17-Aug-12	20:00	Fine	56.3	57.6	53.5	54.5
	20:05		53.1	55.4	51.2	
	20:10		53.5	54.8	52.8	
24-Aug-12	21:00	Fine	60.1	63.1	58.4	60.6
	21:05		61.2	65.1	60.7	
	21:10		60.5	63.5	59.5	
31-Aug-12	21:30	Fine	58.4	62.1	56.5	60.3
	21:35		60.7	62.1	57.1	
	21:40		61.2	63.2	59.1	

Noise Levels

(0700-1900 hrs on Normal Weekdays)



Restricted Hours -
(1900-2300 hrs on Normal Weekdays, Public Holidays and Sundays)



Title	Contract No. DC/2009/18 HATS 2A – Upgrading Works at SCISTW– Effluent Tunnel and Disinfection Facilities Graphical Presentation of Noise Monitoring Result (NM7)	Scale N.T.S Date Sep 12	Project No. MA11043 Appendix E	CINOTECH

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-RW0523-12	4/7/2012	27/12/2012	Location: Stonecutters Island Production Shaft and Riser Shaft	Valid

Table F.2 Summary of Environmental Licensing and Permit Status for Contract DE/2009/02

Permit No.	Valid Period		Details	Status
	From	To		
Wastewater Discharge License				
WT00006432-2010	--	30/4/2015	--	Valid
Registered Chemical Waste Producer				
5213-269-A2605-01	--	--	--	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.3 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.4 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-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
GW-RW0441-12	6/6/2012	30/112012	Location: Construction site at Stonecutters Island Sewage treatment works (Portion 7)	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.	Expired in the reporting month
PP-RW0016-12	8/8/2012	2/5/2013	Location: Portion 3 and 8.	Valid
PP-RW0004-12	10/4/2012	9/1/2013	Location: Portion 4.	Valid
Construction Noise Permit for use of mechanical equipment outside permitted working hours				
GW-RW0504-12	30/6/2012	24/12/2012	Location: Portion 4	Valid
GW-RW0503-12	28/6/2012	24/12/2012	Location: Portion B	Valid
GW-RW0611-12	11/8/2012	31/1/2013	Location: Portion 3, 8 and 9.	Valid

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENIDX G – SUMMARY OF EXCEEDANCE

Reporting Month: August 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

7.6 ENVIRONMENTAL SITE INSPECTION

Weekly site inspections were carried out by representatives of the Contractor, Engineer and the ET. Site inspections were conducted on 2, 9, 16, 23 and 30 August 2012. The representative of the IEC joined the site inspection on 30 August 2012. No non-compliance was recorded during the site inspections.

Major findings and recommendations are summarised as follows:

Riser Shaft

- Nil.

Production Shaft

- On 9 August, four chemical drums without labels were observed inside the noise enclosure of production shaft. The Contractor was reminded to put a label on the chemical container for clear identification.
- On 23 August, stagnant water with mosses inside was observed on the floor at the back of noise enclosure. The Contractor was reminded to remove the water and mosses to avoid mosquito breeding.
- On 30 August, a chemical drum without drip tray was observed near noise enclosure. The Contractor was reminded to provide a drip tray to the drum and cover them with impervious sheet when unused.

7.7 ENVIRONMENTAL NON-CONFORMANCE

7.7.1 *Summary of Monitoring Exceedance*

No exceedance of the Action and Limit Levels of 1-hour and 24-hour averaged 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.

7.7.3 *Summary of Environmental Complaint*

No complaint was received during the reporting period. The cumulative complaint log is shown in *Annex G7*.

7.7.4 *Summary of Environmental Summon and Successful Prosecution*

No summon was received during the reporting period. The cumulative summons/prosecution log is shown in *Annex G7*.

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. **Five** site inspections were carried out on **3, 8, 14, 24 and 28 August 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 with in 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
3 August 2012	• No environmental issue was observed during the site inspection.	N.A.
8 August 2012	• C&D and general refuse was observed at the site area, the contractor was reminded to clear more frequency.	Rectified on 14 August 2012
14 August 2012	• Rubbish bin at DOU 1 was full; the contractor was reminded to clean to maintain the environmental hygiene on site.	Rectified on 24 August 2012
24 August 2012	• No environmental issue was observed during the site inspection.	N.A.
28 August 2012	• No environmental issue was observed during the site inspection.	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, 10, 15, 24 and 31 August 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 mitigation measures for Air Quality, Noise, Water Quality, Waste Management, Landscape and Visual 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**.

Implementation Status of Environmental Mitigation Measures

4.5 Details of the implementation of mitigation measures are provided in the **Appendix J**.

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	3/8/2012 O-03	Accumulated slurry in the sump pit and sedimentation tank should be cleared regularly to ensure an adequate capacity.	Accumulated slurry was cleared by the Contractor.
	10/8/2012 O-02	Ditch should be set up to prevent wastewater spillage next Portion 9.	This item was found outstanding and will be followed up in the next site inspection.
	15/8/2012 O-01	Ditch should be provided to prevent wastewater spillage next Portion 9.	This item was found outstanding and will be followed up in the next site inspection.
	15/8/2012 O-03	Accumulated sediment in sump pit and sedimentation tank in Portion 3 should be cleared.	The sump pit and the sedimentation tank in Portion 3 has been cleared.
	24/8/2012 R-01	Larvicides should be applied to the stagnant water in tank at Portion 4.	Mosquito killing materials was provided in tank at Portion 4.
	24/8/2012 R-03	Excavated materials should be bunded by sand bags at Portion 3.	Sand bags were provided to confine the excavated materials in site.
	24/8/2012 R-05	Mitigation measures should be provided to avoid muddy surface runoff during rainy days.	The works near the Portion 9 had been completed.
	31/8/2012 O-03	To enhance the efficiency of wastewater collection in site to prevent its spillage. (Portion 3 and 4)	The wastewater was cleared by the Contractor.

Air Quality	N/A	There was no observation in the reporting month.	N/A
Waste/ Chemical Management	**3/8/2012 O-01**	Oil stained soil should be cleared as chemical waste (Portion 4).	Oil stained oil in Portion 4 was removed by the Contractor.
	3/8/2012 O-02	Chemicals should be stored properly with drip trays, and drip trays should be properly maintained to prevent stagnant water.	Stagnant materials in drip tray were cleared by the Contractor.
	10/8/2012 O-03	To provide better maintenance to the equipment in Portion 4 to prevent oil leakage.	The equipment was removed by the Contractor and the oil stain was cleared.
	15/8/2012 O-02	Oily stagnant water in drip tray should be removed as chemical waste (Poriotn3)	Oily stagnant water in drip tray has been removed (Poriotn3).
	15/8/2012 O-04	Wasted oil drum in Portion 3 should be removed and disposed of properly.	Wasted oil drum in Portion 3 has been removed.
	24/8/2012 R-02	Drip tray should be provided for the storage of oil drums at Portion 4.	This item was found outstanding and will be followed up in the next site inspection.
	24/8/2012 R-04	Stagnant water in chemical waste storage area should be cleared as chemical waste at Portion 3.	Stagnant water in chemical waste storage area was cleared.
	31/8/2012 O-01	Drip tray should be provided for the storage of oil drums at Portion 4.	The oil drum was removed by the Contractor.
	31/8/2012 O-02	Oily water/leaked oil at the entrance of Portion 4 should be cleared to prevent spillage.	Oily water/leaked oil was cleared by the Contractor.
Landscape and Visual	N/A	There was no observation in the reporting month.	N/A
Noise	**10/8/2012 O-01**	To provide noise label to air compressor in Portion 4.	The air compressor was not observed during the site inspection.
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/2009/10 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 2, 9, 17, 23 and 30 August 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 mitigation measures for Air Quality, Noise, Water Quality, Waste Management, Landscape and Visual 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	2/8/2012 R-03	Wastewater in Portion 3 should be properly cleared and collected to prevent spillage.	Wastewater in Portion 3 was cleared by the Contractor.
	17/8/2012 R-01	Stagnant water in Portion 4 and 5 should be cleared regularly.	Stagnant water was cleared by the Contractor.
	23/8/2012 R-01	Wastewater in the refuse skip next to Portion 3 should be cleared the outlet of the skip should be blocked.	Wastewater in the skip was cleared and the outlet was blocked by the Contractor.
	23/8/2012 R-03	Stagnant water in the blocked U-channel outside Portion 5 should be cleared regularly.	This item was found outstanding and would be followed up in the next site inspection.
	31/8/2012 R-01	Stagnant water and accumulated sediment in the blocked U-channel outside Portion 5 should be cleared regularly.	??????????
Air Quality	2/8/2012 R-01	Wood debris should be properly collected to prevent spreading in Portion 4.	Wood debris was clearing during the site inspection.
	2/8/2012 R-02	Dusty materials should be properly covered to reduce dust generation(Portion 4)	Dusty materials in Portion 4 were covered by the Contractor.
	23/8/2012 R-02	Exposed stockpile should be covered to reduce dust generation. (Portion 5)	The exposed stockpile was cleared by the Contractor.

Waste/ Chemical Management	**9/8/2012 R-01**	Oil stained soil at near Portion 5 should be cleared as chemical waste.	Oil stained soil was cleared by the Contractor.
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 1, 8, 15, 22 and 29 August 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 mitigation measures for Air Quality, Noise, Water Quality, Waste Management, Landscape and Visual 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.

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-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
GW-RW0441-12	6/6/2012	30/112012	Location: Construction site at Stonecutters Island Sewage treatment works (Portion 7)	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	Ref. Number	Observations	Follow Up Action
Water Quality	120801-O02	Accumulated slurry and wastewater should be cleared to prevent spillage.	Accumulated slurry and wastewater in Portion 7 was cleared by the Contractor.
	120801-O03	The bund surrounding Portion 7 should be regularly repaired and the leaked wastewater should be cleared.	The bund at the Portion 7 was repaired.
	120808-O01	Accumulated slurry and sediment in the sump pit and next to the wastewater treatment facilities should be cleared regularly.	Refer to the photo provided by the Contractor; accumulated materials in the sump pit were clearing by the worker.
	120808-O03	Excavating area in Portion 3 should be bunded to prevent the spillage of run-off.	Stockpile at the excavation area in Portion 3 was removed by the Contractor.

	120815-O02	Area next to the entrance of Portion 7 should be bund to confine the wastewater in site area.	Area next to entrance of Portion 7 was bund by the Sand Bags.
	120815-O03	Run-off at the wheel washing facilities should be confined and prevent from spillage (Portion 7).	The muddy run-off at the wheel washing facilities was cleared by the Contractor.
	120822-O01	To prevent the spillage of wastewater at Portion 7.	Wastewater outside Portion 7 was cleared.
	120829-O02	Sediment in the U-channel next to Portion 7 should be cleared.	Sediment in the U-channel next to Portion 7was cleared.
	120829-O03	Wastewater should be confined in site area in Portion 3 and stagnant water should be prevented.	Stagnant water at the site entrance of Portion 3 was cleared.
Air Quality	120808-O02	Sand and debris on the paved area in Portion 3 should be cleared to reduce dust generation.	Sand and debris was cleared by the Contractor.
	120829-O01	Exposed stockpile in Portion 3 should be covered or clear regularly to reduce dust generation.	The stockpile in Portion was removed by the Contractor.
	120829-O04	Dusty materials at the site exit of Portion 7 should be cleared.	Dusty materials at the site exit of Portion 7 were cleared.
Waste/ Chemical Management	120801-O01	Slurry contained in the drip tray should be cleared. (Portion 7)	Slurry in the drip tray was cleared by the Contractor.
	120815-O01	Empty oil drum in Portion 7 should be removed as chemical waste.	Empty oil drum was removed by the Contractor.
	120822-O03	To provide better maintenance to equipment to prevent oil leakage and clear the oil stain in Portion 3.	No further oil leakage was observed.
Landscape and Visual	120829-O05	Tree protection fence should be properly erected and materials in it should be cleared for better tree protection. (Portion 7)	Tree protection fence was repaired and the materials in the tree protection were removed.
Noise	N/A	There was no observation in the reporting period.	N/A
Permit/ Licenses	120822-O02	To replace the CNP at the site entrance.	Missed pages if the CNP were repaired.

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.

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 failurein 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	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	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.	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.	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	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	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	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	1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals
Limit Level being exceeded	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	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.	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	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	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
	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.			^	^	^	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract				
			DC/2007/23	DE/2009/02	DC/2009/17	DC/2009/10	DC/2009/18
	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 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.		^	^	^	^	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract				
			DC/2007/23	DE/2009/02	DC/2009/17	DC/2009/10	DC/2009/18
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.		^	^	^	^	^
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.		^	^	^	*	*

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract				
			DC/2007/23	DE/2009/02	DC/2009/17	DC/2009/10	DC/2009/18
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 only be undertaken within the areas appropriately equipped to control these discharges.		<>	^	^	*	^
6.379	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: • 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.		^	^	^	*	*

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract				
			DC/2007/23	DE/2009/02	DC/2009/17	DC/2009/10	DC/2009/18
	• Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.						
6.380	Construction Works in Close Proximity of Storm Drains or Seafront 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. • 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 carrying out of the construction works. • 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	All construction sites	^	^	*	*	*

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract				
			DC/2007/23	DE/2009/02	DC/2009/17	DC/2009/10	DC/2009/18
	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	All waste materials should be segregated into categories covering: • 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	^	^	^	^	^
9.113	Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals;		^	^	^	^	^
	Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of		^	^	^	^	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract				
			DC/2007/23	DE/2009/02	DC/2009/17	DC/2009/10	DC/2009/18
	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	All construction	^	^	^	^	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract				
			DC/2007/23	DE/2009/02	DC/2009/17	DC/2009/10	DC/2009/18
	of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage"	sites					
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		^	^	*	*	*

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract				
			DC/2007/23	DE/2009/02	DC/2009/17	DC/2009/10	DC/2009/18
	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.						
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	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		^	^	^	^	

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract				
			DC/2007/23	DE/2009/02	DC/2009/17	DC/2009/10	DC/2009/18
	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	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	^	^	^	^	^
	Existing trees to be retained on site should be carefully protected during construction.			^	^	^	*
	Trees unavoidably affected by the works should be transplanted where practical.			^	^	^	^
	Compensatory tree planting should be provided to compensate for felled trees.			^	^	^	^
	Control of night-time lighting.			^	^	^	^
Table 13.7	Erection of decorative screen hoarding compatible with the surrounding setting.	All construction sites		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	Exact location will	^	^	^	^	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract				
			DC/2007/23	DE/2009/02	DC/2009/17	DC/2009/10	DC/2009/18
	safety zone.	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

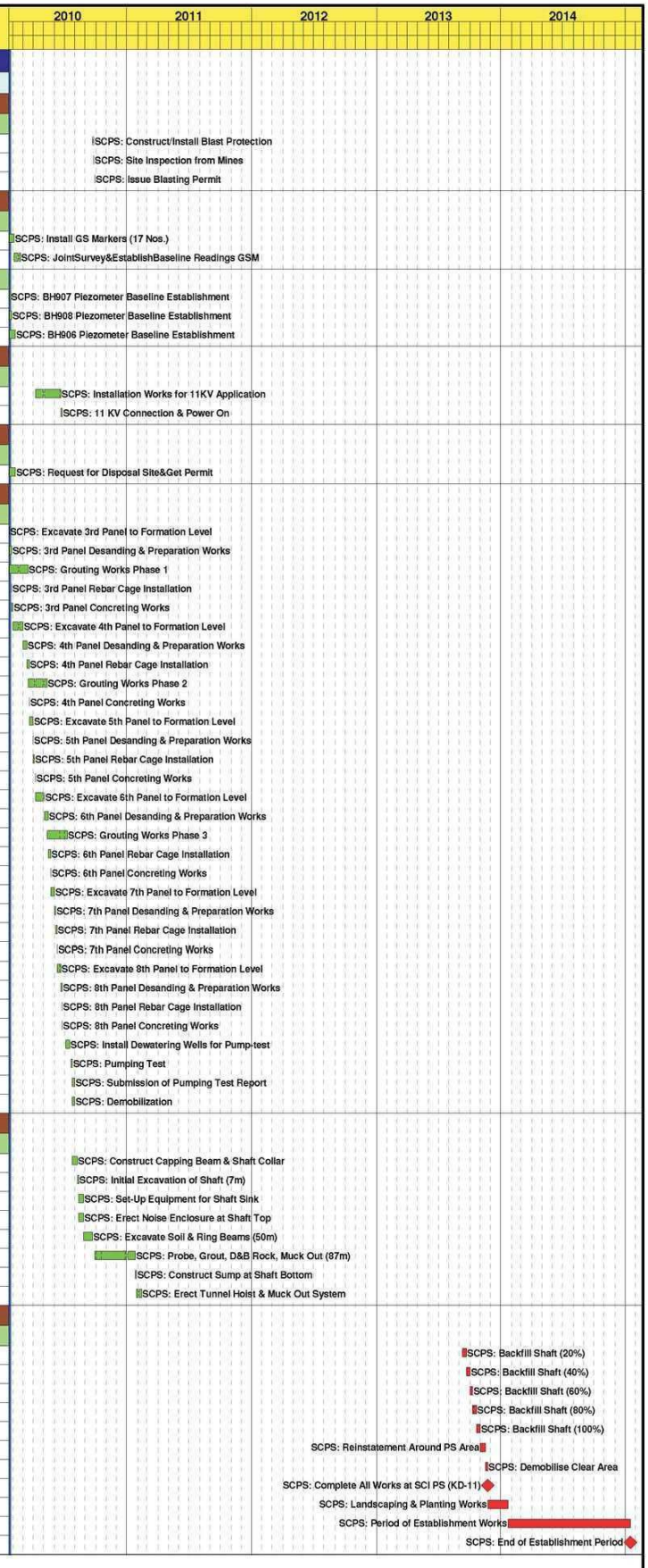
Reporting Month: August 2012

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
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	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	0



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

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Early Bar
Progress Bar
Critical Activity

WPU7 Sheet 1 of 1

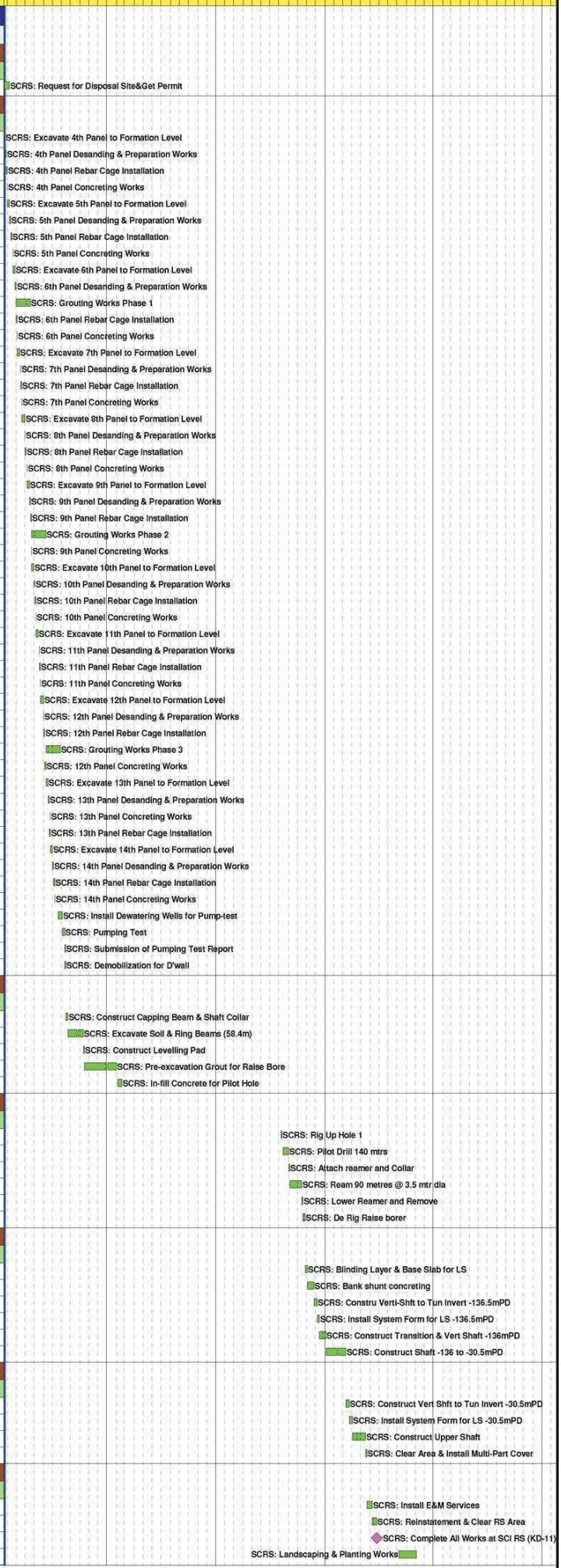
Habour Area Treatment Scheme Stage 2A
Contract No. DC/2007/23 - Construction of Sewage Conveyance from North Point to Stonecutters Island Programme

Annex G8 Construction Programme for the Project

Gammon

Date	Revision	Checked	Approved

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



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

Early Bar
Progress Bar
Critical Activity

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WPU7 Sheet 1 of 2

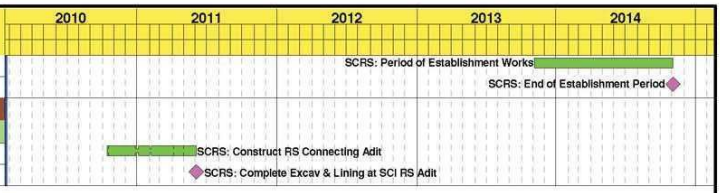
Habour Area Treatment Scheme Stage 2A
Contract No. DC/2007/23 - Construction of Sewage Conveyance from North Point to Stonecutters Island
Programme

Annex G8 Construction Programme for the Project

Gammon

Date	Revision	Checked	Approved

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



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

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Early Bar
Progress Bar
Critical Activity

WPU7 Sheet 2 of 2

Habour Area Treatment Scheme Stage 2A
Contract No. DC/2007/23 - Construction of Sewage Conveyance from North Point to Stonecutters Island
Programme

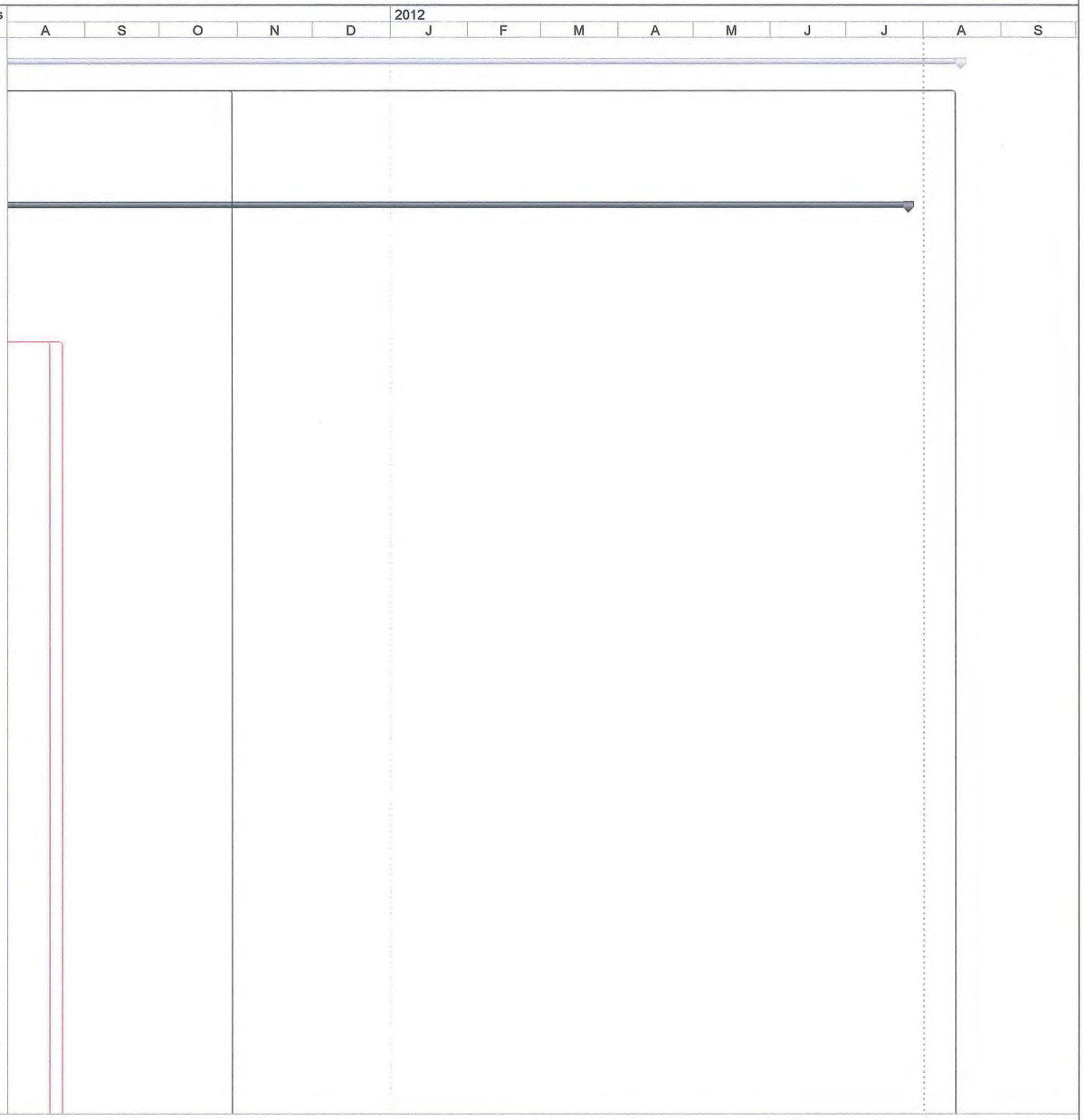
Annex G8 Construction Programme for the Project

Gammon

Date	Revision	Checked	Approved

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 (Jul12 to Sep12)
(Revision 0)

ID	WBS	Task Name	Duration	Early Start	Start	Finish	Late Finish	Free Slack	Total Slack	Predecessors
0	0	**DE/2009/02 Contract Duration**	**1021 d**	**30/10/09**	**30/10/09**	**15/8/12**	**15/8/12**	**0 d**	**0 d**	
1	1	Project Commencement Date	0 d	30/10/09	30/10/09	30/10/09	30/10/09	0 d	0 d	
2	2	**Site Preparation**	**67 d**	**30/10/09**	**30/10/09**	**4/1/10**	**15/8/12**	**45 d**	**45 d**	
13	3	Submission of ICE Certified Detailed Design	0 d	27/1/10	27/1/10	27/1/10	15/8/12	931 d	931 d	1FS+90 d
14	4	**Preliminary and Detailed Design Submission**	**1000 d**	**30/10/09**	**30/10/09**	**25/7/12**	**15/8/12**	**0 d**	**0 d**	
15	4.1	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	4.2	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	4.3	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	4.4	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
19	4.5	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	4.6	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	4.7	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	4.8	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	4.9	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
24	4.10	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	4.11	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	4.12	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	4.13	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	4.14	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	4.15	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
30	4.16	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	4.17	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	4.18	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	4.19	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	4.20	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	4.21	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
36	4.22	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	4.23	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	4.24	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	4.25	Review and Approval of method statement of construction of pile cap and contrl room	14 d	6/10/10	6/10/10	19/10/10	2/4/11	97 d	165 d	38



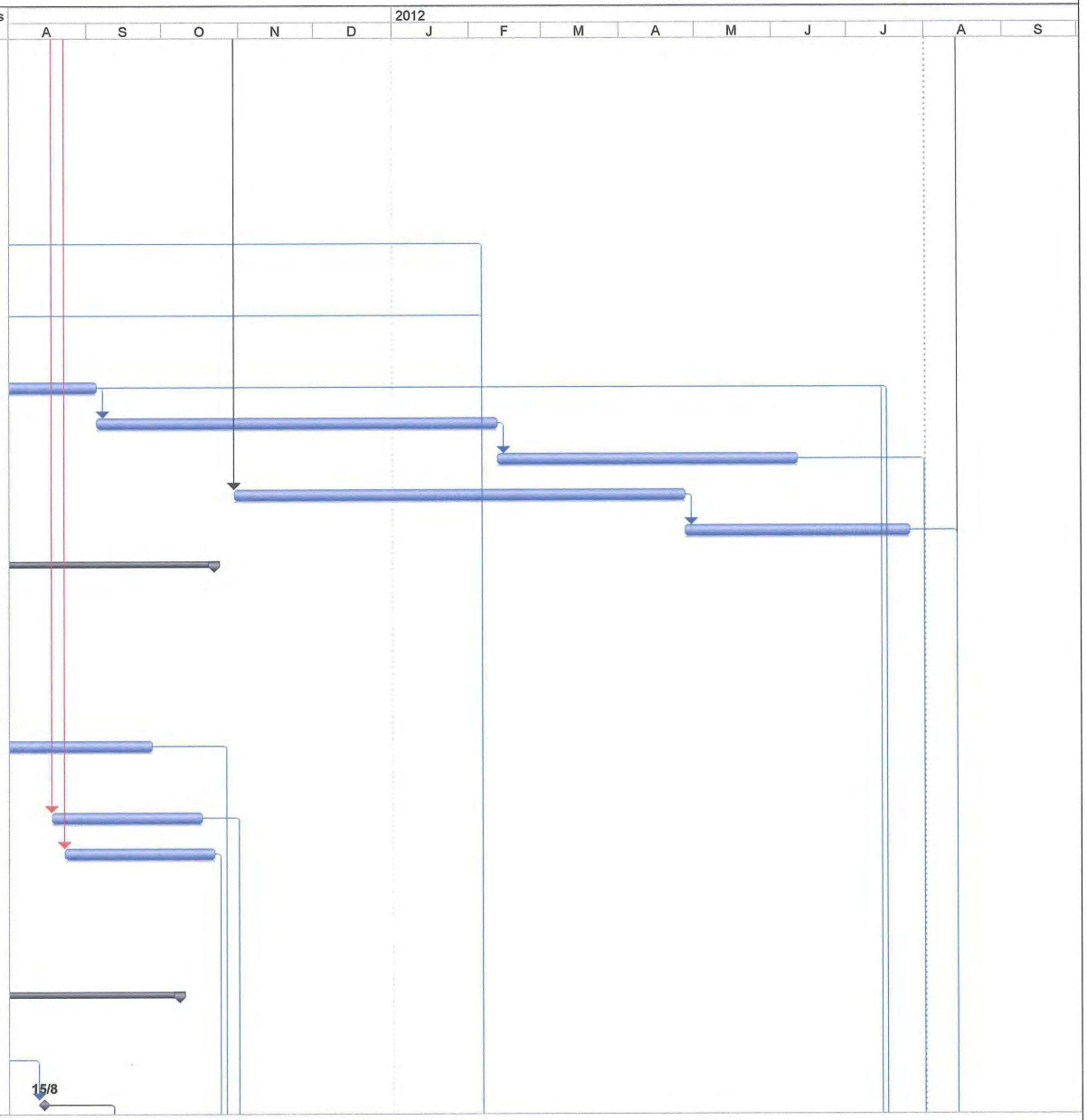
Contract No. DE/2009/02
Revision: 0
Date: 28 Jul 2012

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

ATAL Engineering Limited

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 (Jul12 to Sep12)
(Revision 0)

ID	WBS	Task Name	Duration	Early Start	Start	Finish	Late Finish	Free Slack	Total Slack	Predecessors
40	4.26	Preparation of Preliminary Odour Duct Bridge Design Submission	60 d	18/4/10	18/4/10	16/6/10	18/7/10	0 d	32 d	23
41	4.27	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	1/8/10	0 d	32 d	40
42	4.28	First review and comment Preliminary Odour Duct Bridge Design Submission	30 d	1/7/10	1/7/10	30/7/10	31/8/10	0 d	32 d	41
43	4.29	Review Preliminary Odour Duct Bridge Design Submission	60 d	31/7/10	31/7/10	28/9/10	30/10/10	0 d	32 d	42
44	4.30	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	13/11/10	0 d	32 d	43
45	4.31	Review and Approval of Revised Odour Duct Bridge Design Submission	30 d	13/10/10	13/10/10	11/11/10	13/12/10	0 d	32 d	44
46	4.32	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	15/1/11	0 d	51 d	45
47	4.33	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	12/2/11	0 d	51 d	46
48	4.34	Preparation of Commissioning Test Plan and Submit to the Engineer	45 d	23/4/11	23/4/11	6/6/11	27/7/11	0 d	51 d	47FS+120 d
49	4.35	Review and Approval of Commissioning Test Plan by the Engineer	90 d	7/6/11	7/6/11	4/9/11	25/10/11	0 d	51 d	48
50	4.36	Preparation of Training Plan and Submit to the Engineer	160 d	5/9/11	5/9/11	11/2/12	2/4/12	0 d	51 d	49
51	4.37	Review and Approval of Training Plan by the Engineer	120 d	12/2/12	12/2/12	10/6/12	31/7/12	40 d	51 d	50
52	4.38	Preparation of As-built drawings and Submit to the Engineer	180 d	30/10/11	30/10/11	26/4/12	17/5/12	0 d	21 d	1FS+730 d
53	4.39	Review and Approval of As-built drawings	90 d	27/4/12	27/4/12	25/7/12	15/8/12	21 d	21 d	52
54	**5**	**Equipment Submission and Approval**	**688 d**	**3/12/09**	**3/12/09**	**21/10/11**	**28/3/12**	**0 d**	**0 d**	
55	5.1	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
56	5.2	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
57	5.3	Deodourizing System	70 d	15/1/10	15/1/10	25/3/10	4/4/10	10 d	10 d	16FS+43 d
58	5.4	LV Switchboard	80 d	15/1/10	15/1/10	4/4/10	18/5/10	0 d	44 d	16FS+43 d
59	5.5	FRP Cover at Rapid Mix Tank (VO12)	90 d	29/6/11	29/6/11	26/9/11	9/11/11	0 d	44 d	18FS+545 d
60	5.6	Modification proposal of SCADA System (VO13)	520 d	6/2/10	6/2/10	10/7/11	12/12/11	0 d	155 d	16FS+65 d
61	5.7	FRP Cover at Flow Distribution Chamber (VO14)	60 d	18/8/11	18/8/11	16/10/11	28/3/12	0 d	164 d	18FS+595 d
62	5.8	Isolation Stopboard for Scum Pit and Effluent Drop Structure (VO15)	60 d	23/8/11	23/8/11	21/10/11	4/12/11	0 d	44 d	18FS+600 d
63	5.9	FRP Ductwork and Support	70 d	6/2/10	6/2/10	16/4/10	14/5/10	0 d	28 d	16FS+65 d
64	5.10	CCTV System	90 d	29/1/10	29/1/10	28/4/10	2/1/11	0 d	249 d	16FS+57 d
65	5.11	Electrical Accessories	60 d	8/3/10	8/3/10	6/5/10	30/11/11	0 d	573 d	16FS+95 d
66	**6**	**Statutory Submission and Inspection**	**571 d**	**16/3/10**	**16/3/10**	**7/10/11**	**15/8/12**	**313 d**	**313 d**	
67	6.1	Preparation of revised FS Plan including DG goods store application	28 d	16/3/10	16/3/10	12/4/10	8/5/12	0 d	757 d	18FS+75 d
68	6.2	Approval of revised FS Plan including DG goods store application by FSD	45 d	13/4/10	13/4/10	27/5/10	22/6/12	444 d	757 d	67
69	6.3	Submission of Form 501 for FS Inspection	0 d	15/8/11	15/8/11	15/8/11	23/6/12	0 d	313 d	68



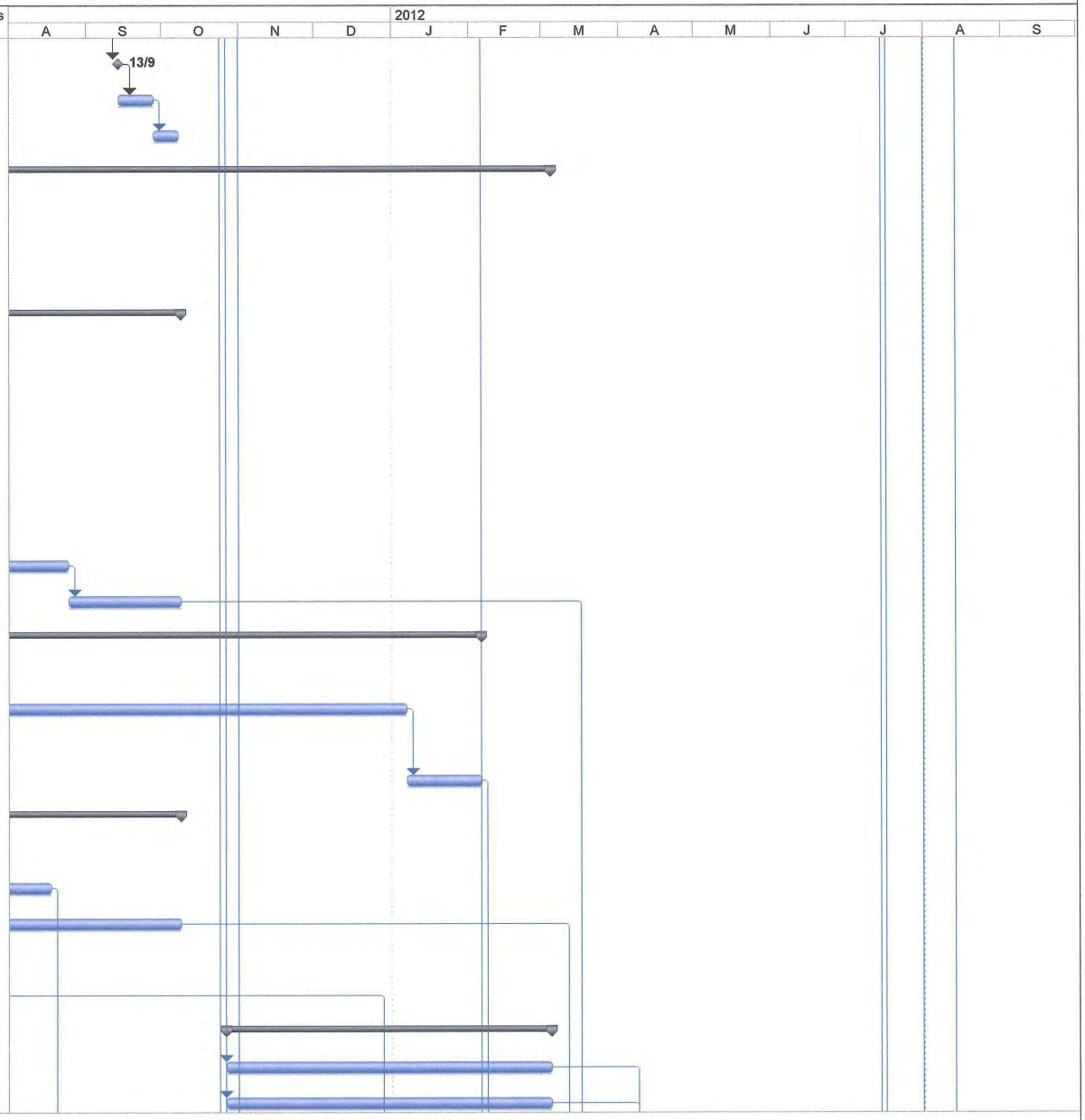
Contract No. DE/2009/02
Revision: 0
Date: 28 Jul 2012

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

ATAL Engineering Limited

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 (Jul12 to Sep12)
(Revision 0)

ID	WBS	Task Name	Duration	Early Start	Start	Finish	Late Finish	Free Slack	Total Slack	Predecessors
70	6.4	First FS Inspection	0 d	13/9/11	13/9/11	13/9/11	23/7/12	0 d	313 d	69FS+30 d
71	6.5	Defect rectification following to the first FS Inspection	14 d	14/9/11	14/9/11	27/9/11	5/8/12	0 d	313 d	70
72	6.6	Final FS Inspection and Issue of FS Certificate	10 d	28/9/11	28/9/11	7/10/11	15/8/12	313 d	313 d	71
73	7	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**	**1/7/12**	**0 d**	**0 d**	
74	7.1	**Deodourization System**	**460 d**	**5/4/10**	**5/4/10**	**8/7/11**	**2/11/11**	**0 d**	**0 d**	
75	7.1.1	Deodourization System (DOU2)	430 d	5/4/10	5/4/10	8/6/11	8/6/11	0 d	0 d	57,56
76	7.1.2	Deodorization System (DOU1)	460 d	5/4/10	5/4/10	8/7/11	2/11/11	0 d	117 d	57,56
77	7.2	**FRP Ductwork and Support**	**360 d**	**14/10/10**	**14/10/10**	**8/10/11**	**13/4/12**	**28 d**	**28 d**	
78	7.2.1	FRP Ductwork and Support (33-45)	45 d	14/10/10	14/10/10	27/11/10	25/12/10	0 d	28 d	63FS+180 d
79	7.2.2	FRP Ductwork and Support (21-31)	45 d	28/11/10	28/11/10	11/1/11	18/7/11	0 d	188 d	78
80	7.2.3	FRP Ductwork and Support (9-19)	45 d	12/1/11	12/1/11	25/2/11	1/9/11	0 d	188 d	79
81	7.2.4	FRP Ductwork and Support (1-7)	45 d	26/2/11	26/2/11	11/4/11	16/10/11	0 d	188 d	80
82	7.2.5	FRP Ductwork and Support (2-8)	45 d	12/4/11	12/4/11	26/5/11	30/11/11	0 d	188 d	81
83	7.2.6	FRP Ductwork and Support (10-20)	45 d	27/5/11	27/5/11	10/7/11	14/1/12	0 d	188 d	82
84	7.2.7	FRP Ductwork and Support (22-32)	45 d	11/7/11	11/7/11	24/8/11	28/2/12	0 d	188 d	83
85	7.2.8	FRP Ductwork and Support(34-46)	45 d	25/8/11	25/8/11	8/10/11	13/4/12	160 d	188 d	84
86	7.3	**Odour Duct Bridge**	**451 d**	**12/11/10**	**12/11/10**	**5/2/12**	**8/4/12**	**63 d**	**63 d**	
87	7.3.1	Fabrication of individual parts of Odour Duct Bridge at DOU1	190 d	12/11/10	12/11/10	20/5/11	18/2/12	0 d	274 d	45
88	7.3.2	Fabrication of individual parts of Odour Duct Bridge at DOU2	211 d	10/6/11	10/6/11	6/1/12	7/2/12	0 d	32 d	45FS+210 d
89	7.3.3	Shipment and Delivery of Odour Duct Brdige at DOU1	50 d	21/5/11	21/5/11	9/7/11	8/4/12	0 d	274 d	87
90	7.3.4	Shipment and Delivery of Odour Duct Brdige at DOU2	30 d	7/1/12	7/1/12	5/2/12	8/3/12	0 d	32 d	88
91	7.4	**Electrical and Building Services Equipment**	**552 d**	**5/4/10**	**5/4/10**	**8/10/11**	**29/3/12**	**44 d**	**44 d**	
92	7.4.1	LV Switchboard (DOU1)	440 d	5/4/10	5/4/10	18/6/11	19/2/12	0 d	246 d	58
93	7.4.2	LV Switchboard (DOU2)	500 d	5/4/10	5/4/10	17/8/11	30/9/11	2 d	44 d	58
94	7.4.3	Modification proposal of SCADA System (VO13)	90 d	11/7/11	11/7/11	8/10/11	11/3/12	144 d	155 d	60
95	7.4.4	CCTV System	210 d	29/4/10	29/4/10	24/11/10	31/7/11	249 d	249 d	64
96	7.4.5	Electrical Accessories	120 d	7/5/10	7/5/10	3/9/10	29/3/12	481 d	573 d	65
97	7.5	**FRP Cover at Rapid Mix Tank (VO12)**	**130 d**	**27/10/11**	**27/10/11**	**4/3/12**	**17/4/12**	**44 d**	**44 d**	
98	7.5.1	Rapid Mix Tank Cover	130 d	27/10/11	27/10/11	4/3/12	17/4/12	0 d	44 d	59FS+30 d
99	7.5.2	Air Ductwork & Duct Support	130 d	27/10/11	27/10/11	4/3/12	17/4/12	0 d	44 d	59FS+30 d



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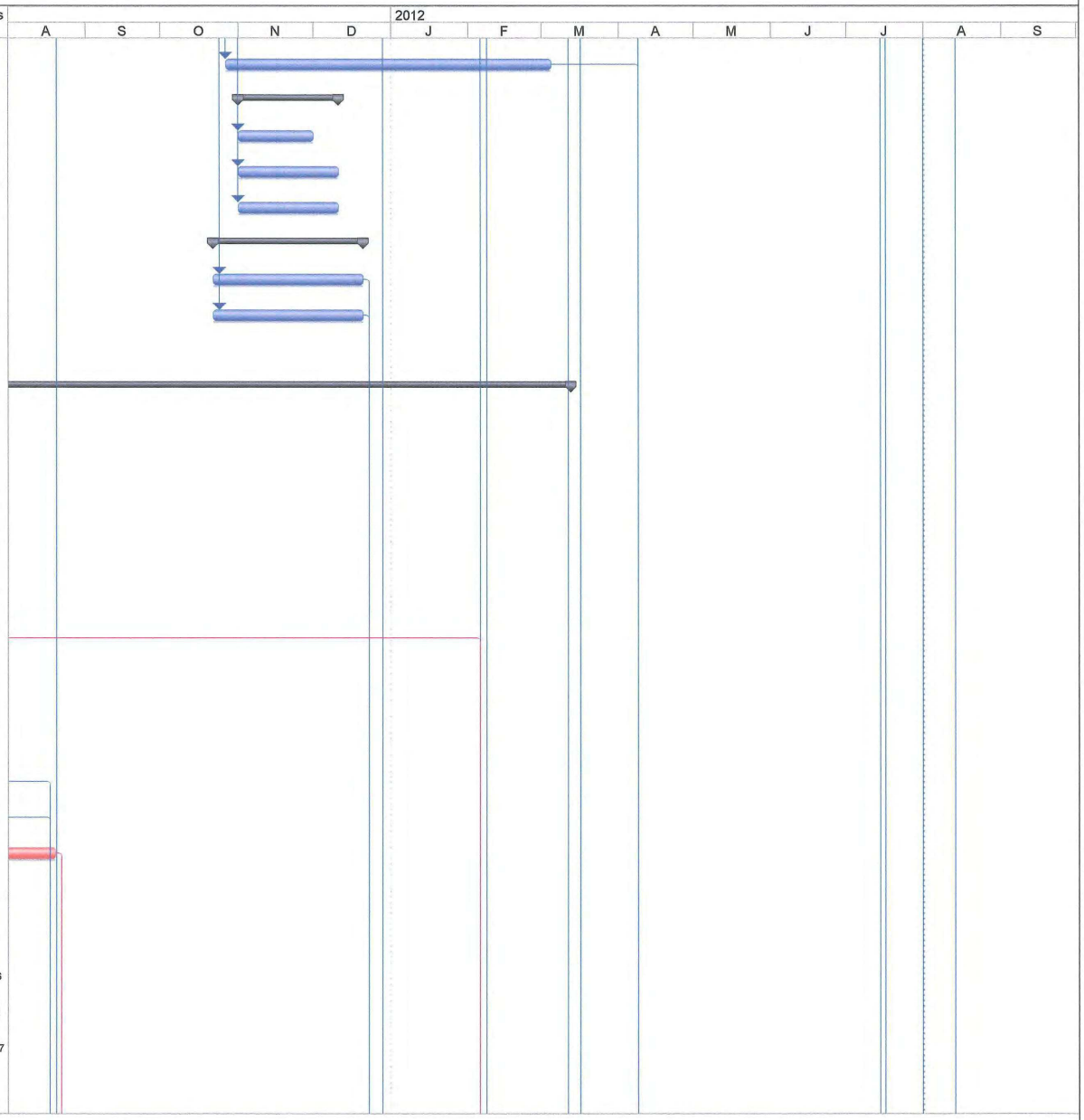
ID	WBS	Task Name	Duration	Early Start	Start	Finish	Late Finish	Free Slack	Total Slack	Predecessors
100	7.5.3	Influent Area Cover	130 d	27/10/11	27/10/11	4/3/12	17/4/12	0 d	44 d	59FS+30 d
101	**7.6**	**FRP Cover at Flow Distribution Chamber (VO14)**	**40 d**	**1/11/11**	**1/11/11**	**10/12/11**	**1/7/12**	**164 d**	**164 d**	
102	7.6.1	FDC Cover	30 d	1/11/11	1/11/11	30/11/11	1/7/12	0 d	214 d	61FS+15 d
103	7.6.2	Air Ductwork & Duct Spport	40 d	1/11/11	1/11/11	10/12/11	22/5/12	0 d	164 d	61FS+15 d
104	7.6.3	Temporary DOU	40 d	1/11/11	1/11/11	10/12/11	27/5/12	0 d	169 d	61FS+15 d
105	**7.7**	**Isolation Stopboard for Scum Pit and Effluent Drop Structure (VO15)**	**60 d**	**22/10/11**	**22/10/11**	**20/12/11**	**2/2/12**	**44 d**	**44 d**	
106	7.7.1	Support Frame Work	60 d	22/10/11	22/10/11	20/12/11	2/2/12	0 d	44 d	62
107	7.7.2	FRP Stopboard	60 d	22/10/11	22/10/11	20/12/11	2/2/12	0 d	44 d	62
108	8	Completion of Pilings and Concrete Base Slabs for the Two Deodourisation Units	0 d	28/12/10	28/12/10	28/12/10	15/8/12	596 d	596 d	1FS+425 d
109	**9**	**Civil Construction**	**806 d**	**28/12/09**	**28/12/09**	**12/3/12**	**13/4/12**	**0 d**	**0 d**	
110	**9.1**	**Condition Survey**	**80 d**	**28/12/09**	**28/12/09**	**17/3/10**	**17/3/10**	**0 d**	**0 d**	
116	**9.2**	**Piling Works**	**433 d**	**5/1/10**	**5/1/10**	**13/3/11**	**18/3/11**	**5 d**	**5 d**	
130	**9.3**	**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	9.3.1	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	9.3.2	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	9.3.3	Pile Cap	29 d	10/5/11	10/5/11	7/6/11	7/6/11	0 d	0 d	132,39
134	9.3.4	Concrete Plinth	7 d	8/6/11	8/6/11	14/6/11	14/6/11	0 d	0 d	133
135	9.3.5	Backfill to Ground Level	7 d	15/6/11	15/6/11	21/6/11	13/7/11	0 d	22 d	134
136	9.3.6	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	9.3.7	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	9.3.8	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
139	9.4	Watermain laying works	30 d	8/6/11	8/6/11	7/7/11	19/8/11	43 d	43 d	133
140	9.5	Reinstatement of road and drainage	66 d	15/6/11	15/6/11	19/8/11	19/8/11	0 d	0 d	134
141	**9.6**	**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	9.6.1	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
143	**9.6.2**	**Tree transplant**	**50 d**	**6/1/10**	**6/1/10**	**24/2/10**	**6/7/10**	**132 d**	**132 d**	**7FS+30 d**
147	9.6.3	Diversion of underground utilities including concrete service duct	270 d	30/4/10	30/4/10	24/1/11	2/4/11	0 d	68 d	18FS+120 d,146
148	9.6.4	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
149	9.6.5	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
150	9.6.6	Concrete Plinth	6 d	9/3/11	9/3/11	14/3/11	21/5/11	0 d	68 d	149,39



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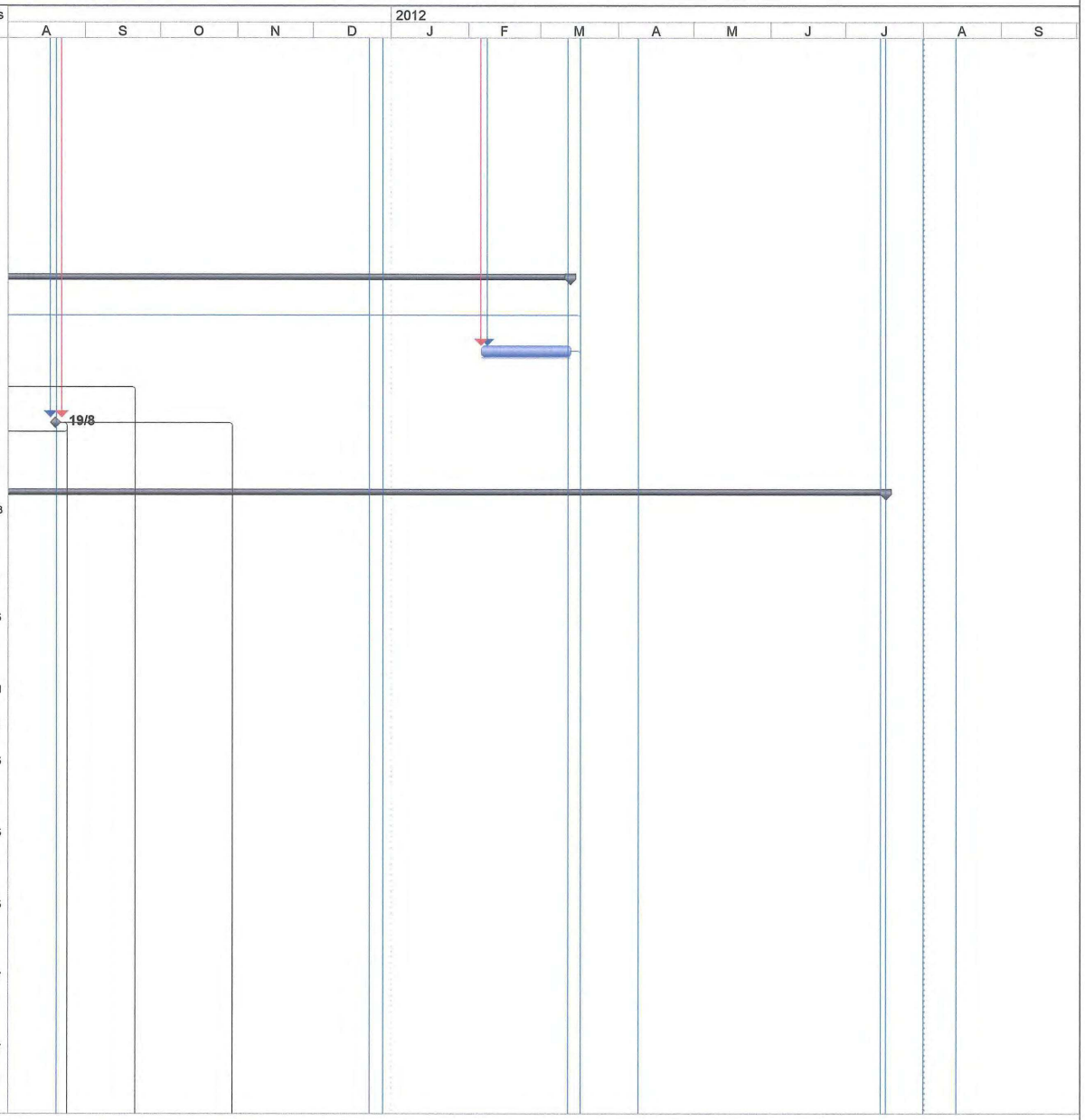
ID	WBS	Task Name	Duration	Early Start	Start	Finish	Late Finish	Free Slack	Total Slack	Predecessors
151	9.6.7	Backfill to Ground Level	5 d	15/3/11	15/3/11	19/3/11	8/7/11	0 d	111 d	149,39,150
152	9.6.8	Pour 1a - Wall of Control Room	21 d	20/3/11	20/3/11	9/4/11	29/7/11	0 d	111 d	39,29,151
153	9.6.9	Pour 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	9.6.10	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
155	9.7	Watermain laying works	90 d	9/3/11	9/3/11	6/6/11	19/8/11	6 d	74 d	149
156	9.8	Reinstatement of road and drainage	90 d	15/3/11	15/3/11	12/6/11	19/8/11	0 d	68 d	150
157	**9.9**	**Erection of Odour Bridge**	**247 d**	**10/7/11**	**10/7/11**	**12/3/12**	**13/4/12**	**32 d**	**32 d**	
158	9.9.1	Odour Bridge connecting DOU1	5 d	10/7/11	10/7/11	14/7/11	13/4/12	246 d	274 d	45,89,47,150
159	9.9.2	Odour Bridge connecting DOU2	36 d	6/2/12	6/2/12	12/3/12	13/4/12	4 d	32 d	45,90,47,134
160	10	**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**
161	11	**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**
162	12	Completion of Installation of Prototype Covers on Tank 43	0 d	31/3/10	31/3/10	31/3/10	15/8/12	868 d	868 d	1FS+153 d
163	13	**Delivery and Installation of FRP Covers & Accessories for Containment System**	**915 d**	**14/1/10**	**14/1/10**	**16/7/12**	**16/7/12**	**0 d**	**0 d**	
164	13.1	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
165	13.2	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
166	13.3	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
167	13.4	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
168	13.5	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
169	13.6	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
170	13.7	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
171	13.8	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
172	13.9	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
173	13.10	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
174	13.11	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
175	13.12	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
176	13.13	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
177	13.14	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
178	13.15	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
179	13.16	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
180	13.17	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



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181	13.18	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
182	13.19	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
183	13.20	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
184	13.21	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
185	13.22	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
186	13.23	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
187	13.24	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
188	13.25	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
189	13.26	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
190	13.27	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	13.28	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
192	13.29	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
193	13.30	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
194	13.31	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
195	13.32	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
196	13.33	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
197	13.34	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
198	13.35	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
199	13.36	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
200	13.37	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
201	13.38	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
202	13.39	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
203	13.40	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
204	13.41	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
205	13.42	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
206	13.43	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
207	13.44	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
208	13.45	Delivery and Manufacture of Sedimemtation Tank No 29	32 d	28/4/11	28/4/11	29/5/11	29/5/11	0 d	0 d	206FS-15 d
209	13.46	Installation and Testing of Containment System of Sedimemtation 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
210	13.47	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

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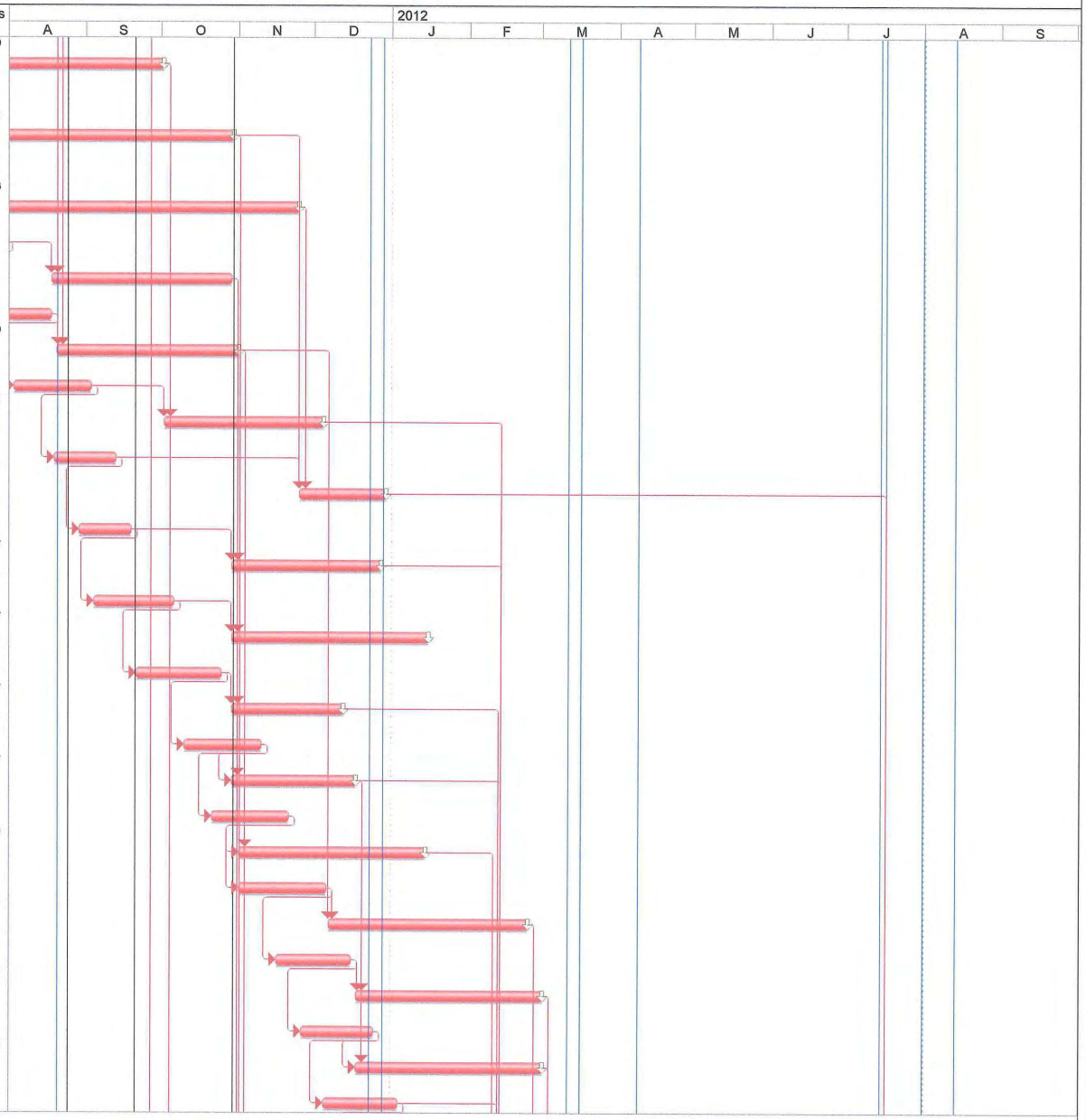
211	13.48	Installation and Testing of Containment System of Flocculation Tank 5	127 d	28/5/11	28/5/11	1/10/11	1/10/11	0 d	0 d	210FS-20 d,199
212	13.49	Delivery and Manufacture of Flocculation Tank No.7	30 d	31/5/11	31/5/11	29/6/11	29/6/11	0 d	0 d	210FS-15 d
213	13.50	Installation and Testing of Containment 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
214	13.51	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
215	13.52	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
216	13.53	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
217	13.54	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
218	13.55	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
219	13.56	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
220	13.57	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
221	13.58	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
222	13.59	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
223	13.60	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
224	13.61	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
225	13.62	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
226	13.63	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
227	13.64	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	13.65	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
229	13.66	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
230	13.67	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
231	13.68	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
232	13.69	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
233	13.70	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
234	13.71	Delivery and Manufacture of Prototype near Tank No.33	35 d	1/11/11	1/11/11	5/12/11	5/12/11	0 d	0 d	232FS-20 d
235	13.72	Installation and Testing of Containment System of Prototype near Tank No.33	80 d	7/12/11	7/12/11	24/2/12	24/2/12	0 d	0 d	234FS+1 d,219
236	13.73	Delivery and Manufacture of Sedimentation Tank No.18	30 d	16/11/11	16/11/11	15/12/11	15/12/11	0 d	0 d	234FS-20 d
237	13.74	Installation and Testing of Containment System of Sedimentation Tank No.18	75 d	18/12/11	18/12/11	1/3/12	1/3/12	0 d	0 d	236FS-20 d,231
238	13.75	Delivery and Manufacture of Sedimentation Tank No.20	29 d	26/11/11	26/11/11	24/12/11	24/12/11	0 d	0 d	236FS-20 d
239	13.76	Installation and Testing of Containment System of Sedimentation Tank No.20	75 d	18/12/11	18/12/11	1/3/12	1/3/12	0 d	0 d	238FS-20 d,231
240	13.77	Delivery and Manufacture of Sedimentation Tank No.14	30 d	5/12/11	5/12/11	3/1/12	3/1/12	0 d	0 d	238FS-20 d



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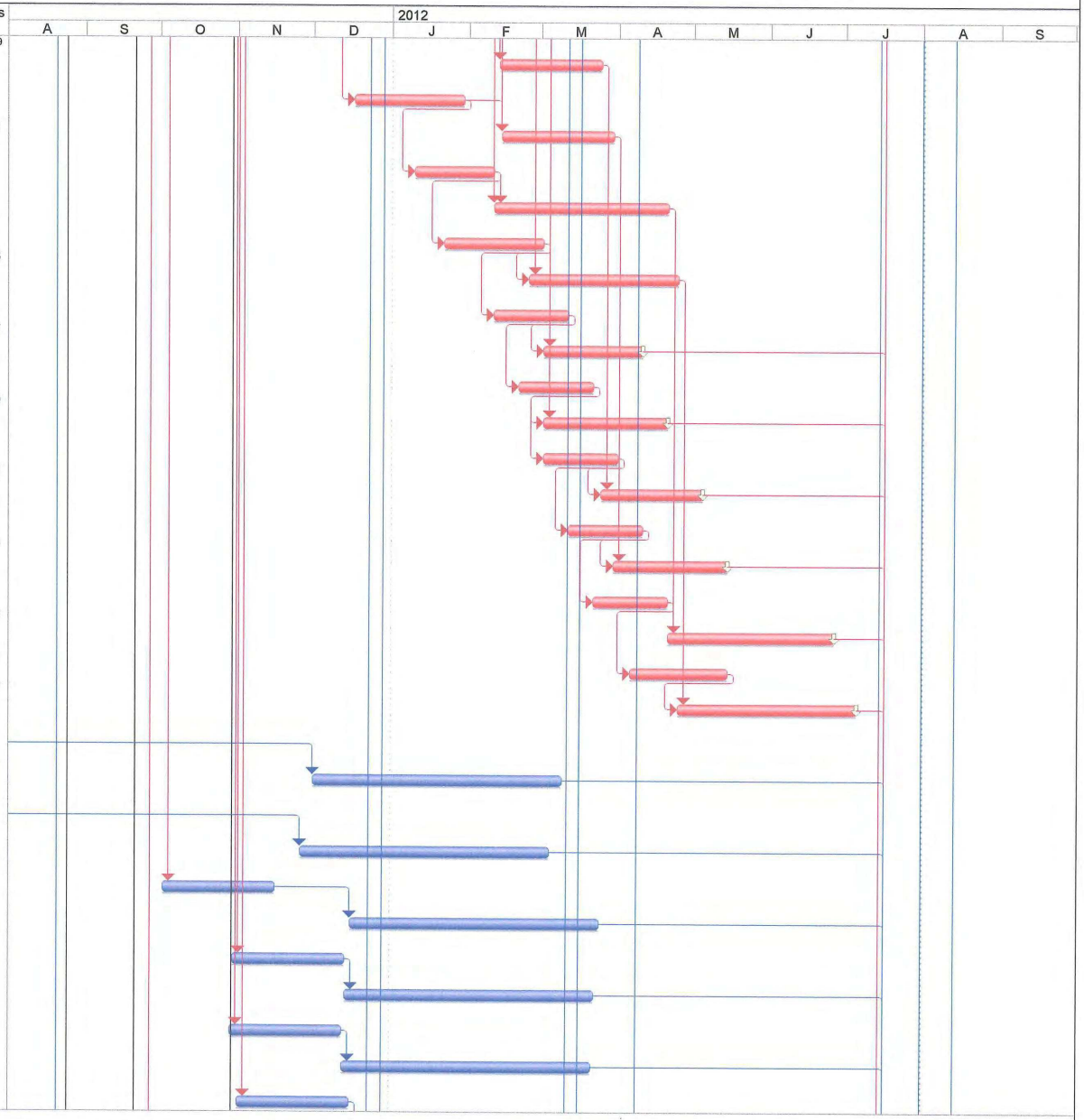
Provision of Covers and Deodourisation Facilities to the Existing Sedimentation Tanks at Stonecutters Island Sewage Treatment Works (Jul12 to Sep12)
(Revision 0)

ID	WBS	Task Name	Duration	Early Start	Start	Finish	Late Finish	Free Slack	Total Slack	Predecessors
241	13.78	Installation and Testing of Containment System of Sedimentation Tank No.14	41 d	13/2/12	13/2/12	24/3/12	24/3/12	0 d	0 d	240FS+40 d,229
242	13.79	Delivery and Manufacture of Sedimentation Tank No.16	44 d	17/12/11	17/12/11	29/1/12	29/1/12	0 d	0 d	240FS-18 d
243	13.80	Installation and Testing of Containment System of Sedimentation Tank No.16	45 d	14/2/12	14/2/12	29/3/12	29/3/12	0 d	0 d	242FS+15 d,231,221FS+3 d,225FS+3 d
244	13.81	Delivery and Manufacture of Sedimentation Tank No.26	32 d	10/1/12	10/1/12	10/2/12	10/2/12	0 d	0 d	242FS-20 d
245	13.82	Installation and Testing of Containment System of Sedimentation Tank No.26	70 d	11/2/12	11/2/12	20/4/12	20/4/12	0 d	0 d	244,233
246	13.83	Delivery and Manufacture of Sedimentation Tank No.28	40 d	22/1/12	22/1/12	1/3/12	1/3/12	0 d	0 d	244FS-20 d
247	13.84	Installation and Testing of Containment System of Sedimentation Tank No.28	60 d	25/2/12	25/2/12	24/4/12	24/4/12	0 d	0 d	246FS-20 d,235
248	13.85	Delivery and Manufacture of Prototype near Tank No.34	30 d	11/2/12	11/2/12	11/3/12	11/3/12	0 d	0 d	246FS-20 d
249	13.86	Installation and Testing of Containment System of Prototype near Tank No.34	40 d	2/3/12	2/3/12	10/4/12	10/4/12	0 d	0 d	248FS-20 d,237
250	13.87	Delivery and Manufacture of Sedimentation Tank No.34	30 d	21/2/12	21/2/12	21/3/12	21/3/12	0 d	0 d	248FS-20 d
251	13.88	Installation and Testing of Containment System of Sedimentation Tank No.34	50 d	2/3/12	2/3/12	20/4/12	20/4/12	0 d	0 d	250FS-20 d,239
252	13.89	Delivery and Manufacture of Sedimentation Tank No.44	30 d	2/3/12	2/3/12	31/3/12	31/3/12	0 d	0 d	250FS-20 d
253	13.90	Installation and Testing of Containment System of Sedimentation Tank No.44	41 d	25/3/12	25/3/12	4/5/12	4/5/12	0 d	0 d	252FS-20 d,241
254	13.91	Delivery and Manufacture of Sedimentation Tank No.46	30 d	12/3/12	12/3/12	10/4/12	10/4/12	0 d	0 d	252FS-20 d
255	13.92	Installation and Testing of Containment System of Sedimentation Tank No.46	46 d	30/3/12	30/3/12	14/5/12	14/5/12	0 d	0 d	254FS-20 d,243
256	13.93	Delivery and Manufacture of Sedimentation Tank No.42	30 d	22/3/12	22/3/12	20/4/12	20/4/12	0 d	0 d	254FS-20 d
257	13.94	Installation and Testing of Containment System of Sedimentation Tank No.42	67 d	21/4/12	21/4/12	26/6/12	26/6/12	0 d	0 d	256FS-20 d,245
258	13.95	Delivery and Manufacture of Sedimentation Tank No.40	39 d	6/4/12	6/4/12	14/5/12	14/5/12	0 d	0 d	256FS-15 d
259	13.96	Installation and Testing of Containment System of Sedimentation Tank No.40	72 d	25/4/12	25/4/12	5/7/12	5/7/12	0 d	0 d	258FS-20 d,247
260	13.97	Delivery and Manufacture of Main Disribution Channel (1-19)	85 d	20/1/11	20/1/11	14/4/11	21/8/11	0 d	129 d	194
261	13.98	Installation and Testing of Containment System of Main Disribution Channel (1-19)	100 d	1/12/11	1/12/11	9/3/12	16/7/12	118 d	129 d	260FS+230 d
262	13.99	Delivery and Manufacture of Main Disribution Channel (21-31)	80 d	20/1/11	20/1/11	9/4/11	21/8/11	0 d	134 d	194
263	13.100	Installation and Testing of Containment System of Main Disribution Channel (21-31)	100 d	26/11/11	26/11/11	4/3/12	16/7/12	123 d	134 d	262FS+230 d
264	13.101	Delivery and Manufacture of Main Disribution Channel (33-45)	45 d	2/10/11	2/10/11	15/11/11	8/3/12	0 d	114 d	211
265	13.102	Installation and Testing of Containment System of Main Disribution Channel (33-45)	100 d	16/12/11	16/12/11	24/3/12	16/7/12	103 d	114 d	264FS+30 d
266	13.103	Delivery and Manufacture of Main Disribution Channel (22-32)	45 d	30/10/11	30/10/11	13/12/11	7/4/12	0 d	116 d	213
267	13.104	Installation and Testing of Containment System of Main Disribution Channel (22-32)	100 d	14/12/11	14/12/11	22/3/12	16/7/12	105 d	116 d	266
268	13.105	Delivery and Manufacture of Main Disribution Channel (34-46)	45 d	29/10/11	29/10/11	12/12/11	7/4/12	0 d	117 d	217
269	13.106	Installation and Testing of Containment System of Main Disribution Channel (34-46)	100 d	13/12/11	13/12/11	21/3/12	16/7/12	106 d	117 d	268
270	13.107	Delivery and Manufacture of Main Disribution Channel (2-20)	45 d	1/11/11	1/11/11	15/12/11	7/4/12	0 d	114 d	219



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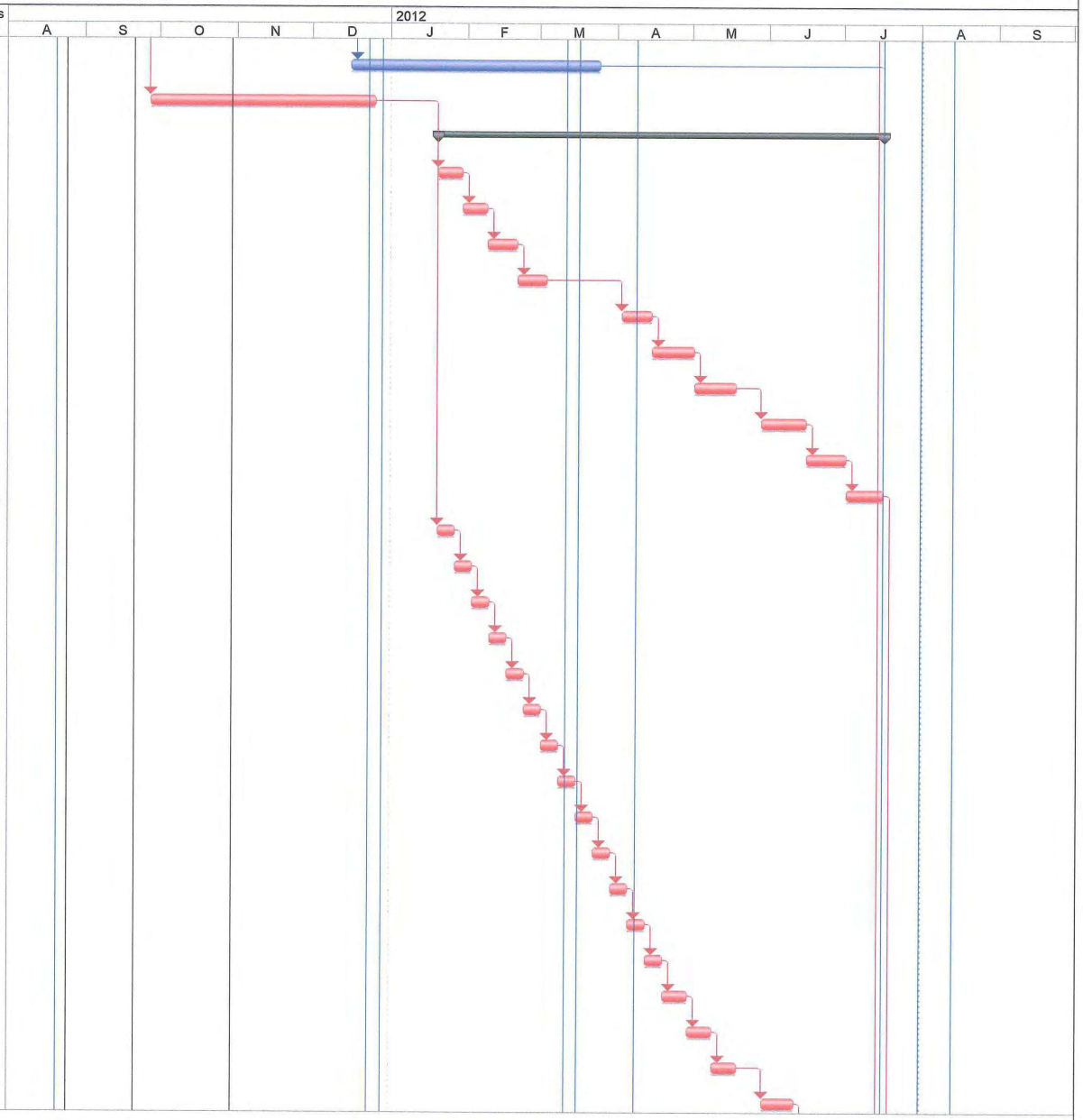
ID	WBS	Task Name	Duration	Early Start	Start	Finish	Late Finish	Free Slack	Total Slack	Predecessors
271	13.108	Installation and Testing of Containment System of Main Disribution Channel (2-20)	100 d	16/12/11	16/12/11	24/3/12	16/7/12	103 d	114 d	270
272	13.109	Delivery and Manufacture of Scum Pit and Effluent Drop Structure	90 d	27/9/11	27/9/11	25/12/11	25/12/11	0 d	0 d	208FS+120 d
273	**13.110**	**Installation and Testing of Containment System of Scum Pit and Effluent Drop Structure**	**179 d**	**20/1/12**	**20/1/12**	**16/7/12**	**16/7/12**	**0 d**	**0 d**	
274	13.110.1	Scum Pit S#4	10 d	20/1/12	20/1/12	29/1/12	29/1/12	0 d	0 d	272FS+25 d
275	13.110.2	Scum Pit S#1	10 d	30/1/12	30/1/12	8/2/12	8/2/12	0 d	0 d	274
276	13.110.3	Scum Pit S#6	12 d	9/2/12	9/2/12	20/2/12	20/2/12	0 d	0 d	275
277	13.110.4	Scum Pit S#7	12 d	21/2/12	21/2/12	3/3/12	3/3/12	0 d	0 d	276
278	13.110.5	Scum Pit S#8	12 d	3/4/12	3/4/12	14/4/12	14/4/12	0 d	0 d	277FS+30 d
279	13.110.6	Scum Pit S#9	17 d	15/4/12	15/4/12	1/5/12	1/5/12	0 d	0 d	278
280	13.110.7	Scum Pit S#10	17 d	2/5/12	2/5/12	18/5/12	18/5/12	0 d	0 d	279
281	13.110.8	Scum Pit S#5	18 d	29/5/12	29/5/12	15/6/12	15/6/12	0 d	0 d	280FS+10 d
282	13.110.9	Scum Pit S#2	16 d	16/6/12	16/6/12	1/7/12	1/7/12	0 d	0 d	281
283	13.110.10	Scum Pit S#2	15 d	2/7/12	2/7/12	16/7/12	16/7/12	0 d	0 d	282
284	13.110.11	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	13.110.12	Effluent Drop Structure 14	7 d	27/1/12	27/1/12	2/2/12	2/2/12	0 d	0 d	284
286	13.110.13	Effluent Drop Structure #11	7 d	3/2/12	3/2/12	9/2/12	9/2/12	0 d	0 d	285
287	13.110.14	Effluent Drop Structure #16	7 d	10/2/12	10/2/12	16/2/12	16/2/12	0 d	0 d	286
288	13.110.15	Effluent Drop Structure #2	7 d	17/2/12	17/2/12	23/2/12	23/2/12	0 d	0 d	287
289	13.110.16	Effluent Drop Structure #1	7 d	24/2/12	24/2/12	1/3/12	1/3/12	0 d	0 d	288
290	13.110.17	Effluent Drop Structure #13	7 d	2/3/12	2/3/12	8/3/12	8/3/12	0 d	0 d	289
291	13.110.18	Effluent Drop Structure #6	7 d	9/3/12	9/3/12	15/3/12	15/3/12	0 d	0 d	290
292	13.110.19	Effluent Drop Structure #12	7 d	16/3/12	16/3/12	22/3/12	22/3/12	0 d	0 d	291
293	13.110.20	Effluent Drop Structure #15	7 d	23/3/12	23/3/12	29/3/12	29/3/12	0 d	0 d	292
294	13.110.21	Effluent Drop Structure #9	7 d	30/3/12	30/3/12	5/4/12	5/4/12	0 d	0 d	293
295	13.110.22	Effluent Drop Structure #8	7 d	6/4/12	6/4/12	12/4/12	12/4/12	0 d	0 d	294
296	13.110.23	Effluent Drop Structure #17	7 d	13/4/12	13/4/12	19/4/12	19/4/12	0 d	0 d	295
297	13.110.24	Effluent Drop Structure #20	10 d	20/4/12	20/4/12	29/4/12	29/4/12	0 d	0 d	296
298	13.110.25	Effluent Drop Structure #10	10 d	30/4/12	30/4/12	9/5/12	9/5/12	0 d	0 d	297
299	13.110.26	Effluent Drop Structure 19	10 d	10/5/12	10/5/12	19/5/12	19/5/12	0 d	0 d	298
300	13.110.27	Effluent Drop Structure #4	13 d	30/5/12	30/5/12	11/6/12	11/6/12	0 d	0 d	299FS+10 d



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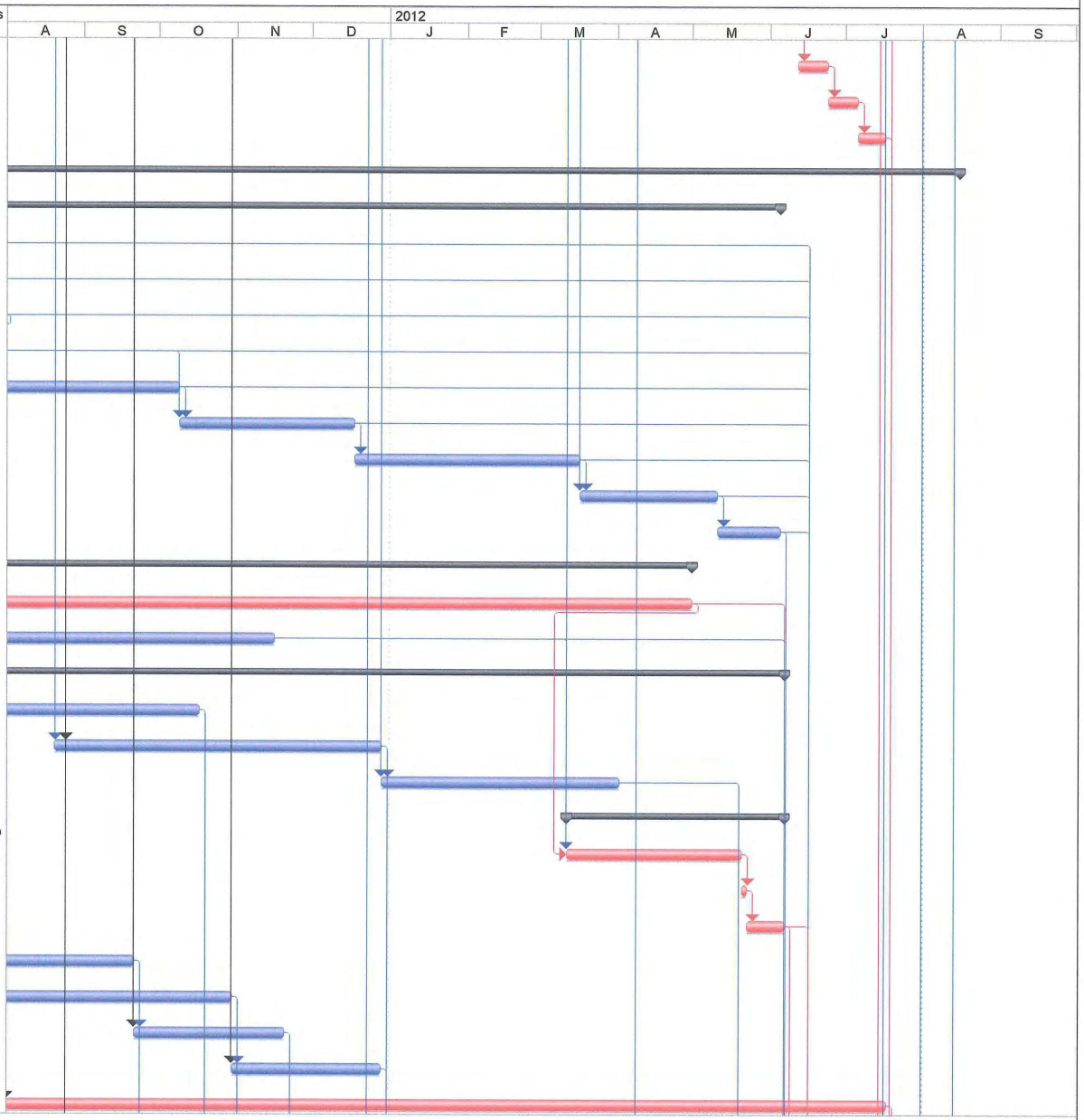
301	13.110.28	Effluent Drop Structure #5	12 d	12/6/12	12/6/12	23/6/12	23/6/12	0 d	0 d	300
302	13.110.29	Effluent Drop Structure #3	12 d	24/6/12	24/6/12	5/7/12	5/7/12	0 d	0 d	301
303	13.110.30	Effluent Drop Structure #18	11 d	6/7/12	6/7/12	16/7/12	16/7/12	0 d	0 d	302
304	14	**Site Installation**	**517 d**	**18/3/11**	**18/3/11**	**15/8/12**	**15/8/12**	**0 d**	**0 d**	
305	14.1	**FRP Ductwork**	**445 d**	**18/3/11**	**18/3/11**	**4/6/12**	**2/7/12**	**28 d**	**28 d**	
306	14.1.1	Sedimentation Tank (33-45, Odd Number)	60 d	18/3/11	18/3/11	16/5/11	13/6/11	0 d	28 d	78FS+110 d
307	14.1.2	Sedimentation Tank (9 -31, Odd Number)	60 d	17/5/11	17/5/11	15/7/11	12/8/11	0 d	28 d	306
308	14.1.3	Flocculation Tank (Odd Number)	25 d	6/7/11	6/7/11	30/7/11	27/8/11	0 d	28 d	307FS-10 d
309	14.1.4	Flocculation Tank (Even Number)	25 d	6/7/11	6/7/11	30/7/11	5/11/11	70 d	98 d	307FS-10 d
310	14.1.5	Main Distribution Channel (Odd Number)	80 d	21/7/11	21/7/11	8/10/11	5/11/11	0 d	28 d	308FS-10 d
311	14.1.6	Main Distribution Channel (Even Number)	70 d	9/10/11	9/10/11	17/12/11	14/1/12	0 d	28 d	309,310
312	14.1.7	Sedimentation Tank (34 -46, Even Number)	90 d	18/12/11	18/12/11	16/3/12	13/4/12	0 d	28 d	311
313	14.1.8	Sedimentation Tank (10 -32, Even Number)	55 d	17/3/12	17/3/12	10/5/12	7/6/12	0 d	28 d	85,312,158,159
314	14.1.9	Inlet Works	25 d	11/5/12	11/5/12	4/6/12	2/7/12	0 d	28 d	313
315	14.2	**Deodorization System**	**327 d**	**9/6/11**	**9/6/11**	**30/4/12**	**30/4/12**	**0 d**	**0 d**	
316	14.2.1	Deodourization System No. 2	327 d	9/6/11	9/6/11	30/4/12	30/4/12	0 d	0 d	150,75
317	14.2.2	Deodourization System No. 1	130 d	9/7/11	9/7/11	15/11/11	11/3/12	106 d	117 d	134,76
318	14.3	**Electrical Installation**	**410 d**	**24/4/11**	**24/4/11**	**6/6/12**	**2/7/12**	**26 d**	**26 d**	
319	14.3.1	LV Switchboard at DOU1	120 d	19/6/11	19/6/11	16/10/11	18/6/12	0 d	246 d	92,160
320	14.3.2	LV Switchboard at DOU2	131 d	20/8/11	20/8/11	28/12/11	8/2/12	0 d	42 d	93,161
321	14.3.3	Cabling Laying and Termination for DOU and SCADA	95 d	29/12/11	29/12/11	1/4/12	2/7/12	50 d	92 d	96,320
322	14.3.4	**Modification of SCADA System (VO13)**	**87 d**	**12/3/12**	**12/3/12**	**6/6/12**	**6/6/12**	**0 d**	**0 d**	
323	14.3.4.1	Programming Works	70 d	12/3/12	12/3/12	20/5/12	20/5/12	0 d	0 d	94,317,316FS-50 d
324	14.3.4.2	Factory Acceptance Test	2 d	21/5/12	21/5/12	22/5/12	22/5/12	0 d	0 d	323
325	14.3.4.3	Site Modification Works	15 d	23/5/12	23/5/12	6/6/12	6/6/12	0 d	0 d	324
326	14.3.5	Earthing Installation at DOU1	150 d	24/4/11	24/4/11	20/9/11	13/4/12	0 d	206 d	153
327	14.3.6	Earthing Installation at DOU2	100 d	22/7/11	22/7/11	29/10/11	3/2/12	0 d	97 d	137
328	14.3.7	Lightning Installation at DOU1	60 d	21/9/11	21/9/11	19/11/11	12/6/12	0 d	206 d	160,326
329	14.3.8	Lightning Installation at DOU2	60 d	30/10/11	30/10/11	28/12/11	3/4/12	0 d	97 d	161,327
330	14.4	CCTV System and associated cabling work	352 d	1/8/11	1/8/11	17/7/12	17/7/12	0 d	0 d	95,161FS-19 d,160FS-19 d



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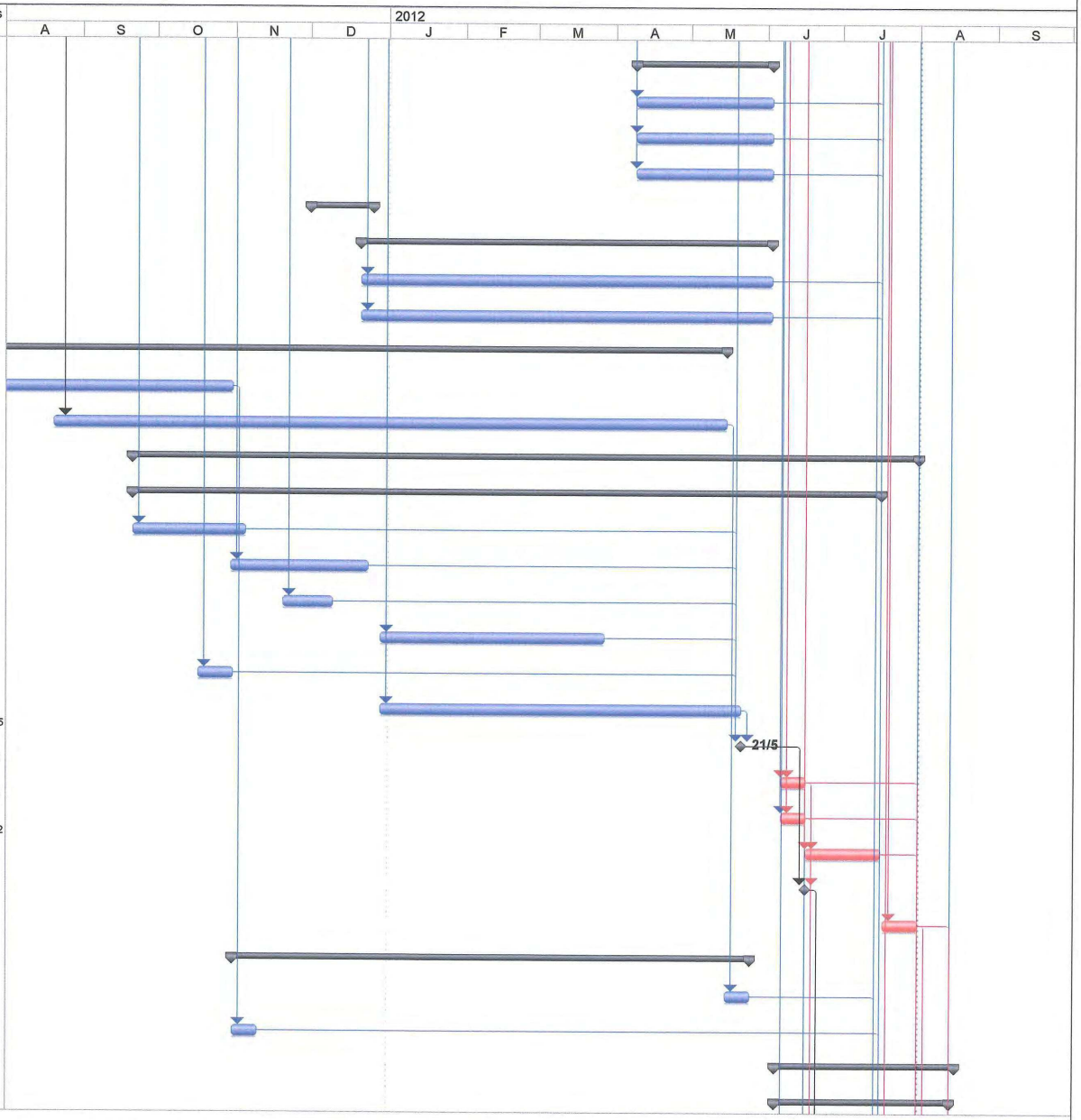
331	14.5	**FRP Cover at Rapid Mix Tank (VO12)**	**55 d**	**9/4/12**	**9/4/12**	**2/6/12**	**16/7/12**	**44 d**	**44 d**	
332	14.5.1	Rapid Mix Tank Cover	55 d	9/4/12	9/4/12	2/6/12	16/7/12	42 d	44 d	98FS+35 d
333	14.5.2	Air Ductwork & Duct Support	55 d	9/4/12	9/4/12	2/6/12	16/7/12	42 d	44 d	99FS+35 d
334	14.5.3	Influent Area Cover	55 d	9/4/12	9/4/12	2/6/12	16/7/12	42 d	44 d	100FS+35 d
335	14.6	**FRP Cover at Flow Distribution Chamber (VO14)**	**25 d**	**1/12/11**	**1/12/11**	**25/12/11**	**16/7/12**	**174 d**	**174 d**	
339	14.7	**Isolation Stopboard for Scum Pit and Effluent Drop Structure (VO15)**	**165 d**	**21/12/11**	**21/12/11**	**2/6/12**	**16/7/12**	**44 d**	**44 d**	
340	14.7.1	Support Frame Work	165 d	21/12/11	21/12/11	2/6/12	16/7/12	33 d	44 d	106
341	14.7.2	FRP Stopboard	165 d	21/12/11	21/12/11	2/6/12	16/7/12	33 d	44 d	107
342	14.8	**BS Installation**	**338 d**	**13/6/11**	**13/6/11**	**15/5/12**	**6/7/12**	**52 d**	**52 d**	
343	14.8.1	Building Services and FS Equipment Installation at DOU1	140 d	13/6/11	13/6/11	30/10/11	6/7/12	0 d	250 d	160
344	14.8.2	Building Services and FS Equipment Installation at DOU2	270 d	20/8/11	20/8/11	15/5/12	6/7/12	0 d	52 d	161
345	14.9	**Testing and Commissioning**	**315 d**	**21/9/11**	**21/9/11**	**31/7/12**	**31/7/12**	**0 d**	**0 d**	
346	14.9.1	**Electrical Installation**	**300 d**	**21/9/11**	**21/9/11**	**16/7/12**	**16/7/12**	**0 d**	**0 d**	
347	14.9.1.1	Earthing Installation at DOU1	45 d	21/9/11	21/9/11	4/11/11	2/7/12	199 d	241 d	326
348	14.9.1.2	Earthing Installation at DOU2	55 d	30/10/11	30/10/11	23/12/11	2/7/12	150 d	192 d	327
349	14.9.1.3	Lightning Installation at DOU1	20 d	20/11/11	20/11/11	9/12/11	2/7/12	164 d	206 d	328
350	14.9.1.4	Lightning Installation at DOU2	90 d	29/12/11	29/12/11	27/3/12	2/7/12	55 d	97 d	329
351	14.9.1.5	LV Switchboard at DOU1	14 d	17/10/11	17/10/11	30/10/11	2/7/12	204 d	246 d	319
352	14.9.1.6	LV Switchboard at DOU2	145 d	29/12/11	29/12/11	21/5/12	2/7/12	0 d	42 d	320
353	14.9.1.7	Power Energization for DOU2	0 d	21/5/12	21/5/12	21/5/12	3/7/12	15 d	42 d	52,347,348,349,35
354	14.9.1.8	Deodourization System No. 2	10 d	7/6/12	7/6/12	16/6/12	16/6/12	0 d	0 d	316,338,337,325
355	14.9.1.9	Deodourization System No. 1	10 d	7/6/12	7/6/12	16/6/12	16/6/12	0 d	0 d	317,338,337,325
356	14.9.1.10	DCS/ PLC System	30 d	17/6/12	17/6/12	16/7/12	16/7/12	0 d	0 d	54,355,338,337,32
357	14.9.2	Manual Operation of DOU2	0 d	16/6/12	16/6/12	16/6/12	3/7/12	0 d	16 d	354,353
358	14.9.3	CCTV System	14 d	18/7/12	18/7/12	31/7/12	31/7/12	0 d	0 d	330
359	14.9.4	**BS & FS Installation**	**208 d**	**31/10/11**	**31/10/11**	**25/5/12**	**16/7/12**	**52 d**	**52 d**	
360	14.9.4.1	Building Services and FS Equipment Installation at DOU2	10 d	16/5/12	16/5/12	25/5/12	16/7/12	50 d	52 d	344
361	14.9.4.2	Building Services and FS Equipment Installation at DOU1	10 d	31/10/11	31/10/11	9/11/11	16/7/12	239 d	250 d	343
362	14.10	**System Performance Test**	**72 d**	**5/6/12**	**5/6/12**	**15/8/12**	**15/8/12**	**0 d**	**0 d**	
363	14.10.1	**Deodourization System No. 1**	**70 d**	**5/6/12**	**5/6/12**	**13/8/12**	**15/8/12**	**2 d**	**2 d**	



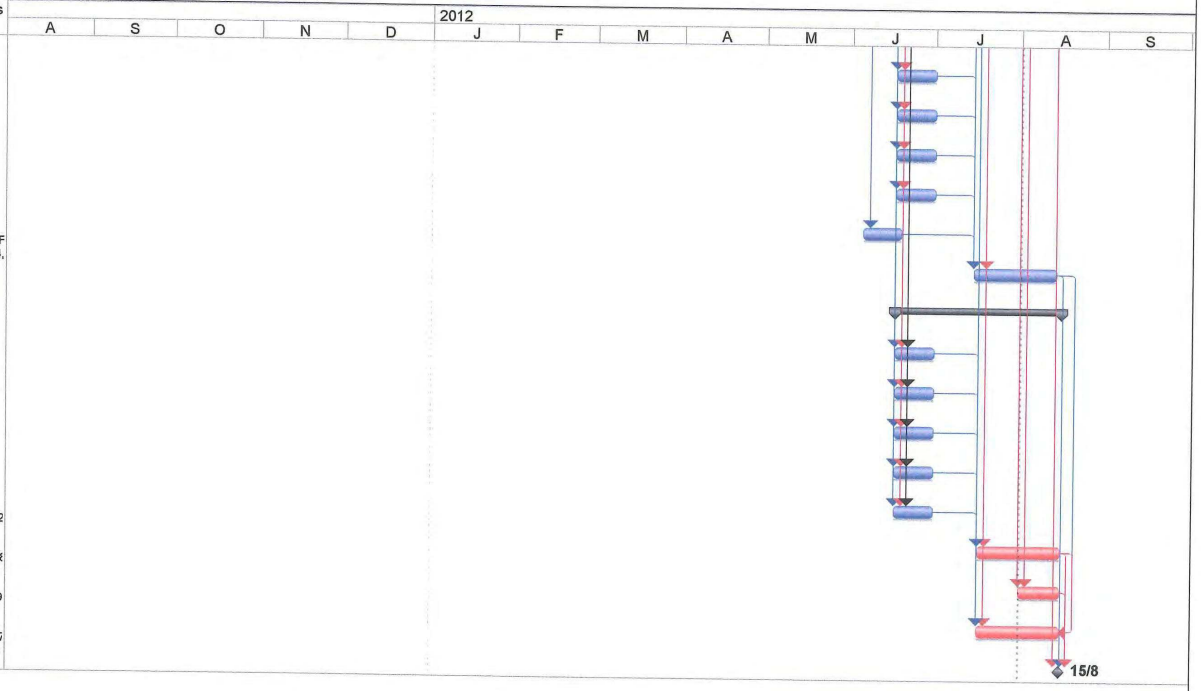
Contract No. DE/2009/02
Revision: 0
Date: 28 Jul 2012

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

ATAL Engineering Limited

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 (Jul12 to Sep12)
(Revision 0)

ID	WBS	Task Name	Duration	Early Start	Start	Finish	Late Finish	Free Slack	Total Slack	Predecessors
364	14.10.1.1	Sedimentation Tank (34 -46, Even Number)	14 d	17/6/12	17/6/12	30/6/12	16/7/12	14 d	16 d	355,313
365	14.10.1.2	Sedimentation Tank (10 -32, Even Number)	14 d	17/6/12	17/6/12	30/6/12	16/7/12	14 d	16 d	312,355
366	14.10.1.3	Main Distribution Channel (Even Number)	14 d	17/6/12	17/6/12	30/6/12	16/7/12	14 d	16 d	355,311
367	14.10.1.4	Flocculation Tank (Even number)	14 d	17/6/12	17/6/12	30/6/12	16/7/12	14 d	16 d	355,309
368	14.10.1.5	Inlet Works	14 d	5/6/12	5/6/12	18/6/12	16/7/12	26 d	28 d	314
369	14.10.1.6	Final DOU1 System Acceptance Test	30 d	15/7/12	15/7/12	13/8/12	15/8/12	2 d	2 d	,365,367,368,356F),366,259,336,334,
370	**14.10.2**	**Deodourization System No. 2**	**60 d**	**17/6/12**	**17/6/12**	**15/8/12**	**15/8/12**	**0 d**	**0 d**	
371	14.10.2.1	Sedimentation Tank (33-45, Odd Number)	14 d	17/6/12	17/6/12	30/6/12	16/7/12	16 d	16 d	306,354,357
372	14.10.2.2	Sedimentation Tank (9 -31, Odd Number)	14 d	17/6/12	17/6/12	30/6/12	16/7/12	16 d	16 d	307,354,357
373	14.10.2.3	Main Distribution Channel (odd number)	14 d	17/6/12	17/6/12	30/6/12	16/7/12	16 d	16 d	310,354,357
374	14.10.2.4	Flocculation Tank (odd number)	14 d	17/6/12	17/6/12	30/6/12	16/7/12	16 d	16 d	308,354,357
375	14.10.2.5	Inlet Works	14 d	17/6/12	17/6/12	30/6/12	16/7/12	16 d	16 d	354,314,357
376	14.10.2.6	Final DOU2 System Acceptance Test	30 d	17/7/12	17/7/12	15/8/12	15/8/12	0 d	0 d	,361,373,375,374,2
377	14.10.3	Training of Employer's Staff	15 d	1/8/12	1/8/12	15/8/12	15/8/12	0 d	0 d	51,354,355,356,358
378	14.10.4	Overall Acceptance Test for Covers and Air Extraction System	30 d	17/7/12	17/7/12	15/8/12	15/8/12	0 d	0 d	,49,369FF,259,249 d,251FS+42 d,253FS+32
379	15	Project Substantial Completion Date	0 d	15/8/12	15/8/12	15/8/12	15/8/12	0 d	0 d	39,376,358,1FS+97 d,8,12,53,377,378

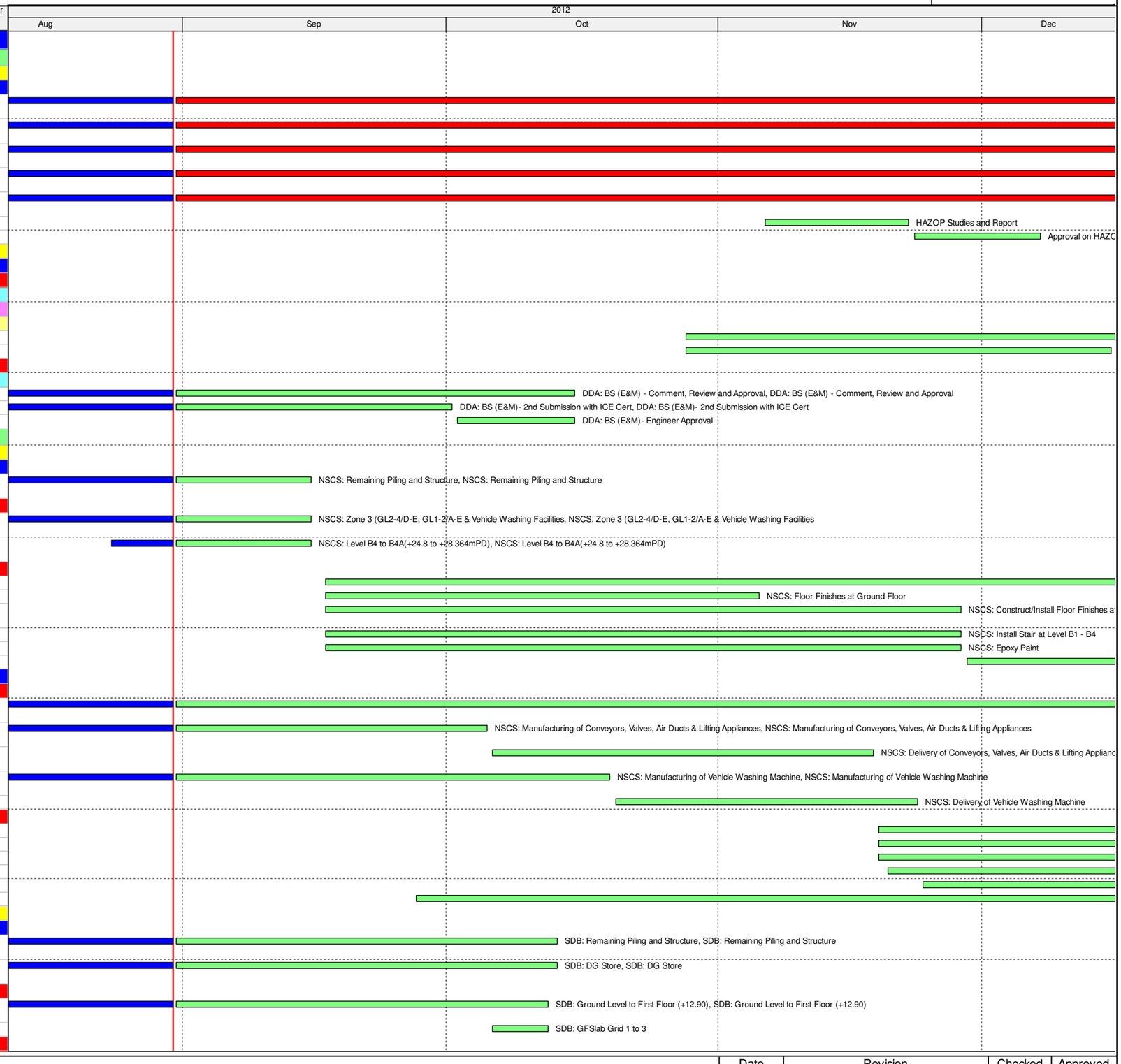


Contract No. DE/2009/02
Revision: 0
Date: 28 Jul 2012

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

ATAL Engineering Limited

Activity ID	Activity Name	Original Duration	Start	Finish	Rem Dur
Works Programme Updated 31 Aug 2012					
Preliminaries and General Requirement					
General					
Initial Works					
PG000172	Maintenance and Security for Portion F	1463	01-Jun-12 A	02-Jun-16	1372
PG000190	Environmental Impact Monitoring	1600	04-Dec-10 A	02-Jun-16	1102
PG000260	Maintenance and Upkeeping of Portion D	2095	25-Aug-10 A	02-Jun-16	1372
PG000300	Maintenance and Security in Portion E	2095	25-Aug-10 A	02-Jun-16	1372
PG000310	Maintenance and Security in Portion G	1463	01-Jun-12 A	02-Jun-16	1372
PG000410	HAZOP Studies and Report	15	06-Nov-12	22-Nov-12	15
PG000420	Approval on HAZOP Studies and Report	13	23-Nov-12	07-Dec-12	13
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- F					
DP024190	DDA: SDB - Landscape Design and Approval	175	28-Oct-12	20-Apr-13	175
DP024200	DDA: SDB - Submit Landscape Design	49	28-Oct-12	15-Dec-12	49
Detailed Design Approval (DDA) Submission					
Submission and Approval of DDA36 (Building Services System)					
DP009015	DDA: BS (E&M) - Comment, Review and Approval	63	23-Jan-12 A	15-Oct-12	46
DP009050	DDA: BS (E&M)- 2nd Submission with ICE Cert	7	09-Mar-12 A	01-Oct-12	32
DP009060	DDA: BS (E&M)- Engineer Approval	14	02-Oct-12	15-Oct-12	14
SECTION 3 OF THE WORKS					
NORTHERN SLUDGE CAKE SILO					
Structure					
S3000236	NSCS: Remaining Piling and Structure	518	28-Jan-11 A	15-Sep-12	14
Superstructure Construction					
S3000418	NSCS: Zone 3 (GL2-4/D-E, GL1-2/A-E & Vehicle Washing Facilities	110	04-Apr-12 A	15-Sep-12	14
S3000432	NSCS: Level B4 to B4A(+24.8 to +28.364mPD)	18	24-Aug-12 A	15-Sep-12	14
Building Finishes including Landscaping					
S3000450	NSCS: Building Finishes and Landscape	217	17-Sep-12	17-Jun-13	217
S3000460	NSCS: Floor Finishes at Ground Floor	40	17-Sep-12	05-Nov-12	40
S3000480	NSCS: Construct/Install Floor Finishes at Level B1 - B4	60	17-Sep-12	28-Nov-12	60
S3000490	NSCS: Install Stair at Level B1 - B4	60	17-Sep-12	28-Nov-12	60
S3000520	NSCS: Epoxy Paint	60	17-Sep-12	28-Nov-12	60
S3000540	NSCS: External Working Platform	18	29-Nov-12	19-Dec-12	18
E&M Procurement, Installation/ Testing & Commisioning					
Manufacture and Delivery					
S3000600	NSCS: Procurement and Delivery of E&M Equipment/ Material	396	02-Dec-11 A	31-Dec-12	123
S3000620	NSCS: Manufacturing of Conveyors, Valves, Air Ducts & Lifting Appliances	150	03-Apr-12 A	05-Oct-12	36
S3000645	NSCS: Delivery of Conveyors, Valves, Air Ducts & Lifting Appliances	44	06-Oct-12	18-Nov-12	44
S3000665	NSCS: Manufacturing of Vehicle Washing Machine	144	05-Mar-12 A	19-Oct-12	50
S3000685	NSCS: Delivery of Vehicle Washing Machine	35	20-Oct-12	23-Nov-12	35
E&M Installation and Testing & Commissioning					
S3000664	NSCS: Sludge Gate (8 nos)	60	19-Nov-12	17-Jan-13	60
S3000666	NSCS: Screw Conveyor (8 nos)	60	19-Nov-12	17-Jan-13	60
S3000670	NSCS: Air Ducts	90	19-Nov-12	16-Feb-13	90
s3000672	NSCS: Lifting Appliance	90	20-Nov-12	17-Feb-13	90
S3000680	NSCS: Vehicle Washing Machine (2 nos)	120	24-Nov-12	23-Mar-13	120
S3000700	NSCS: Building Services	100	27-Sep-12	05-Jan-13	100
SLUDGE DEWATERING BUILDING and DOU6					
Superstructure Construction					
S3001200	SDB: Remaining Piling and Structure	484	31-Oct-11 A	13-Oct-12	35
S3001290	SDB: DG Store	60	01-Mar-12 A	13-Oct-12	35
Structure Ground Floor at +5.4					
S3001241	SDB: Ground Level to First Floor (+12.90)	88	31-Dec-11 A	12-Oct-12	34
S3001243	SDB: GFSlab Grid 1 to 3	6	06-Oct-12	12-Oct-12	6
Building Finishes including Landscaping					

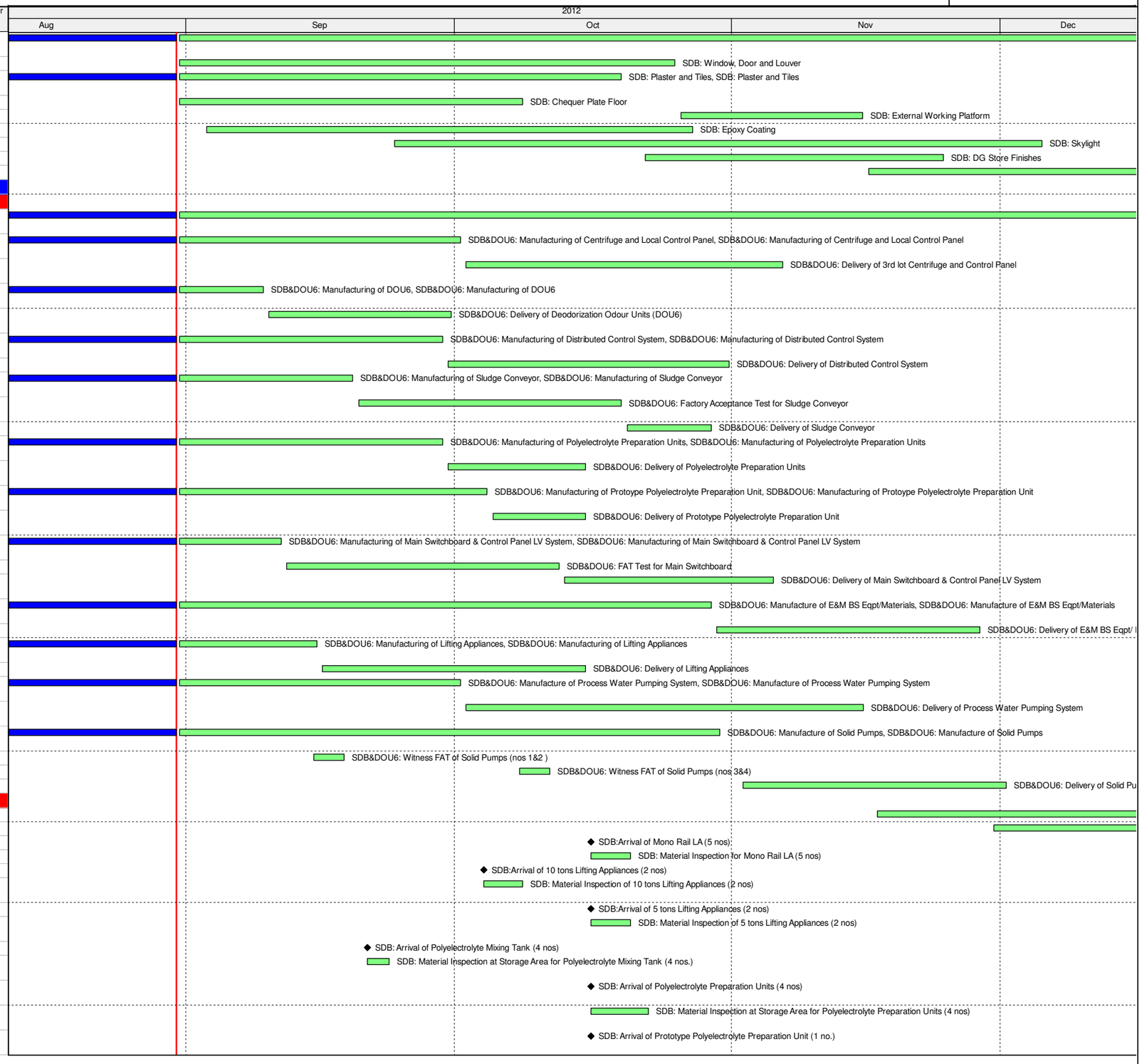


Actual Work ◆ Milestone
Remaining Work
Critical Remaining Work

Three Month Rolling Programme - September to November 2012

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Rem Dur
S3001380	SDB: Building Finishes and Landscape	203	05-Jul-12 A	13-May-13	203
S3001400	SDB: Window, Door and Louver	45	31-Aug-12	25-Oct-12	45
S3001410	SDB: Plaster and Tiles	45	02-Aug-12 A	19-Oct-12	40
S3001420	SDB: Chequer Plate Floor	30	31-Aug-12	08-Oct-12	30
S3001430	SDB: External Working Platform	18	26-Oct-12	15-Nov-12	18
S3001440	SDB: Epoxy Coating	45	03-Sep-12	27-Oct-12	45
S3001450	SDB: Skylight	60	24-Sep-12	05-Dec-12	60
S3001460	SDB: DG Store Finishes	30	22-Oct-12	24-Nov-12	30
S3001470	SDB: Shanghai Render	80	16-Nov-12	26-Feb-13	80
E&M Procurement, Installation/ Testing & Commissioning					
Manufacture & Delivery					
S3001550	SDB&DOU6: Procure/ Delivery of E&M Eq't / Matl	390	26-Nov-11 A	23-Jan-13	146
S3001570	SDB&DOU6: Manufacturing of Centrifuge and Local Control Panel	260	06-Dec-11 A	01-Oct-12	32
S3001586	SDB&DOU6: Delivery of 3rd lot Centrifuge and Control Panel	36	02-Oct-12	06-Nov-12	36
S3001594	SDB&DOU6: Manufacturing of DOU6	140	06-Feb-12 A	09-Sep-12	10
S3001598	SDB&DOU6: Delivery of Deodorization Odour Units (DOU6)	21	10-Sep-12	30-Sep-12	21
S3001610	SDB&DOU6: Manufacturing of Distributed Control System	110	02-Apr-12 A	29-Sep-12	30
S3001630	SDB&DOU6: Delivery of Distributed Control System	32	30-Sep-12	31-Oct-12	32
S3001650	SDB&DOU6: Manufacturing of Sludge Conveyor	125	21-Mar-12 A	19-Sep-12	20
S3001660	SDB&DOU6: Factory Acceptance Test for Sludge Conveyor	30	20-Sep-12	19-Oct-12	30
S3001670	SDB&DOU6: Delivery of Sludge Conveyor	10	20-Oct-12	29-Oct-12	10
S3001852	SDB&DOU6: Manufacturing of Polyelectrolyte Preparation Units	147	05-Mar-12 A	29-Sep-12	30
S3001854	SDB&DOU6: Delivery of Polyelectrolyte Preparation Units	16	30-Sep-12	15-Oct-12	16
S3001862	SDB&DOU6: Manufacturing of Protoype Polyelectrolyte Preparation Unit	147	05-Mar-12 A	04-Oct-12	35
S3001864	SDB&DOU6: Delivery of Prototype Polyelectrolyte Preparation Unit	11	05-Oct-12	15-Oct-12	11
S3001935	SDB&DOU6: Manufacturing of Main Switchboard & Control Panel LV System	110	02-Apr-12 A	11-Sep-12	12
S3001995	SDB&DOU6: FAT Test for Main Switchboard	31	12-Sep-12	12-Oct-12	31
S3002000	SDB&DOU6: Delivery of Main Switchboard & Control Panel LV System	24	13-Oct-12	05-Nov-12	24
S3002015	SDB&DOU6: Manufacture of E&M BS Eqpt/Materials	90	25-Jun-12 A	29-Oct-12	60
S3002020	SDB&DOU6: Delivery of E&M BS Eqpt/ Materials	30	30-Oct-12	28-Nov-12	30
S3002030	SDB&DOU6: Manufacturing of Lifting Appliances	90	15-Mar-12 A	15-Sep-12	16
S3002040	SDB&DOU6: Delivery of Lifting Appliances	30	16-Sep-12	15-Oct-12	30
S3002046	SDB&DOU6: Manufacture of Process Water Pumping System	210	13-Feb-12 A	01-Oct-12	32
S3002048	SDB&DOU6: Delivery of Process Water Pumping System	45	02-Oct-12	15-Nov-12	45
S3002058	SDB&DOU6: Manufacture of Solid Pumps	200	19-Mar-12 A	30-Oct-12	61
S3002060	SDB&DOU6: Witness FAT of Solid Pumps (nos 1&2)	4	15-Sep-12	18-Sep-12	4
S3002062	SDB&DOU6: Witness FAT of Solid Pumps (nos 3&4)	4	08-Oct-12	11-Oct-12	4
S3002064	SDB&DOU6: Delivery of Solid Pumps (4 nos)	30	02-Nov-12	01-Dec-12	30
E&M Installation and Other Equipment					
S3001757	Install Cable from SDB to all System	70	17-Nov-12	15-Feb-13	70
S3001785	11KV cabling and connection to Extg Transformer	45	30-Nov-12	24-Jan-13	45
S3001822	SDB:Arrival of Mono Rail LA (5 nos)	0	16-Oct-12		0
S3001824	SDB: Material Inspection for Mono Rail LA (5 nos)	5	16-Oct-12	20-Oct-12	5
S3001826	SDB:Arrival of 10 tons Lifting Appliances (2 nos)	0	04-Oct-12		0
S3001828	SDB: Material Inspection of 10 tons Lifting Appliances (2 nos)	5	04-Oct-12	08-Oct-12	5
S3001830	SDB:Arrival of 5 tons Lifting Appliances (2 nos)	0	16-Oct-12		0
S3001832	SDB: Material Inspection of 5 tons Lifting Appliances (2 nos)	5	16-Oct-12	20-Oct-12	5
S3002120	SDB: Arrival of Polyelectrolyte Mixing Tank (4 nos)	0	21-Sep-12		0
S3002130	SDB: Material Inspection at Storage Area for Polyelectrolyte Mixing Tank (4 nos.)	3	21-Sep-12	23-Sep-12	3
S3002150	SDB: Arrival of Polyelectrolyte Preparation Units (4 nos)	0	16-Oct-12		0
S3002160	SDB: Material Inspection at Storage Area for Polyelectrolyte Preparation Units (4 nos)	7	16-Oct-12	22-Oct-12	7
S3002180	SDB: Arrival of Prototype Polyelectrolyte Preparation Unit (1 no.)	0	16-Oct-12		0

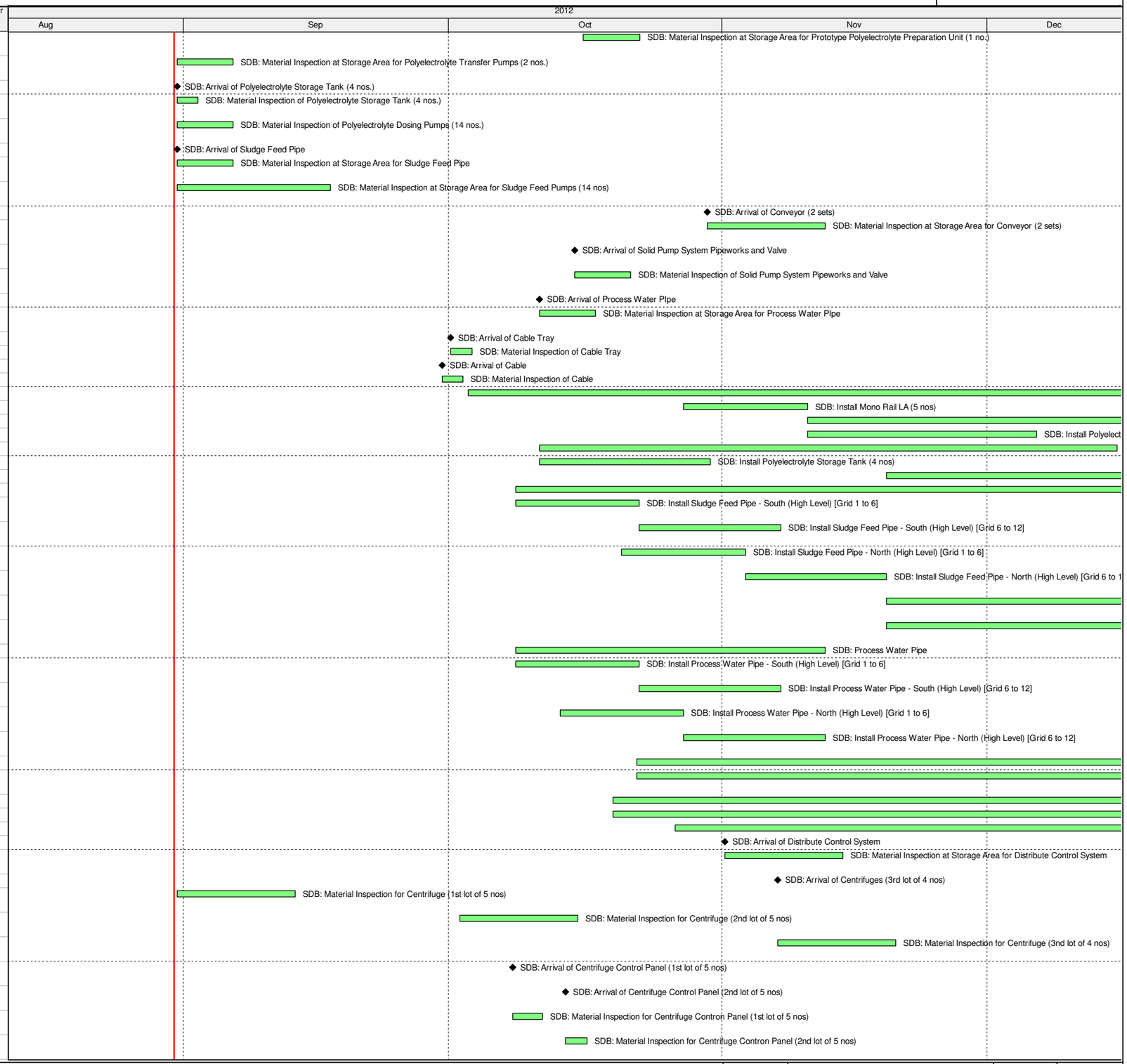


Actual Work ◆ ◆ Milestone
Remaining Work
Critical Remaining Work

Three Month Rolling Programme - September to November 2012

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Rem Dur
S3002190	SDB: Material Inspection at Storage Area for Prototype Polyelectrolyte Preparation Unit (1 no.)	7	16-Oct-12	22-Oct-12	7
S3002220	SDB: Material Inspection at Storage Area for Polyelectrolyte Transfer Pumps (2 nos.)	7	31-Aug-12	06-Sep-12	7
S3002225	SDB: Arrival of Polyelectrolyte Storage Tank (4 nos.)	0	31-Aug-12		0
S3002230	SDB: Material Inspection of Polyelectrolyte Storage Tank (4 nos.)	3	31-Aug-12	02-Sep-12	3
S3002245	SDB: Material Inspection of Polyelectrolyte Dosing Pumps (14 nos.)	7	31-Aug-12	06-Sep-12	7
S3002250	SDB: Arrival of Sludge Feed Pipe	0	31-Aug-12		0
S3002255	SDB: Material Inspection at Storage Area for Sludge Feed Pipe	7	31-Aug-12	06-Sep-12	7
S3002265	SDB: Material Inspection at Storage Area for Sludge Feed Pumps (14 nos)	18	31-Aug-12	17-Sep-12	18
S3002270	SDB: Arrival of Conveyor (2 sets)	0	30-Oct-12		0
S3002275	SDB: Material Inspection at Storage Area for Conveyor (2 sets)	14	30-Oct-12	12-Nov-12	14
S3002300	SDB: Arrival of Solid Pump System Pipeworks and Valve	0	15-Oct-12		0
S3002305	SDB: Material Inspection of Solid Pump System Pipeworks and Valve	7	15-Oct-12	21-Oct-12	7
S3002310	SDB: Arrival of Process Water Plpe	0	11-Oct-12		0
S3002315	SDB: Material Inspection at Storage Area for Process Water Plpe	7	11-Oct-12	17-Oct-12	7
S3002320	SDB: Arrival of Cable Tray	0	01-Oct-12		0
S3002325	SDB: Material Inspection of Cable Tray	3	01-Oct-12	03-Oct-12	3
S3002330	SDB: Arrival of Cable	0	30-Sep-12		0
S3002332	SDB: Material Inspection of Cable	3	30-Sep-12	02-Oct-12	3
S3002335	SDB: Cabling	130	03-Oct-12	09-Feb-13	130
S3002340	SDB: Install Mono Rail LA (5 nos)	14	27-Oct-12	10-Nov-12	14
S3002350	SDB: Polyelectrolyte Preparation System	96	10-Nov-12	14-Feb-13	96
S3002360	SDB: Install Polyelectrolyte Mixing Tank (4 nos)	26	10-Nov-12	06-Dec-12	26
S3002380	SDB: Polyelectrolyte Dosing System	66	11-Oct-12	15-Dec-12	66
S3002390	SDB: Install Polyelectrolyte Storage Tank (4 nos)	20	11-Oct-12	30-Oct-12	20
S3002410	SDB: Install Polyelectrolyte Dosing Pump (14 nos)	30	19-Nov-12	19-Dec-12	30
S3003100	SDB: Sludge Feed Pipe	99	08-Oct-12	15-Jan-13	99
S3003110	SDB: Install Sludge Feed Pipe - South (High Level) [Grid 1 to 6]	14	08-Oct-12	22-Oct-12	14
S3003120	SDB: Install Sludge Feed Pipe - South (High Level) [Grid 6 to 12]	16	22-Oct-12	07-Nov-12	16
S3003130	SDB: Install Sludge Feed Pipe - North (High Level) [Grid 1 to 6]	14	20-Oct-12	03-Nov-12	14
S3003140	SDB: Install Sludge Feed Pipe - North (High Level) [Grid 6 to 12]	16	03-Nov-12	19-Nov-12	16
S3003190	SDB: Install Sludge Feed Pumps (1st lot 5 nos; Grid 2 - 5)	28	19-Nov-12	17-Dec-12	28
S3003200	SDB: Install Sludge Feed Pumps (2nd lot 5 nos; Grid 6 - 10)	28	19-Nov-12	17-Dec-12	28
S3003220	SDB: Process Water Pipe	35	08-Oct-12	12-Nov-12	35
S3003230	SDB: Install Process Water Pipe - South (High Level) [Grid 1 to 6]	14	08-Oct-12	22-Oct-12	14
S3003240	SDB: Install Process Water Pipe - South (High Level) [Grid 6 to 12]	16	22-Oct-12	07-Nov-12	16
S3003250	SDB: Install Process Water Pipe - North (High Level) [Grid 1 to 6]	14	13-Oct-12	27-Oct-12	14
S3003260	SDB: Install Process Water Pipe - North (High Level) [Grid 6 to 12]	16	27-Oct-12	12-Nov-12	16
S3003300	SDB: Solid Pump System	115	22-Oct-12	13-Feb-13	115
S3003330	SDB: Install Solid Pump System Pipeworks and Valves	75	22-Oct-12	04-Jan-13	75
S3003340	SDB: Cables	191	19-Oct-12	28-Apr-13	191
S3003350	SDB: Install Cable Tray	170	19-Oct-12	07-Apr-13	170
S3003360	SDB: Install Cable	166	26-Oct-12	10-Apr-13	166
S3003400	SDB: Arrival of Distribute Control System	0	01-Nov-12		0
S3003410	SDB: Material Inspection at Storage Area for Distribute Control System	14	01-Nov-12	14-Nov-12	14
S3003470	SDB: Arrival of Centrifuges (3rd lot of 4 nos)	0	07-Nov-12		0
S3003480	SDB: Material Inspection for Centrifuge (1st lot of 5 nos)	14	31-Aug-12	13-Sep-12	14
S3003490	SDB: Material Inspection for Centrifuge (2nd lot of 5 nos)	14	02-Oct-12	15-Oct-12	14
S3003500	SDB: Material Inspection for Centrifuge (3nd lot of 4 nos)	14	07-Nov-12	20-Nov-12	14
S3003510	SDB: Arrival of Centrifuge Control Panel (1st lot of 5 nos)	0	08-Oct-12		0
S3003520	SDB: Arrival of Centrifuge Control Panel (2nd lot of 5 nos)	0	14-Oct-12		0
S3003540	SDB: Material Inspection for Centrifuge Contron Panel (1st lot of 5 nos)	4	08-Oct-12	11-Oct-12	4
S3003550	SDB: Material Inspection for Centrifuge Contron Panel (2nd lot of 5 nos)	3	14-Oct-12	16-Oct-12	3

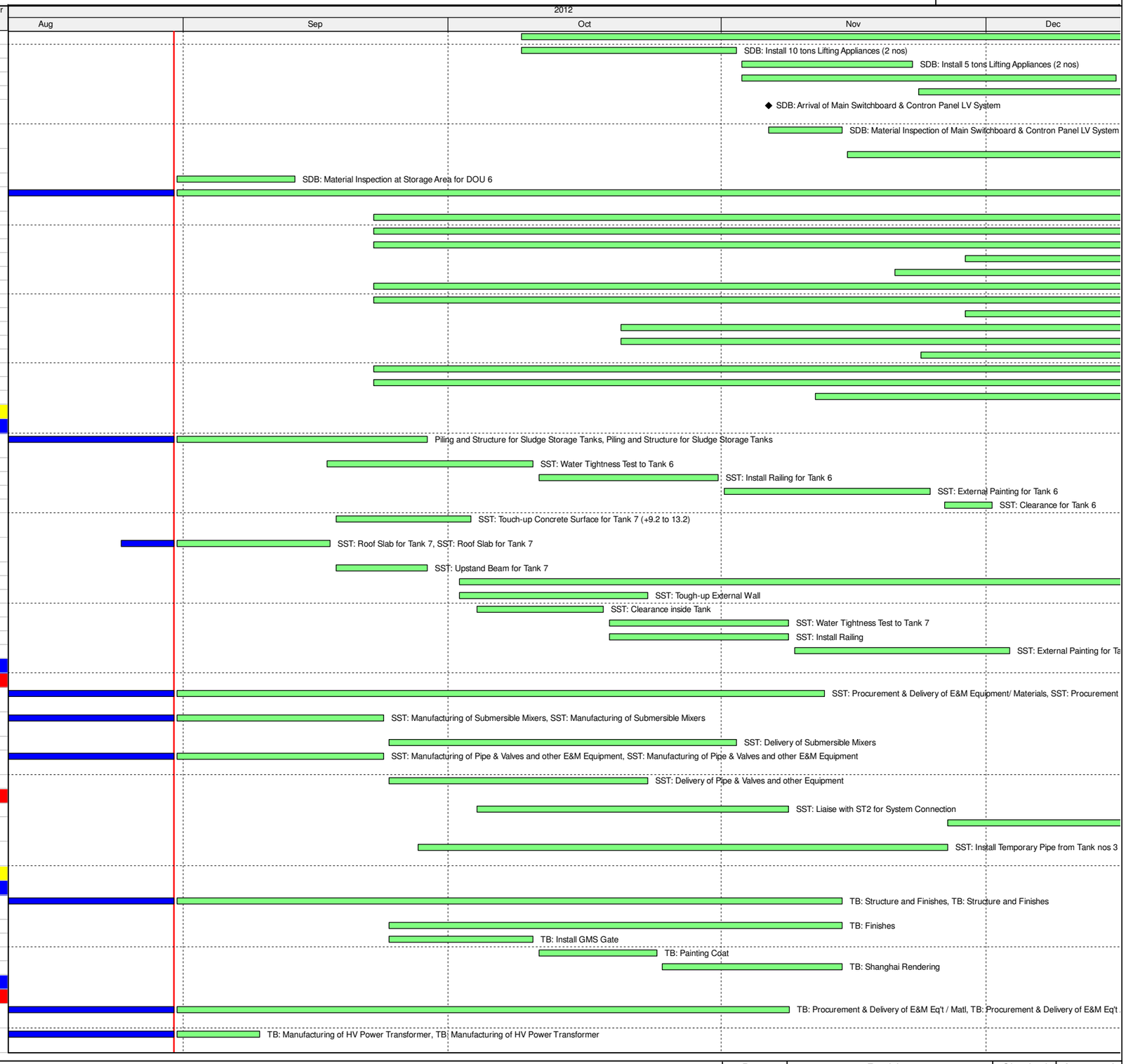


Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

Three Month Rolling Programme - September to November 2012

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Rem Dur
S3003600	SDB: E&M Installation at 1/F	188	09-Oct-12	14-Apr-13	188
S3003610	SDB: Install 10 tons Lifting Appliances (2 nos)	25	09-Oct-12	02-Nov-12	25
S3003620	SDB: Install 5 tons Lifting Appliances (2 nos)	20	03-Nov-12	22-Nov-12	20
S3003650	SDB: Install Centrifuges (1st lot of 5 nos)	43	03-Nov-12	15-Dec-12	43
S3003680	SDB: Install Centrifuge Control Panel (1st lot of 5 nos)	43	23-Nov-12	04-Jan-13	43
S3003750	SDB: Arrival of Main Switchboard & Contron Panel LV System	0	06-Nov-12		0
S3003760	SDB: Material Inspection of Main Switchboard & Contron Panel LV System	9	06-Nov-12	14-Nov-12	9
S3003770	SDB: Install Main Switchboard & Contron Panel LV System	60	15-Nov-12	13-Jan-13	60
S3003810	SDB: Material Inspection at Storage Area for DOU 6	14	31-Aug-12	13-Sep-12	14
S3003900	SDB: Building Services	356	10-Mar-12 A	19-Apr-13	232
S3003910	SDB: Drainage Pipe Line / RWO	90	22-Sep-12	21-Dec-12	90
S3003915	SDB: Plumbing	139	22-Sep-12	08-Feb-13	139
S3003920	SDB: Pipe Line for Plumbing	90	22-Sep-12	21-Dec-12	90
S3003940	SDB: Sanitry Wares	31	28-Nov-12	29-Dec-12	31
S3003970	SDB: Water Tank	49	20-Nov-12	08-Jan-13	49
S3004000	SDB: Fire Services	199	22-Sep-12	09-Apr-13	199
S3004010	SDB: Fire Services Pipe Line	91	22-Sep-12	22-Dec-12	91
S3004040	SDB: Detectors for AFA System	62	28-Nov-12	29-Jan-13	62
S3004100	SDB: MVAC System	171	20-Oct-12	09-Apr-13	171
S3004110	SDB: Air Duct for MVAC	101	20-Oct-12	29-Jan-13	101
S3004130	SDB: Refrigerant Pipe for MVAC	77	23-Nov-12	08-Feb-13	77
S3004200	SDB: BS Small Power and Lighting System	209	22-Sep-12	19-Apr-13	209
S3004210	SDB: Conduit & Trunking for BS	131	22-Sep-12	31-Jan-13	131
S3004220	SDB: Wiring Work for BS	89	11-Nov-12	08-Feb-13	89
SLUDGE STORAGE TANK 6 & 7					
Structure					
S3005505	Piling and Structure for Sludge Storage Tanks	349	28-Feb-11 A	28-Sep-12	25
S3005830	SST: Water Tightness Test to Tank 6	18	17-Sep-12	10-Oct-12	18
S3005840	SST: Install Railing for Tank 6	18	11-Oct-12	31-Oct-12	18
S3005850	SST: External Painting for Tank 6	21	01-Nov-12	24-Nov-12	21
S3005870	SST: Clearance for Tank 6	6	26-Nov-12	01-Dec-12	6
S3006160	SST: Touch-up Concrete Surface for Tank 7 (+9.2 to 13.2)	12	18-Sep-12	03-Oct-12	12
S3006210	SST: Roof Slab for Tank 7	18	25-Aug-12 A	17-Sep-12	15
S3006220	SST: Upstand Beam for Tank 7	10	18-Sep-12	28-Sep-12	10
S3006310	SST: Finishes for Tank 6 and 7	105	02-Oct-12	05-Feb-13	105
S3006315	SST: Tough-up External Wall	18	02-Oct-12	23-Oct-12	18
S3006320	SST: Clearance inside Tank	12	04-Oct-12	18-Oct-12	12
S3006330	SST: Water Tightness Test to Tank 7	18	19-Oct-12	08-Nov-12	18
S3006350	SST: Install Railing	18	19-Oct-12	08-Nov-12	18
S3006360	SST: External Painting for Tank 7	21	09-Nov-12	03-Dec-12	21
E&M Procurement Installation/ Testing & Commissioning					
Manufacture & Delivery					
S3006450	SST: Procurement & Delivery of E&M Equipment/ Materials	290	25-Nov-11 A	12-Nov-12	74
S3006470	SST: Manufacturing of Submersible Mixers	135	01-Feb-12 A	23-Sep-12	24
S3006480	SST: Delivery of Submersible Mixers	40	24-Sep-12	02-Nov-12	40
S3006590	SST: Manufacturing of Pipe & Valves and other E&M Equipment	90	30-Apr-12 A	23-Sep-12	24
S3006610	SST: Delivery of Pipe & Valves and other Equipment	30	24-Sep-12	23-Oct-12	30
E&M Testing & Commissioning					
S3006505	SST: Liaise with ST2 for System Connection	30	04-Oct-12	08-Nov-12	30
S3006710	SST: Install Sludge Feed PIpe, Scum Pipe and Recirculation Pipe at +21.1mPD	90	26-Nov-12	24-Feb-13	90
S3006750	SST: Install Temporary Pipe from Tank nos 3 - 5 to Existing Recirculation Pump	60	27-Sep-12	26-Nov-12	60
Transformer Bay					
Structure					
S3007010	TB: Structure and Finishes	168	21-Nov-11 A	14-Nov-12	62
S3007310	TB: Finishes	42	24-Sep-12	14-Nov-12	42
S3007320	TB: Install GMS Gate	12	24-Sep-12	10-Oct-12	12
S3007330	TB: Painting Coat	12	11-Oct-12	24-Oct-12	12
S3007340	TB: Shanghai Rendering	18	25-Oct-12	14-Nov-12	18
E&M Procurment, Installation & T&C					
Manufacture & Delivery					
S3007410	TB: Procurement & Delivery of E&M Eq't / Matl	195	08-Mar-12 A	08-Nov-12	70
S3007430	TB: Manufacturing of HV Power Transformer	125	01-Apr-12 A	09-Sep-12	10

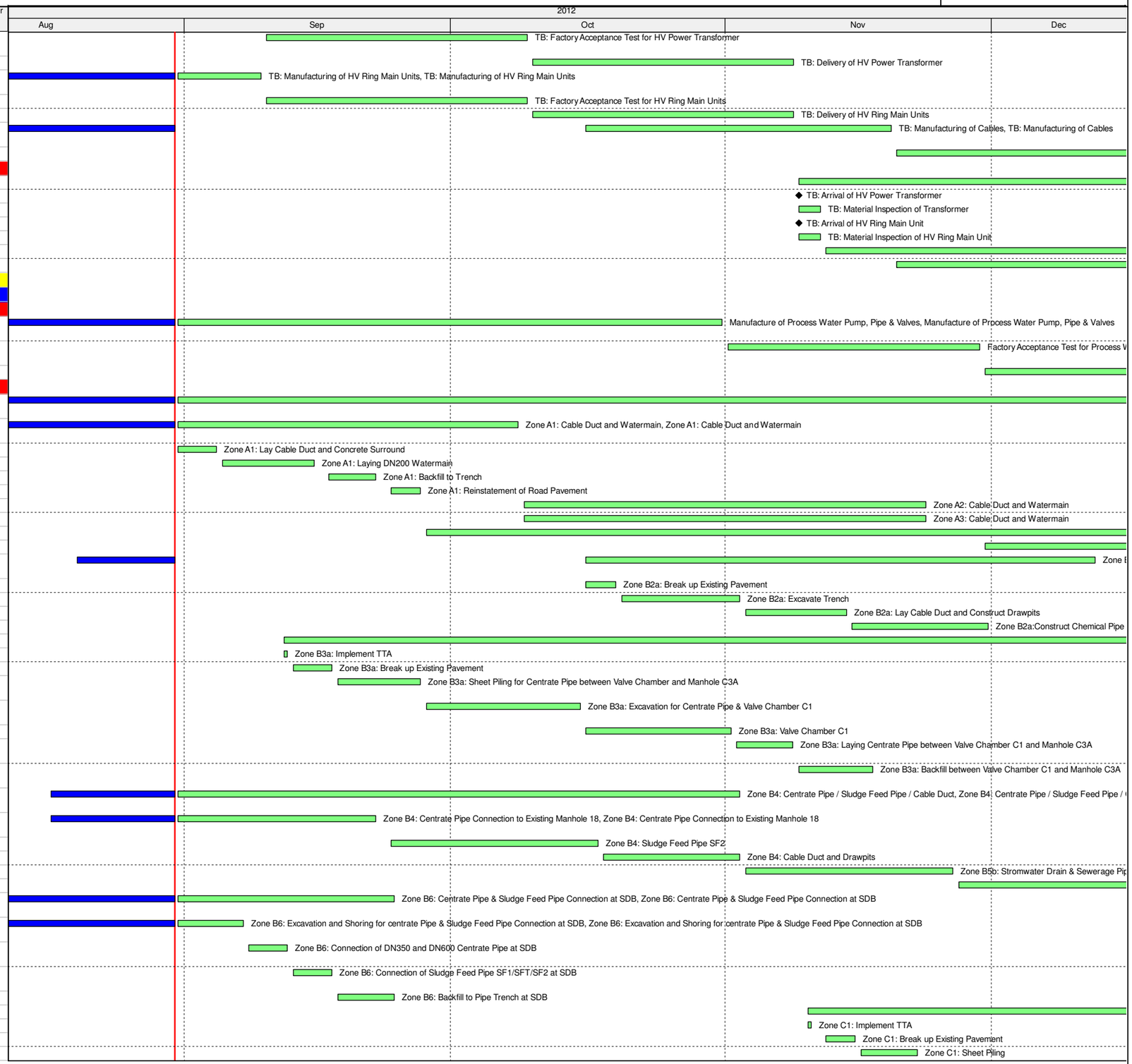


Actual Work ◆ Milestone
Remaining Work
Critical Remaining Work

Three Month Rolling Programme - September to November 2012

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Rem Dur
S3007435	TB: Factory Acceptance Test for HV Power Transformer	30	10-Sep-12	09-Oct-12	30
S3007440	TB: Delivery of HV Power Transformer	30	10-Oct-12	08-Nov-12	30
S3007460	TB: Manufacturing of HV Ring Main Units	130	03-Apr-12 A	09-Sep-12	10
S3007470	TB: Factory Acceptance Test for HV Ring Main Units	30	10-Sep-12	09-Oct-12	30
S3007480	TB: Delivery of HV Ring Main Units	30	10-Oct-12	08-Nov-12	30
S3007550	TB: Manufacturing of Cables	90	30-Apr-12 A	19-Nov-12	35
S3007560	TB: Delivery of Cables	30	20-Nov-12	19-Dec-12	30
E&M Installation & Testing & Commissioning					
S3007510	Liaison with CLP/MPS Contractor for Power Supply	100	09-Nov-12	14-Mar-13	100
S3007535	TB: Arrival of HV Power Transformer	0	09-Nov-12		0
S3007545	TB: Material Inspection of Transformer	3	09-Nov-12	11-Nov-12	3
S3007575	TB: Arrival of HV Ring Main Unit	0	09-Nov-12		0
S3007585	TB: Material Inspection of HV Ring Main Unit	3	09-Nov-12	11-Nov-12	3
S3007610	TB: Install Transformer	58	12-Nov-12	08-Jan-13	58
S3007630	TB: Install HV Ring Main Units	41	20-Nov-12	30-Dec-12	41
System					
Pump, Piping and Ducting					
Manufacture & Delivery					
S3008215	Manufacture of Process Water Pump, Pipe & Valves	173	13-Feb-12 A	31-Oct-12	50
S3008225	Factory Acceptance Test for Process Water Pump, Pipe and Valves	25	01-Nov-12	29-Nov-12	25
S3008235	Delivery of Process Water Pump, Pipe & Valves	30	30-Nov-12	07-Jan-13	30
Pump, Pipe and Duct Installation					
S3008350	Zone A: External System	120	05-Jun-12 A	12-Jan-13	110
S3008360	Zone A1: Cable Duct and Watermain	40	04-Jun-12 A	08-Oct-12	30
S3008380	Zone A1: Lay Cable Duct and Concrete Surround	4	31-Aug-12	04-Sep-12	4
S3008390	Zone A1: Laying DN200 Watermain	10	05-Sep-12	15-Sep-12	10
S3008395	Zone A1: Backfill to Trench	6	17-Sep-12	22-Sep-12	6
S3008400	Zone A1: Reinstatement of Road Pavement	4	24-Sep-12	27-Sep-12	4
S3008410	Zone A2: Cable Duct and Watermain	40	09-Oct-12	23-Nov-12	40
S3008420	Zone A3: Cable Duct and Watermain	40	09-Oct-12	23-Nov-12	40
S3008430	Zone A4: Cabe Trough	75	28-Sep-12	29-Dec-12	75
S3008440	Zone A5: Cabe Trough	75	30-Nov-12	06-Mar-13	75
S3008530	Zone B2a: Cable Duct and Chemical Pipe Trench	51	20-Aug-12 A	12-Dec-12	50
S3008540	Zone B2a: Break up Existing Pavement	4	16-Oct-12	19-Oct-12	4
S3008545	Zone B2a: Excavate Trench	12	20-Oct-12	02-Nov-12	12
S3008550	Zone B2a: Lay Cable Duct and Construct Drawpits	10	03-Nov-12	14-Nov-12	10
S3008555	Zone B2a:Construct Chemical Pipe Trench	14	15-Nov-12	30-Nov-12	14
S3008610	Zone B3a: Centrate Pipe and Ducting	87	12-Sep-12	27-Dec-12	87
S3008620	Zone B3a: Implement TTA	1	12-Sep-12	12-Sep-12	1
S3008630	Zone B3a: Break up Existing Pavement	4	13-Sep-12	17-Sep-12	4
S3008640	Zone B3a: Sheet Piling for Centrate Pipe between Valve Chamber and Manhole C3A	9	18-Sep-12	27-Sep-12	9
S3008645	Zone B3a: Excavation for Centrate Pipe & Valve Chamber C1	12	28-Sep-12	15-Oct-12	12
S3008655	Zone B3a: Valve Chamber C1	15	16-Oct-12	01-Nov-12	15
S3008660	Zone B3a: Laying Centrate Pipe between Valve Chamber C1 and Manhole C3A	6	02-Nov-12	08-Nov-12	6
S3008665	Zone B3a: Backfill between Valve Chamber C1 and Manhole C3A	8	09-Nov-12	17-Nov-12	8
S3008730	Zone B4: Centrate Pipe / Sludge Feed Pipe / Cable Duct	52	17-Aug-12 A	02-Nov-12	52
S3008740	Zone B4: Centrate Pipe Connection to Existing Manhole 18	20	17-Aug-12 A	22-Sep-12	20
S3008750	Zone B4: Sludge Feed Pipe SF2	18	24-Sep-12	17-Oct-12	18
S3008760	Zone B4: Cable Duct and Drawpits	14	18-Oct-12	02-Nov-12	14
S3008880	Zone B5b: Stromwater Drain & Sewerage Pipe	20	03-Nov-12	26-Nov-12	20
S3008885	Zone B5b: Cable Ducts and Drawpits	18	27-Nov-12	17-Dec-12	18
S3008940	Zone B6: Centrate Pipe & Sludge Feed Pipe Connection at SDB	24	16-Jul-12 A	24-Sep-12	21
S3008942	Zone B6: Excavation and Shoring for centrate Pipe & Sludge Feed Pipe Connection at SDB	10	16-Jul-12 A	07-Sep-12	7
S3008944	Zone B6: Connection of DN350 and DN600 Centrate Pipe at SDB	4	08-Sep-12	12-Sep-12	4
S3008946	Zone B6: Connection of Sludge Feed Pipe SF1/SFT/SF2 at SDB	4	13-Sep-12	17-Sep-12	4
S3008956	Zone B6: Backfill to Pipe Trench at SDB	6	18-Sep-12	24-Sep-12	6
S3009090	Zone C1: DN600 Sludge Feed Pipe SF1 and SFT	50	10-Nov-12	10-Jan-13	50
S3009100	Zone C1: Implement TTA	1	10-Nov-12	10-Nov-12	1
S3009110	Zone C1: Break up Existing Pavement	4	12-Nov-12	15-Nov-12	4
S3009120	Zone C1: Sheet Piling	6	16-Nov-12	22-Nov-12	6



Actual Work ◆ Milestone

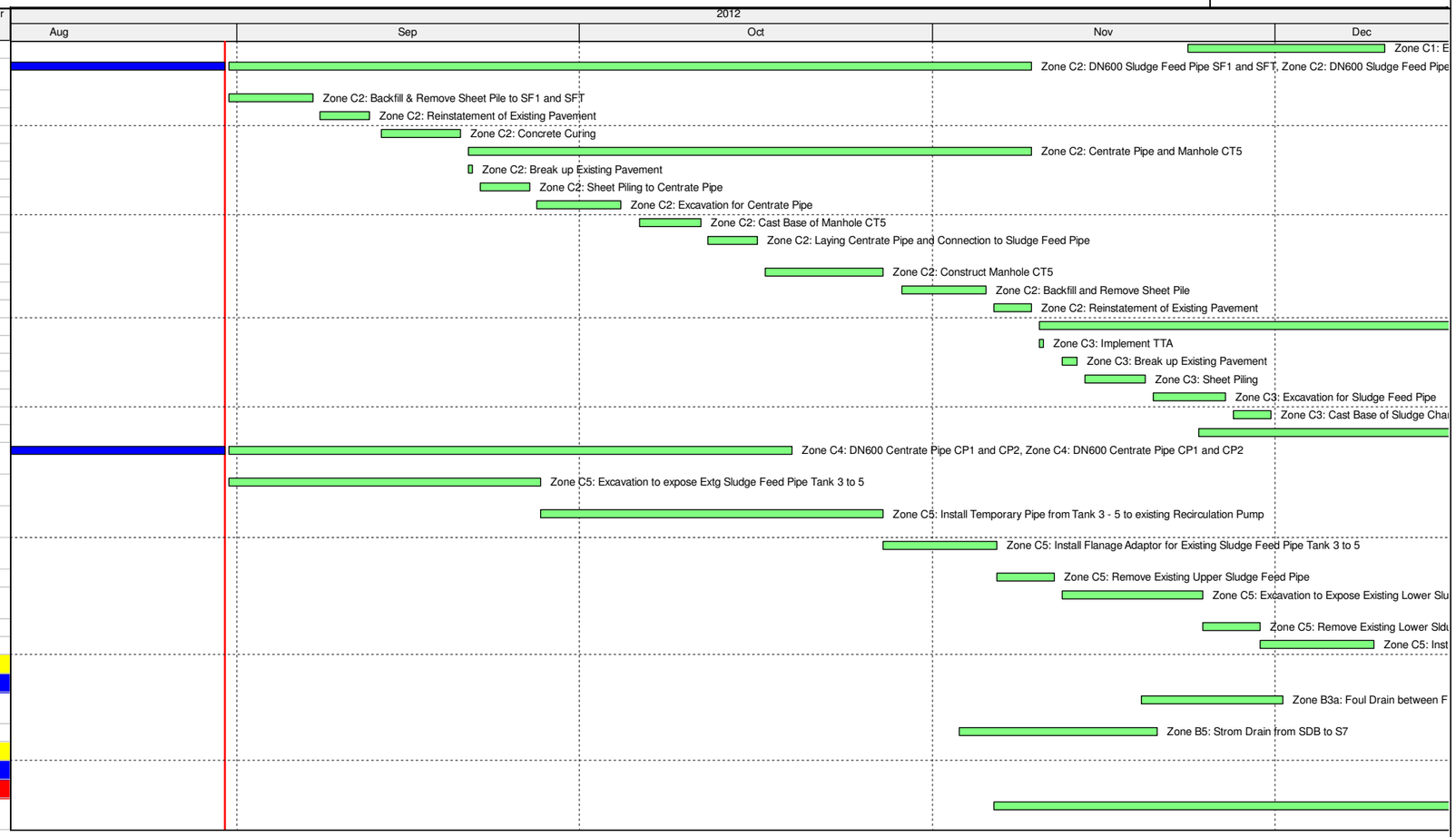
Remaining Work

Critical Remaining Work

Three Month Rolling Programme - September to November 2012

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Rem Dur
S3009130	Zone C1: Excavate trench for SF1 and SFT	15	23-Nov-12	10-Dec-12	15
S3009210	Zone C2: DN600 Sludge Feed Pipe SF1 and SFT	124	03-Jul-12 A	09-Nov-12	58
S3009290	Zone C2: Backfill & Remove Sheet Pile to SF1 and SFT	7	31-Aug-12	07-Sep-12	7
S3009300	Zone C2: Reinstatement of Existing Pavement	4	08-Sep-12	12-Sep-12	4
S3009310	Zone C2: Concrete Curing	7	13-Sep-12	20-Sep-12	7
S3009320	Zone C2: Centrate Pipe and Manhole CT5	40	21-Sep-12	09-Nov-12	40
S3009330	Zone C2: Break up Existing Pavement	1	21-Sep-12	21-Sep-12	1
S3009340	Zone C2: Sheet Piling to Centrate Pipe	4	22-Sep-12	26-Sep-12	4
S3009350	Zone C2: Excavation for Centrate Pipe	5	27-Sep-12	04-Oct-12	5
S3009360	Zone C2: Cast Base of Manhole CT5	5	06-Oct-12	11-Oct-12	5
S3009370	Zone C2: Laying Centrate Pipe and Connection to Sludge Feed Pipe	4	12-Oct-12	16-Oct-12	4
S3009380	Zone C2: Construct Manhole CT5	10	17-Oct-12	27-Oct-12	10
S3009390	Zone C2: Backfill and Remove Sheet Pile	7	29-Oct-12	05-Nov-12	7
S3009400	Zone C2: Reinstatement of Existing Pavement	4	06-Nov-12	09-Nov-12	4
S3009410	Zone C3: Sludge Feed Pipe SF1 and SF2	53	10-Nov-12	14-Jan-13	53
S3009420	Zone C3: Implement TTA	1	10-Nov-12	10-Nov-12	1
S3009430	Zone C3: Break up Existing Pavement	2	12-Nov-12	13-Nov-12	2
S3009440	Zone C3: Sheet Piling	5	14-Nov-12	19-Nov-12	5
S3009450	Zone C3: Excavation for Sludge Feed Pipe	6	20-Nov-12	26-Nov-12	6
S3009460	Zone C3: Cast Base of Sludge Chamber	4	27-Nov-12	30-Nov-12	4
S3009510	Zone C3:DN600 Centrate Pipe CP1 and CP2	40	24-Nov-12	12-Jan-13	40
S3009540	Zone C4: DN600 Centrate Pipe CP1 and CP2	60	05-Jun-12 A	19-Oct-12	40
S3009560	Zone C5: Excavation to expose Extg Sludge Feed Pipe Tank 3 to 5	24	31-Aug-12	27-Sep-12	24
S3009570	Zone C5: Install Temporary Pipe from Tank 3 - 5 to existing Recirculation Pump	30	27-Sep-12	27-Oct-12	30
S3009580	Zone C5: Install Flanage Adaptor for Existing Sludge Feed Pipe Tank 3 to 5	10	27-Oct-12	06-Nov-12	10
S3009585	Zone C5: Remove Existing Upper Sludge Feed Pipe	5	06-Nov-12	11-Nov-12	5
S3009590	Zone C5: Excavation to Expose Existing Lower Sludge Feed Pipe	12	12-Nov-12	24-Nov-12	12
S3009600	Zone C5: Remove Existing Lower Slduge Feed Pipe	5	24-Nov-12	29-Nov-12	5
S3009610	Zone C5: Install Lower Sludge Feed :Pipe	10	29-Nov-12	09-Dec-12	10
External Works					
Road and Drainage					
S3011400	Zone B3a: Foul Drain between F6 to F6A to F6C and Manholes F6A & F6C	12	19-Nov-12	01-Dec-12	12
S3011430	Zone B5: Strom Drain from SDB to S7	15	03-Nov-12	20-Nov-12	15
Statutory Inspection					
E&M: Testing & Commissioning					
O&M Manual and Training					
S3013170	S3 Work: Preparation & Submit draft O&M Manuals as PS Cl. 40.07	60	06-Nov-12*	17-Jan-13	60



Actual Work ◆ Milestone
Remaining Work
Critical Remaining Work

Three Month Rolling Programme - September to November 2012

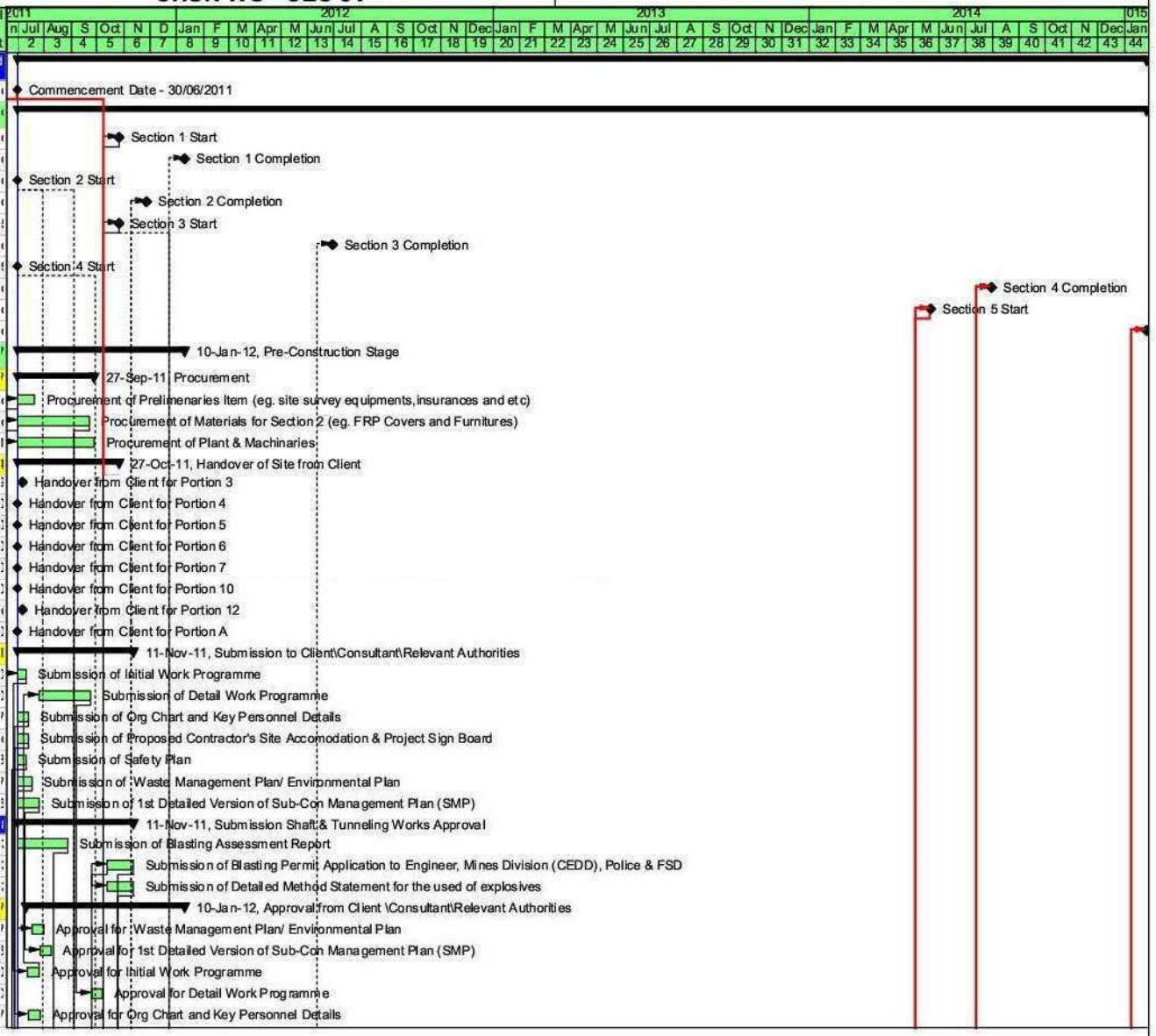
Date	Revision	Checked	Approved

Harbour Area Treatment Scheme Stage 2A - Initial Work Programme

CHUN WO - CEC JV

09-Jul-11 12:08

Activity Name	Original Duration	Start	Finish
Harbour Area Treatment Scheme Stage 2	1263d	30-Jun-11	26-Jan-15
Commencement Date - 30/06/2011	0d	30-Jun-11	
Sectional Completion Milestones	1263d	30-Jun-11	26-Jan-15
Section 1 Start	0d	27-Oct-11	
Section 1 Completion	0d		10-Jan-12*
Section 2 Start	0d	30-Jun-11*	
Section 2 Completion	0d		26-Nov-11*
Section 3 Start	0d	27-Oct-11	
Section 3 Completion	0d		28-Jun-12*
Section 4 Start	0d	30-Jun-11	
Section 4 Completion	0d		30-Jul-14*
Section 5 Start	0d	22-May-14	
Section 5 Completion	0d		26-Jan-15*
Pre-Construction Stage	188d	30-Jun-11	10-Jan-12
Procurement	87d	30-Jun-11	27-Sep-11
Procurement of Prelimenaries Item (eg. site survey eq	21d	30-Jun-11	20-Jul-11
Procurement of Materials for Section 2 (eg. FRP Cove	84d	30-Jun-11	21-Sep-11
Procurement of Plant & Machinaries	90d	30-Jun-11	27-Sep-11
Handover of Site from Client	115d	30-Jun-11	27-Oct-11
Handover from Client for Portion 3	0d	07-Jul-11*	
Handover from Client for Portion 4	0d	30-Jun-11	
Handover from Client for Portion 5	0d	30-Jun-11	
Handover from Client for Portion 6	0d	30-Jun-11	
Handover from Client for Portion 7	0d	30-Jun-11	
Handover from Client for Portion 10	0d	30-Jun-11	
Handover from Client for Portion 12	0d	07-Jul-11*	
Handover from Client for Portion A	0d	30-Jun-11*	
Submission to Client\Consultant\Relevant Author	130d	30-Jun-11	11-Nov-11
Submission of Initial Work Programme	12d	30-Jun-11	11-Jul-11
Submission of Detail Work Programme	60d	26-Jul-11	23-Sep-11
Submission of Org Chart and Key Personnel Details	14d	30-Jun-11	13-Jul-11
Submission of Proposed Contractor's Site Accomodati	14d	30-Jun-11	13-Jul-11
Submission of Safety Plan	11d	30-Jun-11	10-Jul-11
Submission of Waste Management Plan/ Environmen	18d	30-Jun-11	17-Jul-11
Submission of 1st Detailed Version of Sub-Con Manag	27d	30-Jun-11	26-Jul-11
Submission Shaft & Tunneling Works Approval	130d	30-Jun-11	11-Nov-11
Submission of Blasting Assessment Report	60d	30-Jun-11	28-Aug-11
Submission of Blasting Permit Application to Engine	30d	13-Oct-11	11-Nov-11
Submission of Detailed Method Statement for the u	30d	13-Oct-11	11-Nov-11
Approval from Client \Consultant\Relevant Autho	177d	11-Jul-11	10-Jan-12
Approval for Waste Management Plan/ Environmental	14d	18-Jul-11	31-Jul-11
Approval for 1st Detailed Version of Sub-Con Manage	14d	27-Jul-11	09-Aug-11
Approval for Initial Work Programme	14d	12-Jul-11	25-Jul-11
Approval for Detail Work Programme	14d	24-Sep-11	07-Oct-11
Approval for Org Chart and Key Personnel Details	14d	14-Jul-11	27-Jul-11



Actual Work ◆ Milestone
Remaining Work ▼ Summary
Critical Work

DC/2009/18 - HARBOUR AREA TREATMENT SCHEME STAGE 2A - Upgrading Works at Stonecutters Island Sewage Treatment Works - Effluent Tunnel and Disinfection Facilities.

INITIAL WORK PROGRAMME, REV.0 (1st Submission)

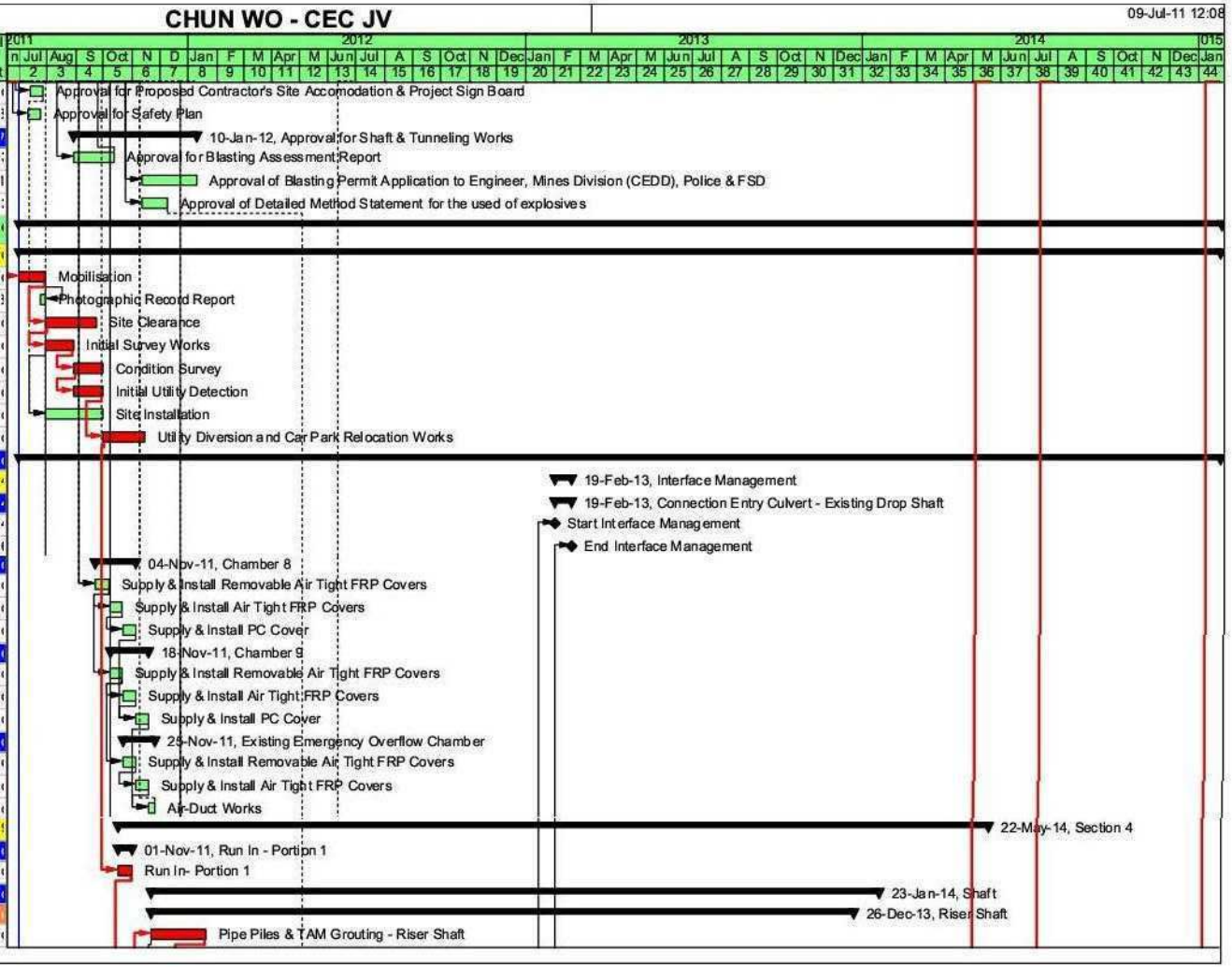
Date	Revision	Checked	Approved
11-Jul-11	Initial Work Programme		

Harbour Area Treatment Scheme Stage 2A - Initial Work Programme

CHUN WO - CEC JV

09-Jul-11 12:08

Activity Name	Original Duration	Start	Finish
Approval for Proposed Contractor's Site Accomodation	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,	60d	12-Nov-11	10-Jan-12
Approval of Detailed Method Statement for the used	28d	12-Nov-11	09-Dec-11
Construction Stage	1263d	30-Jun-11	26-Jan-15
Preliminaries	1262d	30-Jun-11	24-Jan-15
Mobilisation	24d	30-Jun-11	30-Jul-11
Photographic Record Report	5d	25-Jul-11	30-Jul-11
Site Clearance	42d	30-Jul-11	23-Sep-11
Initial Survey Works	24d	30-Jul-11	30-Aug-11
Condition Survey	24d	30-Aug-11	30-Sep-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
Reccuring Items	1262d	30-Jun-11	24-Jan-15
Interface Management	17d	01-Feb-13	19-Feb-13
Connection Entry Culvert - Existing Drop Shaft	17d	01-Feb-13	19-Feb-13
Start Interface Management	0d	01-Feb-13	
End Interface Management	0d		19-Feb-13
Chamber 8	42d	22-Sep-11	04-Nov-11
Supply & Install Removable 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	41d	08-Oct-11	18-Nov-11
Supply & Install Removable 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	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
Air-Duct Works	6d	19-Nov-11	25-Nov-11
Section 4	918d	17-Oct-11	22-May-14
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

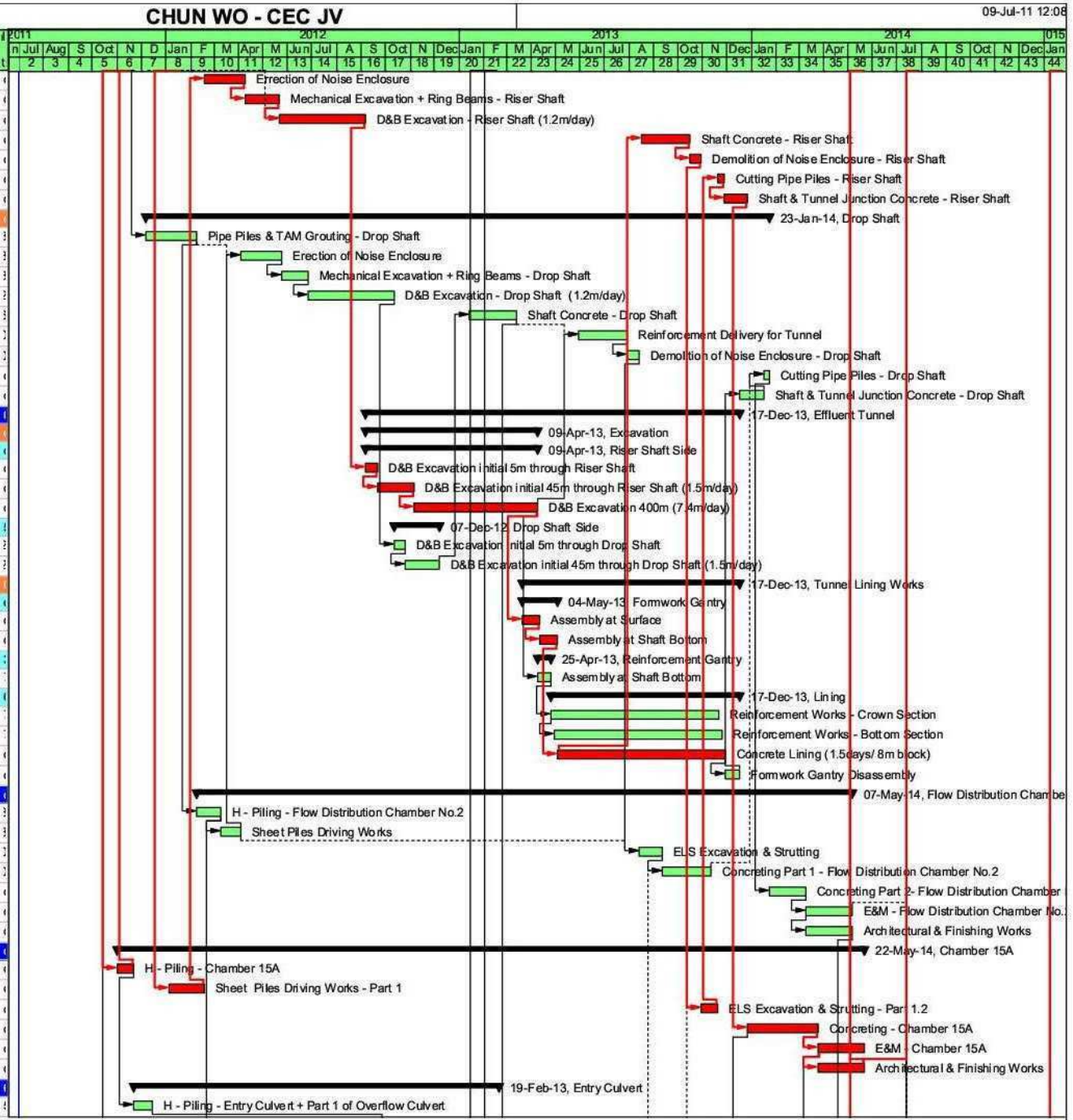


Harbour Area Treatment Scheme Stage 2A - Initial Work Programme

CHUN WO - CEC JV

09-Jul-11 12:08

Activity Name	Original Duration	Start	Finish
Erection of Noise Enclosure	42d	18-Feb-12	09-Apr-12
Mechanical Excavation + Ring Beams - Riser Sh	35d	09-Apr-12	21-May-12
D&B Excavation - Riser Shaft (1.2m/day)	72d	21-May-12	06-Sep-12
Shaft Concrete - Riser Shaft	46d	16-Aug-13	16-Oct-13
Demolition of Noise Enclosure - Riser Shaft	12d	16-Oct-13	30-Oct-13
Cutting Pipe Piles - Riser Shaft	6d	20-Nov-13	27-Nov-13
Shaft & Tunnel Junction Concrete - Riser Shaft	24d	27-Nov-13	26-Dec-13
Drop Shaft	754d	07-Dec-11	23-Jan-14
Pipe Piles & TAM Grouting - Drop Shaft	49d	07-Dec-11	08-Feb-12
Erection of Noise Enclosure	42d	03-Apr-12	24-May-12
Mechanical Excavation + Ring Beams - Drop Sha	27d	24-May-12	26-Jun-12
D&B Excavation - Drop Shaft (1.2m/day)	69d	26-Jun-12	12-Oct-12
Shaft Concrete - Drop Shaft	48d	14-Jan-13	14-Mar-13
Reinforcement Delivery for Tunnel	48d	30-May-13	29-Jul-13
Demolition of Noise Enclosure - Drop Shaft	12d	29-Jul-13	13-Aug-13
Cutting Pipe Piles - Drop Shaft	6d	16-Jan-14	23-Jan-14
Shaft & Tunnel Junction Concrete - Drop Shaft	24d	17-Dec-13	16-Jan-14
Effluent Tunnel	453d	06-Sep-12	17-Dec-13
Excavation	209d	06-Sep-12	09-Apr-13
Riser Shaft Side	209d	06-Sep-12	09-Apr-13
D&B Excavation initial 5m through Riser Shaft	10d	06-Sep-12	21-Sep-12
D&B Excavation initial 45m through Riser Sha	30d	21-Sep-12	06-Nov-12
D&B Excavation 400m (7.4m/day)	105d	06-Nov-12	09-Apr-13
Drop Shaft Side	54d	12-Oct-12	07-Dec-12
D&B Excavation initial 5m through Drop Shaft	10d	12-Oct-12	26-Oct-12
D&B Excavation initial 45m through Drop Sha	30d	26-Oct-12	07-Dec-12
Tunnel Lining Works	263d	21-Mar-13	17-Dec-13
Formwork Gantry	43d	21-Mar-13	04-May-13
Assembly at Surface	18d	21-Mar-13	12-Apr-13
Assembly at Shaft Bottom	18d	12-Apr-13	04-May-13
Reinforcement Gantry	16d	09-Apr-13	25-Apr-13
Assembly at Shaft Bottom	14d	09-Apr-13	25-Apr-13
Lining	228d	25-Apr-13	17-Dec-13
Reinforcement Works - Crown Section	169d	25-Apr-13	21-Nov-13
Reinforcement Works - Bottom Section	169d	29-Apr-13	25-Nov-13
Concrete Lining (1.5days/ 8m block)	169d	04-May-13	29-Nov-13
Formwork Gantry Disassembly	15d	29-Nov-13	17-Dec-13
Flow Distribution Chamber No.2	795d	08-Feb-12	07-May-14
H - Piling - Flow Distribution Chamber No.2	26d	08-Feb-12	09-Mar-12
Sheet Piles Driving Works	21d	09-Mar-12	03-Apr-12
ELS Excavation & Strutting	23d	13-Aug-13	11-Sep-13
Concreting Part 1 - Flow Distribution Chamber No.2	48d	11-Sep-13	11-Nov-13
Concreting Part 2- Flow Distribution Chamber No.2	36d	23-Jan-14	10-Mar-14
E&M - Flow Distribution Chamber No.2	48d	10-Mar-14	07-May-14
Architectural & Finishing Works	48d	10-Mar-14	07-May-14
Chamber 15A	904d	01-Nov-11	22-May-14
H - Piling - Chamber 15A	18d	01-Nov-11	22-Nov-11
Sheet Piles Driving Works - Part 1	36d	04-Jan-12	18-Feb-12
ELS Excavation & Strutting - Part 1.2	18d	30-Oct-13	20-Nov-13
Concreting - Chamber 15A	72d	26-Dec-13	25-Mar-14
E&M - Chamber 15A	48d	25-Mar-14	22-May-14
Architectural & Finishing Works	48d	25-Mar-14	22-May-14
Entry Culvert	439d	22-Nov-11	19-Feb-13
H - Piling - Entry Culvert + Part 1 of Overflow Culvert	20d	22-Nov-11	15-Dec-11

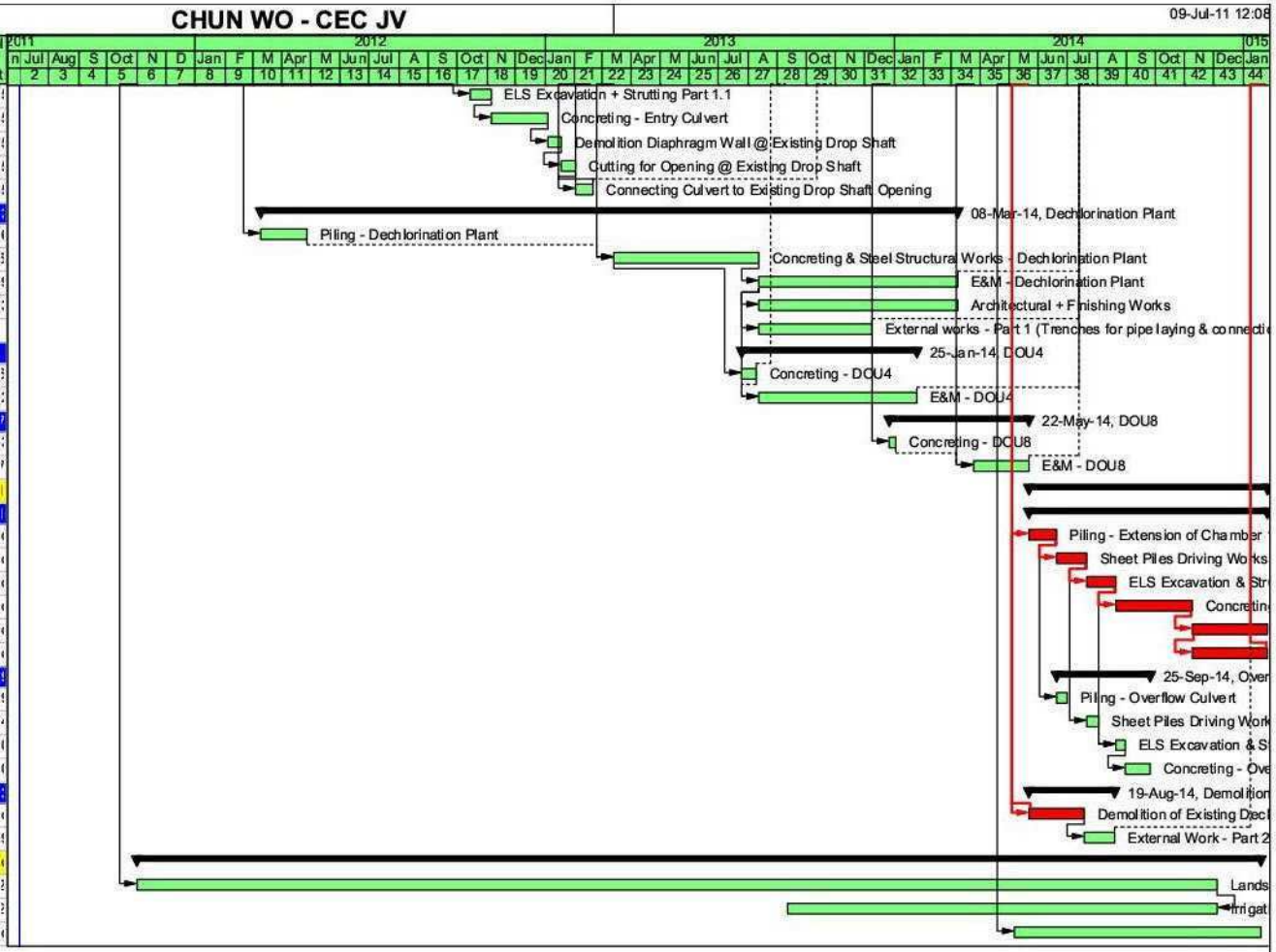


Harbour Area Treatment Scheme Stage 2A - Initial Work Programme

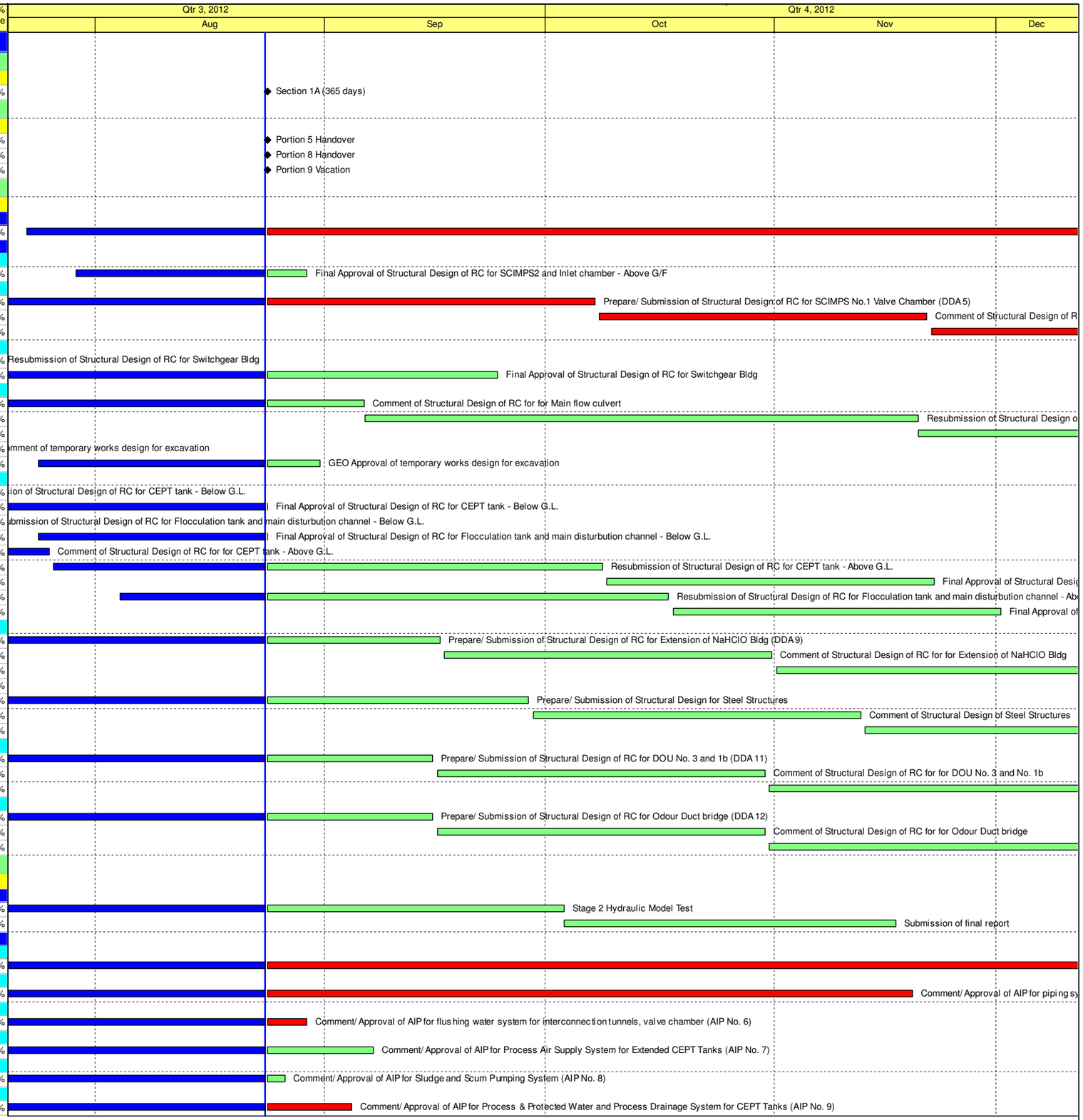
CHUN WO - CEC JV

09-Jul-11 12:08

Activity Name	Original Duration	Start	Finish
ELS Excavation + Strutting Part 1.1	18d	15-Oct-12	05-Nov-12
Concreting - Entry Culvert	50d	05-Nov-12	04-Jan-13
Demolition Diaphragm Wall @ Existing Drop Shaft	12d	04-Jan-13	18-Jan-13
Cutting for Opening @ Existing Drop Shaft	12d	18-Jan-13	01-Feb-13
Connecting Culvert to Existing Drop Shaft Opening	12d	01-Feb-13	19-Feb-13
Dechlorination Plant	706d	09-Mar-12	08-Mar-14
Piling - Dechlorination Plant	40d	09-Mar-12	26-Apr-12
Concreting & Steel Structural Works - Dechlorinatio	123d	14-Mar-13	12-Aug-13
E&M - Dechlorination Plant	168d	12-Aug-13	08-Mar-14
Architectural + Finishing Works	168d	12-Aug-13	08-Mar-14
External works - Part 1 (Trenches for pipe laying &	96d	12-Aug-13	09-Dec-13
DOU4	176d	25-Jul-13	25-Jan-14
Concreting - DOU4	12d	25-Jul-13	09-Aug-13
E&M - DOU4	135d	12-Aug-13	25-Jan-14
DOU8	143d	26-Dec-13	22-May-14
Concreting - DOU8	6d	26-Dec-13	03-Jan-14
E&M - DOU8	48d	25-Mar-14	22-May-14
Section 5	240d	22-May-14	26-Jan-15
Extension of Chamber	240d	22-May-14	26-Jan-15
Piling - Extension of Chamber 15	24d	22-May-14	20-Jun-14
Sheet Piles Driving Works - Part 2	25d	20-Jun-14	21-Jul-14
ELS Excavation & Strutting - Part 2	24d	21-Jul-14	20-Aug-14
Concreting - Extension of Chamber 15	63d	20-Aug-14	08-Nov-14
E&M - Extension of Chamber 15	65d	08-Nov-14	26-Jan-15
Architectural & Finishing Works - Extension of Chan	65d	08-Nov-14	26-Jan-15
Overflow Culvert	92d	20-Jun-14	25-Sep-14
Piling - Overflow Culvert	8d	20-Jun-14	30-Jun-14
Sheet Piles Driving Works - Overflow Culvert	10d	21-Jul-14	02-Aug-14
ELS Excavation & Strutting - Overflow Culvert	8d	20-Aug-14	30-Aug-14
Concreting - Overflow Culvert	20d	30-Aug-14	25-Sep-14
Demolition of Existing Dechlorination Plant	86d	22-May-14	19-Aug-14
Demolition of Existing Dechlorination Plant	48d	22-May-14	19-Jul-14
External Work - Part 2 (Concrete Pavement)	24d	19-Jul-14	19-Aug-14
Landscape Works	1138d	01-Nov-11	19-Jan-15
Landscaping Softwork	918d	01-Nov-11	05-Dec-14
Irrigation System	450d	11-Sep-13	05-Dec-14
Establishment Works	258d	07-May-14	19-Jan-15



Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Activity % Complete
3 Month Rolling Programme (24 Aug 2012 to 24 Nov 2012)						
Contract Particulars						
Key Dates						
KD1050	Section 1A (365 days)	0		24-Aug-12	136	0%
Portion of Site						
Possession/ Vacation of Portion						
PS1040	Portion 5 Handover	0	24-Aug-12		-121	0%
PS1100	Portion 8 Handover	0	24-Aug-12		-182	0%
PS1130	Portion 9 Vacation	0		24-Aug-12	136	0%
Civil and Geotechnical Submission						
Contractor Design, Submission and Approval						
General						
CCD00137	Operation and maintenace of web cameras	1932	22-Jul-12 A	05-Nov-17	-105	1.66%
Detailed Design Approval (DDA) Submission for Structural/ Builder Works						
DDA4 (SCIMPS2 and Inlet Chamber)						
CCD00155	Final Approval of Structural Design of RC for SCIMPS2 and Inlet chaml	12	29-Jul-12 A	29-Aug-12	152	50%
DDA5 (SCIMPS No. 1 Valve Chamber)						
CCD00131	Prepare/ Submission of Structural Design of RC for SCIMPS No.1 Valv	180	01-Dec-11 A	07-Oct-12	0	75%
CCD00132	Comment of Structural Design of RC for SCIMPS No.1 Valve Chamber	45	08-Oct-12	21-Nov-12	0	0%
CCD00133	Resubmission of Structural Design of RC for SCIMPS No.1 Valve Char	75	22-Nov-12	04-Feb-13	0	0%
DDA6 (Switchgear Bldg)						
CCD00143	Resubmission of Structural Design of RC for Switchgear Bldg	75	04-Apr-12 A	19-Jul-12 A		100%
CCD00144	Final Approval of Structural Design of RC for Switchgear Bldg	45	16-Jul-12 A	24-Sep-12	31	30%
DDA7 (Main Flow Culvert)						
CCD00152	Comment of Structural Design of RC for for Main flow culvert	45	24-Jun-12 A	06-Sep-12	292	70%
CCD00153	Resubmission of Structural Design of RC for Main flow culvert	75	06-Sep-12	20-Nov-12	292	0%
CCD00154	Final Approval of Structural Design of RC for Main flow culvert	30	20-Nov-12	20-Dec-12	292	0%
CCD00540	Comment of temporary works design for excavation	60	19-May-12	17-Jul-12 A		100%
CCD00560	GEO Approval of temporary works design for excavation	30	24-Jul-12 A	31-Aug-12	131	75%
DDA8 (Extension of CEPT tanks)						
CCD00193	Resubmission of Structural Design of RC for CEPT tank - Below G.L.	28	24-Apr-12 A	13-Jul-12 A		100%
CCD00194	Final Approval of Structural Design of RC for CEPT tank - Below G.L.	21	29-Jun-12 A	24-Aug-12	6	100%
CCD00197	Resubmission of Structural Design of RC for Flocculation tank and ma	45	01-Jun-12 A	16-Jul-12 A		100%
CCD00198	Final Approval of Structural Design of RC for Flocculation tank and ma	28	24-Jul-12 A	24-Aug-12	21	100%
CCD00580	Comment of Structural Design of RC for for CEPT tank - Above G.L.	45	11-Jun-12 A	25-Jul-12 A		100%
CCD00590	Resubmission of Structural Design of RC for CEPT tank - Above G.L.	75	26-Jul-12 A	08-Oct-12	94	38.67%
CCD00600	Final Approval of Structural Design of RC for CEPT tank - Above G.L.	45	09-Oct-12	22-Nov-12	94	0%
CCD00670	Resubmission of Structural Design of RC for Flocculation tank and ma	75	04-Aug-12 A	17-Oct-12	215	26.67%
CCD00680	Final Approval of Structural Design of RC for Flocculation tank and ma	45	18-Oct-12	01-Dec-12	215	0%
DDA9 (Extension of NaHClO Bldg)						
CCD00161	Prepare/ Submission of Structural Design of RC for Extension of NaHC	120	19-Apr-12 A	16-Sep-12	185	80%
CCD00162	Comment of Structural Design of RC for for Extension of NaHClO Bldg	45	17-Sep-12	31-Oct-12	185	0%
CCD00163	Resubmission of Structural Design of RC for Extension of NaHClO Bldg	45	01-Nov-12	15-Dec-12	185	0%
CCD00164	Final Approval of Structural Design of RC for Extension of NaHClO Bld	30	16-Dec-12	14-Jan-13	185	0%
CCD00206	Prepare/ Submission of Structural Design for Steel Structures	120	04-May-12	28-Sep-12	200	70%
CCD00207	Comment of Structural Design of Steel Structures	45	29-Sep-12	12-Nov-12	200	0%
CCD00208	Resubmission of Structural Design of Steel Structures	45	13-Nov-12	27-Dec-12	200	0%
DDA11 (DOU No. 3 and DOU No. 1b)						
CCD00201	Prepare/ Submission of Structural Design of RC for DOU No. 3 and 1b	100	08-Jun-12 A	15-Sep-12	380	77%
CCD00202	Comment of Structural Design of RC for for DOU No. 3 and No. 1b	45	16-Sep-12	30-Oct-12	380	0%
CCD00203	Resubmission of Structural Design of RC for DOU No. 3 and No. 1b	75	31-Oct-12	13-Jan-13	380	0%
DDA12 (Odour Duct Bridge)						
CCD00181	Prepare/ Submission of Structural Design of RC for Odour Duct bridge	100	08-Jun-12 A	15-Sep-12	419	77%
CCD00182	Comment of Structural Design of RC for for Odour Duct bridge	45	16-Sep-12	30-Oct-12	419	0%
CCD00183	Resubmission of Structural Design of RC for Odour Duct bridge	75	31-Oct-12	13-Jan-13	419	0%
Electrical & Mechanical Equipment Submission						
Contractor Design, Submission and Approval						
General						
ECD00120	Stage 2 Hydraulic Model Test	135	18-Mar-12 A	03-Oct-12	264	70%
ECD00130	Submission of final report	45	03-Oct-12	17-Nov-12	264	0%
Aproved In-princple (AIP) Submission						
AIP No. 3 (Drainage and Sparging System at Wet Well)						
ECD00050	Comment/ Approval of AIP for Drainage and Sparging System at MPS2	210	24-May-12	19-Dec-12	-116	43.81%
AIP No. 4 (Piping system for centrate flow/ NWK overflow pipe)						
ECD00052	Comment/ Approval of AIP for piping system for centrate flow/ NWK ovi	180	24-May-12	19-Nov-12	-74	51.11%
AIP No. 6 (Flushing water System for interconnection tunnel and valve chamber)						
ECD00070	Comment/ Approval of AIP for flushing water system for interconnectioi	60	24-May-12	29-Aug-12	-62	90%
AIP No. 7 (Proccess Air Supply System for Flocculation tanks and ED culvert)						
ECD00080	Comment/ Approval of AIP for Process Air Supply System for Extended	75	24-May-12	07-Sep-12	105	80%
AIP No. 8 (Sludge and Scum Pumping System)						
ECD00150	Comment/ Approval of AIP for Sludge and Scum Pumping System (AIP	95	24-May-12	26-Aug-12	17	96.84%
AIP No. 9 (Process Air Supply System & Protected Water Supply System)						
ECD00160	Comment/ Approval of AIP for Process & Protected Water and Process	80	24-May-12	04-Sep-12	-29	85%



Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

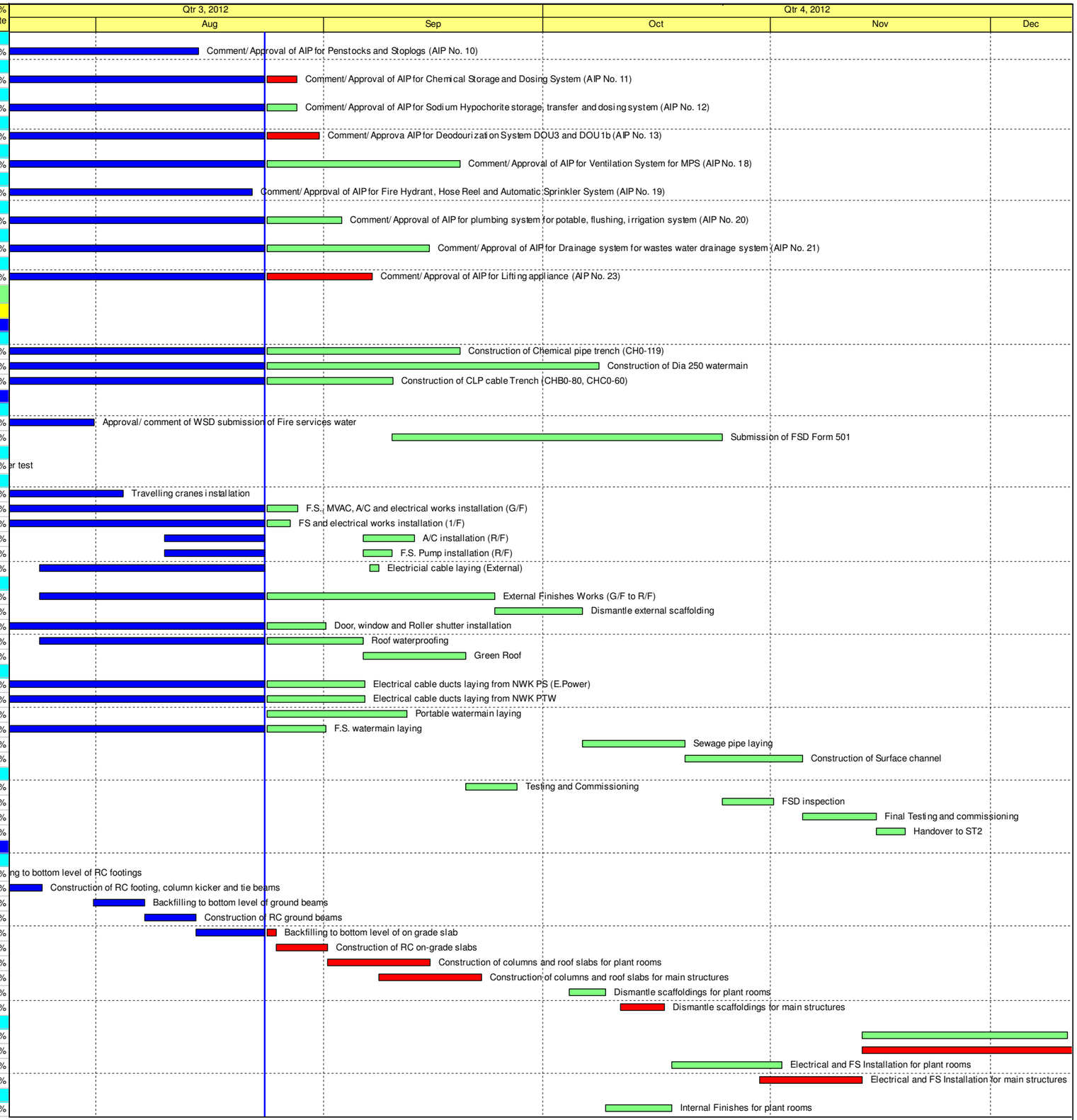
Contract No. DC/2009/10

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

Three Months Rolling Programme (24 Aug 2012 to 24 Nov 2012)

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Activity % Complete
AIP No. 10 (Penstocks and Stoplogs for Extension of CEPT tanks)						
ECD00170	Comment/ Approval of AIP for Penstocks and Stoplogs (AIP No. 10)	60	24-May-12	15-Aug-12 A		100%
AIP No. 11 (Chemical Dosing System)						
ECD00180	Comment/ Approval of AIP for Chemical Storage and Dosing System (A	60	24-May-12	28-Aug-12	-9	93%
AIP No. 12 (Sodium Hypochlorite Storage, transfer and dosing system)						
ECD00200	Comment/ Approval of AIP for Sodium Hypochorite storage, transfer an	60	24-May-12	28-Aug-12	10	93%
AIP No. 13 (Deodourization System for MPS, CEPT tanks, NWK PS)						
ECD00210	Comment/ Approva AIP for Deodourization System DOU3 and DOU1b	75	24-May-12	31-Aug-12	-89	90%
AIP No. 18 (Ventilation System of MPS, valve chamber and Switchgear bldg)						
ECD00260	Comment/ Approval of AIP for Ventilation System for MPS (AIP No. 18)	90	24-May-12	19-Sep-12	27	70%
AIP No. 19 (Fire Service Installation)						
ECD00270	Comment/ Approval of AIP for Fire Hydrant, Hose Reel and Automatic S	90	24-May-12	22-Aug-12 A		100%
AIP No. 20 (Plumbling System)						
ECD00280	Comment/ Approval of AIP for plumbing system for potable, flushing, ir	70	24-May-12	03-Sep-12	195	85%
AIP No. 21 (Drainage System)						
ECD00290	Comment/ Approval of AIP for Drainage system for wastes water draina	90	24-May-12	15-Sep-12	2	75%
AIP No. 23 (Lifting applicance)						
ECD00410	Comment/ Approval of AIP for Lifting appliance (AIP No. 23)	75	24-May-12	07-Sep-12	-5	80%
Infrastructure Construction Works						
Works for Section 1A						
Portion 3 (Extension of CEPT Tanks)						
Civil Works						
P300090	Construction of Chemical pipe trench (CH0-119)	230	14-Oct-11 A	19-Sep-12	208	90%
P300250	Construction of Dia 250 watermain	245	14-Oct-11 A	08-Oct-12	173	85%
P300255	Construction of CLP cable Trench (CHB0-80, CHC0-60)	145	28-Feb-12 A	10-Sep-12	96	90%
Portion 9 (Permanent Storage Building)						
Contractor Design for Structural and E&M						
P900470	Approval/ comment of WSD submission of Fire services water	90	03-May-12	31-Jul-12 A		100%
P900520	Submission of FSD Form 501	45	10-Sep-12	25-Oct-12	65	0%
RC Works						
P900490	Water test	7	07-Jul-12 A	16-Jul-12 A		100%
Electrical and Machainical Installation						
P900130	Travelling cranes installation	35	25-Jun-12 A	04-Aug-12 A		100%
P900180	F.S., MVAC, A/C and electrical works installation (G/F)	18	16-Jun-12 A	28-Aug-12	94	80%
P900400	FS and electrical works installation (1/F)	12	18-Jun-12 A	27-Aug-12	65	80%
P900410	A/C installation (R/F)	12	10-Aug-12 A	13-Sep-12	81	50%
P900480	F.S. Pump installation (R/F)	21	10-Aug-12 A	10-Sep-12	53	85.71%
P900510	Electricial cable laying (External)	12	24-Jul-12 A	08-Sep-12	84	85%
Builder and finishes Works						
P900155	External Finishes Works (G/F to R/F)	45	24-Jul-12 A	24-Sep-12	42	41.67%
P900165	Dismantle external scaffolding	9	24-Sep-12	06-Oct-12	42	0%
P900300	Door, window and Roller shutter installation	24	05-Jun-12 A	01-Sep-12	91	70%
P900305	Roof waterproofing	15	24-Jul-12 A	06-Sep-12	53	25%
P900310	Green Roof	12	06-Sep-12	20-Sep-12	75	0%
External underground works						
P901000	Electrical cable ducts laying from NWK PS (E.Power)	45	16-May-12	06-Sep-12	84	73.33%
P901010	Electrical cable ducts laying from NWK PTW	45	16-May-12	06-Sep-12	84	73.33%
P901020	Portable watermain laying	18	27-Aug-12 A	12-Sep-12	82	10%
P901030	F.S. watermain laying	18	18-Jul-12 A	01-Sep-12	91	60%
P901120	Sewage pipe laying	12	06-Oct-12	20-Oct-12	42	0%
P901170	Construction of Surface channel	12	20-Oct-12	05-Nov-12	42	0%
Testing and Commissioning						
P900150	Testing and Commissioning	6	20-Sep-12	27-Sep-12	75	0%
P900250	FSD inspection	6	25-Oct-12	01-Nov-12	54	0%
P900530	Final Testing and commissioning	10	05-Nov-12	15-Nov-12	48	0%
P900540	Handover to ST2	4	15-Nov-12	19-Nov-12	48	0%
Portion 1 (Container Maintenance Building)						
RC works						
P100045	Backfilling to bottom level of RC footings	6	07-Jul-12 A	14-Jul-12 A		100%
P100046	Construction of RC footing, column kicker and tie beams	8	14-Jul-12 A	24-Jul-12 A		100%
P100047	Backfilling to bottom level of ground beams	6	31-Jul-12 A	07-Aug-12 A		100%
P100050	Construction of RC ground beams	6	07-Aug-12 A	14-Aug-12 A		100%
P100055	Backfilling to bottom level of on grade slab	3	14-Aug-12 A	25-Aug-12	0	45%
P100060	Construction of RC on-grade slabs	6	25-Aug-12	01-Sep-12	0	0%
P100100	Construction of columns and roof slabs for plant rooms	12	01-Sep-12	15-Sep-12	0	0%
P100110	Construction of columns and roof slabs for main structures	12	08-Sep-12	22-Sep-12	0	0%
P100400	Dismantle scaffoldings for plant rooms	4	04-Oct-12	09-Oct-12	21	0%
P100405	Dismantle scaffoldings for main structures	5	11-Oct-12	17-Oct-12	0	0%
Electrical and Machainical Installation						
P100070	Spreader overhead crane Installation	24	13-Nov-12	11-Dec-12	11	0%
P100075	Pressure jet system installation	35	13-Nov-12	24-Dec-12	0	0%
P100310	Electrical and FS Installation for plant rooms	12	18-Oct-12	02-Nov-12	21	0%
P100380	Electrical and FS Installation for main structures	12	30-Oct-12	13-Nov-12	0	0%
Builder and finishes Works						
P100080	Internal Finishes for plant rooms	8	09-Oct-12	18-Oct-12	21	0%



Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

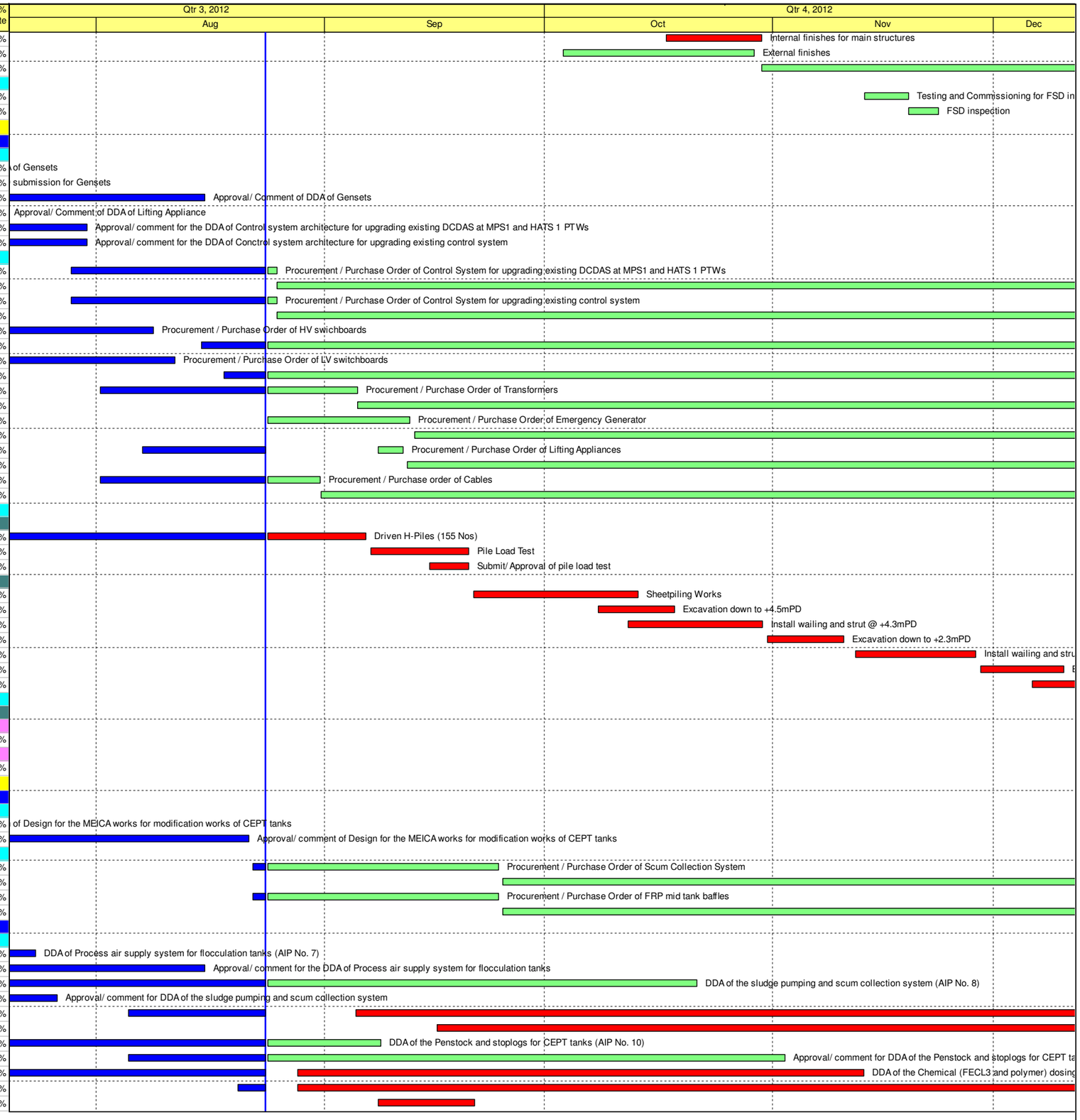
Contract No. DC/2009/10

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

Three Months Rolling Programme (24 Aug 2012 to 24 Nov 2012)

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Activity % Complete
P100390	Internal finishes for main structures	10	17-Oct-12	30-Oct-12	0	0%
P100410	External finishes	21	03-Oct-12	29-Oct-12	48	0%
P100420	Installation of FRP platform	45	30-Oct-12	21-Dec-12	2	0%
Testing and Commissioning						
P100090	Testing and Commissioning for FSD inspection	5	13-Nov-12	19-Nov-12	34	0%
P100320	FSD inspection	4	19-Nov-12	23-Nov-12	34	0%
Works for Section 2						
Portion 4 (Switchgear Building)						
Submission of Design for Structural and E&M						
P401060	DDA of Gensets	90	18-Apr-12 A	16-Jul-12 A		100%
P401065	EPD submission for Gensets	90	18-Apr-12 A	16-Jul-12 A		100%
P401070	Approval/ Comment of DDA of Gensets	90	18-May-12	15-Aug-12 A		100%
P401090	Approval/ Comment of DDA of Lifting Appliance	90	21-Apr-12 A	19-Jul-12 A		100%
P401102	Approval/ comment for the DDA of Control system architecture for upgr	46	15-Jun-12 A	30-Jul-12 A		100%
P401104	Approval/ comment for the DDA of Conctrol system architecture for up	46	15-Jun-12 A	30-Jul-12 A		100%
Procurement/ Order/ Manufacturing/ Delivery						
P302550	Procurement / Purchase Order of Control System for upgrading existin	28	28-Jul-12 A	25-Aug-12	74	94.29%
P302560	Manufacturing of Control System for upgrading existing DCDAS at MPS	125	25-Aug-12	28-Dec-12	74	0%
P302580	Procurement / Purchase Order of Control System for upgrading existin	28	28-Jul-12 A	25-Aug-12	130	94.29%
P302590	Manufacturing of Control System for upgrading existing control system	125	25-Aug-12	28-Dec-12	130	0%
P402040	Procurement / Purchase Order of HV swichboards	25	15-Jul-12 A	08-Aug-12 A		100%
P402050	Manufacturing of HV switchboards	250	15-Aug-12 A	21-Apr-13	22	3.6%
P402070	Procurement / Purchase Order of LV switchboards	28	15-Jul-12 A	11-Aug-12 A		100%
P402080	Manufacturing of LV switchboards	250	18-Aug-12 A	24-Apr-13	47	2.4%
P402100	Procurement / Purchase Order of Transformers	35	01-Aug-12 A	05-Sep-12	15	64.29%
P402110	Manufacturing of Transformers	245	05-Sep-12	08-May-13	15	0%
P402130	Procurement / Purchase Order of Emergency Generator	20	24-Aug-12	12-Sep-12	53	0%
P402140	Manufacturing of Emergency Generator	210	13-Sep-12	10-Apr-13	53	0%
P402160	Procurement / Purchase Order of Lifting Appliances	21	07-Aug-12 A	11-Sep-12	41	80.95%
P402170	Manufacturing of Lifting Appliances	210	12-Sep-12	09-Apr-13	41	0%
P402220	Procurement / Purchase order of Cables	30	01-Aug-12 A	31-Aug-12	32	75%
P402230	Manufacturing of Cables	210	31-Aug-12	29-Mar-13	32	0%
Foundation Works						
Driven H-Pile						
P400020	Driven H-Piles (155 Nos)	80	30-Apr-12 A	06-Sep-12	-49	85%
P400025	Pile Load Test	12	07-Sep-12	20-Sep-12	-49	0%
P400030	Submit/ Approval of pile load test	5	15-Sep-12	20-Sep-12	-31	0%
Excavation and Lateral Support for Substructure						
P400060	Sheetpiling Works	18	21-Sep-12	13-Oct-12	-49	0%
P400930	Excavation down to +4.5mPD	10	08-Oct-12	18-Oct-12	-49	0%
P400940	Install wailing and strut @ +4.3mPD	15	12-Oct-12	30-Oct-12	-49	0%
P400941	Excavation down to +2.3mPD	10	31-Oct-12	10-Nov-12	-49	0%
P400942	Install wailing and strut @ +2.5mPD	15	12-Nov-12	28-Nov-12	-49	0%
P400950	Excavation down to +1.2mPD	10	29-Nov-12	10-Dec-12	-49	0%
P400960	H-Pile head preparation	13	06-Dec-12	20-Dec-12	-49	0%
R.C. Works						
Substructure						
GL1-GL5						
P400070	Underground drainage pipe	15	21-Dec-12	10-Jan-13	-49	0%
GL6-10						
P902340	Pile cap excavation and construction	30	15-Dec-12	22-Jan-13	-44	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 C	90	13-Apr-12 A	12-Jul-12 A		100%
P106010	Approval/ comment of Design for the MEICA works for modification wo	90	24-May-12	21-Aug-12 A		100%
Procurement/ Order/ Manufacturing/ Delivery						
P106110	Procurement / Purchase Order of Scum Collection System	34	22-Aug-12 A	24-Sep-12	100	5.88%
P106120	Manufacturing of Scum Collection System	240	25-Sep-12	22-May-13	100	0%
P106140	Procurement / Purchase Order of FRP mid tank baffles	34	22-Aug-12 A	24-Sep-12	100	5.88%
P106150	Manufacturing of FRP mid tank baffles	240	25-Sep-12	22-May-13	100	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	26-Mar-12 A	23-Jul-12 A		100%
P301010	Approval/ comment for the DDA of Process air supply system for flocc	120	18-Apr-12 A	15-Aug-12 A		100%
P301020	DDA of the sludge pumping and scum collection system (AIP No. 8)	120	24-Jun-12 A	21-Oct-12	10	50.83%
P301030	Approval/ comment for DDA of the sludge pumping and scum collectio	120	29-Mar-12 A	26-Jul-12 A		100%
P301480	DDA of the Process water flushing and protected water system (AIP No	120	05-Aug-12 A	14-Dec-12	-29	15.83%
P301490	Approval/ comment for DDA of the Process water flushing and protecte	120	16-Sep-12	13-Jan-13	-29	0%
P301500	DDA of the Penstock and stoplogs for CEPT tanks (AIP No. 10)	90	11-Jun-12 A	08-Sep-12	20	82.22%
P301510	Approval/ comment for DDA of the Penstock and stoplogs for CEPT tar	90	05-Aug-12 A	02-Nov-12	20	21.11%
P301520	DDA of the Chemical (FECL3 and polymer) dosing system (AIP No. 11)	120	12-Jul-12 A	13-Nov-12	-9	35.83%
P301530	Approval/ comment for DDA of the Chemical (FECL3 and polymer) dos	120	20-Aug-12 A	22-Dec-12	-9	3.33%
P301560	Approval/ comment for DDA of the Lifting appliance	45	19-Mar-13 A	21-Sep-12	-5	70%



Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

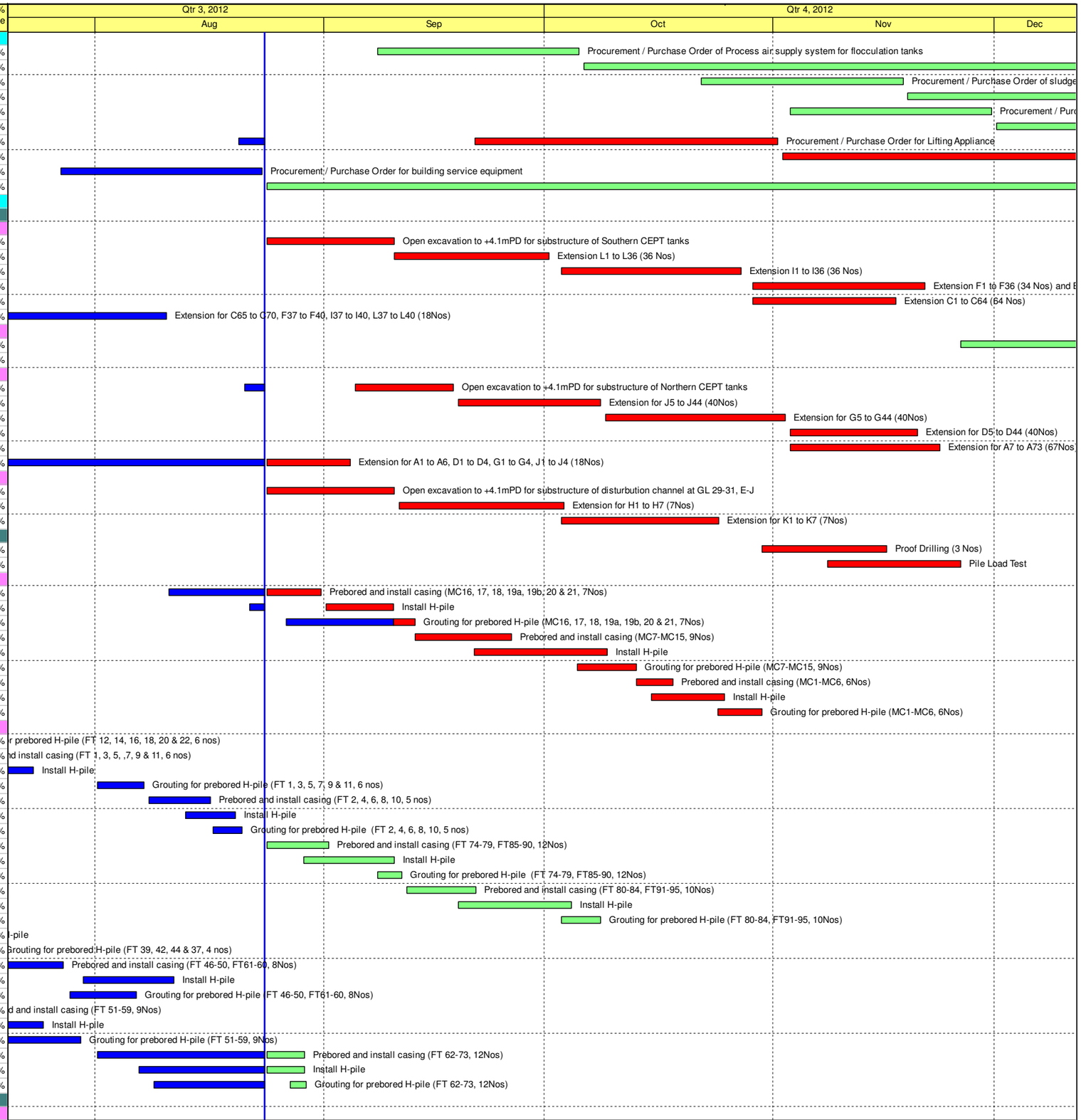
Contract No. DC/2009/10

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

Three Months Rolling Programme (24 Aug 2012 to 24 Nov 2012)

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Activity % Complete
Procurement/ Order/ Manufacturing/ Delivery						
P301090	Procurement / Purchase Order of Process air supply system for floccu	28	08-Sep-12	05-Oct-12	105	0%
P301690	Manufacturing of Process air supply system for flocculation tanks	400	06-Oct-12	09-Nov-13	105	0%
P301710	Procurement / Purchase Order of sludge pumping and scum collection	28	22-Oct-12	18-Nov-12	10	0%
P301720	Manufacturing of sludge pumping and scum collection systems	350	19-Nov-12	03-Nov-13	10	0%
P301770	Procurement / Purchase Order of penstocks and stoplogs	28	03-Nov-12	30-Nov-12	20	0%
P301780	Manufacturing of penstocks and stoplogs	300	01-Dec-12	26-Sep-13	20	0%
P301830	Procurement / Purchase Order for Lifting Appliance	45	20-Aug-12 A	01-Nov-12	-5	7.78%
P301840	Manufacturing of Lifting Appliance	390	02-Nov-12	26-Nov-13	-5	0%
P301860	Procurement / Purchase Order for building service equipment	28	27-Jul-12 A	23-Aug-12 A		100%
P301870	Manufacturing of building service equipment	330	24-Aug-12	19-Jul-13	128	0%
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	24-Aug-12	10-Sep-12	-11	0%
P321010	Extension L1 to L36 (36 Nos)	21	10-Sep-12	01-Oct-12	-13	0%
P902490	Extension I1 to I36 (36 Nos)	21	03-Oct-12	27-Oct-12	-10	0%
P902500	Extension F1 to F36 (34 Nos) and Extension F9 to F10 (2 Nos)	21	29-Oct-12	21-Nov-12	-10	0%
P902510	Extension C1 to C64 (64 Nos)	18	29-Oct-12	17-Nov-12	-10	0%
P902540	Extension for C65 to C70, F37 to F40, I37 to I40, L37 to L40 (18Nos)	40	25-Jun-12 A	10-Aug-12 A		100%
Row M						
P902590	Open cut for substructures at GL33-37 and GL B-C	15	26-Nov-12	13-Dec-12	32	0%
P902600	Extension for M1 to M 59 (59Nos)	24	13-Dec-12	14-Jan-13	32	0%
Row A, D, G & J						
P902550	Open excavation to +4.1mPD for substructure of Northern CEPT tanks	15	21-Aug-12 A	18-Sep-12	-15	20%
P902555	Extension for J5 to J44 (40Nos)	15	19-Sep-12	08-Oct-12	-15	0%
P902560	Extension for G5 to G44 (40Nos)	21	09-Oct-12	02-Nov-12	-15	0%
P902570	Extension for D5 to D44 (40Nos)	15	03-Nov-12	20-Nov-12	-15	0%
P902580	Extension for A7 to A73 (67Nos)	18	03-Nov-12	23-Nov-12	-15	0%
P902620	Extension for A1 to A6, D1 to D4, G1 to G4, J1 to J4 (18Nos)	40	13-Jul-12 A	04-Sep-12	-17	75%
Row B, E, H & K						
P902635	Open excavation to +4.1mPD for substructure of disturbution channel a	15	24-Aug-12	10-Sep-12	-32	0%
P902660	Extension for H1 to H7 (7Nos)	18	11-Sep-12	03-Oct-12	-32	0%
P902670	Extension for K1 to K7 (7Nos)	18	03-Oct-12	24-Oct-12	-32	0%
Prebored Rock Socketted H-Pile						
P300130	Proof Drilling (3 Nos)	15	30-Oct-12	16-Nov-12	-6	0%
P300140	Pile Load Test	15	08-Nov-12	26-Nov-12	-6	0%
Zone 1 - Disturbution Channel, Rig No. 1						
P310490	Prebored and install casing (MC16, 17, 18, 19a, 19b, 20 & 21, 7Nos)	10	11-Aug-12 A	31-Aug-12	-6	30%
P310500	Install H-pile	11	22-Aug-12 A	10-Sep-12	-6	30%
P310510	Grouting for prebored H-pile (MC16, 17, 18, 19a, 19b, 20 & 21, 7Nos)	4	27-Aug-12 A	13-Sep-12	-6	30%
P310520	Prebored and install casing (MC7-MC15, 9Nos)	11	13-Sep-12	26-Sep-12	-6	0%
P310530	Install H-pile	13	21-Sep-12	09-Oct-12	-6	0%
P310540	Grouting for prebored H-pile (MC7-MC15, 9Nos)	7	05-Oct-12	13-Oct-12	-6	0%
P310550	Prebored and install casing (MC1-MC6, 6Nos)	4	13-Oct-12	18-Oct-12	-6	0%
P310560	Install H-pile	8	15-Oct-12	25-Oct-12	-6	0%
P310570	Grouting for prebored H-pile (MC1-MC6, 6Nos)	5	24-Oct-12	30-Oct-12	-6	0%
Zone 2 - Rapid Mix tank, Rig No. 2 & 3						
P310007	Grouting for prebored H-pile (FT 12, 14, 16, 18, 20 & 22, 6 nos)	9	29-Jun-12 A	13-Jul-12 A		100%
P310010	Prebored and install casing (FT 1, 3, 5, ,7, 9 & 11, 6 nos)	9	03-Jul-12 A	12-Jul-12 A		100%
P310020	Install H-pile	9	13-Jul-12 A	23-Jul-12 A		100%
P310030	Grouting for prebored H-pile (FT 1, 3, 5, 7, 9 & 11, 6 nos)	6	01-Aug-12 A	07-Aug-12 A		100%
P310040	Prebored and install casing (FT 2, 4, 6, 8, 10, 5 nos)	8	08-Aug-12 A	16-Aug-12 A		100%
P310050	Install H-pile	7	13-Aug-12 A	20-Aug-12 A		100%
P310060	Grouting for prebored H-pile (FT 2, 4, 6, 8, 10, 5 nos)	3	17-Aug-12 A	21-Aug-12 A		100%
P310070	Prebored and install casing (FT 74-79, FT85-90, 12Nos)	8	24-Aug-12	01-Sep-12	20	0%
P310080	Install H-pile	11	29-Aug-12	10-Sep-12	20	0%
P310090	Grouting for prebored H-pile (FT 74-79, FT85-90, 12Nos)	3	08-Sep-12	11-Sep-12	20	0%
P310100	Prebored and install casing (FT 80-84, FT91-95, 10Nos)	9	12-Sep-12	21-Sep-12	20	0%
P310110	Install H-pile	12	19-Sep-12	04-Oct-12	20	0%
P310120	Grouting for prebored H-pile (FT 80-84, FT91-95, 10Nos)	5	03-Oct-12	08-Oct-12	20	0%
P310230	Install H-pile	5	10-Jul-12 A	14-Jul-12 A		100%
P310240	Grouting for prebored H-pile (FT 39, 42, 44 & 37, 4 nos)	3	16-Jul-12 A	18-Jul-12 A		100%
P310250	Prebored and install casing (FT 46-50, FT61-60, 8Nos)	12	14-Jul-12 A	27-Jul-12 A		100%
P310260	Install H-pile	12	30-Jul-12 A	11-Aug-12 A		100%
P310270	Grouting for prebored H-pile (FT 46-50, FT61-60, 8Nos)	7	28-Jul-12 A	06-Aug-12 A		100%
P310280	Prebored and install casing (FT 51-59, 9Nos)	11	03-Jul-12 A	14-Jul-12 A		100%
P310290	Install H-pile	13	11-Jul-12 A	25-Jul-12 A		100%
P310300	Grouting for prebored H-pile (FT 51-59, 9Nos)	6	16-Jul-12 A	30-Jul-12 A		100%
P310310	Prebored and install casing (FT 62-73, 12Nos)	14	01-Aug-12 A	29-Aug-12	44	70%
P310320	Install H-pile	14	07-Aug-12 A	29-Aug-12	44	70%
P310330	Grouting for prebored H-pile (FT 62-73, 12Nos)	8	09-Aug-12 A	29-Aug-12	44	70%
Driven H-Pile						
Zone 4 - Inlet Section of Flocculation tank						



Actual Work
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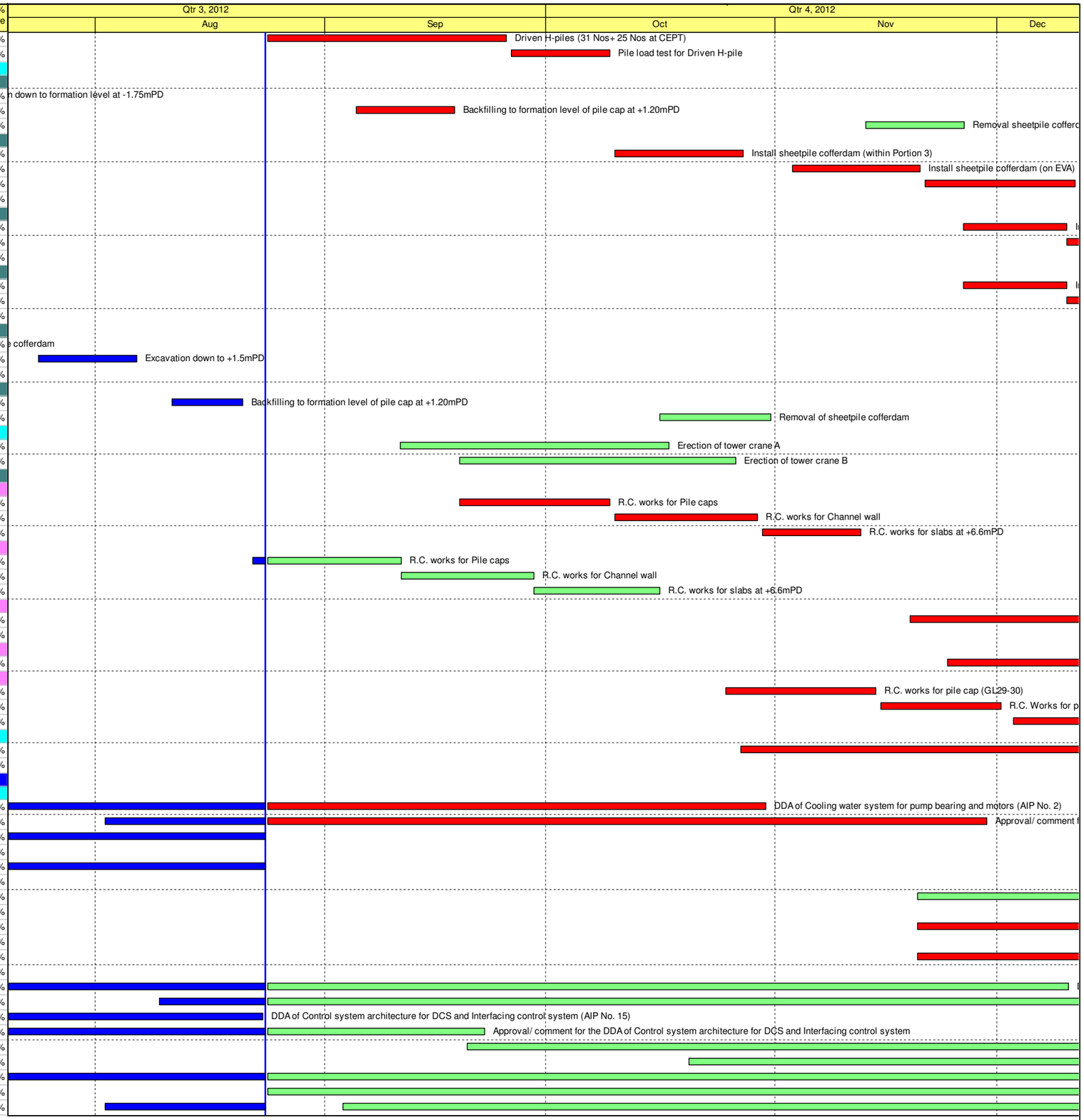
Contract No. DC/2009/10

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

Three Months Rolling Programme (24 Aug 2012 to 24 Nov 2012)

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Activity % Complete
P904240	Driven H-piles (31 Nos+ 25 Nos at CEPT)	28	24-Aug-12	25-Sep-12	-25	0%
P904250	Pile load test for Driven H-pile	10	26-Sep-12	09-Oct-12	-25	0%
Excavation and Lateral Support for Substructure						
Cofferdam No. 1 (GL29-33, A-B)						
P322010	Excavation down to formation level at -1.75mPD	12	28-Jun-12 A	13-Jul-12 A		100%
P322015	Backfilling to formation level of pile cap at +1.20mPD	12	05-Sep-12	18-Sep-12	-17	0%
P322020	Removal sheetpile cofferdam	12	13-Nov-12	26-Nov-12	90	0%
Cofferdam No. 2 (GL34-36, A)						
P322200	Install sheetpile cofferdam (within Portion 3)	15	10-Oct-12	27-Oct-12	-25	0%
P904265	Install sheetpile cofferdam (on EVA)	15	03-Nov-12	20-Nov-12	-30	0%
P904270	Construction of temporary traffic deck and temporary support for CLP (	18	21-Nov-12	11-Dec-12	-30	0%
P904290	Grout Curtain for exisitng service ducts	45	12-Dec-12	05-Feb-13	-30	0%
Cofferdam No. 3 (GL33-38, B1)						
P322300	Install sheetpile cofferdam	12	26-Nov-12	10-Dec-12	-6	0%
P322310	Excavation down to +4.0mPD	8	10-Dec-12	19-Dec-12	-6	0%
P322320	Install 1st layer wailing and strut at +4.5mPD	21	19-Dec-12	16-Jan-13	-6	0%
Cofferdam No. 4 (GL33-38, B3-B6)						
P322400	Install sheetpile cofferdam	12	26-Nov-12	10-Dec-12	-6	0%
P322410	Excavation down to +4.0mPD	8	10-Dec-12	19-Dec-12	-6	0%
P322420	Install 1st layer wailing and strut at +4.5mPD	21	19-Dec-12	16-Jan-13	-6	0%
Cofferdam No. 5 (GL29-33, D-K)						
P322500	Install sheetpile cofferdam	24	11-Jun-12 A	10-Jul-12 A		100%
P322530	Excavation down to +1.5mPD	12	24-Jul-12 A	06-Aug-12 A		100%
P322531	Install one layer of strut to support sheetpile wall and excavation at GL	18	20-Dec-12	12-Jan-13	-32	0%
Cofferdam No. 6 (GL29-33, N-M)						
P322615	Backfilling to formation level of pile cap at +1.20mPD	12	11-Aug-12 A	21-Aug-12 A		100%
P322620	Removal of sheetpile cofferdam	12	16-Oct-12	31-Oct-12	94	0%
R.C. Works						
P300180	Erection of tower crane A	30	11-Sep-12	17-Oct-12	76	0%
P300185	Erection of tower crane B	30	19-Sep-12	26-Oct-12	87	0%
Substructure						
GL 33-29 & GL A-B (Northern Effluent tunnel)						
P330000	R.C. works for Pile caps	16	19-Sep-12	09-Oct-12	-17	0%
P330010	R.C. works for Channel wall	16	10-Oct-12	29-Oct-12	-17	0%
P330030	R.C. works for slabs at +6.6mPD	12	30-Oct-12	12-Nov-12	-17	0%
GL 33-29 & GL M-N (Southern Effluent Tunnel)						
P330100	R.C. works for Pile caps	16	22-Aug-12 A	11-Sep-12	6	5%
P330105	R.C. works for Channel wall	16	11-Sep-12	29-Sep-12	6	0%
P330110	R.C. works for slabs at +6.6mPD	12	29-Sep-12	16-Oct-12	6	0%
GL 33-29 & GL B-D (Northern CEPT tanks)						
P330200	R.C. works for pile cap (GL29-30)	24	19-Nov-12	15-Dec-12	-10	0%
P330205	R.C. Works for pile cap (GL31)	18	17-Dec-12	09-Jan-13	-10	0%
GL 33-29 & GL M-K (Southern CEPT tanks)						
P333000	R.C. works for pile cap (GL29-30)	24	24-Nov-12	21-Dec-12	-15	0%
GL 33-29 & GL D-K (Disturbution Channel)						
P335000	R.C. works for pile cap (GL29-30)	18	25-Oct-12	14-Nov-12	-32	0%
P335010	R.C. Works for pile cap (GL31)	15	15-Nov-12	01-Dec-12	-32	0%
P335020	R.C. Works for pile cap (GL32)	15	03-Dec-12	19-Dec-12	-32	0%
Connection works						
P300280	Construction of bulkhead wall at existing culvert and installation of lifti	45	27-Oct-12	18-Dec-12	-17	0%
P300281	Temporary flow diversion with ST2 coordination (for northern effluent c	30	18-Dec-12	17-Jan-13	-20	0%
Portion 4 (Main Pumping Station)						
Submission of design of E&M works						
P301120	DDA of Cooling water system for pump bearing and motors (AIP No. 2)	120	03-Jul-12 A	30-Oct-12	-47	43.33%
P301130	Approval/ comment for the DDA of Cooling water system for pump bear	120	02-Aug-12 A	29-Nov-12	-47	18.33%
P301220	DDA of Sparging system at wet well (AIP No. 3)	120	15-Jul-12 A	09-Mar-13	11	33.33%
P301230	Approval/ comment for the DDA of Sparging system at wet well	120	20-Dec-12	18-Apr-13	11	0%
P301231	DDA of Drainage System at Wet Well (AIP No. 3)	120	15-Jul-12 A	09-Mar-13	-11	33.33%
P301232	Approval/ comment for the DDA of Drainage System at wet well	90	20-Dec-12	19-Mar-13	-11	0%
P301240	DDA of Piping system for recirculation (AIP No. 4)	120	20-Nov-12	19-Mar-13	21	0%
P301250	Approval/ comment for the DDA of Piping system for recirculation	120	20-Dec-12	18-Apr-13	21	0%
P301253	DDA of Piping system for centrate flow (AIP No. 4)	120	20-Nov-12	19-Mar-13	-74	0%
P301254	Approval/ comment for the DDA of Piping system for centrate flow	120	20-Dec-12	18-Apr-13	-74	0%
P301255	DDA of Piping system for NWK overflow (AIP No. 4)	120	20-Nov-12	19-Mar-13	-72	0%
P301256	Approval/ comment for the DDA of Piping system for NWK overflow	120	20-Dec-12	18-Apr-13	-72	0%
P301260	DDA of Air Mixing system of wet well (AIP No. 5)	180	14-Jun-12 A	10-Dec-12	74	39.44%
P301270	Approval/ comment for the DDA of Air Mixing system of wet well	180	09-Aug-12 A	05-Feb-13	74	7.89%
P301300	DDA of Control system architecture for DCS and Interfacing control sy	92	24-May-12	23-Aug-12 A		100%
P301310	Approval/ comment for the DDA of Control system architecture for DCS	92	23-Jun-12 A	22-Sep-12	155	67.39%
P301390	DDA of Ventilation system of MPS (AIP No. 18)	120	20-Sep-12	17-Jan-13	27	0%
P301400	Approval/ comment for the DDA of Ventilation system of MPS2	120	20-Oct-12	16-Feb-13	27	0%
P301410	DDA of Fire service of MPS (AIP No. 19)	171	12-Jul-12 A	29-Dec-12	55	25.15%
P301420	Approval/ comment for the DDA of Fire service of MPS2	171	24-Aug-12	10-Feb-13	55	0%
P301430	DDA of Plumbling system (AIP No. 20)	201	02-Aug-12 A	01-Mar-13	195	10.95%



Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

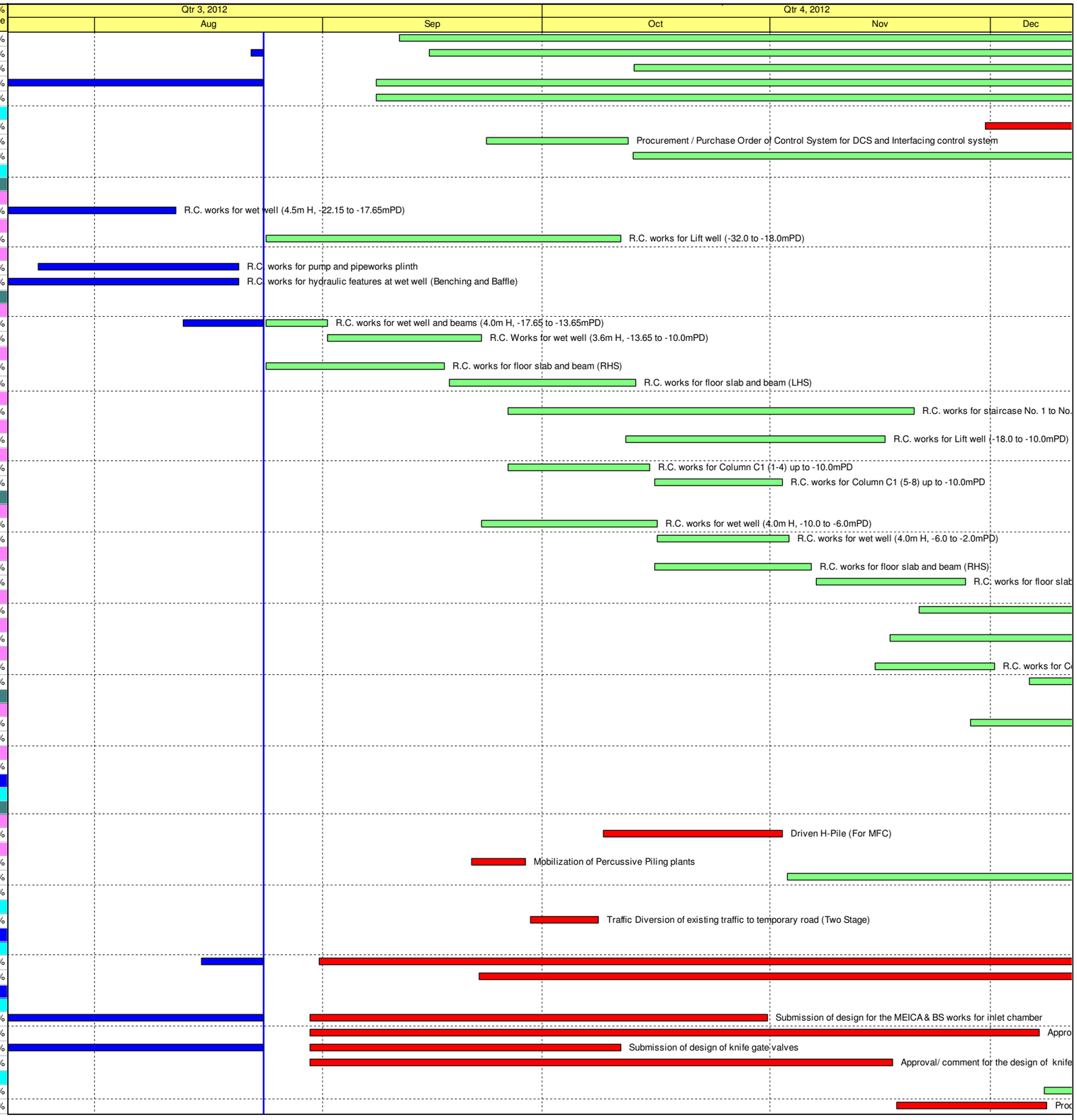
Contract No. DC/2009/10

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

Three Months Rolling Programme (24 Aug 2012 to 24 Nov 2012)

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Activity % Complete
P301440	Approval/ comment for the DDA of Plumbling system	201	11-Sep-12	31-Mar-13	195	0%
P301450	DDA of Drainage system (AIP No. 21)	200	22-Aug-12 A	01-Apr-13	2	1%
P301460	Approval/ comment for the DDA of Drainage system	200	13-Oct-12	01-May-13	2	0%
P301470	DDA of Lifting appliance (AIP No. 23)	180	16-Jul-12 A	27-Jan-13	146	21.39%
P301540	Approval/ comment for the DDA of Lifting appliance	180	08-Sep-12	06-Mar-13	146	0%
Procurement/ Order/ Manufacturing/ Delivery						
P302370	Procurement / Purchase Order of Cooling water system for pump beari	30	30-Nov-12	29-Dec-12	-47	0%
P302520	Procurement / Purchase Order of Control System for DCS and Interfac	20	23-Sep-12	12-Oct-12	155	0%
P302530	Manufacturing of Control System for DCS and Interfacing control syste	223	13-Oct-12	23-May-13	155	0%
R.C. Works						
Access Floor No. 1 (-32.0mPD)						
Wet Well						
P400195	R.C. works for wet well (4.5m H, -22.15 to -17.65mPD)	21	30-Jun-12 A	12-Aug-12 A		100%
Lift Well						
P400225	R.C. works for Lift well (-32.0 to -18.0mPD)	40	24-Aug-12	11-Oct-12	211	0%
E&M features						
P400255	R.C. works for pump and pipeworks plinth	24	24-Jul-12 A	20-Aug-12 A		100%
P400285	R.C. works for hydraulic features at wet well (Benching and Baffle)	48	25-Jun-12 A	20-Aug-12 A		100%
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	13-Aug-12 A	01-Sep-12	29	62%
P400415	R.C. Works for wet well (3.6m H, -13.65 to -10.0mPD)	18	01-Sep-12	22-Sep-12	29	0%
Floor slab and beams (-18.0mPD)						
P400400	R.C. works for floor slab and beam (RHS)	21	24-Aug-12	17-Sep-12	12	0%
P400405	R.C. works for floor slab and beam (LHS)	21	18-Sep-12	13-Oct-12	16	0%
Staircase No. 1 to No. 3						
P400435	R.C. works for staircase No. 1 to No. 3 (-18.0 to -10.0mPD)	45	26-Sep-12	20-Nov-12	72	0%
Lift Well						
P400445	R.C. works for Lift well (-18.0 to -10.0mPD)	30	12-Oct-12	16-Nov-12	211	0%
Columns C1 (8 Nos)						
P400455	R.C. works for Column C1 (1-4) up to -10.0mPD	15	26-Sep-12	15-Oct-12	12	0%
P400465	R.C. works for Column C1 (5-8) up to -10.0mPD	15	16-Oct-12	02-Nov-12	15	0%
Access Floor No. 3 (-10.0mPD)						
Wet Well						
P400425	R.C. works for wet well (4.0m H, -10.0 to -6.0mPD)	18	22-Sep-12	16-Oct-12	32	0%
P400505	R.C. works for wet well (4.0m H, -6.0 to -2.0mPD)	18	16-Oct-12	03-Nov-12	38	0%
Floor slab and beams (-10.0mPD)						
P902680	R.C. works for floor slab and beam (RHS)	18	16-Oct-12	06-Nov-12	12	0%
P902690	R.C. works for floor slab and beam (LHS)	18	07-Nov-12	27-Nov-12	12	0%
Staircase No. 1 to No. 3						
P902700	R.C. works for staircase No. 1 to No. 3 (-10.0 to -2.0mPD)	32	21-Nov-12	29-Dec-12	72	0%
Lift Well						
P902710	R.C. works for Lift well (-10.0 to -2.0mPD)	24	17-Nov-12	14-Dec-12	211	0%
Columns C1 (8 Nos)						
P902720	R.C. works for Column C1 (1-4) up to -2.0mPD	15	15-Nov-12	01-Dec-12	14	0%
P902730	R.C. works for Column C1 (5-8) up to -2.0mPD	15	06-Dec-12	22-Dec-12	289	0%
Access Floor No. 4 (-2.0mPD)						
Wet Well						
P902740	R.C. Works for wet well (4.0m H, -2.0 to +2.0mPD)	18	28-Nov-12	18-Dec-12	12	0%
P902750	R.C. works for wet well (3.9m H, +2.0 to +5.9mPD)	18	19-Dec-12	11-Jan-13	48	0%
Floor slab and beams (-2.0mPD)						
P902760	R.C. works for floor slab and beam (RHS)	18	13-Dec-12	05-Jan-13	12	0%
Portion 4 (Main flow Culvert)						
Foundation Works						
Driven H-Pile						
Zone 1, on EVA						
P903210	Driven H-Pile (For MFC)	21	09-Oct-12	02-Nov-12	-30	0%
Zone 2, within Portion 4						
P903150	Mobilization of Percussive Piling plants	7	21-Sep-12	28-Sep-12	-30	0%
P903160	Driven H-pile (For MFC, DOU, Odour Duct Bridge, 70 Nos)	45	03-Nov-12	27-Dec-12	38	0%
P903170	Driven temporary pile for underpinning works (T-01 to 08, 8Nos)	10	24-Dec-12	07-Jan-13	38	0%
Civil Works						
P400375	Traffic Diversion of existing traffic to temporary road (Two Stage)	6	29-Sep-12	08-Oct-12	-30	0%
Portion 4 (Deodourization 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	15-Aug-12 A	20-Mar-13	-89	4.05%
P403010	Approval/ Comment of DDA for the DOU No. 3 & 1b	220	22-Sep-12	29-Apr-13	-89	0%
Portion 5 (Inlet Chamber)						
Submission of design of E&M works						
P501210	Submission of design for the MEICA & BS works for inlet chamber	100	18-Jul-12 A	31-Oct-12	-57	37%
P501220	Approval/ comment for the design of the MEICA and BS works for inlet	100	30-Aug-12	07-Dec-12	-57	0%
P501230	Submission of design of knife gate valves	80	18-Jul-12 A	11-Oct-12	-62	46.25%
P501240	Approval/ comment for the design of knife gate valves	80	30-Aug-12	17-Nov-12	-62	0%
Procurement/ Order/ Manufacturing/ Delivery						
P501480	Procurement / Purchase Order of Lifting Appliance	30	08-Dec-12	06-Jan-13	273	0%
P501510	Procurement / Purchase Order of Knife Gate Valves	21	18-Nov-12	08-Dec-12	-62	0%



Actual Work
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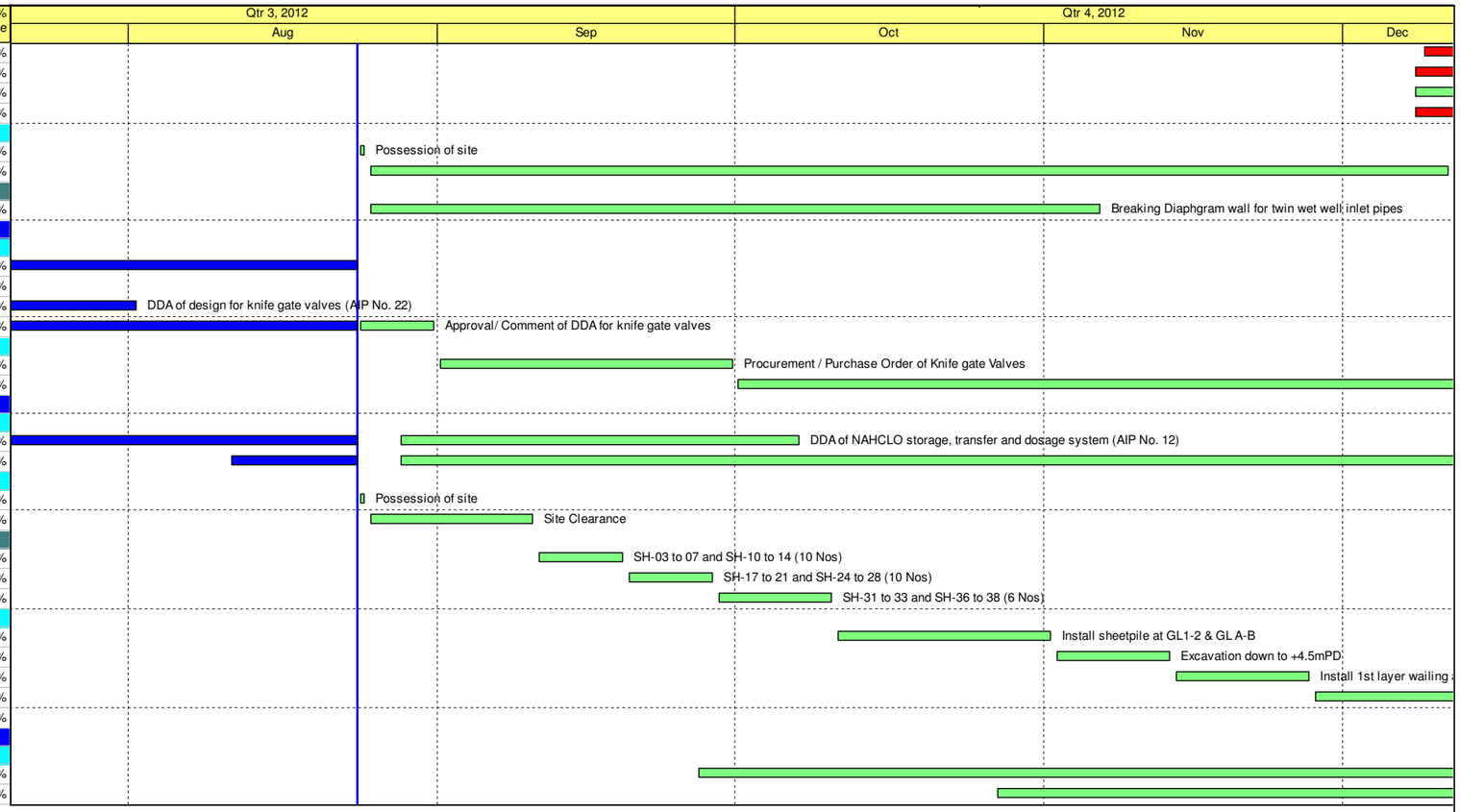
Contract No. DC/2009/10

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

Three Months Rolling Programme (24 Aug 2012 to 24 Nov 2012)

Date	Revision	Checked	Approved

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Activity % Complete
P501520	Manufacturing of Knife Gate Valves	400	09-Dec-12	12-Jan-14	-62	0%
P501540	Procurement / Purchase Order of pipeworks	30	08-Dec-12	06-Jan-13	-57	0%
P501570	Procurement / Purchase order of drainage and flushing water pumping	30	08-Dec-12	06-Jan-13	45	0%
P501600	Procurement / Purchase Order of building service equipment	30	08-Dec-12	06-Jan-13	-49	0%
R.C. Works						
P400630	Possession of site	1	24-Aug-12	24-Aug-12	261	0%
P400631	R.C. works for plinth of pipeworks and valves	90	25-Aug-12	11-Dec-12	299	0%
Diaphgram Wall opening						
P400635	Breaking Diaphgram wall for twin wet well inlet pipes	60	25-Aug-12	06-Nov-12	209	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	15-Jul-12 A	08-Apr-13	-116	26.67%
P501300	Approval/ comment for the design of the MEICA and BS works for Valve	150	20-Dec-12	18-May-13	-116	0%
P501310	DDA of design for knife gate valves (AIP No. 22)	90	04-May-12	01-Aug-12 A		100%
P501320	Approval/ Comment of DDA for knife gate valves	90	03-Jun-12 A	31-Aug-12	98	91.11%
Procurement/ Order/ Manufacturing/ Delivery						
P501720	Procurement / Purchase Order of Knife gate Valves	30	01-Sep-12	30-Sep-12	98	0%
P501730	Manufacturing of Knife gate Valves	420	01-Oct-12	24-Nov-13	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	07-Oct-12	10	73.33%
P801010	Approval/ comment of DDA for the MEICA & BS NaHCLO storage comp	150	11-Aug-12 A	12-Jan-13	10	8.67%
Foundation Works						
P800000	Possession of site	1	24-Aug-12	24-Aug-12	12	0%
P800010	Site Clearance	14	25-Aug-12	10-Sep-12	10	0%
Re-driving test for existing daido Piles						
P800020	SH-03 to 07 and SH-10 to 14 (10 Nos)	8	11-Sep-12	19-Sep-12	10	0%
P800030	SH-17 to 21 and SH-24 to 28 (10 Nos)	8	20-Sep-12	28-Sep-12	10	0%
P800040	SH-31 to 33 and SH-36 to 38 (6 Nos)	8	29-Sep-12	10-Oct-12	10	0%
Excavation and Lateral Support for Substructure						
P802000	Install sheetpile at GL1-2 & GL A-B	18	11-Oct-12	01-Nov-12	10	0%
P802005	Excavation down to +4.5mPD	10	02-Nov-12	13-Nov-12	10	0%
P802010	Install 1st layer wailing and struts at +4.8mPD	12	14-Nov-12	27-Nov-12	10	0%
P802030	Install temporary prop at +2.9mPD	15	28-Nov-12	14-Dec-12	10	0%
P802040	Excavation for exposing daido pile heads	6	15-Dec-12	21-Dec-12	10	0%
Sai Ying Pun Junction Shaft						
Submission of design of E&M works						
P801050	Submission of design for the MEICA & BS at Sai Ying Pun Junction sha	210	27-Sep-12	24-Apr-13	109	0%
P801060	Approval/ comment of design for the MEICA & BS at Sai Ying Pun Junc	210	27-Oct-12	24-May-13	109	0%



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Three Months Rolling Programme (24 Aug 2012 to 24 Nov 2012)

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