


**Harbour Area Treatment Scheme Stage 2A
Contract No. DC/2009/10, DC/2009/17
and DC/2009/18**

**Consolidated Monthly Environmental
Monitoring and Audit Report
April 2016**

(Version 1.0)

Certified By 
(Environmental Team Leader)

REMARKS:

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

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

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16 May 2016
By Post

Attn: Mr. Danny Tang

Dear Sir,

**Agreement No. CE 8/2009(EP)
Harbour Area Treatment Scheme (HATS) Stage 2A
Independent Environmental Checker for Construction Phase – Investigation**

**Submission of Monthly EM&A Consolidated Report for Stonecutters Island Sewage
Treatment Works for April 2016 (Issue No. 77) Version 1.0**

We refer to the captioned report consolidating the individual ETL certified and IEC verified Monthly EM&A Reports for Contract Nos. DC/2009/10, DC/2009/17 and DC/2009/18 at Stonecutters Island STW works site for HATS Stage 2A. We hereby verify the consolidated report.

Yours faithfully
for MOTT MACDONALD HONG KONG LIMITED

Dr. Anne F Kerr
Independent Environmental Checker

c.c. Ove Arup & Partners HK Ltd.
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Mr. Ted Y F Tang
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TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	1
Introduction	1
Environmental Monitoring and Audit Works	2
Key Information in the Reporting Month	3
Key Information in the EIA Report	3
1. INTRODUCTION	4
Background	4
Current Contracts at SCISTW	4
Project Organizations	5
Construction Programme	6
Summary of EM&A Requirements	7
2. AIR QUALITY	9
Monitoring Requirements	9
Monitoring Locations	9
Monitoring Equipment	9
Monitoring Parameters, Frequency and Duration	9
Monitoring Methodology and QA/QC Procedure	10
Results and Observations	10
3. NOISE.....	11
Monitoring Requirements	11
Monitoring Locations	11
Monitoring Equipment	11
Monitoring Parameters, Frequency and Duration	11
Monitoring Methodology and QA/QC Procedures	12
Results and Observations	12
4. ENVIRONMENTAL AUDIT	13
Site Audits	13
Review of Environmental Monitoring Procedures	13
Status of Environmental Licensing and Permitting	13
Status of Waste Management	13
Implementation Status of Event Action Plans	14
Summary of Complaints and Prosecutions	14
5. FUTURE KEY ISSUES	15
Key Issues for the Coming Month	15
Monitoring Schedule for the Next Month	15
Construction Program for the Next Month	15
6. CONCLUSIONS AND RECOMMENDATIONS	16
Conclusions	16
Recommendations for the coming reporting month:	16

LIST OF TABLES

Table I	Summary Table for Executive Summaries and Web Sites
Table II	Summary Table for Non-compliance Recorded in the Reporting Month
Table III	Monthly Consolidated Summary Table for Key Information
Table 1.1	Key Project Contacts
Table 1.2	Construction Works in the Reporting Month
Table 2.1	Locations for Air Quality Monitoring
Table 2.2	Air Quality Monitoring Equipment
Table 2.3	Impact Dust Monitoring Parameters, Frequency and Duration
Table 2.4	Summary of 1-hour and 24-hour TSP Monitoring Results in Reporting Month
Table 3.1	Noise Monitoring Stations
Table 3.2	Noise Monitoring Equipment
Table 3.3	Noise Monitoring Parameters, Frequency and Duration
Table 3.4	Summary of Noise Monitoring Results in Reporting Month
Table 4.1	Summary of Date of Site Inspection
Table 4.2	Summary of Amount of Waste Generated in Reporting Month
Table 4.3	Summary of Disposal Location of Waste Generated in Reporting Month

LIST OF FIGURES

Figures 1-3	General Location Plan of the Project and Location of Air Quality and Noise Monitoring Stations
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LIST OF APPENDICES

A	Action and Limit Levels for Air Quality and Noise
B	Environmental Monitoring Schedules
C	Calibration Certificates of the Environmental Monitoring Equipment
D	1-hour and 24-hour TSP Monitoring Results and Graphical Presentations
E	Noise Monitoring Results and Graphical Presentations
F	Environmental Permits and Licenses
G	Summary of Exceedance
H	Site Audit Summary
I	Event Action Plans
J	Environmental Mitigation Implementation Schedule (EMIS)
K	Complaint Log
L	Construction Programme

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 77th 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/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/G 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. Contract DC/2007/23 in the SCISTW has completed all major construction works in the Stonecutters Island on 16 October 2015.
5. Contract DC/2009/19 in the SCISTW was commenced on 1 September 2013 and major construction works of this contract had been completed on 5 March 2015.
6. No amendment of the information in the EM&A reports for each individual contract was made in this consolidated monthly report.
7. This Report documents the findings of EM&A Works for the Project covering the period in April 2016.
8. 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/2009/17	Executive Summary	The air quality and noise monitoring stations under this contract were covered by other contracts at SCISTW. The monitoring data would be summarized in this monthly EM&A report.
	Web Site	http://www.hats2a-ema.com/RP_EMA/DC%202009%2017/EMA%20Report-DC200917.html

DC/2009/10	Executive Summary	At SCISTW, air quality monitoring station AM6a, AM7, AM8 and noise monitoring station NM5, NM6 were monitored by ET for Contract no. DC/2009/10.
	Web Site	http://www.hats2a-ema.com/RP_EMA/DC200910/EMA%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/EMA%20Report-DC200918.html

Environmental Monitoring and Audit Works

9. The environmental monitoring works in the Project were covered by the ETs for the Contracts: DC/2009/10, DC/2009/17 and DC/2009/18. The site audits were conducted once per week for each contract by their ETs.
10. 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/2009/10	AM6a	1-hr TSP	0	0	0	0	N/A
		24-hr TSP	0	0	0	0	
	AM7	1-hr TSP	0	0	0	0	
		24-hr TSP	0	0	0	0	
	AM8	1-hr TSP	0	0	0	0	
		24-hr TSP	0	0	0	0	
DC/2009/18	AM9	1-hr TSP	0	0	0	0	
		24-hr TSP	0	0	0	0	
DC/2009/10	NM5	Noise	0	0	0	0	
	NM6		0	0	0	0	
DC/2009/18	NM7		0	0	0	0	

1-hour TSP Monitoring

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

24-hour TSP Monitoring

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

Construction Noise

13. 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

14. 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 Consolidated EM&A Report for Stonecutters Island Sewage Treatment Works for March 2016	Submitted to EPD	No comment	---
Notifications of any summons & prosecutions received	0	--	N/A	N/A	---

Key Information in the EIA Report

15. 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 the three 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/G) for the Project was issued on 9th May 2014 by the Environmental Protection Department (hereinafter called EPD) to the Drainage Services Department (hereinafter called the DSD) as the Permit Holder.
- 1.2 The general location plan for the Contracts: 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 77th consolidated monthly EM&A report summarizing the EM&A works conducted for the Project at SCISTW in April 2016.
- 1.6 The monthly EM&A reports for each contract were prepared and certified by separate ETs and subsequently verified by the Independent Environmental Checker (IEC) for the Project. All individual monthly EM&A Reports are provided in the Project Website.

Current Contracts at SCISTW

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

Contract no. DC/2009/10

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

Contract no. DC/2009/17

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

Contract no. DC/2009/18

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

Project Organizations

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

Table 1.1 Key Project Contacts

Contract No./ Position	DC/2009/10	DC/2009/17
Contract Title:	Upgrading Works at SCISTW - Main Pumping Station, Sedimentation Tanks and Ancillary Facilities	Upgrading Works at Stonecutters Island Sewage Treatment Works – Sludge Dewatering Facilities
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	Mr Ted Tang (Tel: 2370 4311)	Mr Ted Tang (Tel: 2370 4311)
ER's Coordinator	Ms Natalie Kwok (Tel: 6794 8844)	Mr Jason Yu (Tel: 2371 9407)
Independent Environmental Checker	Dr. Anne Kerr (Tel:2828 5757)	Dr. Anne Kerr (Tel:2828 5757)
Contractor	Sun Fook Kong – Biwater Joint Venture	China State- ATAL Joint Venture
Site Agent	Mr. Keith Ho (Tel: 2620 0070)	Mr. Charles Tse (Tel: 9270 3384)
Environmental Officer	Mr. Albus Cheung (Tel:2620 0070)	Mr. K.K Tam (Tel: 2370 3010)
Environmental Team	Cinotech Consultant Limited Dr. Priscilla Choy (Tel: 2151 2089)	Cinotech Consultant Limited Dr. Priscilla Choy (Tel: 2151 2089)

Table 1.1(cont'd) Key Project Contacts

Contract No.	DC/2009/18
Contract Title:	Upgrading Works at Stonecutters Island Sewage Treatment Works – Effluent Tunnel and Disinfection Facilities
Consultant	Ove Arup & Partners HK Ltd
The Engineer	S.Y.Chan (Tel: 2528 3031)
The Engineer Representative	Mr Ted Tang (Tel: 2370 4311)
ER's Coordinator	Mr Jason Yu (Tel: 2371 9407)
Independent Environmental Checker	Dr. Anne Kerr (Tel:2828 5757)
Contractor	Chun Wo – CEC Joint Venture
Site Agent	Mr. W.C. Lee (Tel: 3975 6388)
Environmental Officer	Mr. Shelton Chan (Tel: 3975 6331)
Environmental Team	Cinotech Consultant Limited Dr. Priscilla Choy (Tel: 2151 2089)

Construction Programme

- 1.9 The construction program for the three 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/2009/17	<p>Portion 5:</p> <ul style="list-style-type: none"> • Fabrication of steel staircase at SST no. 7 was delivered on site and will be installed after piling works. <p>Portion 6:</p> <ul style="list-style-type: none"> • Section 5 piling works for Southern Sludge Cake Silos (SSCS) and Workshop Building (WB) were completed. • Construction of sub structure of Southern Sludge Cake Silos (SSCS) was completed. • Construction of superstructure of Southern Sludge Cake Silos (SSCS) was in progress. • Construction of sub structure of Workshop Building (WB) was in progress. • Construction of superstructure of Workshop Building (WB) was in progress. <p>External Works:</p> <ul style="list-style-type: none"> • Connection of sludge feed pipes between existing sludge storage tank nos. 3 & 4 at Zone C5 was completed. • The construction of underground utilities at Zone B7 was completed. • Laying of watermains at Zone A1 was completed. • Laying of centrate pipe (CP1 and CP2) at Portion 6 was complete. • Construction of Sludge Feed Pipe (SF2) was completed.

<p>DC/2009/10</p>	<ul style="list-style-type: none"> • For E&M works, sparging System pump and VSD test; trial operation in PUC/SMC mode of Main Sewage Pump #1 – #4; and Wet Well B drain down. • At MPS2, Installation of FRP Working Platform at Access Floor 1 (-32mPD) and replacement of multi-part covers at PST26/28 • At Portion 3, Painting and synthetic timber on CEPT Tanks external wall was in progress. • For E&M works, Installation of FRP covers at extended MDC; T&C of Sludge Scraper at FT6, PST47, 49; End-to-end test and software simulation test in progress; • Installation of ductworks for NWKPS wet well to NWKPTW overflow chamber; and Installation of ferric chloride pipes from storage tanks to dosing pumps • At Portion 8, E&M works, Dosing pump and truck unloading pump tests completed; End-to-end test and software simulation test in progress; Dosing pipe from storage area to FDC in progress; and Overhead crane installations. • At Portion 6, Construction of wall of Valve Chamber. • At Portion 7, steel bar fixing for ground beam of Polymer Storage Building. • For External works, Construction of DN1200 NWK Overflow Pipe and Drainage work for MPS2.
<p>DC/2009/18</p>	<p><u>Portion 3:</u></p> <ul style="list-style-type: none"> • ABWF Works and Installation of DCP Cover at Chamber 15A; • Backfill of the excavated trench and remove struts at Overflow Culvert; • Preparation works for trial trench excavation at Extension of Chamber 15; • Complete decommissioning of Existing DCP and demolition of Existing DCP; • Complete blacking of effluent flow in Existing Box Culvert at Chamber 9 & 15 location; and • Maintain operation of New DCP. <p><u>Portion 7:</u></p> <ul style="list-style-type: none"> • Construction of surface channel and pavement at Portion 7; • Installation of concrete strips and FRP Cover for FDC No.2; and • Installation of E&M Equipment and electrical work at DOU 4.

Summary of EM&A Requirements

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

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

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

1.12 This report summarized the monitoring results, observations, locations, equipment, period, for required monitoring parameter namely dust, noise levels, and audit works conducted for the Project in April 2016, 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, AM6a, AM7, AM8 and AM9 were selected for impact dust monitoring. The original location of AM6 was inaccessible due to planned construction works and therefore an alternative monitoring station AM6a was proposed and adopted for subsequent impact monitoring starting on 4th January 2016. **Table 2.1** describes the air quality monitoring locations, which are also depicted in **Figure 1 and 3**.

Table 2.1 Locations for Air Quality Monitoring

Monitoring Station	Responsible Contracts	Location of Measurement
AM6a	DC/2009/10	Works site boundary
AM7		North West Kowloon Sewage Pumping Station
AM8		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

Contract No.	DC/2009/10	DC/2009/18
Laser Dust Monitor	Sibata: LD-3B (S/N. 014750, 541146 and 095029); LD-3 (S/N. 251634)	Sibata Model no. LD-3 and 3B (S/N. 251634, 541146 and 095029) Met One no. AEROCET-531 (S/N. N6732 and N6734)
HVS Sampler	TISCH: Model no. TE-5170 (S/N. 2353, 2355 and 3219)	Tisch Model no. TE-5170 (S/N. 2356)
Calibrator	TISCH: Model TE-5025A (S/N. 2896 and 2456)	Tisch Model TE-5025A (S/N. 2456)

Monitoring Parameters, Frequency and Duration

- 2.4 **Table 2.3** summarizes the monitoring parameters and frequencies of impact dust monitoring for the whole construction period. The air quality monitoring schedule for the reporting period is shown in **Appendix B**.

Table 2.3 Impact Dust Monitoring Parameters, Frequency and Duration

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

Monitoring Methodology and QA/QC Procedure

2.5 The monitoring methodology and QA/QC procedure for monitoring equipment are presented in the monthly reports for Contracts DC/2009/10 and DC/2009/18.

Results and Observations

2.6 **Table 2.4** summaries the air quality monitoring results at AM6a, 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				
AM6a	62	20 – 111	346	500
AM7	201	139 – 264	322	
AM8	174	109 – 224	307	
AM9	149.8	28.6 - 265.8	318	
24 hours TSP				
AM6a	56	35 – 71	196	260
AM7	129	86 – 174	207	
AM8	47	28 - 72	158	
AM9	79.1	29.1 - 111.7	169	

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	Responsible Contracts	Location of Measurement
NM5	DC/2009/10	Near FSD Diving Rescue and Training Centre
NM6		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

Contract No.	DC/2009/10	DC/2009/18
Sound Level Meter	SVANTEK Model no: SVAN 955 (S/N. 12563 and 14303);	SVANTEK, Model no: SVAN 955 and 957/ (S/N. 14303 and 23851)
Calibrator	SVANTEK Model no: SV 30A (S/N. 24803 and 24791)	SVANTEK, Model no: SV 30A/ (S/N. 24791 and 24803)

Monitoring Parameters, Frequency and Duration

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

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Period	Frequency
NM5 NM6 NM7	$L_{eq}(30 \text{ min.})$ dB(A)	0700-1900 hrs on weekdays	Once per week
	$L_{eq}(5 \text{ min.})$ dB(A)	During restricted hours	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/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	64.8 – 70.2	75.0
NM6	65.1 - 67.3	
NM7	69.1 - 72.8	
For the time period 1900-2300 hrs. on Normal Weekdays, And 0700-2300 of Sundays and Public Holiday		
Monitoring Station	Range, dB(A) L _{eq} (5 min.)	Limit Level ,dB(A) L _{eq} (5 min.)
NM5	59.7 - 63.8	70.0
NM7	63.3 - 64.0	
All days during 2300 to 0700 hrs. of the next day		
NM7	57.3 - 57.9 ⁽¹⁾	55.0

Remark:

⁽¹⁾ Since the construction noise levels recorded during restricted hours from 23:00 to 07:00 of were lower than the baseline level, the construction noise levels were considered to be non-valid exceedance of Limit Level.

- 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 during day time were the noise generated from onsite trucks movement, concreting work and the traffic noise from the Container Port Road South close to the site boundary of the SCISTW; while the major noise sources identified during the evening and night time period was the construction works of Contract No: DC/2009/18 and traffic noise from the nearby Container Port Road South and Stonecutters Bridge.

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/2009/10	7, 14, 20 and 28 April 2016
DC/2009/17	5, 12, 20 and 26 April 2016
DC/2009/18	7, 14, 18 and 28 April 2016

- 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 the three 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 the three 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	Marine Deposit		
				Type 1 (m ³)	Type 2 (m ³)	Type 3 (Tonnes)
DC/2009/10	323(m ³)	63(kg) and 7(m ³)	0	0	0	0
DC/2009/17	420.4(m ³)	4.84(ton)	0	0	0	0
DC/2009/18	11(m ³)	38,797(kg) and 40(m ³)	0	0	0	0

Remark*: 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 (kg) and other General Refuse (m³, ton).

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

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

Contract No.	Disposal Location of Wastes in the Report Month
DC/2009/10	Tuen Mun Area 38 Fill Bank and NENT Landfill; (63 kg of paper was generated during the reporting period.)
DC/2009/17	Tuen Mun Area 38 Fill Bank and NENT Landfill; (Only general refuse was disposed during the reporting period.)
DC/2009/18	Lam Tei Quarry, Tuen Mun Area 38 Fill Bank and NENT Landfill and Tseung Kwan O Area 137 Fill Bank; (38,740 kg of metals and 57 kg of paper were generated during the reporting period.)

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

Implementation Status of Environmental Mitigation Measures

- 4.10 Details of the implementation of mitigation measures for the three 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 the three contracts in the reporting month.
- 4.18 There were no environmental complaint and prosecution received since the commencement of the three 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, road works, 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;
- Oil leakage from equipment and spillage;
- Silty surface runoff generated from the site area during raining;
- Dust generation should be mitigated by adequate water spraying, especially in dry days;
- Stockpile should be covered by tarpaulin to reduce dust generation;
- 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 zones should be provided when carrying out works near existing trees and shrubs.

Monitoring Schedule for the Next Month

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

Construction Program for the Next Month

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

6. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

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

1-hour TSP Monitoring

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

24-hour TSP Monitoring

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

Construction Noise Monitoring

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

Environmental Audit

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

Complaint and Prosecution

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

Recommendations for the coming reporting month:

- 6.7 The following recommendations were made for the coming reporting month:

Air Quality

- To regularly maintain the machinery and vehicles on site;
- To mitigate dust generation by adequate water spraying or covering by tarpaulin during dry days;
- To cover the stockpile with tarpaulin to reduce dust generation;
- 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.
- Non-Road Mobile Machinery (NRMM) labels must be demonstrated on the registered equipment for inspection.

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;

Water Quality

- To identify any potential discharge of surface run-off from the construction site;
- To avoid water accumulation on site and carry out larviciding against mosquito breeding for stagnant water when mosquito larvae are observed;
- To clear the sediment in the wastewater treatment tanks regularly;
- To provide adequate wastewater treatment facilities to treat the wastewater generated during construction works and heavy rain; and
- The discharged water quality must meet the requirements specified in the discharge licence.

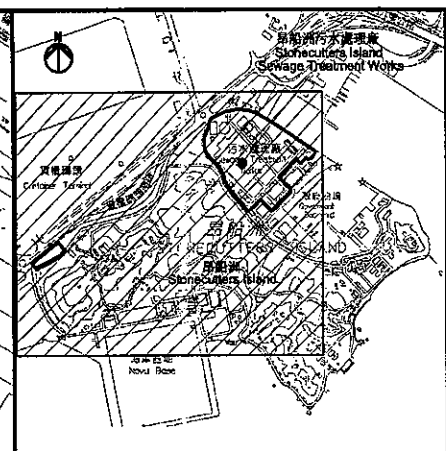
Waste/Chemical Management

- 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 retained tree; and
- To avoid any construction materials being placed into tree protection zone.

FIGURES



KEY PLAN

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

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

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

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

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

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

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DRAINAGE SERVICES DEPARTMENT
 GOVERNMENT OF THE
 HONG KONG
 SPECIAL ADMINISTRATIVE REGION

Printed by : 17/16/2011
 Filename : J:\24888\Record\WORKING\CIVIL\20100617_ETF\DCN\24888_ETF0021.dgn



AM7
North West Kowloon
Sewage Pumping Station

NM5
FSD Diving Rescue and
Training Centre






AM6a
Works Site Boundary

Stonecutters Island
Sewage Treatment Plant

NM6
Customs' Marine Base

AM8
Block A of
Government Dockyard

LEGEND:

- DC/2009/10' SITE AREA 
- DC/2009/17' SITE AREA 
- DC/2009/18' SITE AREA 
- AIR QUALITY MONITORING STATION 
- NOISE MONITORING STATION 



Contract No: DC/2009/10
HATS 2A - Upgrading Main Pumping Station, Sedimentation Tanks and Ancillary
Facilities at SCISTW

General Location Plan of the Project and Locations of Air
Quality and Noise Monitoring Stations

SCALE	N.T.S	DATE	11/2015	
CHECK	-	DRAWN	VW	
JOB No.	MA11007	FIGURE NO.	1	REV
			-	



Container Terminal 8
(Modern Terminals Limited)

Stonecutters Island
Sewage Treatment Plant

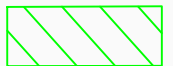
Off Park
(Container Trucks)

NM7
Open Area near Naval Base Barrack

AM9
Work Site Boundary

LEGEND:

DC/2009/18' SITE AREA



AIR QUALITY MONITORING
STATION



NOISE MONITORING STATION



CINOTECH
Cinotech Consultants Limited

Contract No: DC/2009/18
HATS 2A -Upgrading Works at Stonecutters Island Sewage Treatment
Works - Effluent Tunnel and Disinfection Facilities

General Location Plan of the Project and Locations of Air
Quality and Noise Monitoring Stations

SCALE

N.T.S

DATE

11/2015

CHECK

-

DRAWN

VW

JOB No.

MA11043

FIGURE NO.

1

REV

-

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

Appendix A Action and Limit Levels

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

Monitoring Stations	Action Level ($\mu\text{g}/\text{m}^3$)		Limit Level ($\mu\text{g}/\text{m}^3$)	
	1-hour	24-hour	1-hour	24-hour
AM6a	346	196	500	260
AM7	322	207	500	260
AM8	307	158	500	260
AM9	318	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 Piling.

**APPENDIX B
ENVIRONMENTAL MONITORING
SCHEDULES**

**DC/2009/10 HATS 2A Upgrading Main Pumping Station, Sedimentation Tanks and Ancillary Facilities at SCISTW
Impact Air Quality and Noise Monitoring Schedule (April 2016)**

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

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

Air Quality Monitoring Station

AM7 - West Kowloon No.2 Sewage Pumping Station
AM8 - Block A of Government Dockyard
AM6a - Works Site Boundary

Noise Monitoring Station

NM6 - Customs' Marine Base (Block H of Government Dockyard) Rooftop
NM5 - FSD Diving Training Centre

**DC/2009/10 HATS 2A Upgrading Main Pumping Station, Sedimentation Tanks and Ancillary Facilities at SCISTW
Tentative Impact Air Quality and Noise Monitoring Schedule (May 2016)**

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

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

Air Quality Monitoring Station

AM7 - West Kowloon No.2 Sewage Pumping Station
AM8 - Block A of Government Dockyard
AM6a - Works Site Boundary

Noise Monitoring Station

NM6 - Customs' Marine Base (Block H of Government Dockyard) Rooftop
NM5 - FSD Diving Training Centre

Contract No. DC/2009/18

**HATS 2A -Upgrading Works at Stonecutters Island Sewage Treatment Works - Effluent Tunnel and Disinfection Facilities
Impact Air Quality and Noise Monitoring Schedule (April 2016)**

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

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
Tentative Impact Air Quality and Noise Monitoring Schedule (May 2016)**

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

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

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 DATA SHEET

CINOTECH

File No. MA11007/57/0003

Project No. AM6 - Works Site Boundary Operator: WK
 Date: 1-Apr-16 Next Due Date: 31-May-16
 Equipment No.: A-01-56 Serial No. 2353

Ambient Condition			
Temperature, Ta (K)	293.7	Pressure, Pa (mmHg)	765.2

Orifice Transfer Standard Information					
Serial No.:	2896	Slope, mc (CFM)	0.0598	Intercept, bc	-0.05079
Last Calibration Date:	4-Mar-16	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	3-Mar-17	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	12.4	3.56	60.38	7.5	2.77
2	10.6	3.29	55.89	6.7	2.62
3	7.5	2.77	47.15	4.6	2.17
4	5.3	2.33	39.77	3.3	1.84
5	3.2	1.81	31.09	2.1	1.46

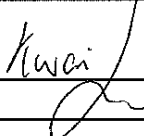
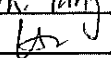
By Linear Regression of Y on X

Slope, $m_w =$ 0.0454 Intercept, $b_w =$ 0.0411
 Correlation coefficient* = 0.9991

*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	
$m_w \times Qstd + b_w = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$	
Therefore, Set Point; $W = (m_w \times Qstd + b_w)^2 \times (760 / Pa) \times (Ta / 298) =$	<u>3.90</u>

Remarks: _____

Conducted by: W.K. Tang Signature:  Date: 1/4/2016
 Checked by:  Signature: _____ Date: 1 April 2016

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA11007/55/0024

Station AM7 - North West Kowloon Sewage Pumping Station Operator: WK
 Date: 1-Mar-16 Next Due Date: 30-Apr-16
 Equipment No.: A-01-55 Serial No. 2355

Ambient Condition			
Temperature, Ta (K)	291.4	Pressure, Pa (mmHg)	773.6

Orifice Transfer Standard Information					
Serial No.:	2456	Slope, mc(CFM)	0.0587	Intercept, bc	-0.01761
Last Calibration Date:	14-Jan-16	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	13-Jan-17	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	12.5	3.61	61.80	6.7	2.64
2	10.8	3.35	57.46	5.9	2.48
3	7.6	2.81	48.25	4.3	2.12
4	5.3	2.35	40.34	3.0	1.77
5	3.4	1.88	32.37	1.9	1.41

By Linear Regression of Y on X
 Slope, mw = 0.0419 Intercept, bw = 0.0669
 Correlation coefficient* = 0.9993
 *If Correlation Coefficient < 0.990, check and recalibrate.

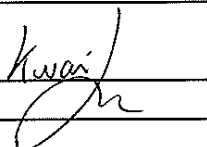
Set Point Calculation

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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.36

Remarks: _____

Conducted by: Wh Tang Signature:  Date: 1/3/16
 Checked by: lo Signature: _____ Date: 1 March 2016

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA11007/68/0023

Station AM8 - Block A of Government Dockyard Operator: WK
 Date: 1-Mar-16 Next Due Date: 30-Apr-16
 Equipment No.: A-01-68 Serial No. 3219

Ambient Condition			
Temperature, Ta (K)	291.8	Pressure, Pa (mmHg)	774.2

Orifice Transfer Standard Information					
Serial No.:	2456	Slope, mc(CFM)	0.0587	Intercept, bc	-0.01761
Last Calibration Date:	14-Jan-16	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	13-Jan-17	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.6	3.47	59.52	7.0	2.70
2	9.5	3.14	53.90	5.9	2.48
3	7.4	2.77	47.60	4.5	2.16
4	5.3	2.35	40.33	3.2	1.82
5	3.3	1.85	31.89	2.1	1.48

By Linear Regression of Y on X

Slope, $m_w =$ 0.0449 Intercept, $b_w =$ 0.0333

Correlation coefficient* = 0.9994

*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

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

Therefore, Set Point; $W = (m_w \times Qstd + b_w)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.71

Remarks: _____

Conducted by: Wk Tang Signature: [Signature]
 Checked by: [Signature] Signature: _____

Date: 1/3/16
 Date: 1 March 2016

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA11043/63/0029

Project No. AM9 - Work Site Boundary (Near Ngong Shuen Chau Barracks Group 2)
 Operator: WK
 Date: 1-Mar-16 Next Due Date: 30-Apr-16
 Equipment No.: A-01-63 Serial No. 2356

Ambient Condition			
Temperature, Ta (K)	291.7	Pressure, Pa (mmHg)	773.1

Orifice Transfer Standard Information					
Serial No.:	2456	Slope, mc(CFM)	0.0587	Intercept, bc	-0.01761
Last Calibration Date:	14-Jan-16	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	13-Jan-17	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)] ^{1/2} Y-axis
1	11.4	3.44	58.98	6.7	2.64
2	9.8	3.19	54.71	5.6	2.41
3	7.1	2.72	46.61	4.2	2.09
4	5.2	2.32	39.93	3.0	1.77
5	3.3	1.85	31.87	2.0	1.44

By Linear Regression of Y on X

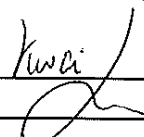
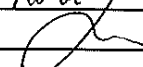
Slope, mw = 0.0439 Intercept, bw : 0.0300
 Correlation coefficient* = 0.9993

*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 x Qstd + bw) ² x (760 / Pa) x (Ta / 298) = <u>3.54</u>

Remarks: _____

Conducted by: Wk Tang
 Checked by: GA

Signature: 
 Signature: 

Date: 1/3/16
 Date: 1 March 2016



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE
 VILLAGE OF CLEVELAND, OH
 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jan 14, 2016 Rootsmeter S/N 0438320 Ta (K) - 292
 Operator Tisch Orifice I.D. - 2456 Pa (mm) = 748.03

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	1.4420	3.2	2.00
2	NA	NA	1.00	1.0220	6.4	4.00
3	NA	NA	1.00	0.9130	7.9	5.00
4	NA	NA	1.00	0.8670	8.8	5.50
5	NA	NA	1.00	0.7170	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0002	0.6936	1.4174	0.9957	0.6905	0.8836
0.9959	0.9745	2.0045	0.9915	0.9701	1.2496
0.9938	1.0885	2.2411	0.9893	1.0836	1.3971
0.9926	1.1449	2.3504	0.9882	1.1398	1.4653
0.9874	1.3771	2.8347	0.9830	1.3710	1.7672
Qstd slope (m) = 2.07173			Qa slope (m) = 1.29728		
intercept (b) = -0.01761			intercept (b) = -0.01098		
coefficient (r) = 0.99996			coefficient (r) = 0.99996		
y axis = SQRT[H2O(Pa/760)(298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

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

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

For subsequent flow rate calculations:

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

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



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE
 VILLAGE OF CLEVELAND, OH
 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mar 04, 2016 Rootmeter S/N 0438320 Ta (K) - 295
 Operator Tisch Orifice I.D. - 2896 Pa (mm) - 755.65

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	1.4340	3.2	2.00
2	NA	NA	1.00	1.0250	6.4	4.00
3	NA	NA	1.00	0.9150	7.9	5.00
4	NA	NA	1.00	0.8770	8.7	5.50
5	NA	NA	1.00	0.7210	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0001	0.6974	1.4173	0.9957	0.6944	0.8836
0.9959	0.9716	2.0044	0.9915	0.9674	1.2496
0.9938	1.0861	2.2410	0.9894	1.0814	1.3971
0.9928	1.1320	2.3503	0.9885	1.1271	1.4653
0.9875	1.3696	2.8346	0.9831	1.3636	1.7672
Qstd slope (m) = 2.11176			Qa slope (m) = 1.32235		
intercept (b) = -0.05079			intercept (b) = -0.03166		
coefficient (r) = 0.99982			coefficient (r) = 0.99982		
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 }

TEST REPORT

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

Test Report No.:	C/160304/1
Date of Issue:	2016-03-07
Date Received:	2016-03-04
Date Tested:	2016-03-04
Date Completed:	2016-03-07
Next Due Date:	2016-05-06

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3
Serial No.	: 251634
Sensitivity (K) 1 CPM	: 0.001 mg/m ³
Sen. Adjustment Scale Setting	: 550 CPM
Equipment No.	: A-02-01

Test Conditions:

Room Temperature	: 24 degree Celsius
Relative Humidity	: 63 %

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)	0.0034
-------------------------	--------

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/160304/3
Date of Issue:	2016-03-07
Date Received:	2016-03-04
Date Tested:	2016-03-04
Date Completed:	2016-03-07
Next Due Date:	2016-05-06

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description : Laser Dust Monitor
 Manufacturer : Sibata
 Model No. : LD-3B
 Serial No. : 014750
 Sensitivity (K) 1 CPM : 0.001 mg/m³
 Sen. Adjustment Scale Setting : 790 CPM
 Equipment No. : A-02-06

Test Conditions:

Room Temperature : 24 degree Celsius
 Relative Humidity : 63 %

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)	0.0034
-------------------------	--------

PREPARED AND CHECKED BY:

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


PATRICK TSE
 Laboratory Manager

TEST REPORT

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

Test Report No.:	C/160304/4
Date of Issue:	2016-03-07
Date Received:	2016-03-04
Date Tested:	2016-03-04
Date Completed:	2016-03-07
Next Due Date:	2016-05-06

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 541146
Sensitivity (K) 1 CPM	: 0.001 mg/m ³
Sen. Adjustment Scale Setting	: 625 CPM
Equipment No.	: A-02-07

Test Conditions:

Room Temperature	: 24 degree Celsius
Relative Humidity	: 63 %

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)	0.0036
-------------------------	--------

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/160226/3
Date of Issue:	2016-02-29
Date Received:	2016-02-26
Date Tested:	2016-02-26
Date Completed:	2016-02-29
Next Due Date:	2016-04-25

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

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

Test Conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 54 %

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)	0.0032
-------------------------	--------

PREPARED AND CHECKED BY:

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


PATRICK TSE
 Laboratory Manager

TEST REPORT

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

Test Report No.:	C/160422/3
Date of Issue:	2016-04-25
Date Received:	2016-04-22
Date Tested:	2016-04-22
Date Completed:	2016-04-25
Next Due Date:	2016-06-24

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

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

Test Conditions:

Room Temperature	: 24 degree Celsius
Relative Humidity	: 56 %

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)	0.0034
-------------------------	--------

PREPARED AND CHECKED BY:

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


PATRICK TSE
 Laboratory Manager

TEST REPORT

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

Test Report No.:	C/160212/1
Date of Issue:	2016-02-15
Date Received:	2016-02-12
Date Tested:	2016-02-12
Date Completed:	2016-02-15
Next Due Date:	2016-04-14

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description : Dust Monitor
 Manufacturer : Met One Instruments
 Model No. : AEROCET-531
 Serial No. : N6732
 Flow rate : 0.1 cfm
 Zero Count Test : 0 mg (The result of the 2-minute sample)
 Equipment No. : A-02-11

Test Conditions:

Room Temperature : 21 degree Celsius
 Relative Humidity : 57 %

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 Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.046
-------------------------	-------

PREPARED AND CHECKED BY:

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


PATRICK TSE
 Laboratory Manager

TEST REPORT

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

Test Report No.:	C/160226/4
Date of Issue:	2016-02-29
Date Received:	2016-02-26
Date Tested:	2016-02-26
Date Completed:	2016-02-29
Next Due Date:	2016-04-25

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-531
Serial No.	: N6734
Flow rate	: 0.1 cfm
Zero Count Test	: 0 mg (The result of the 2-minute sample)
Equipment No.	: A-02-13

Test Conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 54 %

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 Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.099
-------------------------	-------

PREPARED AND CHECKED BY:

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


PATRICK TSE
 Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/150918/2
Date of Issue:	2015-09-21
Date Received:	2015-09-18
Date Tested:	2015-09-18
Date Completed:	2015-09-21
Next Due Date:	2016-09-20

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 12563
Microphone No.	: 34377
Equipment No.	: N-08-03

Test conditions:

Room Temperature	: 25 degree Celsius
Relative Humidity	: 58%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/151231
Date of Issue:	2016-01-04
Date Received:	2015-12-31
Date Tested:	2015-12-31
Date Completed:	2016-01-04
Next Due Date:	2017-01-03

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 14303
Microphone No.	: 35222
Equipment No.	: N-08-05

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 53%

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

Remark: 1) This report supersedes the one dated 2012/01/21 with certificate number C/N/120120/1.

PREPARED AND CHECKED BY:

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



PATRICK TSE

Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/151127/3
Date of Issue:	2015-11-30
Date Received:	2015-11-27
Date Tested:	2015-11-27
Date Completed:	2015-11-30
Next Due Date:	2016-11-29

ATTN: Mr. W.K. Tang

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 Temperature	: 24 degree Celsius
Relative Humidity	: 62%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/151003/1
Date of Issue:	2015-10-04
Date Received:	2015-10-03
Date Tested:	2015-10-03
Date Completed:	2015-10-04
Next Due Date:	2016-10-03

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24803
Equipment No.	: N-09-03

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 57%

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

TEST REPORT

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

Test Report No.:	C/N/151003/3
Date of Issue:	2015-10-04
Date Received:	2015-10-03
Date Tested:	2015-10-03
Date Completed:	2015-10-04
Next Due Date:	2016-10-03

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description : Acoustical Calibrator
Manufacturer : SVANTEK
Model No. : SV30A
Serial No. : 24791
Equipment No. : N-09-04

Test conditions:

Room Temperature : 23 degree Celsius
Relative Humidity : 57%

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:

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



PATRICK TSE

Laboratory Manager

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

Appendix D - 1-hour TSP Monitoring Results

Location AM6a - Works Site Boundary

Start Date	Start Time	Weather Condition	Air Temp. (K)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)	Filter ID no.
				Initial	Final		Initial	Final		Initial	Final				
1-Apr-16	10:00	Cloudy	294.3	3.3103	3.3168	0.0065	3495.6	3496.6	1.0	1.22	1.22	1.22	73.0	89.0	160302/097
1-Apr-16	11:00	Cloudy	294.5	3.3030	3.3055	0.0025	3496.6	3497.6	1.0	1.22	1.22	1.22	73.0	34.3	160302/098
1-Apr-16	14:30	Cloudy	297.1	3.3238	3.3305	0.0067	3497.6	3498.6	1.0	1.21	1.21	1.21	72.6	92.3	160302/099
7-Apr-16	13:00	Sunny	297.5	3.2853	3.2898	0.0045	3522.6	3523.6	1.0	1.21	1.21	1.21	72.5	62.1	160303/067
7-Apr-16	14:00	Sunny	297.7	3.2834	3.2871	0.0037	3523.6	3524.6	1.0	1.21	1.21	1.21	72.5	51.1	160303/066
7-Apr-16	15:00	Sunny	297.9	3.2550	3.2588	0.0038	3524.6	3525.6	1.0	1.21	1.21	1.21	72.4	52.5	160303/005
13-Apr-16	10:00	Cloudy	294.2	3.2739	3.2820	0.0081	3549.6	3550.6	1.0	1.21	1.21	1.21	72.7	111.5	160303/007
13-Apr-16	11:00	Cloudy	294.4	3.2880	3.2904	0.0024	3550.6	3551.6	1.0	1.21	1.21	1.21	72.6	33.0	160303/008
13-Apr-16	13:00	Cloudy	294.8	3.2695	3.2730	0.0035	3551.6	3552.6	1.0	1.21	1.21	1.21	72.5	48.3	160303/009
19-Apr-16	10:00	Cloudy	293.3	3.3497	3.3512	0.0015	3576.6	3577.6	1.0	1.22	1.22	1.22	73.2	20.5	160401/012
19-Apr-16	11:00	Cloudy	293.5	3.3025	3.3044	0.0019	3577.6	3578.6	1.0	1.22	1.22	1.22	73.2	26.0	160401/013
19-Apr-16	13:00	Cloudy	293.7	3.3126	3.3142	0.0016	3578.6	3579.6	1.0	1.22	1.22	1.22	73.2	21.9	160401/014
25-Apr-16	10:00	Cloudy	297.5	3.2903	3.2956	0.0053	3603.6	3604.6	1.0	1.21	1.21	1.21	72.4	73.2	160402/008
25-Apr-16	11:00	Cloudy	297.7	3.2914	3.2959	0.0045	3604.6	3605.6	1.0	1.21	1.21	1.21	72.4	62.2	160402/009
25-Apr-16	13:00	Cloudy	297.9	3.2759	3.2818	0.0059	3605.6	3606.6	1.0	1.21	1.21	1.21	72.3	81.6	160402/010
28-Apr-16	10:00	Cloudy	298.8	3.2944	3.3008	0.0064	3630.6	3631.6	1.0	1.20	1.20	1.20	72.2	88.6	160402/069
28-Apr-16	11:00	Cloudy	299.0	3.3091	3.3150	0.0059	3631.6	3632.6	1.0	1.20	1.20	1.20	72.2	81.7	160402/070
28-Apr-16	13:00	Cloudy	299.2	3.2779	3.2842	0.0063	3632.6	3633.6	1.0	1.20	1.20	1.20	72.2	87.3	160402/071
													Min	20	
													Max	111	
													Average	62	

Appendix D - 1-hour TSP Monitoring Results

Location AM7 - North West Kowloon Sewage Pumping Station			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
1-Apr-16	14:00	Cloudy	264
1-Apr-16	15:00	Cloudy	263
1-Apr-16	16:00	Cloudy	260
7-Apr-16	14:00	Sunny	192
7-Apr-16	15:00	Sunny	194
7-Apr-16	16:00	Sunny	199
13-Apr-16	14:00	Cloudy	228
13-Apr-16	15:00	Cloudy	224
13-Apr-16	16:00	Cloudy	220
19-Apr-16	14:00	Cloudy	139
19-Apr-16	15:00	Cloudy	140
19-Apr-16	16:00	Cloudy	141
25-Apr-16	14:00	Cloudy	147
25-Apr-16	15:00	Cloudy	151
25-Apr-16	16:00	Cloudy	154
28-Apr-16	14:00	Cloudy	234
28-Apr-16	15:00	Cloudy	235
28-Apr-16	16:00	Cloudy	236
Average			201
Maximum			264
Minimum			139

Location AM8 - Block A of Government Dockyard			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
1-Apr-16	9:00	Cloudy	215
1-Apr-16	10:00	Cloudy	220
1-Apr-16	11:00	Cloudy	224
7-Apr-16	9:00	Sunny	172
7-Apr-16	10:00	Sunny	176
7-Apr-16	11:00	Sunny	179
13-Apr-16	9:00	Cloudy	189
13-Apr-16	10:00	Cloudy	194
13-Apr-16	11:00	Cloudy	198
19-Apr-16	9:00	Cloudy	109
19-Apr-16	10:00	Cloudy	117
19-Apr-16	11:00	Cloudy	114
25-Apr-16	13:00	Cloudy	124
25-Apr-16	14:00	Cloudy	128
25-Apr-16	15:00	Cloudy	122
28-Apr-16	9:00	Cloudy	212
28-Apr-16	10:00	Cloudy	217
28-Apr-16	11:00	Cloudy	217
Average			174
Maximum			224
Minimum			109

Appendix D - 1-hour TSP Monitoring Results

Location AM9 - Work Site Boundary (Near Ngong Shuen Chau Barracks Group 2)			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
1-Apr-16	13:00	Cloudy	256.4
1-Apr-16	14:00	Cloudy	261.9
1-Apr-16	15:00	Cloudy	265.8
7-Apr-16	9:00	Sunny	177.0
7-Apr-16	10:00	Sunny	180.6
7-Apr-16	11:00	Sunny	182.5
13-Apr-16	9:00	Cloudy	40.8
13-Apr-16	10:00	Cloudy	39.7
13-Apr-16	11:00	Cloudy	41.8
19-Apr-16	9:00	Cloudy	28.6
19-Apr-16	10:00	Cloudy	31.9
19-Apr-16	11:00	Cloudy	33.0
25-Apr-16	9:00	Cloudy	152.3
25-Apr-16	10:00	Cloudy	157.2
25-Apr-16	11:00	Cloudy	155.5
28-Apr-16	9:00	Cloudy	229.7
28-Apr-16	10:00	Cloudy	227.7
28-Apr-16	11:00	Cloudy	233.9
		Average	149.8
		Maximum	265.8
		Minimum	28.6

Appendix D - 24-hour TSP Monitoring Results

Location AM6a - Works Site Boundary

Start Date	Weather Condition	Air Temp. (K)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)	Filter ID no.
			Initial	Final		Initial	Final		Initial	Final				
5-Apr-16	Sunny	294.8	3.3169	3.3987	0.0818	3498.6	3522.6	24.0	1.22	1.22	1.22	1751.4	46.7	160302/100
11-Apr-16	Cloudy	297.9	3.3799	3.4403	0.0604	3525.6	3549.6	24.0	1.21	1.20	1.20	1735.0	34.8	160303/064
15-Apr-16	Cloudy	294.3	3.2937	3.4172	0.1235	3552.6	3576.6	24.0	1.21	1.21	1.21	1748.4	70.6	160303/006
21-Apr-16	Cloudy	295.2	3.3872	3.5056	0.1184	3579.6	3603.6	24.0	1.21	1.21	1.21	1748.0	67.7	160401/011
27-Apr-16	Cloudy	299.3	3.3007	3.4084	0.1077	3606.6	3630.6	24.0	1.20	1.20	1.20	1730.3	62.2	160402/007
												Min	35	
												Max	71	
												Average	56	

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. (µg/m ³)	Filter ID no.
			Initial	Final		Initial	Final		Initial	Final				
5-Apr-16	Sunny	294.9	3.2762	3.4511	0.1749	32921.3	32945.3	24.0	1.21	1.21	1.21	1742.6	100.4	160303/001
11-Apr-16	Cloudy	297.7	3.3550	3.5030	0.1480	32945.3	32969.3	24.0	1.20	1.20	1.20	1727.1	85.7	160303/063
15-Apr-16	Cloudy	295.0	3.2771	3.5099	0.2328	32969.3	32993.3	24.0	1.21	1.21	1.21	1739.4	133.8	160303/010
21-Apr-16	Cloudy	296.5	3.3340	3.6371	0.3031	32993.3	33017.3	24.0	1.21	1.21	1.21	1737.9	174.4	160401/016
27-Apr-16	Cloudy	299.8	3.3438	3.6013	0.2575	33017.3	33041.3	24.0	1.20	1.20	1.20	1722.1	149.5	160402/012
												Min	86	
												Max	174	
												Average	129	

Location AM8 - Block A of Government Dockyard

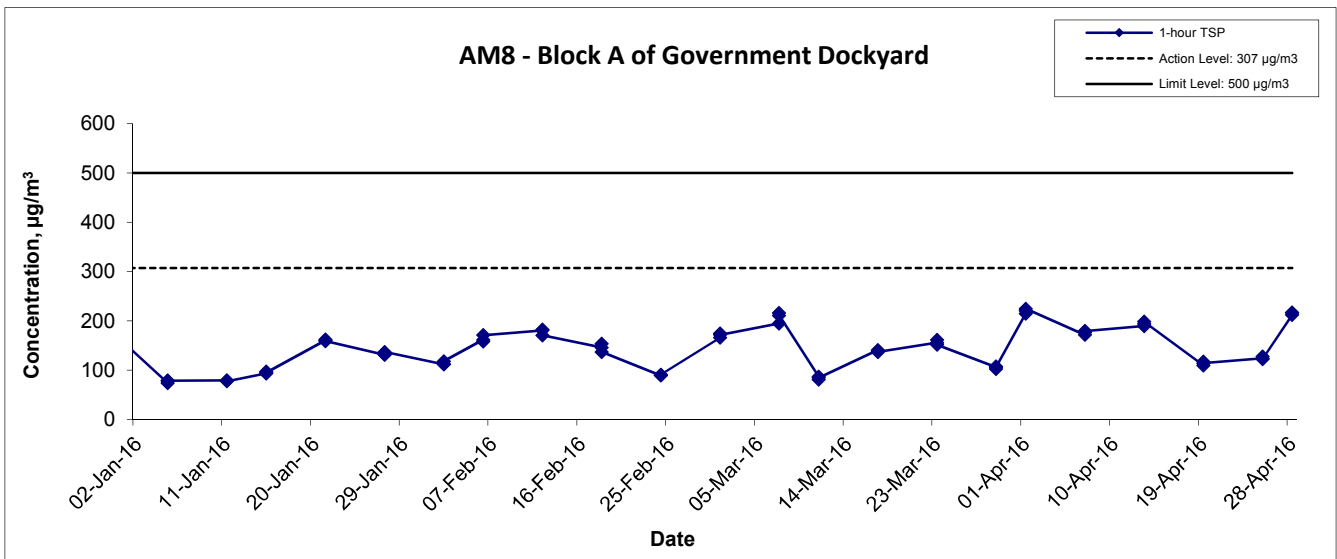
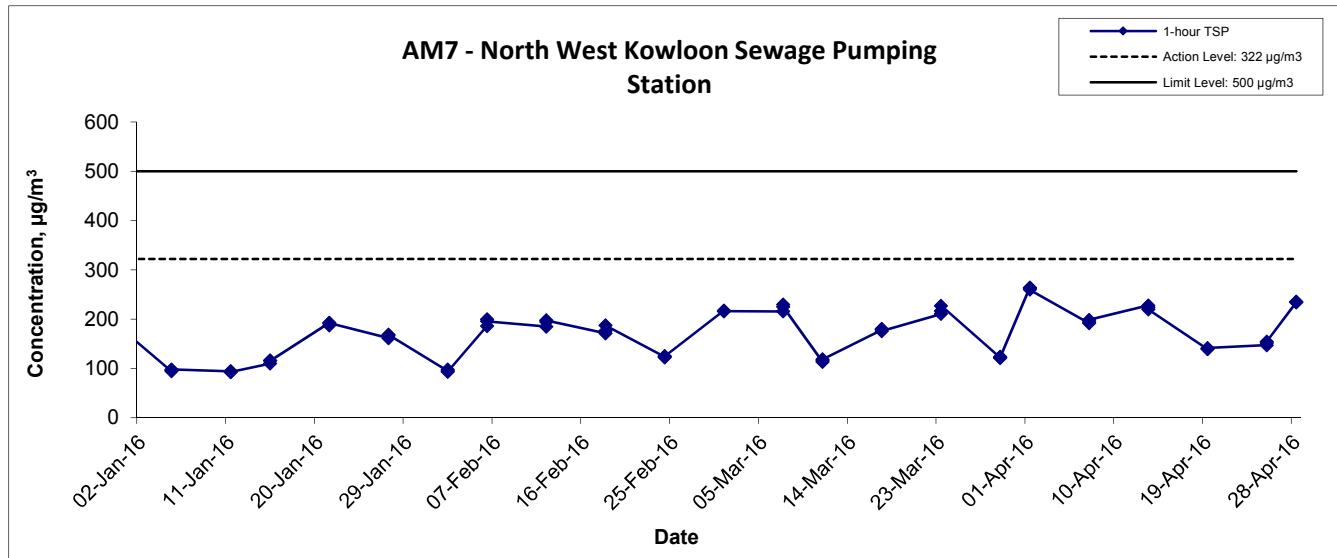
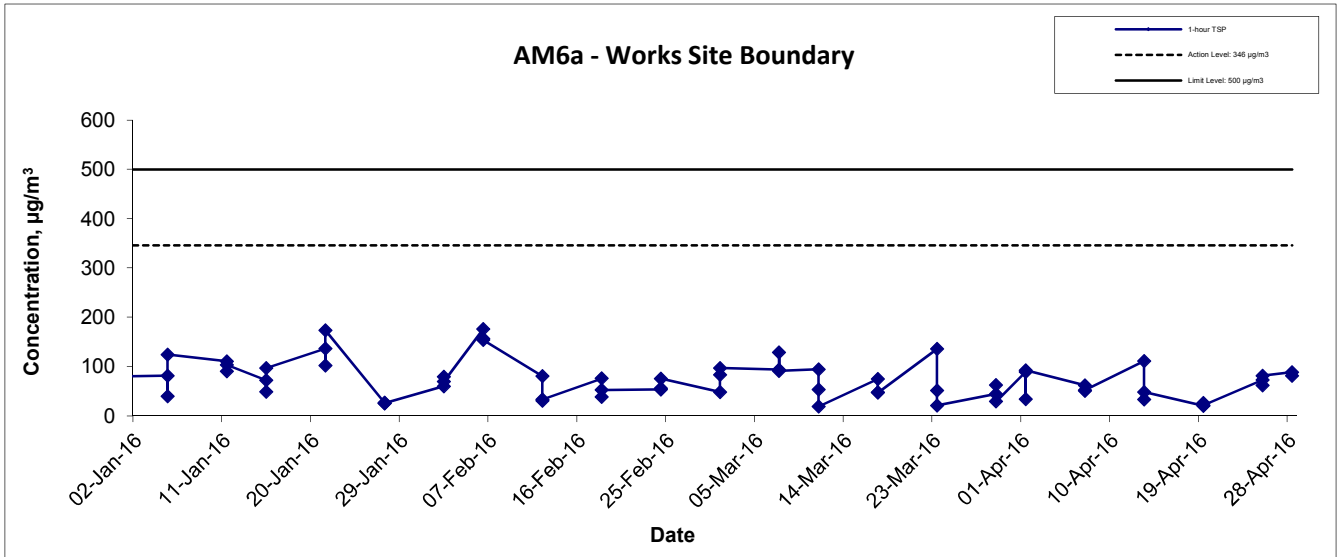
Start Date	Weather Condition	Air Temp. (K)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)	Filter ID no.
			Initial	Final		Initial	Final		Initial	Final				
5-Apr-16	Sunny	293.8	3.2874	3.3621	0.0747	6426.0	6450.0	24.0	1.20	1.20	1.20	1733.5	43.1	160303/002
11-Apr-16	Cloudy	298.7	3.3060	3.3538	0.0478	6450.0	6474.0	24.0	1.19	1.19	1.19	1712.8	27.9	160303/058
15-Apr-16	Cloudy	294.4	3.3218	3.4463	0.1245	6474.0	6498.0	24.0	1.20	1.20	1.20	1727.3	72.1	160302/045
21-Apr-16	Cloudy	294.8	3.3429	3.4236	0.0807	6498.0	6522.0	24.0	1.20	1.20	1.20	1729.0	46.7	160401/017
27-Apr-16	Cloudy	298.8	3.3260	3.4038	0.0778	6522.0	6546.0	24.0	1.19	1.19	1.19	1712.1	45.4	160402/011
												Min	28	
												Max	72	
												Average	47	

Appendix D - 24-hour TSP Monitoring Results

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

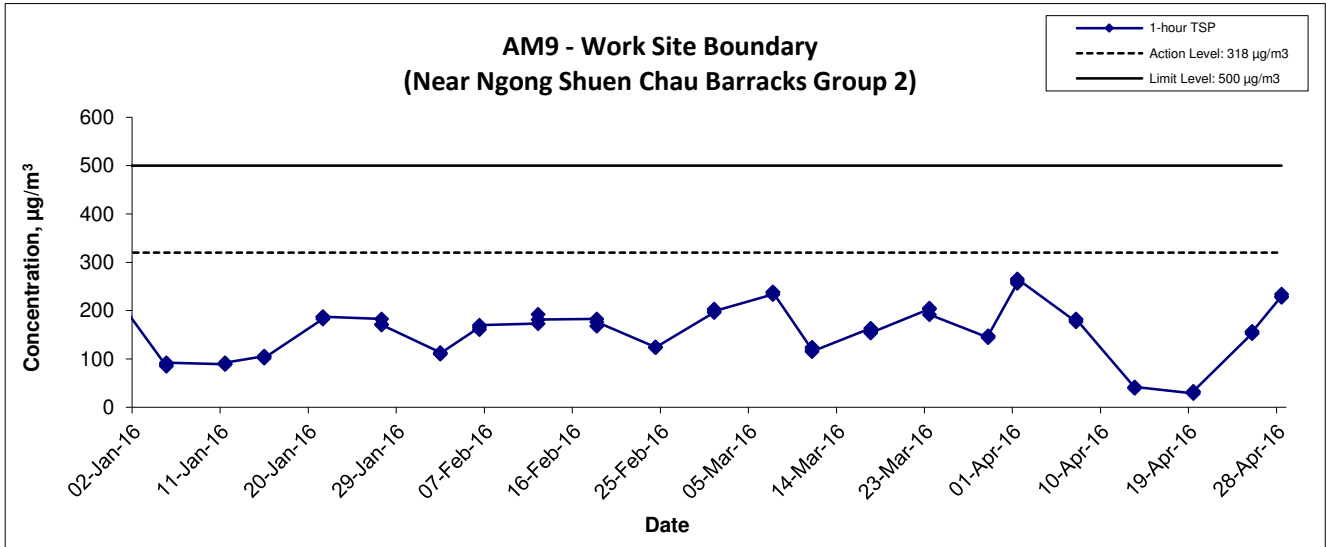
Start Date	Weather Condition	Air Temp. (K)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
			Initial	Final		Initial	Final		Initial	Final			
5-Apr-16	Sunny	295.5	3.2698	3.3817	0.1119	5793.6	5817.6	24.0	1.19	1.19	1.19	1720.3	65.0
11-Apr-16	Cloudy	298.0	3.3511	3.4008	0.0497	5817.6	5841.6	24.0	1.19	1.19	1.19	1706.9	29.1
15-Apr-16	Cloudy	294.7	3.3687	3.5311	0.1624	5841.6	5865.6	24.0	1.20	1.19	1.20	1720.9	94.4
21-Apr-16	Cloudy	295.7	3.3194	3.5116	0.1922	5865.6	5889.6	24.0	1.20	1.19	1.19	1720.6	111.7
27-Apr-16	Cloudy	298.7	3.3333	3.4955	0.1622	5889.6	5913.6	24.0	1.19	1.18	1.18	1706.1	95.1
												Min	29.1
												Max	111.7
												Average	79.1

1-hr TSP Concentration Levels



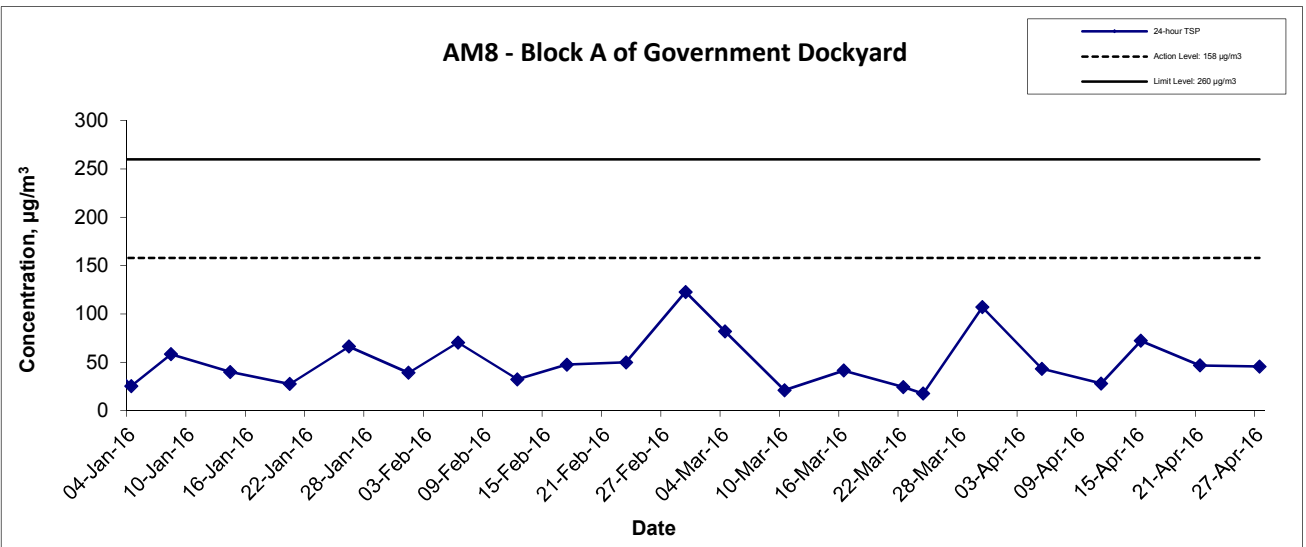
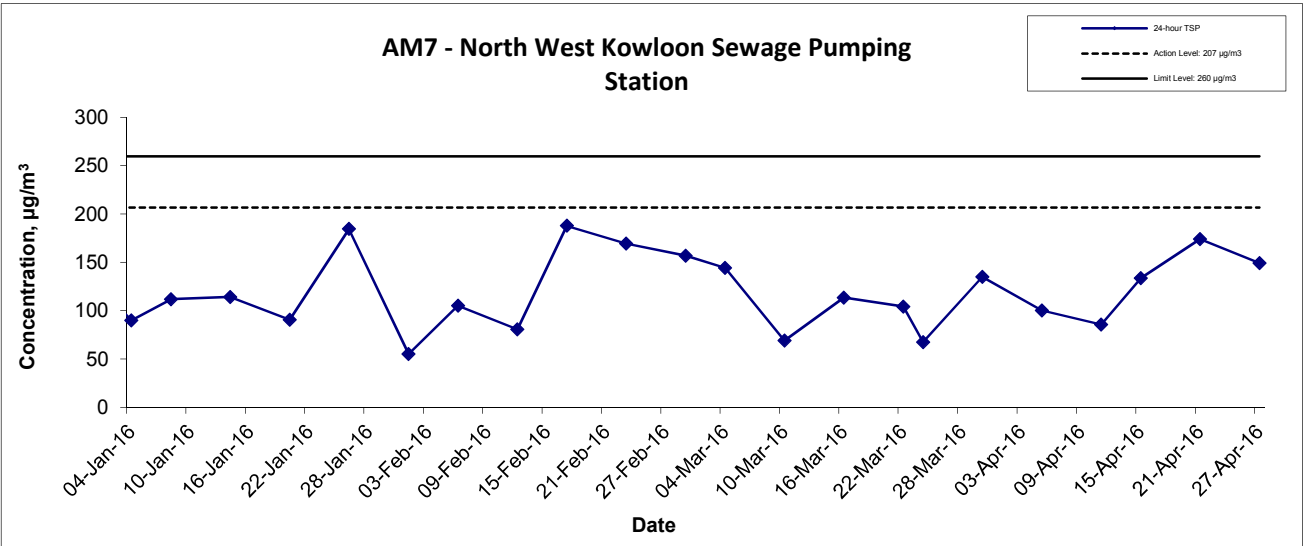
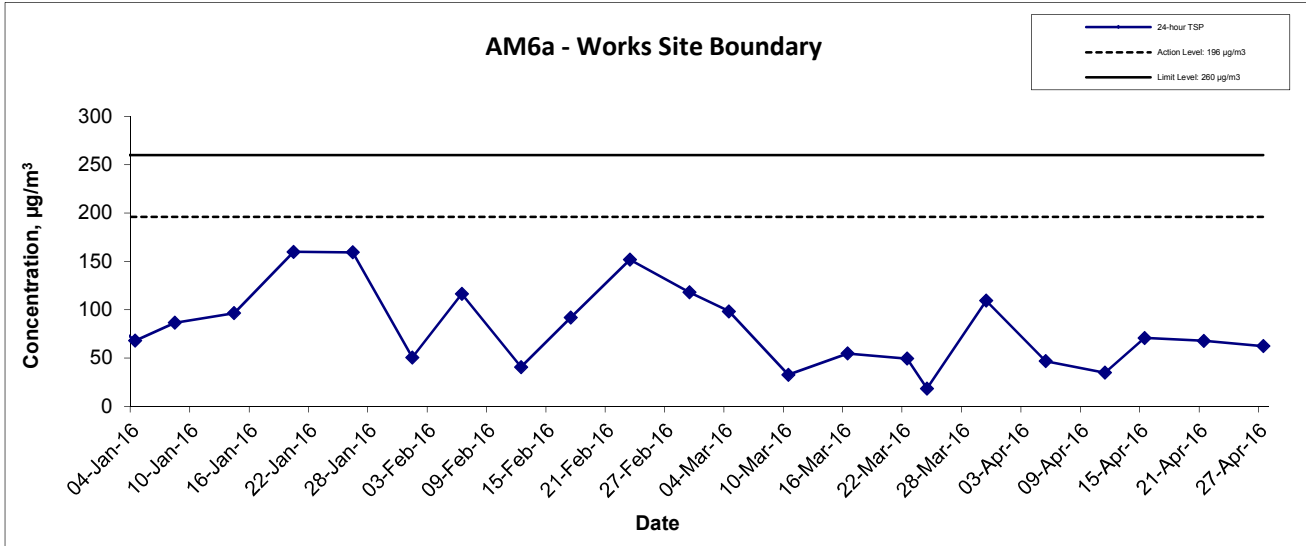
Title	Contract No. DC/2009/10	Scale	Project	CINOTECH
	HATS 2A – Upgrading Works at SCISTW– Main Pumping Station, Sedimentation Tanks and Ancillary	N.T.S	No. MA11007	
Graphical Presentation of 1-hour TSP Monitoring Results		Date	Appendix	
		Apr 16	D	

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	Project No. MA11043	CINOTECH
	Date Apr 16	Appendix D	

24-hr TSP Concentration Levels



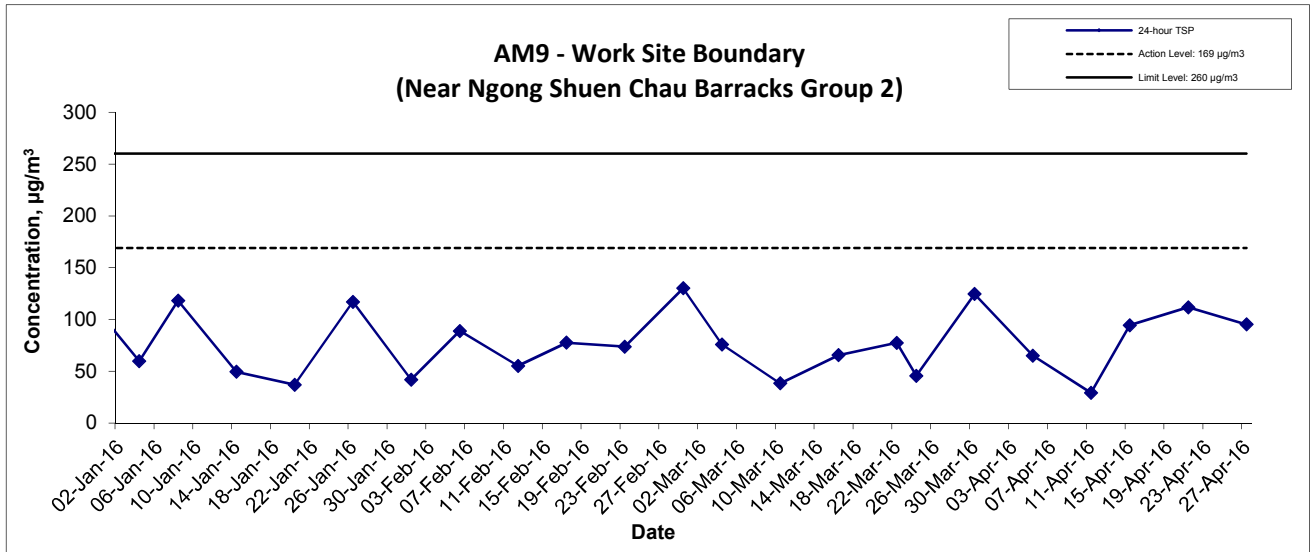
Title Contract No. DC/2009/10
 HATS 2A – Upgrading Works at SCISTW–
 Main Pumping Station, Sedimentation Tanks and Ancillary
 Graphical Presentation of 24-hour TSP Monitoring Results

Scale N.T.S
 Date Apr 16

Project No. MA11007
 Appendix D



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	Project No. MA11043	CINOTECH
	Date Apr 16	Appendix D	

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

Appendix E - Noise Monitoring Results

(0700-1900 hrs on Normal Weekdays)

Location NM5 - Near FSD Diving Rescue and Training Centre					
Date	Time	Weather	Unit: dB (A) (30-min)		
			Measured Noise Level		
			L _{eq}	L ₁₀	L ₉₀
7-Apr-16	13:00	Sunny	64.8	66.1	60.1
13-Apr-16	11:30	Cloudy	69.7	70.5	68.0
19-Apr-16	10:30	Cloudy	67.7	68.1	64.4
25-Apr-16	11:30	Cloudy	70.2	71.4	69.1
Maximum			70.2		
Minimum			64.8		

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
7-Apr-16	11:00	Sunny	66.7	67.6	63.3
13-Apr-16	10:30	Cloudy	66.2	67.4	63.5
19-Apr-16	11:30	Cloudy	65.1	66.3	62.2
25-Apr-16	10:30	Cloudy	67.3	68.5	64.2
Maximum			67.3		
Minimum			65.1		

(Restricted Hours - 07:00 to 23:00 holidays & 19:00 to 23:00 on all other days)

Location NM5 - Near FSD Diving Rescue and Training Centre						
Date	Time	Weather	dB (A) (5-min)			
			L _{eq}	L ₁₀	L ₉₀	Average L _{eq}
7-Apr-16	19:00	Fine	63.8	66.1	60.1	62.8
	19:05		62.0	64.2	59.3	
	19:10		62.3	64.6	59.5	
13-Apr-16	19:00	Fine	61.1	62.3	58.9	61.1
	19:05		60.7	62.1	58.2	
	19:10		61.4	63.0	58.5	
19-Apr-16	19:00	Fine	60.9	62.0	58.7	60.7
	19:05		61.1	62.8	58.6	
	19:10		60.1	62.0	58.2	
25-Apr-16	19:00	Fine	59.9	61.6	58.2	60.0
	19:05		59.7	62.0	57.9	
	19:10		60.4	62.3	58.1	
Maximum			63.8			
Minimum			59.7			

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
7-Apr-16	9:05	Sunny	72.8	75.6	67.7
13-Apr-16	9:05	Cloudy	72.0	73.1	69.5
19-Apr-16	9:05	Cloudy	69.1	71.2	63.9
25-Apr-16	9:05	Cloudy	71.9	72.9	69.8

(Restricted Hours - 07:00 to 23:00 holidays & 19:00 to 23:00 on all other days)

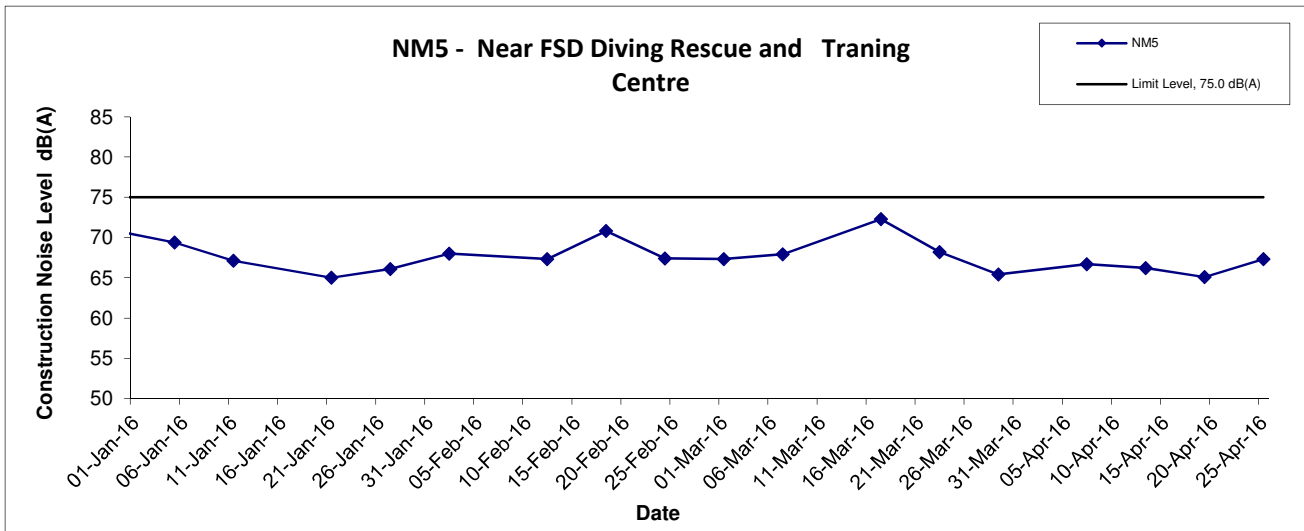
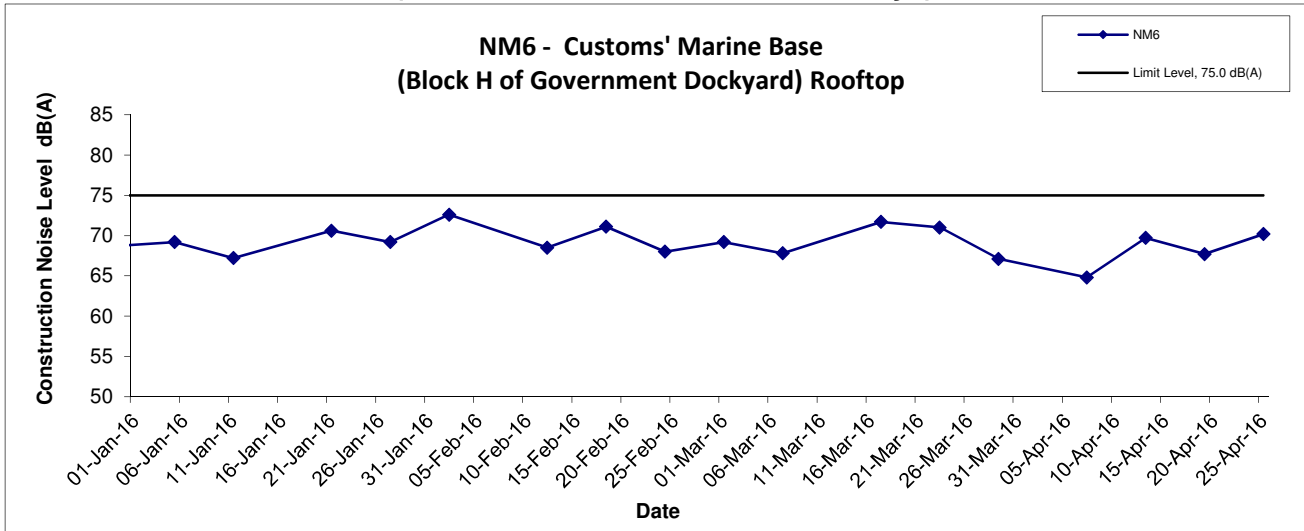
Location NM7 - Open Area near Naval Base Barrack						
Date	Time	Weather	dB (A) (5-min)			
			L _{eq}	L ₁₀	L ₉₀	Average L _{eq}
7-Apr-16	19:00	Fine	64.2	67.5	61.3	63.9
	19:05		63.9	66.3	59.8	
	19:10		63.5	66.1	59.9	
13-Apr-16	19:00	Fine	62.3	65.6	57.5	63.3
	19:05		63.4	66.3	58.7	
	19:10		63.9	66.9	59.2	
19-Apr-16	19:00	Fine	63.3	65.8	60.0	64.0
	19:05		63.9	66.3	60.4	
	19:10		64.6	67.2	61.4	
25-Apr-16	19:00	Fine	63.1	66.7	59.8	63.7
	19:05		63.7	66.9	60.3	
	19:10		64.2	66.9	60.8	

(Restricted Hours - 23:00 to 07:00 on all days)

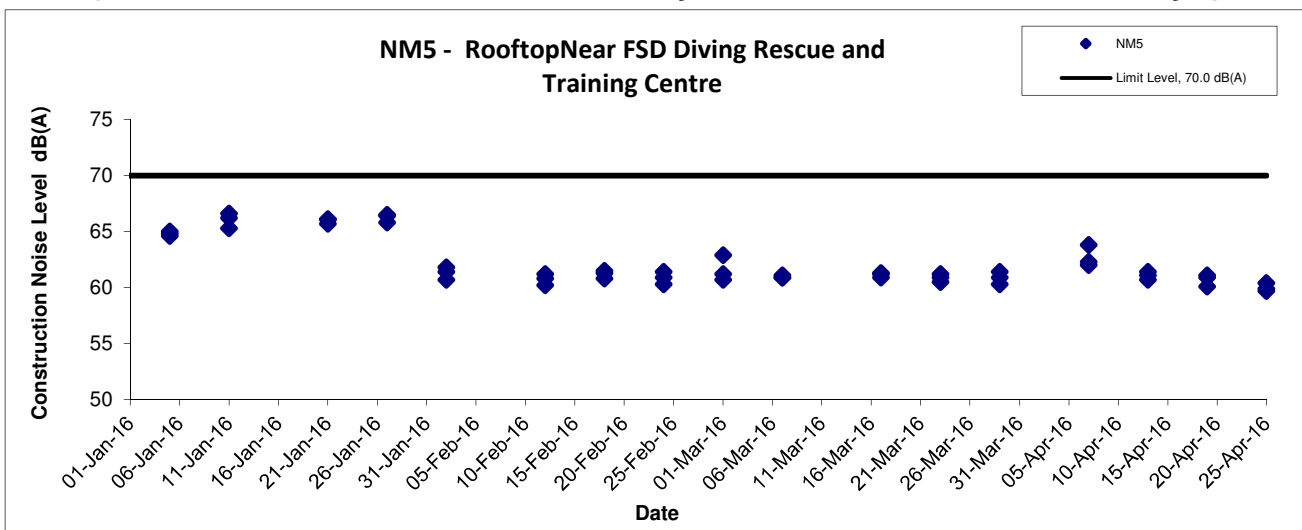
Location NM7 - Open Area near Naval Base Barrack										
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level		
			L _{eq}	L ₁₀	L ₉₀	Average L _{eq}	L _{eq}	L _{eq}		
7-Apr-16	23:00	Fine	57.6	60.0	55.3	57.9	59.7	57.9 Measured ≤ Baseline		
	23:05		58.1	60.2	55.7					
	23:10		57.9	60.0	55.2					
13-Apr-16	23:00	Fine	58.2	60.5	55.4	57.9		59.7	57.9 Measured ≤ Baseline	
	23:05		57.6	59.3	54.8					
	23:10		57.9	59.4	55.0					
19-Apr-16	23:00	Fine	57.5	59.8	55.4	57.6			59.7	57.6 Measured ≤ Baseline
	23:05		58.2	60.7	55.6					
	23:10		56.9	59.7	54.1					
25-Apr-16	23:00	Fine	57.5	59.2	54.5	57.3	59.7			57.3 Measured ≤ Baseline
	23:05		57.4	59.4	54.7					
	23:10		56.9	59.1	54.5					

Noise Levels

(0700-1900 hrs on Normal Weekdays)



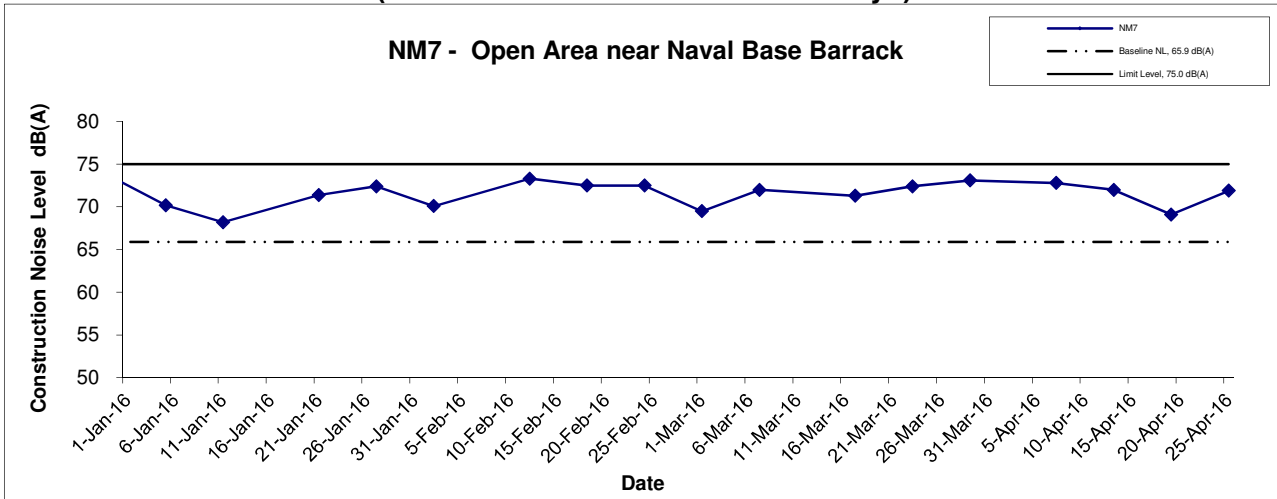
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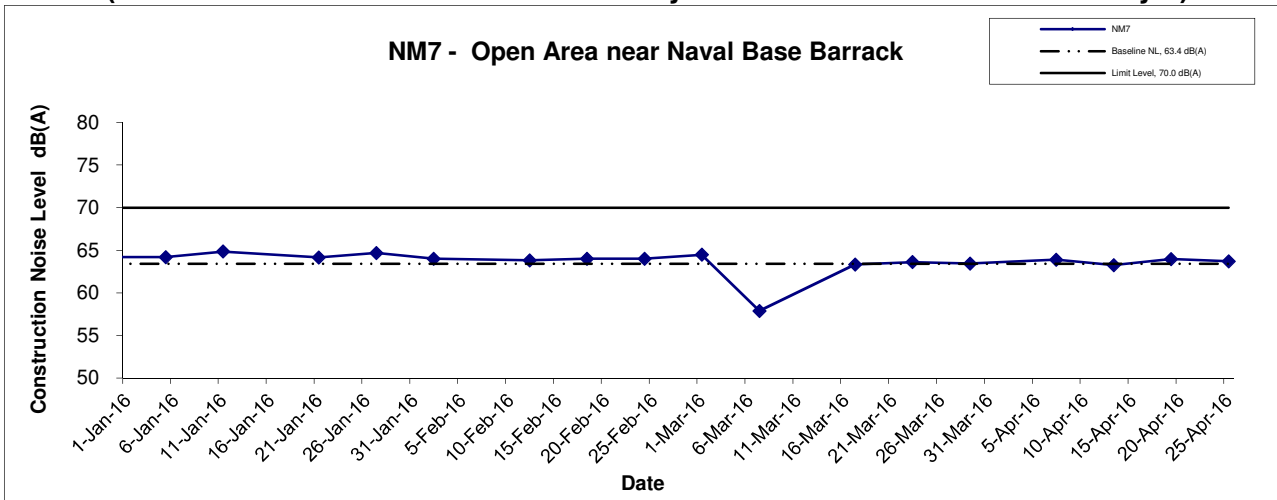
Title Contract No. DC/2009/10 HATS 2A – Upgrading Works at SCISTW– Main Pumping Station, Sedimentation Tanks and Ancillary Graphical Presentation of Noise Monitoring Result	Scale N.T.S	Project No. MA11007	
	Date Apr 16	Appendix E	

Noise Levels

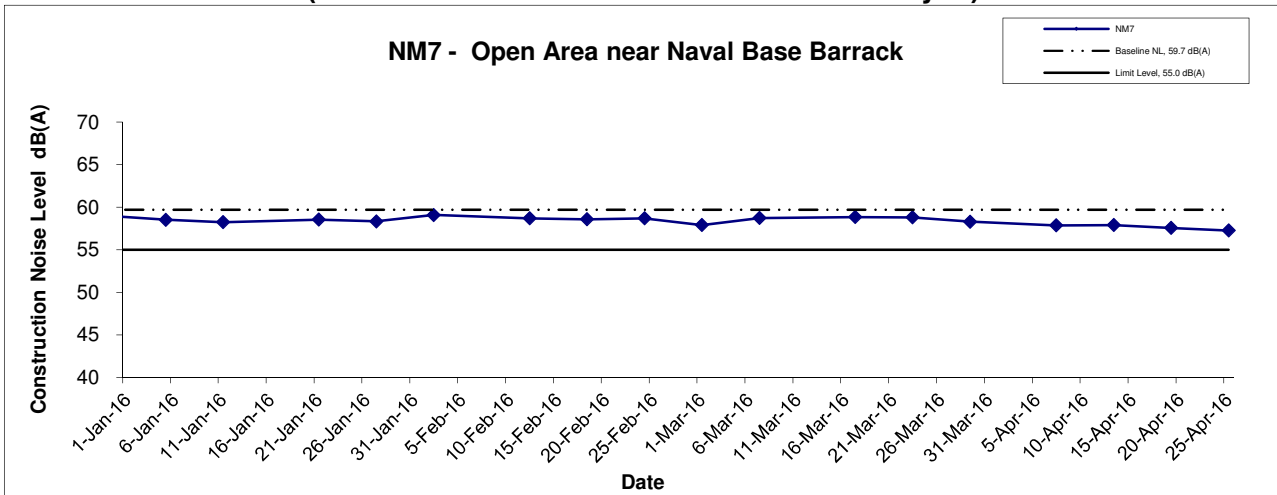
(0700-1900 hrs on Normal Weekdays)



(Restricted Hours - 07:00 - 23:00 holidays & 19:00 - 23:00 on all other days)



(Restricted Hours - 23:00 to 07:00 on all days)



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	Project No. MA11043	
	Date Apr 16	Appendix E	

**APPENDIX F
ENVIRONMENTAL PERMITS AND
LICENSES**

APPENIDX F – Environmental Permits and Licenses

Table F.1 Summary of Environmental Licensing and Permit Status for Contract DC/2009/10

Reference Number	Valid Period		Details	Status
	From	To		
<i>Water Discharge License</i>				
WT00009245-2011	1/6/2011	30/6/2016	The application was approved on 1-6-2011.	Valid
WT00012151-2012	23/7/2014	28/2/2017	The application was approved on 23-7-2014.	Valid
WT00015128-2013	28/1/2013	31/1/2018	The application was approved on 28-1-2013.	Valid
WT00023103-2015	19/1/2016	31/1/2021	The application was approved on 19-1-2016.	Valid
<i>Registered Chemical Waste Producer</i>				
WPN5213-269-3584-01	N/A	N/A	The application was approved on 4-5-2011.	Valid
<i>Billing Account for Disposal of Construction Waste</i>				
CSW01444	16/3/2011	N/A	The application was approved on 16-3-2011.	Valid
<i>Notification of Works Under APCO</i>				
327427	N/A	N/A	Notice form received by EPD on 2-3-2011.	N/A
<i>Construction Noise Permit for use of mechanical equipment outside permitted working hours</i>				
GW-RW0528-15	26/10/2015	25/4/2016	Location: Portion 7	Expired
GW-RW0655-15	25/12/2015	24/6/2016	Location: Portion B	Valid
GW-RW0656-15	25/12/2015	24/6/2016	Location: Portion 4	Valid
GW-RW0657-15	25/12/2015	20/6/2016	Location: Portion 3 and 8	Valid
GW-RW0220-16	26/4/2016	25/10/2016	Location: Portion 3 and 7	Valid

Table F.2 Summary of Environmental Licensing and Permit Status for Contract DC/2009/17

Permit No.	Valid Period		Details	Status
	From	To		
<i>Water Discharge License</i>				
WT00021164-2015	13/3/2015	31/3/2020	Location: Portion 6	Valid
WT000022776-2015	6/1/2016	31/10/2020	Location: Portion 5	Valid
<i>Registered Chemical Waste Producer</i>				
WPN5213-269-C3388-02	19/10/2010	N/A	Major chemical waste types are: Spent battery, waste mechanical oil and spent lubricant.	Valid
<i>Billing Account for Disposal of Construction Waste</i>				
A/C No.7011408	15/09/2010	N/A	N/A	Valid
<i>Notification of Works Under APCO</i>				

Permit No.	Valid Period		Details	Status
	From	To		
Ref:321235	7/09/2010	N/A	--	Valid
Construction Noise Permit				
GW-RW0524-15	21/10/2015	20/4/2016	Location: Portion 3, 4, 5 and 6	Expired
GW-RW0526-15	21/10/2015	20/4/2016	Location: Portion 3, 4, 5 and 6	Expired
GW-RW0013-16	15/1/2016	30/4/2016	Location: Portion 3, 4, 5 and 6	Valid
GW-RW0201-16	21/4/2016	20/10/2016	Location: Site office storage area	Valid
GW-RW0203-16	21/4/2016	20/10/2016	Location: Portion 5 and 6	Valid

Table F.3 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	18/03/2015	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-RW0064-16	5/2/2016	31/7/2016	Location: Construction site at Stonecutters Island Sewage treatment works (Portion 7)	Valid
GW-RW0065-16	18/2/2016	17/8/2016	Location: Construction site at Stonecutters Island Sewage treatment works (Portion 3)	Valid

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENIDX G – SUMMARY OF EXCEEDANCE

Reporting Month: April 2016

- 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**

Contract No: DC/2009/10

HATS 2A Upgrading Main Pumping Station,

Sedimentation Tanks and Ancillary Facilities at SCISTW

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	160407
Date	7 April 2016 (Thursday)
Time	09:30-11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
160407-002	<p>Part A - Water Quality</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part B - Landscape and Visual</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part C - Air Quality</p> <ul style="list-style-type: none">Dusty road should be sprayed with water for dust suppression; Accumulated dust on the road should be cleared (Portion 7). <p>Part D - Noise</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection.	C 5
160407-001	<p>Part E - Waste / Chemical Management</p> <ul style="list-style-type: none">Oil stain was observed on the haul road (Portion 4). <p>Part F - Permit / Licenses</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Others</p> <ul style="list-style-type: none">- <p>Remark:</p> <ul style="list-style-type: none">Following up on previous audit sessions (ref: 160331), the items were observed to be improved/rectified by the Contractor.	E 7i

	Name	Signature	Date
Recorded by	Victor Wong		7 April 2016
Checked by	Dr. Priscilla Choy		7 April 2016

Contract No: DC/2009/10

HATS 2A Upgrading Main Pumping Station,

Sedimentation Tanks and Ancillary Facilities at SCISTW

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	160414
Date	14 April 2016 (Thursday)
Time	09:30-11:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
160414-001	<p>Part A - Water Quality</p> <ul style="list-style-type: none">• Drainage system should be reviewed; Drainage hose should be connected to the AquaSed (Portion 6). <p>Part B - Landscape and Visual</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part C - Air Quality</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part D - Noise</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part E - Waste / Chemical Management</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part F - Permit / Licenses</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Others</p> <ul style="list-style-type: none">• - <p>Remark:</p> <ul style="list-style-type: none">• Following up on previous audit sessions (ref: 160407), the items were observed to be improved/rectified by the Contractor.	A 1

	Name	Signature	Date
Recorded by	Victor Wong		14 April 2016
Checked by	Dr. Priscilla Choy		14 April 2016

Contract No: DC/2009/10

HATS 2A Upgrading Main Pumping Station,

Sedimentation Tanks and Ancillary Facilities at SCISTW



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	160420
Date	20 April 2016 (Wednesday)
Time	09:30-11:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	<p><i>Part A - Water Quality</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part B - Landscape and Visual</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part C - Air Quality</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part D - Noise</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part E - Waste / Chemical Management</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part F - Permit / Licenses</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Others</i></p> <ul style="list-style-type: none">• - <p><i>Remark:</i></p> <ul style="list-style-type: none">• Following up on previous audit sessions (ref: 160414), the items were observed to be improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Victor Wong		20 April 2016
Checked by	Dr. Priscilla Choy		20 April 2016

Contract No: DC/2009/10

HATS 2A Upgrading Main Pumping Station,

Sedimentation Tanks and Ancillary Facilities at SCISTW



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	160428
Date	28 April 2016 (Thursday)
Time	09:30-11:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
160428-001	Part A - Water Quality <ul style="list-style-type: none">The pH sensor in the AquaSed should be checked to ensure the discharge quality is acceptable; Chemical dosage should be adjusted if needed (Portion 7).	A 1
160428-R03	Part B - Landscape and Visual <ul style="list-style-type: none">Tree protective zone should be maintained and retained with fence (Portion 6).	B 1
	Part C - Air Quality <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection.	
	Part D - Noise <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection.	
160428-002	Part E - Waste / Chemical Management <ul style="list-style-type: none">General refuse and other C&D waste should be contained and disposed of regularly (Portion 4, -32).	E 1i
	Part F - Permit / Licenses <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection.	
	Others <ul style="list-style-type: none">-	
	Remark: <ul style="list-style-type: none">Following up on previous audit sessions (ref: 160420), the items were observed to be improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Victor Wong		28 April 2016
Checked by	Dr. Priscilla Choy		28 April 2016

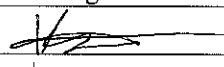

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	160405
Date	5 April 2016 (Tuesday)
Time	09:30 – 10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	<p><i>Part A - Water Quality</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part B - Landscape and Visual</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part C - Air Quality</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part D - Noise</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part E - Waste / Chemical Management</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part F - Permit / Licences</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Remark:</i></p> <ul style="list-style-type: none"> Following up on previous audit sessions (ref: 160329), the items were observed to be improved/rectified by the Contractor. 	

	Name	Signature	Date
Recorded by	Victor Wong		5 April 2016
Checked by	Dr. Priscilla Choy		5 April 2016

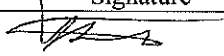
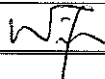
Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	160412
Date	12 April 2016 (Tuesday)
Time	09:30 – 10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
160412-001	<p>Part A - Water Quality</p> <ul style="list-style-type: none"> pH indicator on the AquaSed should be fixed and checked to ensure the discharge quality is acceptable; The Contractor should ensure the AquaSed is functional for water treatment. <p>Part B – Landscape and Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C - Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Noise</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E – Waste / Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F - Permit / Licences</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Remark:</p> <ul style="list-style-type: none"> Following up on previous audit sessions (ref: 160405), the items were observed to be improved/rectified by the Contractor. 	A 1

	Name	Signature	Date
Recorded by	Victor Wong		12 April 2016
Checked by	Dr. Priscilla Choy		12 April 2016

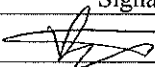

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	160420
Date	20 April 2016 (Wednesday)
Time	14:00 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	<p>Part A – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part B – Landscape and Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C – Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Noise</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E – Waste / Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F – Permit / Licences</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Remark:</p> <ul style="list-style-type: none"> Following up on previous audit sessions (ref: 160412), the items were observed to be improved/rectified by the Contractor. 	

	Name	Signature	Date
Recorded by	Victor Wong		20 April 2016
Checked by	Dr. Priscilla Choy		20 April 2016

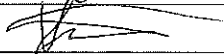

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	160426
Date	26 April 2016 (Tuesday)
Time	09:30 – 10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
160426-O01	<p>Part A - Water Quality</p> <ul style="list-style-type: none"> pH level of the discharge should be checked to ensure water quality is acceptable(Entrance A); The pH meter on the AquaSed should be switched on during discharge(Workshop). 	A 5iii
160426-R03	<ul style="list-style-type: none"> The Contractor should review the drainage system on-site to avoid untreated discharge of surface run-off or other waste water. 	A 1
	<p>Part B – Landscape and Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<p>Part C - Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<p>Part D – Noise</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
160426-O02	<p>Part E – Waste / Chemical Management</p> <ul style="list-style-type: none"> On-site waste should be sorted before disposal. 	E 1iii
	<p>Part F - Permit / Licences</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<p>Remark:</p> <ul style="list-style-type: none"> Following up on previous audit sessions (ref: 160420), the items were observed to be improved/rectified by the Contractor. 	

	Name	Signature	Date
Recorded by	Victor Wong		27 April 2016
Checked by	Dr. Priscilla Choy		27 April 2016

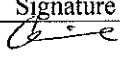

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	160407
Date	7 April 2016 (Tuesday)
Time	14:00-16:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
160407-R01	<p>Part A - Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part B - Landscape and Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C - Air Quality</p> <ul style="list-style-type: none"> Stockpile of dusty material should be covered. (Portion 7) <p>Part D - Noise</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	C 6
160407-R02	<p>Part E - Waste / Chemical Management</p> <ul style="list-style-type: none"> General refuse should be cleared. (Portion 7) <p>Part F - Permit / Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Others / Remarks</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.: 160331): all environmental deficiencies were observed rectified/improved by the Contractor. 	E iii

	Name	Signature	Date
Recorded by	Carrie Leung		13 April 2016
Checked by	Dr. Priscilla Choy		13 April 2016

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	160414
Date	14 April 2016 (Thursday)
Time	14:00-16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
160414-R01	<p>Part A - Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part B - Landscape and Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C - Air Quality</p> <ul style="list-style-type: none"> Contractor is reminded to clean the muddy sand along the site boundary to avoid any muddy runoff to discharge. (Portion 7) <p>Part D - Noise</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E - Waste / Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F - Permit / Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Others / Remarks</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.: 160407): all environmental deficiencies were observed rectified/improved by the Contractor. 	C 3

	Name	Signature	Date
Recorded by	Carrie Leung		19 April 2016
Checked by	Dr. Priscilla Choy		19 April 2016

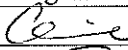
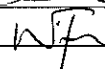
Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	160418
Date	18 April 2016 (Monday)
Time	09:30-11:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
160418-O01	<p>Part A - Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part B - Landscape and Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C - Air Quality</p> <ul style="list-style-type: none"> Contractor is reminded to clean the muddy sand along the site boundary to avoid any muddy runoff to discharge. (Portion 7) <p>Part D - Noise</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	C 3
160418-O02	<p>Part E - Waste / Chemical Management</p> <ul style="list-style-type: none"> Oil stain should be cleared. (Portion 3) <p>Part F - Permit / Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Others / Remarks</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.: 160414); Item 160414-R01 was remarked as 160418-O01. 	E 7i

	Name	Signature	Date
Recorded by	Carrie Leung		19 April 2016
Checked by	Dr. Priscilla Choy		19 April 2016

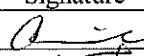
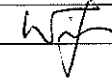
Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	160428
Date	28 April 2016 (Thursday)
Time	14:00-16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
160428-001	Part A - Water Quality • Sandbags should be placed and clear muddy sand in u-channel. (Portion 7)	A 1
160428-002	Part B - Landscape and Visual • Barriers should be provided at the tree protection zone. (Portion 7)	B 2
160428-R01	Part C - Air Quality • No environmental deficiency was identified during the site inspection.	E 7ii
	Part D - Noise • No environmental deficiency was identified during the site inspection.	
	Part E - Waste / Chemical Management • Stagnant water inside the drip tray should be cleared. (Portion 3)	
	Part F - Permit / Licenses • No environmental deficiency was identified during the site inspection.	
	Others / Remarks • Follow-up on previous audit section (Ref. No.: 160418): all environmental deficiencies were observed rectified/improved by the Contractor.	

	Name	Signature	Date
Recorded by	Carrie Leung		4 May 2016
Checked by	Dr. Priscilla Choy		4 May 2016

**APPENDIX I
EVENT ACTION PLANS**

APPENDIX I – Event / Action Plans

Table I-1 Event / Action Plan For Air Quality

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

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

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

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

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

APPENDIX J IMPLEMENTATION SCHEDULE OF ENVIRONMENTAL MITIGATION MEASURES (EMIS)

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract		
			DC/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.		^	^	^
	Imposition of speed controls for vehicles on unpaved site roads. Ten kilometers per hour is the recommended limit.		^	^	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract		
			DC/2009/17	DC/2009/10	DC/2009/18
	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.	All construction sites	^	^	^
	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.		^	^	^
	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.		^	^	^
4.67	Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities.		^	^	^

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

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

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract		
			DC/2009/17	DC/2009/10	DC/2009/18
	<p>should be located well away from any water courses during carrying out of the construction works.</p> <ul style="list-style-type: none"> • Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea. 				
D	Waste Management				
9.107	<p>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.</p>	All construction sites	^	^	^
9.109	<p>All waste materials should be segregated into categories covering:</p> <ul style="list-style-type: none"> • excavated materials suitable for reuse on-site; • excavated materials suitable for public filling 	All construction	^	^	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract		
			DC/2009/17	DC/2009/10	DC/2009/18
	facilities; <ul style="list-style-type: none"> • remaining C&D waste for landfill; • chemical waste; and • general refuse for landfill. 	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 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.		^	^	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract		
			DC/2009/17	DC/2009/10	DC/2009/18
	Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.		^	^	^
9.125	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage"	All construction sites	N/A	^	^
9.131	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.		^	^	^
9.133	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.		^	*	*
9.135	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.		^	^	^
9.137	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable,		^	^	*

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract		
			DC/2009/17	DC/2009/10	DC/2009/18
	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
10.95	Dust control practices such as regular watering, complete coverage of any aggregate or dusty material storage piles, and re-schedule of dusty activities during high-wind conditions as well as other measures recommended in Section 3 of EIA, should be implemented.		^	^	^
10.96	Fences/hoardings should be erected and installed along the boundary of the works areas.		^	^	^
10.97	Standard good site practices as suggested in Section 10 of EIA should be implemented.		N/A	N/A	N/A
10.98	Provision of proper drainage system and runoff control measures such as use of sand/silt traps, oil/grease separators, sedimentation tanks, etc.		^	^	^
F	Landscape and Visual				
Table	Topsoil, where identified, should be stripped and	All	^	^	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract		
			DC/2009/17	DC/2009/10	DC/2009/18
13.7	stored for re-use in the construction of the soft landscape works, where practical. 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.	construction sites			
			^	*	*
			^	^	^
			^	^	^
			^	^	^
Table 13.7	Erection of decorative screen hoarding compatible with the surrounding setting.			N/A	N/A
G	Marine Ecology				
11.137	To minimize the potential indirect impacts on water quality from construction site runoff and various construction activities, the practices outlined in ProPECC PN 1/94 Construction Site Drainage should be adopted.	All construction sites	^	^	^
H	Hazard to Life				
14A.201	Limiting use of cranes in terms of locations, lifting height, swing angle and setting up safety zone.	Exact location will be determined on construction site by the engineer	^	^	^
I	Cultural Heritage				
Tables 15.8 - 15.11	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/struct	N/A	N/A	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Contract		
			DC/2009/17	DC/2009/10	DC/2009/18
		ures as mentioned in EM&A Manual Tables 15.8, 15.9, 15.10 and 15.11			

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

**APPENDIX K
COMPLAINT LOG**

APPENDIX K – COMPLAINT LOG

Reporting Month: April 2016

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
Com#1_22-07-13	Construction site at Portion 3 and 7(DC/2009/18)	22 July 2013	The complaint was lodged by a complainant on 22 July 2013 concerning noise generated from the construction works at 03:00am on 19 July 2013.	<p>According to the information provided by the Contractor, mucking out excavated rocks was carried out 90m below ground within a noise enclosure area.</p> <p>Furthermore, the distance between the complainant's residence and the closest construction work is at least 1km away, which would have shapely minimized the chance of potential noise disturbance to the complainant's area.</p> <p>Based on the monitoring results and the other information collected, the complaint was considered not justifiable since no exceedance of the noise monitoring results was recorded in July</p> <p>The Contractor was reminded to make sure the noise enclosure door will be kept close during night time construction.</p>	Closed

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

APPENDIX L
CONSTRUCTION PROGRAMME

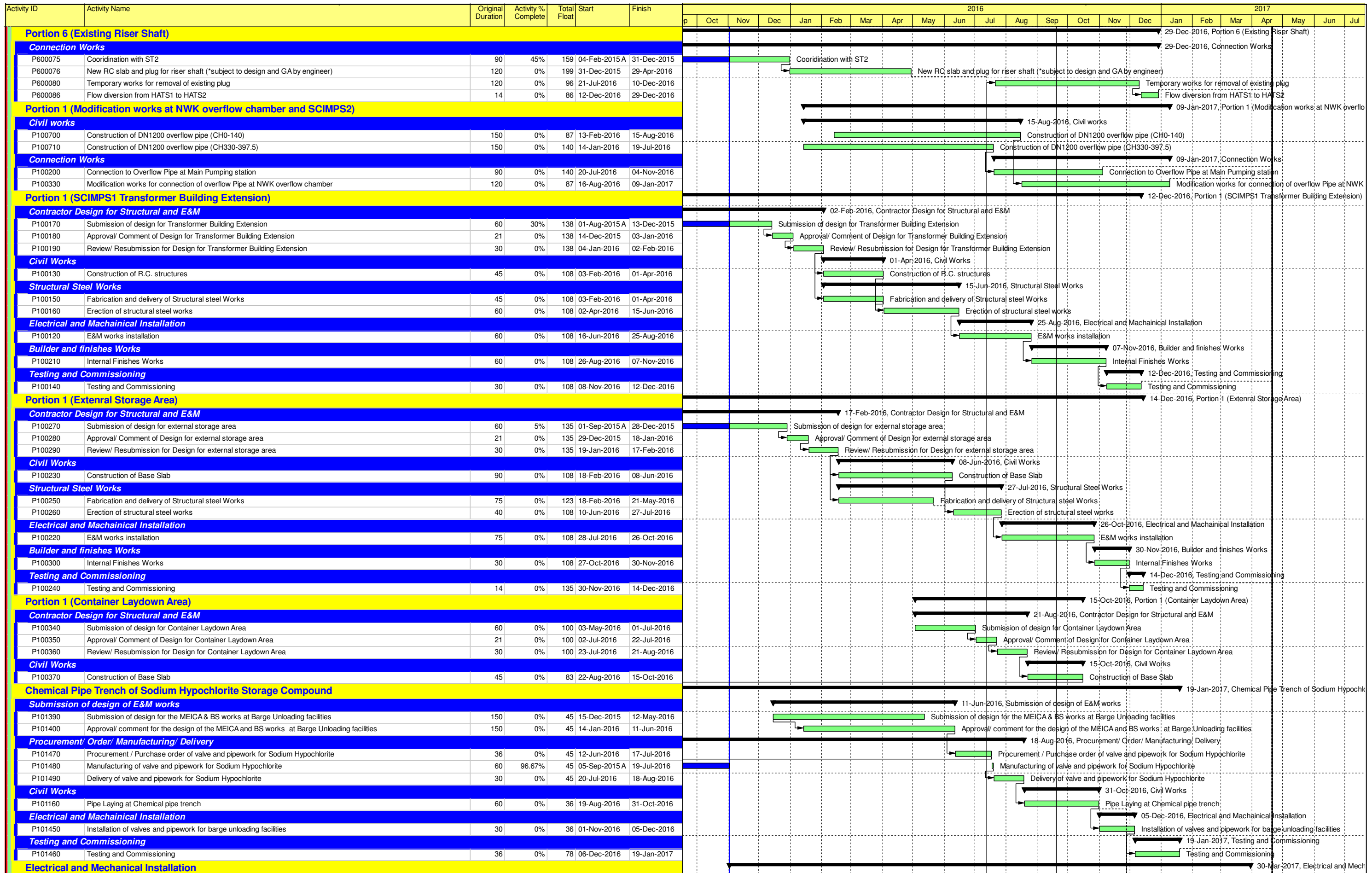
Activity ID	Activity Name	Original Duration	Activity % Complete	Total Float	Start	Finish	2016												2017											
							Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul		
TWP R9 (Completion for Section 3, 4 and 5)							29-Apr-2017, TWP R9																							
Section 3 (Phase A2)							23-Jan-2016, Section 3 (Phase A2)																							
KD00015	Turnflow Date (12 Dec 15)	0	0%	0		12-Dec-2015*	Turnflow Date (12 Dec 15)																							
MPS2							16-Jan-2016, MPS2																							
Wet Well A							18-Nov-2015, Wet Well A																							
A4170	Pump performance test #1-#4	12	45%	528	30-Oct-2015 A	08-Nov-2015	Pump performance test #1-#4																							
A4180	VSD, Surge and closed valve test	2	0%	528	08-Nov-2015	10-Nov-2015	VSD, Surge and closed valve test																							
A4181	24 Hours Endurance test	8	0%	528	10-Nov-2015	18-Nov-2015	24 Hours Endurance test																							
External and civil works							30-Nov-2015, External and civil works																							
A2780	Portable watermain laying for MPS, DOU3	45	75%	429	12-Aug-2015 A	14-Nov-2015	Portable watermain laying for MPS, DOU3																							
A2790	Storm drainage pipe laying	45	45%	416	30-Jul-2015 A	30-Nov-2015	Storm drainage pipe laying																							
Air Scouring System							19-Nov-2015, Air Scouring System																							
A3320	E&M installation for Air scouring system	10	0%	527	07-Nov-2015	16-Nov-2015	E&M installation for Air scouring system																							
A3330	Testing and commissioning	3	0%	527	17-Nov-2015	19-Nov-2015	Testing and commissioning																							
Smoke Extraction system (Basement floor)							18-Dec-2015, Smoke Extraction system (Basement floor)																							
A2470	Ordering and manufacturing of extraction Fans	75	75%	491	26-May-2015	20-Nov-2015	Ordering and manufacturing of extraction Fans																							
A2480	Smoke Extraction installation (Basement Floor)	40	65%	491	18-Aug-2015 A	04-Dec-2015	Smoke Extraction installation (Basement Floor)																							
A2640	Testing and commissioning	14	0%	491	04-Dec-2015	18-Dec-2015	Testing and commissioning																							
Staircase Pressurisation System (ST3)							16-Jan-2016, Staircase Pressurisation System (ST3)																							
A2500	Ordering and manufacturing of extraction Fans	75	75%	469	26-May-2015	20-Nov-2015	Ordering and manufacturing of extraction Fans																							
A2510	Staircase Pressurisation (ST3)	40	10%	469	18-Aug-2015 A	26-Dec-2015	Staircase Pressurisation (ST3)																							
A2650	Testing and commissioning	14	0%	469	26-Dec-2015	09-Jan-2016	Testing and commissioning																							
A2750	FSD inspection	7	0%	469	09-Jan-2016	16-Jan-2016	FSD inspection																							
New CEPT							19-Dec-2015, New CEPT																							
Connection works at Northern Effluent Culvert							23-Nov-2015, Connection works at Northern Effluent Culvert																							
S0796	Concrete slab inside effluent drop shaft	6	26.67%	374	29-Oct-2015 A	11-Nov-2015	Concrete slab inside effluent drop shaft																							
S0805	Water tightness test for the Northern effluent culvert	7	0%	422	12-Nov-2015	19-Nov-2015	Water tightness test for the Northern effluent culvert																							
S0815	Dismantling of bulkhead at Northern effluent culvert	3	0%	422	20-Nov-2015	23-Nov-2015	Dismantling of bulkhead at Northern effluent culvert																							
Hydro-Turbine							13-Nov-2015, Hydro-Turbine																							
A6235	E&M installation for Hydroturbine	14	75%	374	15-Oct-2015 A	05-Nov-2015	E&M installation for Hydroturbine																							
A6240	E&M installation for scum pump room 13	14	15%	530	29-Oct-2015 A	13-Nov-2015	E&M installation for scum pump room 13																							
Architectural Builders and finishes works							19-Dec-2015, Architectural Builders and finishes works																							
A5450	External wall painting (facing MPS2)	18	0%	399	30-Nov-2015*	19-Dec-2015	External wall painting (facing MPS2)																							
FRP Odour Containment cover							21-Nov-2015, FRP Odour Containment cover																							
A5950	Installation of FRP flat cover (PST (N), effluent launder and drop shaft)	5	0%	525	12-Nov-2015	16-Nov-2015	Installation of FRP flat cover (PST (N), effluent launder and drop shaft)																							
A5960	Installation of FRP Cover at PST (N) 47-53	4	0%	526	06-Nov-2015*	09-Nov-2015	Installation of FRP Cover at PST (N) 47-53																							
A5970	Installation of odour ductworks (branch, PSTs 47-53)	3	0%	526	10-Nov-2015	12-Nov-2015	Installation of odour ductworks (branch, PSTs 47-53)																							
A5980	Installation of odour ductworks (branch, FT and MDC)	3	0%	526	13-Nov-2015	15-Nov-2015	Installation of odour ductworks (branch, FT and MDC)																							
A6040	Installation of FRP cover at RMT and FT5	12	45%	429	16-Sep-2015 A	09-Nov-2015	Installation of FRP cover at RMT and FT5																							
A6050	Installation of FRP cover at MDC (N)	12	65%	535	02-Oct-2015 A	06-Nov-2015	Installation of FRP cover at MDC (N)																							
A6060	Testing and commissioning (smoke test)	5	0%	525	17-Nov-2015	21-Nov-2015	Testing and commissioning (smoke test)																							
Scum Collection system							19-Nov-2015, Scum Collection system																							
S2500	Process water and Protected water installation	25	30%	527	28-Sep-2015 A	19-Nov-2015	Process water and Protected water installation																							
S2550	T&C for Scum collection systems at PSTs	3	0%	542	02-Nov-2015	04-Nov-2015	T&C for Scum collection systems at PSTs																							
Sludge Scrapers							20-Nov-2015, Sludge Scrapers																							
A5600	Longitudinal Sludge scraper at FT5	5	45%	528	30-Oct-2015 A	04-Nov-2015	Longitudinal Sludge scraper at FT5																							
A5610	Cross sludge scrapers at FT5	5	45%	528	30-Oct-2015 A	04-Nov-2015	Cross sludge scrapers at FT5																							
A5640	Sludge scrapers at new Northern PSTs 47, 49, 51, 54	12	50%	525	30-Oct-2015 A	07-Nov-2015	Sludge scrapers at new Northern PSTs 47, 49, 51, 54																							
A5680	T&C for sludge scrapers at FT and PSTs	3	0%	525	08-Nov-2015	10-Nov-2015	T&C for sludge scrapers at FT and PSTs																							
A5690	Water filling for SAT Sludge pump	6	0%	423	11-Nov-2015	17-Nov-2015	Water filling for SAT Sludge pump																							
A5740	T&C for sludge piping system	3	0%	375	17-Nov-2015	20-Nov-2015	T&C for sludge piping system																							
Polymer Dosing System							22-Nov-2015, Polymer Dosing System																							
A5790	Installation of PVC dosing pipes at FT5 and RMT	12	0%	524	06-Nov-2015*	17-Nov-2015	Installation of PVC dosing pipes at FT5 and RMT																							
A5795	Replacement of Temporary pipeworks	10	0%	529	05-Nov-2015	15-Nov-2015	Replacement of Temporary pipeworks																							
A5800	Testing and commissioning	5	0%	524	18-Nov-2015	22-Nov-2015	Testing and commissioning																							
FeCl3 Dosing System							22-Nov-2015, FeCl3 Dosing System																							
A6320	Installation of PVC dosing pipes at FT5 and RMT	12	0%	524	06-Nov-2015*	17-Nov-2015	Installation of PVC dosing pipes at FT5 and RMT																							
A6330	Replacement of Temporary pipeworks	10	0%	529	05-Nov-2015	15-Nov-2015	Replacement of Temporary pipeworks																							
A6340	Testing and commissioning	5	0%	524	18-Nov-2015	22-Nov-2015	Testing and commissioning																							
Process Air System							16-Nov-2015, Process Air System																							
A5530	Water filling of MDC and FT5	5	0%	378	09-Nov-2015*	13-Nov-2015	Water filling of MDC and FT5																							
A5540	Testing and commissioning at MDC (N)	3	0%	530	14-Nov-2015	16-Nov-2015	Testing and commissioning at MDC (N)																							
A5550	Testing and commissioning at FT5	3	0%	530	14-Nov-2015	16-Nov-2015	Testing and commissioning at FT5																							
Static Mixer							13-Nov-2015, Static Mixer																							
A6130	Installation of Static mixer	2	0%	533	12-Nov-2015*	13-Nov-2015	Installation of Static mixer																							
DCS works							09-Dec-2015, DCS works																							
A6150	Point to point test (DCS panels to HMI)	60	80%	31	29-Jun-2015 A	13-Nov-2015	Point to point test (DCS panels to HMI)																							
A6160	End to end point test (Field to HMI)	30	60%	31	06-Jul-2015 A	25-Nov-2015	End to end point test (Field to HMI)																							

█ Actual Work
█ Remaining Work
█ Critical Remaining Work
◆ Milestone
▶ Summary

Contract No. DC/2009/10
HATS Stage 2A - Upgrading works at StoneCutters Island Sewage Treatment Works
Target Works Programme (Revision 9)

Sheet 1 of 5
 DD: 6 Nov 2015

Date	Revision	Checked	Approved
19-Jun-2015	Rev. 8A		
30-Jun-2015	Rev. 8B		
10-Jul-2015	Rev. 8C		
17-Jul-2015	Rev. 8D		
31-Jul-2015	Rev. 8E		
17-Aug-2015	Rev. 8F		



- Actual Work
- Remaining Work
- Critical Remaining Work
- ◆ Milestone
- Summary

Contract No. DC/2009/10
HATS Stage 2A - Upgrading works at StoneCutters Island Sewage Treatment Works
 Target Works Programme (Revision 9)

Sheet 4 of 5
 DD: 6 Nov 2015

Date	Revision	Checked	Approved
19-Jun-2015	Rev. 8A		
30-Jun-2015	Rev. 8B		
10-Jul-2015	Rev. 8C		
17-Jul-2015	Rev. 8D		
31-Jul-2015	Rev. 8E		
17-Aug-2015	Rev. 8F		

Activity ID	Activity Name	Original Duration	BL Project Start	BL Project Finish	Start	Finish	2016					
							Jan	Feb	Mar	Apr	May	
DC/2009/17 Detailed Works Programme Revision 3B_Updated up to 31-Jan-16												
Design of Permanent Works												
DDA2 (Southern Sludge Cake Silo)												
Sub-Package - A1												
DP34440	DDA: SSCS - ICE Approve Sub-structure Design	124	02-Sep-15	15-Jan-16	14-Jan-15 A	06-Feb-16						
DP34442	DDA: SSCS - Engineer Comment Sub-structure Design	28	06-Feb-16	10-Mar-16	06-Feb-16	10-Mar-16						
DP34444	DDA: SSCS - Finalize Sub-structure Design	28	10-Mar-16	13-Apr-16	10-Mar-16	13-Apr-16						
DP34450	DDA: SSCS - Engineer Approve Sub-structure Design	24	13-Apr-16	09-May-16	13-Apr-16	09-May-16						
DDA7 (DOU5 and DGS)												
Sub-Package - A1												
DP034170	DDA: DOU5&DGS - Submit Sub-structure Design	160	29-Apr-15	19-Oct-15	17-Jul-14 A	20-Feb-16						
DP034180	DDA: DOU5&DGS - ICE Approve Sub-structure Design	81	18-Nov-15	17-Feb-16	30-Sep-15 A	12-Apr-16						
DP034182	DDA: DOU5&DGS - Engineer Comment Piling Design	21	12-Apr-16	05-May-16	12-Apr-16	05-May-16						
Sub-Package - B												
DP034210	DDA: DOU5&DGS - Submit Structural Design	190	28-Apr-15	19-Nov-15	08-Jul-14 A	02-Feb-16						
DP034220	DDA: DOU5&DGS - ICE Approve Structural Design	107	02-Sep-15	28-Dec-15	29-Jan-15 A	12-Apr-16						
DP034230	DDA: DOU5&DGS - Engineer Comment Structural Design	21	12-Apr-16	05-May-16	12-Apr-16	05-May-16						
DDA5 (PWST & Pumping System)												
Sub-Package - B												
DP030210	DDA: PWST&PS - Submit Structure Design	160	30-May-15	18-Nov-15	28-Jul-14 A	29-Feb-16						
DP030220	DDA: PWST&PS - ICE Approve Structure Design	108	01-Mar-16	29-Jun-16	01-Mar-16	29-Jun-16						
Detailed Design Approval (DDA) Submission												
DDA 35 - Workshop Equipment												
DP008810	DDA: Workshop (E&M) - Designer to Compile DDA	120	05-Apr-13	14-Aug-13	05-Apr-13 A	01-Feb-16						
DP008815	DDA: Workshop (E&M) - Comment, Review & Approval	63	01-Sep-15	07-Nov-15	08-Apr-15 A	15-Feb-16						
DP008830	DDA: Workshop (E&M) - Engineer Comment	14	31-Dec-15	16-Jan-16	21-Dec-15 A	03-Feb-16						
DP008840	DDA: Workshop (E&M) - Designer Response/Revision	21	01-Feb-16	25-Feb-16	01-Feb-16	25-Feb-16						
DP008850	DDA: Workshop (E&M) - 2nd Submission & ICE Cert	7	25-Feb-16	03-Mar-16	25-Feb-16	03-Mar-16						
DP008860	DDA: Workshop (E&M) - Engineer Approval	32	03-Mar-16	09-Apr-16	03-Mar-16	09-Apr-16						
Section 5 of the Works												
Workshop Building												
Structure												
Substructure												
S5002203	WB: Excavation for Pilecap & Beam	30	21-Dec-15	25-Jan-16	15-Dec-15 A	04-Mar-16						
S5002206	WB: Raft Foundation & other Pilecap	135	01-Feb-16	30-Jun-16	01-Feb-16	30-Jun-16						

- ◆ Milestone
- Actual Work
- Remaining Work
- Critical Remaining Work

Three Months Rolling Programme - February to April 2016
 (Based on Detail Works Programme Rev.3B)

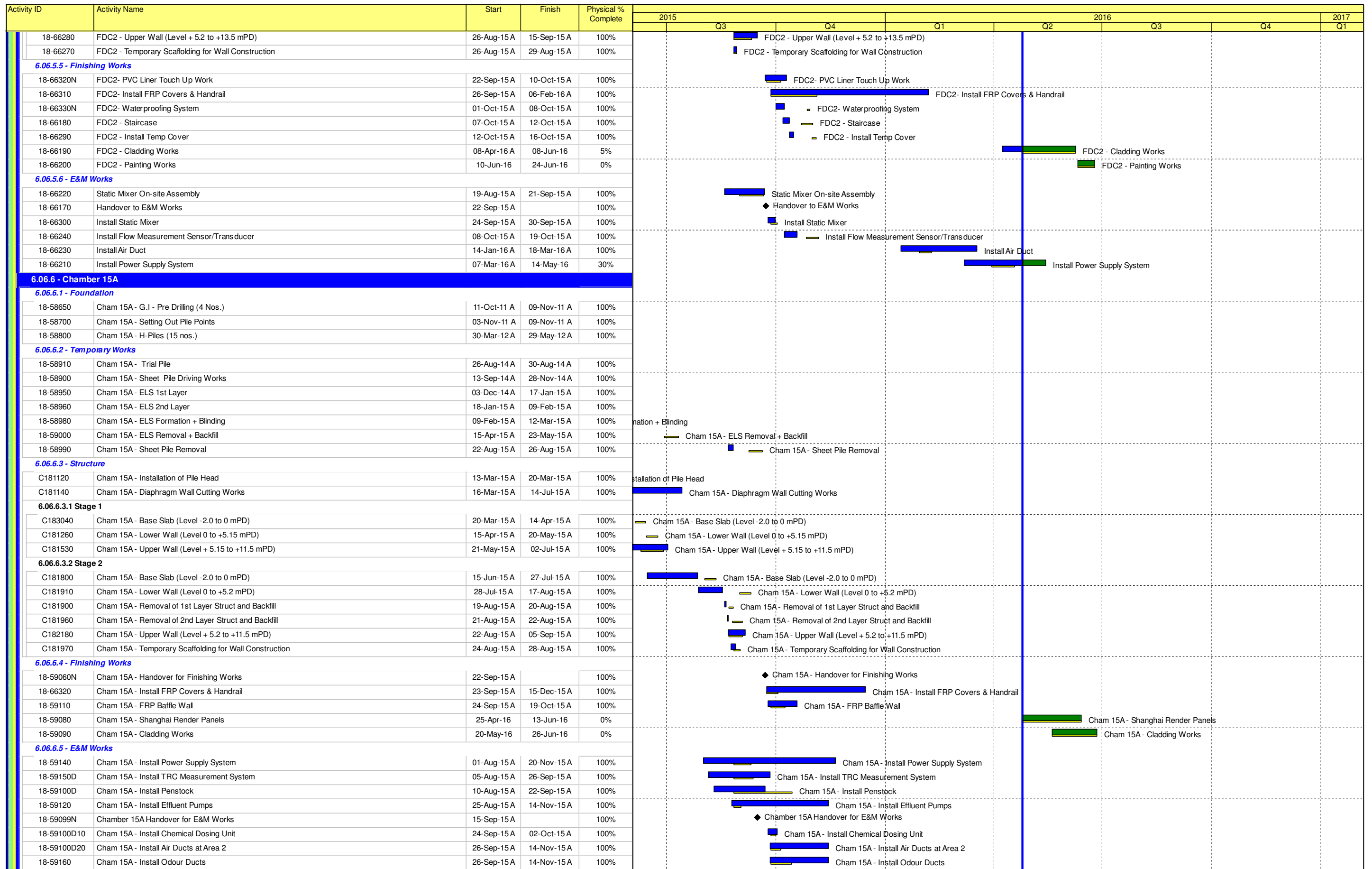
3-M Rolling Programme			
Date	Revision	Checked	Approved
31-Jan-16			

Activity ID	Activity Name	Original Duration	BL Project Start	BL Project Finish	Start	Finish	2016				
							Jan	Feb	Mar	Apr	May
Procurement, Manufacture and Delivery											
S5002910	WB: Procure Balancing Machine for Centrifuge	39	03-Mar-16	18-Apr-16	03-Mar-16	18-Apr-16					
S5002915	WB: Manufacture Balancing Machine for Centrifuge	113	18-Apr-16	17-Aug-16	18-Apr-16	17-Aug-16					
S5002930	WB: Procure various E&M Equipment / Material	39	03-Mar-16	18-Apr-16	03-Mar-16	18-Apr-16					
S5002935	WB: Manufacture various E&M Equipment / Material	135	18-Apr-16	09-Sep-16	18-Apr-16	09-Sep-16					
S5002950	WB: Procurement of Travelling Crane	40	18-Apr-16	01-Jun-16	18-Apr-16	01-Jun-16					
Southern Sludge Cake Silo											
Procurement, Manufacture and Delivery											
S5003520	SSCS: Procure Conveyor, Valve, Air Duct & Lifting Appliance	60	31-Oct-15	04-Jan-16	30-Sep-15	06-Feb-16					
S5003530	SSCS: Manufacture Conveyor, Valve, Air Duct & Lifting Appliance	177	16-Nov-15	31-May-16	15-Oct-15	14-Jul-16					
S5003550	SSCS: Procure Vehicle Washing Machine	68	06-Feb-16	25-Apr-16	06-Feb-16	25-Apr-16					
S5003555	SSCS: Manufacture Vehicle Washing Machine	130	25-Apr-16	10-Sep-16	25-Apr-16	10-Sep-16					
S5003585	SSCS: Procurement of Silo (Body)	68	01-Feb-16	18-Apr-16	01-Feb-16	18-Apr-16					
S5003590	SSCS: Manufacturing of Silo (Body)	101	01-Feb-16	25-May-16	01-Feb-16	25-May-16					
S5003595	SSCS: FAT Test for 1st lot Silos (4 nos)	15	19-Apr-16	05-May-16	19-Apr-16	05-May-16					
Deodourization Unit 5 and DG Store											
Procurement and Delivery											
S5008510	DOU5 & DGS: Procurement of DOU5 & other E&M Equipment	60	01-Feb-16	11-Apr-16	01-Feb-16*	11-Apr-16					
S5008520	DOU5 & DGS: Manufacturing of DOU5 & other E&M Equipment	210	01-Feb-16	19-Sep-16	01-Feb-16	19-Sep-16					
Process Water Storage Tank											
Procurement, Manufacture and Delivery											
S5009660	PWST: Procure Tanks & other E&M Equipment / Material	62	15-Feb-16	23-Apr-16	15-Feb-16	23-Apr-16					
S5009670	PWST: Manufacture Tanks & other E&M Equipment / Material	135	23-Apr-16	15-Sep-16	23-Apr-16	15-Sep-16					
External (Civil) Works											
SDB Area											
S5009812	Concrete pillar box	59	14-Nov-14	16-Jan-15	29-Sep-14	01-Feb-16					
S5009814	Permanent carrigeway	59	14-Nov-14	16-Jan-15	29-Sep-14	06-Feb-16					
S5009818	Cable duct and draw pit P29	14	06-Feb-16	24-Feb-16	06-Feb-16	24-Feb-16					
General Area											
S5009826	Foul sewer & manholes F6A & F6C at portion 3 & 4	56	25-Feb-16	28-Apr-16	25-Feb-16	28-Apr-16					
S5009832	Cable duct at portion 3 & 4	56	29-Mar-16	30-May-16	29-Mar-16	30-May-16					
S5009834	Chemical pipe & trench	56	28-Apr-16	29-Jun-16	28-Apr-16	29-Jun-16					
SSCS Area											
S5009852	Sludge feed pipe SF2 and access chamber 2	55	01-Feb-16	05-Apr-16	01-Feb-16	05-Apr-16					
S5009862	Cable duct and draw pits P8, P9 & P10	55	06-Apr-16	03-Jun-16	06-Apr-16	03-Jun-16					

- ◆ Milestone
- Actual Work
- Remaining Work
- Critical Remaining Work

Three Months Rolling Programme - February to April 2016
 (Based on Detail Works Programme Rev.3B)

3-M Rolling Programme			
Date	Revision	Checked	Approved
31-Jan-16			



- █ Actual Level of Effort
- █ Remaining Work
- █ Primary Baseline
- █ Critical Remaining Work
- █ Actual Work
- ◆ Milestone

Updated Detail Works Programme

Data Date: 25-Apr-16

Run Date: 25-Apr-16

Project ID : C18DWPE160425

Layout : C18160425UDWP

Page 33 of 40

Detail Works Programme

Date	Revision	Checked	Approved
30-Mar-16	DWP Rev E Update		
25-Apr-16	DWP Rev E Update		

Activity ID	Activity Name	Start	Finish	Physical % Complete	2015				2016				2017	
					Q3	Q4	Q1	Q2	Q3	Q4	Q1			
18-59130	Cham 15A - Install Pipes & Valves	26-Sep-15 A	20-Nov-15 A	100%										
6.06.7 - Entry Culvert														
6.06.7.1 - Foundation														
18-59550	Entry Culvert - G.I - Pre-drilling (2 Nos.)	24-Nov-11 A	07-Dec-11 A	100%										
18-59600	Entry Culvert - Pre-Bored H-Pile (6 Nos.@2d/no.)	04-Sep-12 A	19-Sep-12 A	100%										
6.06.7.2 - Temporary Works														
18-59651N	Entry Culvert - Concrete Breaking	25-Feb-13 A	02-Mar-13 A	100%										
18-59650D	Entry Culvert - Sheet Piling (194 sheet piles)	05-Mar-13 A	17-Apr-13 A	100%										
18-59679N	Entry Culvert - Excavation	18-Apr-13 A	06-Aug-13 A	100%										
18-59680N	Existing Drop Shaft - Breaking of Existing D-wall	03-May-13 A	12-Sep-13 A	100%										
18-59660D	Entry Culvert - ELS 1st Layer + Removal of Existing D-wall Panel	06-May-13 A	14-Jun-13 A	100%										
18-59662N	Entry Culvert - Breaking of Underground RC Block	07-Jun-13 A	04-Jul-13 A	100%										
18-59670D	Entry Culvert - ELS 2nd Layer + Removal of Existing D-wall Panel	12-Jul-13 A	25-Sep-13 A	100%										
18-59680D	Entry Culvert - ELS Formation + Blinding	06-Aug-13 A	10-Aug-13 A	100%										
18-59681N	Entry Culvert - ELS Formation + Blinding at C-Clamp Area	11-Sep-13 A	13-Sep-13 A	100%										
18-59682N	Existing Drop Shaft - Coring of Holes for Installation of T25 Post Drill Links	13-Sep-13 A	29-Sep-13 A	100%										
18-59683N	Existing Drop Shaft - Trimming of CJ	18-Sep-13 A	30-Sep-13 A	100%										
6.06.7.3 - Structure														
18-59711N	Entry Culvert - Installation of H-Pile Steel Top Plates	13-Aug-13 A	31-Aug-13 A	100%										
18-59712N	Entry Culvert - Backfilling of Soft Spot Below the Foundation Layer	02-Sep-13 A	17-Sep-13 A	100%										
18-59710D	Entry Culvert - Base Slab + Kicker	18-Sep-13 A	21-Oct-13 A	100%										
18-64295D	Entry Culvert - Wall Construction	15-Oct-13 A	06-Dec-13 A	100%										
18-64296N	Entry Culvert - Removal of Formworks	07-Dec-13 A	19-Dec-13 A	100%										
18-64315	Entry Culvert - Backfill + ELS Removal	21-Dec-13 A	14-Jan-15 A	100%										
18-64340N	Entry Culvert - Construct Remaining Top Slab of New Culvert	27-Jan-14 A	26-Feb-14 A	100%										
18-64350N	Entry Culvert - Connection of Precast Top Slab and Entry Culvert	03-Jun-14 A	12-Jul-14 A	100%										
6.06.7.4 - E&M Works														
18-64304N	Entry Culvert Handover for E&M Works	23-Jun-15 A		100%										
18-64355D	Entry Culvert - TRC Measurement System	03-Jul-15 A	26-Sep-15 A	100%										
18-64335D	Entry Culvert - Install Pipes & Valves	03-Jul-15 A	26-Sep-15 A	100%										
18-64345D	Entry Culvert - Install Power Supply System	05-Jul-15 A	29-Sep-15 A	100%										
18-64360	Entry Culvert - Install Odour Ducts [Remaining Works will be Carried Out During Section 5]	22-Aug-15 A	08-Jul-16	72%										
18-64305D	Entry Culvert - Install Effluent Pumps	25-Aug-15 A	29-Sep-15 A	100%										
18-64365	Entry Culvert - Functional Test for Equipments [Remaining Works will be Carried Out During Section 5]	29-Sep-15 A	01-Oct-16	60%										
6.06.7.5 - Connect to Existing Drop Shaft														
18-59310N	Temp Steel Panel - Trial Installation at Existing Chamber 15	29-Aug-13 A	29-Aug-13 A	100%										
18-59541N	Initial Environmental Water Monitoring	18-Oct-13 A	31-Oct-13 A	100%										
18-59542N	Impact Environmental Water Monitoring	01-Nov-13 A	27-Feb-14 A	100%										
18-59390	Dry Season Onset 2013-2014	01-Nov-13 A		100%										
18-59312N	Temp Water Gate - Installation of Slot Material	04-Nov-13 A	07-Nov-13 A	100%										
18-59311N	Temp Flow Diversion - Coring of Holes at Existing Drop Shaft as Advance Work for Pilot Wall Cutting	24-Nov-13 A	24-Nov-13 A	100%										
18-64337N	Temp Flow Diversion - Stage 1 Pilot Wall Cutting L1-1 for Cantilever Beam Construction	26-Nov-13 A	26-Nov-13 A	100%										
18-64338N	Temp Flow Diversion - Construction of Cantilever Beam	27-Nov-13 A	06-Dec-13 A	100%										
18-64341N	Temp Flow Diversion - Construction of Strengthening Beam	27-Nov-13 A	06-Dec-13 A	100%										
18-64342N	Temp Flow Diversion - Existing DS Top Slab Cutting and Modification Works	07-Dec-13 A	15-Dec-13 A	100%										
18-64336N	Temp Flow Diversion - Installation of Protective Railing	15-Dec-13 A	15-Dec-13 A	100%										
18-64339N	Temp Flow Diversion - Stage 2 Pilot Wall Cutting (L1 to L2 fr +7 to +3.625 mPD)	16-Dec-13 A	24-Dec-13 A	100%										
18-59314N	Temp Water Barrier Platform - Trial Assembly	21-Dec-13 A	26-Dec-13 A	100%										
18-59450D	Temp Flow Diversion - Stage 3 Wall Cutting and Removal (L3 to L5 fr +3.625 to -0.5 mPD)	26-Dec-13 A	16-Jan-14 A	100%										
18-59420D	Temp Flow Diversion - Erection of Temp Water Barrier Platform at Existing Drop Shaft	26-Dec-13 A	26-Dec-13 A	100%										
18-59421N	Temp Steel Panel - Installation at Existing Chamber 15	27-Dec-13 A	27-Dec-13 A	100%										
18-59410	Divert Flow to Northwest Kowloon Outfall	27-Dec-13 A	27-Dec-13 A	100%										
18-59530N	Temp Flow Diversion - Final Touch Up for New Entry Culvert and Existing DS Connection	17-Jan-14 A	26-Feb-14 A	100%										
18-59313N	Temp Water Gate - Installation of Temp Water Gate	22-Feb-14 A	22-Feb-14 A	100%										
18-59500	Divert Flow Back to Existing Drop Shaft	27-Feb-14 A	27-Feb-14 A	100%										
18-59543N	Post Environmental Water Monitoring	28-Feb-14 A	13-Mar-14 A	100%										
18-59530	Dry Season End 2013-2014		28-Feb-14 A	100%										
18-59532N	Temp Flow Diversion - Dismantle Temporary Water Barrier Platform	18-Apr-14 A	18-Apr-14 A	100%										
18-59533	Existing Outfall Drop Shaft - Installation of FRP Cover	23-Nov-15 A	01-Dec-15 A	100%										



	Actual Level of Effort		Remaining Work
	Primary Baseline		Critical Remaining Work
	Actual Work		Milestone

Updated Detail Works Programme

Data Date: 25-Apr-16 Run Date: 25-Apr-16

Project ID : C18DWPE160425
 Layout : C18160425UDWP
 Page 34 of 40

Detail Works Programme			
Date	Revision	Checked	Approved
30-Mar-16	DWP Rev E Update		
25-Apr-16	DWP Rev E Update		

Activity ID	Activity Name	Start	Finish	Physical % Complete	2015				2016				2017	
					Q3	Q4	Q1	Q2	Q3	Q4	Q1			
18-63760	DCS Pre-inspection Works Before Handover	25-Apr-16*	30-Apr-16	0%										
18-63761	DCS Handover Completed Works		30-Apr-16	0%										
6.06.8.6.2.3 - DCS Training														
18-63828N	DCS Training - Submission of Training Programme and Material	01-Apr-15 A	15-Apr-15 A	100%										
18-63838N	DCS Training - Engineer's Review	02-Jul-15 A	10-Jul-15 A	100%										
18-63848	DCS Training - Re-submission	05-Jan-16 A	19-Apr-16 A	100%										
18-63858	DCS Training - Engineer's Approval	11-Jan-16 A	28-Apr-16	80%										
18-63868	Conduct Training to DSD	29-Apr-16	03-May-16	0%										
6.06.8.6.2.1 - DCS On-Site Installation														
18-63758	DCS Equipment On-Site Installation (Including Control Panels, Work Station, and Control Desk)	01-Aug-15 A	27-Jan-16 A	100%										
18-63768	DCS Equipment Cabling Works	02-Aug-15 A	30-Jan-16 A	100%										
18-63778	DCS Functional Testing	20-Jan-16 A	27-Jan-16 A	100%										
18-63759	DCS Commissioning Work	22-Feb-16 A	28-Apr-16	70%										
6.06.8.6.2.2 - DCS O&M Manual Submission														
18-63788	DCS O&M Manual Submission	22-Sep-15 A	09-Oct-15 A	100%										
18-63798	DCS O&M Manual Submission - Engineer's Review and Comment	23-Sep-15 A	05-May-16	60%										
18-63808	DCS O&M Manual Submission - Re-submission	08-Dec-15 A	15-Jan-16 A	100%										
18-63818	DCS O&M Manual Submission - Engineer's Approval	25-Apr-16	06-May-16	0%										
6.06.8.7 - DCP - Switch Room														
6.06.8.7.1 - Finishing Works														
18-63774N	DCP - CR/UPS Switch Room Handover for Finishing Works	15-Apr-14 A		100%										
18-63795D	DCP - CR/UPS - Epoxy Coating and Painting	15-Apr-14 A	05-Jun-14 A	100%										
18-63785	DCP - CR/UPS - Door and Louvre	03-Nov-14 A	18-Nov-14 A	100%										
18-63775	DCP - SR - Metal Works	01-Jun-15 A	19-Jun-15 A	100%										
6.06.8.7.2 - E&M Works														
18-63754N	DCP Switch Room Handover for E&M Works	15-May-14 A		100%										
18-63765D	DCP - SR - Airducts	14-Jul-14 A	29-Apr-15 A	100%										
18-63755D	DCP - SR - Cable Containment	22-Dec-14 A	10-Jul-15 A	100%										
18-63825D	DCP - SR - Electrical Fixture	22-Dec-14 A	10-Jul-15 A	100%										
18-63815D	DCP - SR - Cabling and Wiring	22-Dec-14 A	10-Jul-15 A	100%										
18-63491D20	DCP - SR - Fire Services	03-Feb-15 A	15-Jul-15 A	100%										
18-63805D	DCP - SR - LV Switchboard	29-Jun-15 A	20-Aug-15 A	100%										
18-63835	DCP - SR - Power on	20-Aug-15 A	20-Aug-15 A	100%										
6.06.8.8 - DCP - Potable Water Pump House														
6.06.8.8.1 - Finishing Works														
18-63944N	DCP - PWP Handover for Finishing Works	15-Apr-14 A		100%										
18-63955D	DCP - PWP - Epoxy Coating & Painting	15-Apr-14 A	05-Jun-14 A	100%										
18-63945	DCP - PWP - Door and Louvre	03-Nov-14 A	18-Nov-14 A	100%										
18-63965	DCP - PWP - ABWF Works	16-Mar-16 A	13-Jun-16	10%										
6.06.8.8.2 - E&M Works														
18-63865D	DCP - PWP - Cable Containment	22-Dec-14 A	10-Jul-15 A	100%										
18-63885D	DCP - PWP - Cabling & Wiring	22-Dec-14 A	10-Jul-15 A	100%										
18-63905D	DCP - PWP - Electrical Fixture	22-Dec-14 A	10-Jul-15 A	100%										
18-63895D	DCP - PWP - Electrical Control & Instrumentation	22-Dec-14 A	10-Jul-15 A	100%										
18-63844N	DCP Potable Water Pump House Handover for E&M Works	05-Jan-15 A		100%										
18-63855D	DCP - PWP - Piping Works	05-Jan-15 A	05-Jul-15 A	100%										
18-63915D	DCP - PWP - Fire Services	03-Feb-15 A	15-Jul-15 A	100%										
18-63845D	DCP - PWP - Pump Instal	25-Jul-15 A	02-Aug-15 A	100%										
18-64415D	DCP - PWP - Functional Test	26-Sep-15 A	20-Nov-15 A	100%										
6.06.8.9 - DCP - Spare Storage Room/Toilet														
6.06.8.9.1 - Finishing Works														
18-63975D	DCP - SSR - Partition Wall & Plaster	31-Mar-14 A	11-Apr-14 A	100%										
18-64005D	DCP - SSR - Epoxy Coating and Painting	15-Apr-14 A	05-Jun-14 A	100%										
18-63974N	DCP - SSR Handover for Finishing Works	15-Apr-14 A		100%										
18-63985	DCP - SSR - Tile Works	28-Jun-14 A	12-Jul-14 A	100%										
18-63995	DCP - SSR - Doors and Lovres	03-Nov-14 A	17-Nov-14 A	100%										
6.06.8.9.2 - E&M Works														
18-64014N	DCP Spare Storage Room/Toilet Handover for E&M Works	15-May-14 A		100%										
18-63896D	DCP - SSR - MVAC System	22-Dec-14 A	29-Apr-15 A	100%										



- █ Actual Level of Effort
- █ Remaining Work
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- █ Actual Work
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Updated Detail Works Programme

Data Date: 25-Apr-16 Run Date: 25-Apr-16

Project ID : C18DWPE160425

Layout : C18160425UDWP

Detail Works Programme

Date	Revision	Checked	Approved
30-Mar-16	DWP Rev E Update		
25-Apr-16	DWP Rev E Update		

Activity ID	Activity Name	Start	Finish	Physical % Complete	2015				2016				2017		
					Q3	Q4	Q1	Q2	Q3	Q4	Q1				
18-64015D	DCP - SSR - Electrical Works	22-Dec-14 A	10-Jul-15 A	100%	DCP - SSR - Electrical Works										
18-64025D	DCP - SSR - Fire Services	03-Feb-15 A	15-Jul-15 A	100%	DCP - SSR - Fire Services										
6.06.8.10 - DCP Statutory Inspection															
18-60600	WSD Connection	28-Oct-15 A	12-Nov-15 A	100%	WSD Connection										
18-60650	Prep & Sub Form 314 to FSD	13-Nov-15 A	19-Nov-15 A	100%	Prep & Sub Form 314 to FSD										
18-60700	Prep & Sub Form 501 to FSD	13-Nov-15 A	19-Nov-15 A	100%	Prep & Sub Form 501 to FSD										
18-60750	FSD Inspection	11-Mar-16 A	11-Mar-16 A	100%	FSD Inspection										
6.06.8.11 - DCP External Works															
18-64649N	Ext Works - RS Stage 1, DN 600 Manhole & Drain Pipe	25-Mar-14 A	13-May-14 A	100%	Ext Works - RS Stage 1, DN 600 Manhole & Drain Pipe										
18-64650N	Ext Works - Riser Shaft - Stage 1 Before NE Demolition (Main Drainage, Ducting, Pipe Trench)	25-Mar-14 A	02-Jun-14 A	100%	Ext Works - Riser Shaft - Stage 1 Before NE Demolition (Main Drainage, Ducting, Pipe Trench)										
18-64647N	Ext Works - RS Stage 1, Draw Pit & Cable Duct	25-Apr-14 A	15-Jul-14 A	100%	Ext Works - RS Stage 1, Draw Pit & Cable Duct										
18-64670N	Ext Works - MH (SW) 01		25-Apr-14 A	100%	Ext Works - MH (SW) 01										
18-64648N	Ext Works - RS Stage 1, Pipe Trench & DN300 Pipe & DN150 Pipe	14-May-14 A	06-Aug-14 A	100%	Ext Works - RS Stage 1, Pipe Trench & DN300 Pipe & DN150 Pipe										
18-64668N	Ext Works - E3 Cable Draw Pit		07-Jun-14 A	100%	Ext Works - E3 Cable Draw Pit										
18-64667N	Ext Works - MH (FS) 10		12-Jun-14 A	100%	Ext Works - MH (FS) 10										
18-64666N	Ext Works - E14 Cable Draw Pit		25-Jun-14 A	100%	Ext Works - E14 Cable Draw Pit										
18-64687N	Ext Works - E15 Cable Draw Pit		25-Jun-14 A	100%	Ext Works - E15 Cable Draw Pit										
18-64660N	Ext Works - Riser Shaft - Stage 2 After NE Demolition (Main Drainage, Ducting, Water Supply, Pipe Trench)	27-Jun-14 A	17-Jul-15 A	100%	Ext Works - Riser Shaft - Stage 2 After NE Demolition (Main Drainage, Ducting, Water Supply, Pipe Trench)										
18-64680N	Ext Works - E13 Cable Draw Pit		27-Jun-14 A	100%	Ext Works - E13 Cable Draw Pit										
18-64644	Ext Works - RS Stage 2, Draw Pit and Ducting and Water Mains	10-Jul-14 A	09-May-16	80%	Ext Works - RS Stage 2, Draw Pit and Ducting and Water Mains										
18-64690N	Ext Works - MH (FS) 06		11-Jul-14 A	100%	Ext Works - MH (FS) 06										
18-64665N	Ext Works - MH (FS) 05		11-Jul-14 A	100%	Ext Works - MH (FS) 05										
18-64688N	Ext Works - E16 Cable Draw Pit		15-Jul-14 A	100%	Ext Works - E16 Cable Draw Pit										
18-64662N	Ext Works - MH (FS) 03		19-Jul-14 A	100%	Ext Works - MH (FS) 03										
18-64663N	Ext Works - Last Manhole		04-Oct-14 A	100%	Ext Works - Last Manhole										
18-64646N	Ext Works - RS Stage 2, Last Manhole and 1050mm Pipe	04-Oct-14 A	06-Nov-14 A	100%	Ext Works - RS Stage 2, Last Manhole and 1050mm Pipe										
18-64645N	Ext Works - RS Stage 2, Remaining Pipe Trench	12-Jul-15 A	17-Jul-15 A	100%	Ext Works - RS Stage 2, Remaining Pipe Trench										
18-64661	Ext Works - Riser Shaft - Stage 3 Remaining Works	22-Jul-15 A	12-May-16	85%	Ext Works - Riser Shaft - Stage 3 Remaining Works										
18-64671	Ext Works - Installation of Access Control System and CCTV System	15-Sep-15 A	24-Jun-16	80%	Ext Works - Installation of Access Control System and CCTV System										
6.06.9 - DOU4 (Variation Order No. 0092)															
18-60800	DOU4 - Plinth [Part 1]	10-Jul-15 A	03-Aug-15 A	100%	DOU4 - Plinth [Part 1]										
18-60100	DOU4 Handover for E&M Works	05-Aug-15 A		100%	DOU4 Handover for E&M Works										
18-61050	DOU4 - Install Air Extraction Fan	22-Sep-15 A	07-Nov-15 A	100%	DOU4 - Install Air Extraction Fan										
18-61000	DOU4 - Install Bio Tricking Filters	22-Sep-15 A	14-Dec-15 A	100%	DOU4 - Install Bio Tricking Filters										
18-61100	DOU4 - Install Pumps	05-Oct-15 A	04-Jan-16 A	100%	DOU4 - Install Pumps										
18-66340	DOU4 - MCC Room	15-Oct-15 A	20-Nov-15 A	100%	DOU4 - MCC Room										
18-61120	DOU4 - Install Pipes & Valves	01-Nov-15 A	25-Feb-16 A	100%	DOU4 - Install Pipes & Valves										
18-66360	DOU4 - Pipe Trench	04-Nov-15 A	07-Dec-15 A	100%	DOU4 - Pipe Trench										
18-61140	DOU4 - Install Tanks	21-Nov-15 A	08-Jan-16 A	100%	DOU4 - Install Tanks										
18-61220	DOU4 - External Works - Laying Cable Duct	01-Dec-15 A	30-Dec-15 A	100%	DOU4 - External Works - Laying Cable Duct										
18-61170	DOU4 - MCC Room - Install BS Electrical	15-Dec-15 A	29-Jan-16 A	100%	DOU4 - MCC Room - Install BS Electrical										
18-60110	DOU4 - Plinth [Part 2]	19-Dec-15 A	11-Jan-16 A	100%	DOU4 - Plinth [Part 2]										
18-61070	DOU4 - Install FRP Air Duct & Accessories	05-Jan-16 A	29-Feb-16 A	100%	DOU4 - Install FRP Air Duct & Accessories										
18-61110	DOU4 - MCC Room - Install MVAC	11-Jan-16 A	20-Feb-16 A	100%	DOU4 - MCC Room - Install MVAC										
18-61310	DOU4 - MCC Room - Install FS System	15-Jan-16 A	29-Feb-16 A	100%	DOU4 - MCC Room - Install FS System										
18-61160	DOU4 - Install Power Supply System	27-Jan-16 A	17-Feb-16 A	100%	DOU4 - Install Power Supply System										
18-61210	DOU4 - External Works - Laying Water Pipe	15-Feb-16 A	05-May-16	70%	DOU4 - External Works - Laying Water Pipe										
18-61260	DOU4 - MCC Room - Install Electrical Field Equipment	15-Feb-16 A	14-May-16	70%	DOU4 - MCC Room - Install Electrical Field Equipment										
18-61180	DOU4 - Install Control Panel	25-Apr-16	06-May-16	0%	DOU4 - Install Control Panel										
18-61275	DOU4 - Drain Pipe and Odour Duct Connection to Sed. Tank	25-Apr-16	13-May-16	0%	DOU4 - Drain Pipe and Odour Duct Connection to Sed. Tank										
18-61290	DOU4 - MCC Room - DCS System	25-Apr-16*	11-May-16	0%	DOU4 - MCC Room - DCS System										
18-61300	DOU4 - MCC Room - Install CCTV	25-Apr-16*	09-May-16	0%	DOU4 - MCC Room - Install CCTV										
18-61190	DOU4 - Bacterial Incubation	25-Apr-16*	09-May-16	0%	DOU4 - Bacterial Incubation										
18-61250	DOU4 - Install CCTV Remote Monitoring & FS Common Alarm to MPS1	25-Apr-16	28-May-16	0%	DOU4 - Install CCTV Remote Monitoring & FS Common Alarm to MPS1										
18-61270	DOU4 - Switch Room in Sed. Tank - Install ATS Panel for Dual Source	25-Apr-16*	09-May-16	0%	DOU4 - Switch Room in Sed. Tank - Install ATS Panel for Dual Source										
18-61230	DOU4 - External Works - Odour Duct to MPS1	03-May-16*	26-May-16	0%	DOU4 - External Works - Odour Duct to MPS1										
18-61200	DOU4 - Functional Test for Equipments	16-May-16*	14-Jun-16	0%	DOU4 - Functional Test for Equipments										
18-61280	DOU4 - MCC Room - UPS System	16-May-16*	23-May-16	0%	DOU4 - MCC Room - UPS System										
18-61240	DOU4 - Sampling Test	27-May-16*	09-Jun-16	0%	DOU4 - Sampling Test										



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Updated Detail Works Programme

Data Date: 25-Apr-16 Run Date: 25-Apr-16

Project ID : C18DWPE160425

Layout : C18160425UDWP

Page 38 of 40

Detail Works Programme			
Date	Revision	Checked	Approved
30-Mar-16	DWP Rev E Update		
25-Apr-16	DWP Rev E Update		

Activity ID	Activity Name	Start	Finish	Physical % Complete	2015				2016				2017	
					Q3	Q4	Q1	Q2	Q3	Q4	Q1			
6.06.10 - DOU8														
18-61450	DOU8 - Slab & Plinth	17-Jul-15 A	24-Jul-15 A	100%										
18-61500D	DOU8 - Install Air Extraction Pumps	25-Jul-15 A	20-Sep-15 A	100%										
18-61550D	DOU8 - Install Dehumidifiers	25-Jul-15 A	20-Sep-15 A	100%										
18-61600D	DOU8 - Install Activated Carbon Filters	25-Jul-15 A	05-Aug-15 A	100%										
18-61710	DOU8 - Control Panel	27-Jul-15 A	25-Dec-15 A	100%										
18-61499N	DOU8 Handover for E&M Works	27-Jul-15 A		100%										
18-61650D	DOU8 - Install Air Ducts & Accessories	10-Aug-15 A	20-Nov-15 A	100%										
18-61700	DOU8 - Install Power Supply	10-Aug-15 A	30-Dec-15 A	100%										
6.06.11 - Existing Chamber 15														
6.06.11.1 - E&M Works														
18-62149N	Existing Chamber 15 Handover for E&M Works	15-Aug-12 A		100%										
18-62150D	Installation of Pilot TRC Sensing Facilities	15-Aug-12 A	19-Sep-12 A	100%										
18-62200D	Functional Test for Pilot TRC Sensing Facilities	19-Sep-12 A	25-Sep-12 A	100%										
18-62250D	T&C of Pilot TRC Sensing Facilities	22-Jan-13 A	26-Sep-13 A	100%										
6.06.12 - Testing & Commissioning of Section 4														
18-62400	Divert Flow to Effluent Tunnel from Exist. Culvert		20-Jan-16 A	100%										
18-62350	T&C of Effluent Tunnel	25-Jan-16 A	22-Feb-16 A	100%										
18-11001	Section 4 - Substantial Completion		22-Feb-16 A	100%										
18-62375	Liaison Works with Operators and Other Parties	08-Apr-16 A	20-Apr-16 A	100%										
18-62351	Section 4 - Complete Remaining Works		14-Jun-16	0%										
6.06.13 - Operation Manual														
18-64425	Prepare and Submit 1st Draft of Operation Manual	22-Sep-15 A	09-Oct-15 A	100%										
18-64445	Engineer Review and Comment 1st Draft Operation Manual	23-Sep-15 A	17-Oct-15 A	100%										
18-64455	Prepare and Submit 2nd Draft of Operation Manual	08-Dec-15 A	15-Jan-16 A	100%										
18-64465	Engineer Review and Comment 2nd Draft Operation Manual	25-Apr-16*	19-May-16	0%										
18-64485	Training DSD Operation Staff	20-May-16	25-May-16	0%										
18-64475	Submit Final Operation Manual	26-May-16	08-Jun-16	0%										
6.06.14 - Portion 14														
18-55763N	Cable Detection	24-Sep-12 A	24-Sep-12 A	100%										
18-55760N	Erection of Chain Link Fence	28-Sep-12 A	29-Sep-12 A	100%										
18-55759N	Confirmation of Sub-Contractor		20-Mar-13 A	100%										
18-55764N	Trial Pit	03-May-13 A	03-May-13 A	100%										
18-55775N	Discussion with WSD on Existing Firemain Protection		30-Jul-13 A	100%										
18-55765N	Trench Excavation	04-Oct-13 A	02-Nov-13 A	100%										
18-55761N	Laying of 300mm Pipe	04-Nov-13 A	06-Nov-13 A	100%										
18-55762N	Connection to Existing Manhole with Sewer Diversion	07-Nov-13 A	07-Nov-13 A	100%										
18-55771N	Laying of DN40 Water Pipe	13-Nov-13 A	19-Nov-13 A	100%										
18-55772N	Laying of 150dia. Cable Duct	13-Nov-13 A	19-Nov-13 A	100%										
18-55767N	Backfilling to Formation	20-Nov-13 A	06-Dec-13 A	100%										
6.07 - Section 5														
6.07.1 - Extension of Chamber 15														
6.07.1.1 - Condition Survey at Existing Box Culvert [Variation Order]														
18-66780	Fabrication of Temporary Steel Panels for Chamber 9	15-Feb-16 A	30-Mar-16 A	100%										
18-66800	Fabrication of Temporary Steel Panels for Chamber 15	15-Feb-16 A	27-Feb-16 A	100%										
18-62610	Effluent Blocking Works of Existing Box Culvert at Chamber 14 [Not Effective]	16-Feb-16 A	07-Mar-16 A	100%										
18-62590	Condition Survey at Existing Box Culvert	03-Mar-16 A	08-Mar-16 A	100%										
18-62560	Installation of Temporary Steel Panels at Chamber 15 [Not Effective]	14-Mar-16 A	19-Mar-16 A	100%										
18-66770	Installation of Temporary Steel Panels at Chamber 9	30-Mar-16 A	18-Apr-16 A	100%										
18-66830	Re-installation of Steel Panels at Chamber 15	22-Apr-16 A	28-Apr-16	5%										
18-66840	Re-concreting Works at Chamber 14	25-Apr-16	28-Apr-16	0%										
18-66790	Dewatering of Existing Box Culvert	29-Apr-16	05-May-16	0%										
6.07.1.2 - Foundation														
18-62580	De-commissioning of Existing Box Culvert, Pipe Trench and TRC System	29-Apr-16	18-May-16	0%										
18-66760	Mobilization of Piling Rig and Accessories	12-May-16	18-May-16	0%										
18-66720	Pre-bore H-Piles (10 Nos@2 day/no.)	19-May-16	11-Jun-16	0%										
18-66740	Pile Loading Test	13-Jun-16	17-Jun-16	0%										
6.07.1.3 - Temporary Works														
18-62550	Sheet Piles Driving Works	18-Jun-16	24-Jun-16	0%										



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Updated Detail Works Programme

Data Date: 25-Apr-16

Run Date: 25-Apr-16

Project ID : C18DWPE160425

Layout : C18160425UDWP

Page 39 of 40

Detail Works Programme

Date	Revision	Checked	Approved
30-Mar-16	DWP Rev E Update		
25-Apr-16	DWP Rev E Update		

Activity ID	Activity Name	Start	Finish	Physical % Complete	2015				2016				2017	
					Q3	Q4	Q1	Q2	Q3	Q4	Q1			
18-62600	ELS Excavation & Strutting	25-Jun-16	09-Jul-16	0%										
18-66400	Demolition of the Existing Culvert	28-Jun-16	09-Jul-16	0%										
6.07.1.4 - Structure														
18-66640	Installation of H-Pile Head Plate	11-Jul-16	13-Jul-16	0%										
18-62650	Extension of Chamber 15 - Base Slab	14-Jul-16	27-Jul-16	0%										
18-66650	Extension of Chamber 15 - Lower Wall Construction	28-Jul-16	19-Aug-16	0%										
18-66680	Extension of Chamber 15 - ELS Removal + Backfilling	20-Aug-16	23-Aug-16	0%										
18-66660	Extension of Chamber 15 - Upper Wall Construction	24-Aug-16	19-Sep-16	0%										
18-66670	Extension of Chamber 15 - Falsework Dismantle	20-Sep-16	30-Sep-16	0%										
6.07.1.5 - Architectural incld. Exist. C15														
18-62700	Extension of Chamber 15 - Install FRP Cover and Handrail	21-Sep-16	08-Oct-16	0%										
18-62699	Extension fo Chamber 15 - Handover for Finishing Works	21-Sep-16		0%										
18-62709	Extension of Chamber 15 - Shanghai Render Panels	23-Sep-16	17-Oct-16	0%										
18-62719	Extension of Chamber 15 - Cladding Works	23-Sep-16	17-Oct-16	0%										
6.07.1.6 - E&M														
18-62749	Extension of Chamber 15 - Handover for E&M Works	20-Sep-16		0%										
18-62750	Extension of Chamber 15 - Install Penstocks (2 nos.)	20-Sep-16	30-Sep-16	0%										
18-62760	Extension of Chamber 15 - Install Odour Duct	20-Sep-16	30-Sep-16	0%										
18-62800	T&C for Equipments in Section 5	21-Sep-16	18-Oct-16	0%										
6.07.2 - Overflow Culvert														
6.07.2.1 - Temporary Works														
18-62950	Overflow Culvert - Installation of Sheet Piles with Pre-boring Works	05-Nov-15 A	11-Dec-15 A	100%										
18-63000	Overflow Culvert - ELS Excavation & Strutting	21-Dec-15 A	23-Jan-16 A	100%										
6.07.2.2 - Foundation														
18-62850	G.I-Pre-Drilling (3 Nos.)	12-Sep-12 A	18-Sep-12 A	100%										
18-62900	Pre-bore H-Piles (6 Nos.@2day/no.)	19-Sep-12 A	29-Sep-12 A	100%										
6.07.2.3 - Structure														
18-63050	Overflow Culvert - Base Slab Construction	15-Feb-16 A	29-Feb-16 A	100%										
18-63060	Overflow Culvert - Wall & Roof Slab Construction	01-Mar-16 A	21-Mar-16 A	100%										
18-63070	Overflow Culvert - ELS Removal + Backfilling	22-Mar-16 A	13-May-16	70%										
6.07.2.4 - E&M														
18-66810	Overflow Culvert - Handover for E&M Works	25-Apr-16		0%										
18-66820	Overflow Culvert - Install Penstock	25-Apr-16	12-May-16	0%										
6.07.3 - Demolition of Existing Dechlorination Plant														
18-63130	Liaison with ST2	03-Feb-16 A	23-Feb-16 A	100%										
18-63140	Relocation of Existing ADF PLC from Existing DCP to New DCP	25-Feb-16 A	23-Mar-16 A	100%										
18-63110	De-commsioning of E&M System	08-Apr-16 A	20-Apr-16 A	100%										
18-63120	Inspection with ST2	12-Apr-16 A	20-Apr-16 A	100%										
18-63100	Demolition of Existing Dechlorination Plant	21-Apr-16 A	06-Jun-16	0%										
6.07.4 - External Works														
18-63150	Installation of Utilities	24-Aug-16	23-Sep-16	0%										
18-63210	Pavement	23-Sep-16	18-Oct-16	0%										
6.07.5 - DOU4 - Chemical Scrubber (Variation Order No. 0092)														
18-63310	Construction of Plinth	11-Mar-16 A	15-Mar-16 A	100%										
18-63320	Relocation and Installation of Existing Chemical Scrubber	03-May-16*	19-May-16	0%										
18-63330	Ducting and Fixing Works	20-May-16	04-Jun-16	0%										
18-63340	T&C of Chemical Scrubber	05-Jun-16	02-Jul-16	0%										
6.07.6 - Landscape Works														
18-63300	Irrigation System	24-Aug-16	23-Sep-16	0%										
18-63200	Landscaping Softwork	23-Sep-16	15-Nov-16	0%										



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Updated Detail Works Programme

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Run Date: 25-Apr-16

Project ID : C18DWPE160425

Layout : C18160425UDWP

Page 40 of 40

Detail Works Programme

Date	Revision	Checked	Approved
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