


China State -ATAL Joint Venture

Contract No. DC/2009/17
HATS Stage 2A – Upgrading Works at
Stonecutters Island STW –
Sludge Dewatering Facilities

Monthly Environmental
Monitoring and Audit Report
December 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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CE/Harbour Area Treatment Scheme
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Attn: Mr. Danny Tang

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

Our Reference
GCB/AFK/DC/ro/T261332
/22.01/L-1139

**Contract No. DC/2009/17 – Upgrading Works at Stonecutters Island Sewage
Treatment Works – Sludge Dewatering Facilities**

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Condition 4.4 – Monthly EM&A Report for December 2016 (no. 74) Version 1.0

13 January 2017

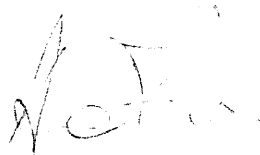
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Dear Sir,

I refer to the revised Monthly EM&A Report for December 2016 (version 1.0) submitted by ET on 12 January 2017 via email. In accordance with Condition 4.4 of Environmental Permit No. EP-322/2008/G, I hereby verify the captioned Monthly EM&A Report.

Yours faithfully
for MOTT MACDONALD HONG KONG LIMITED



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ABBREVIATION AND ACRONYM

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

EXECUTIVE SUMMARY

Introduction

1. This is the 74th Monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for DSD Contract No. DC/2009/17 “HATS Stage 2A – Upgrading Works at Stonecutters Island Sewage Treatment Works - Sludge Dewatering Facilities” (The Project) which documents the key information of EM&A and environmental monitoring works undertaken by other Contracts at the SCISTW under HATS Stage 2A with same Environmental Permit (Permit No. EP-322/2008/G).
2. The site activities undertaken in the reporting month included:

Portion 6:

- The installation of Southern Sludge Cake Silo was in progress.
- The installation of Solid Pipe at Southern Sludge Cake Silo was in progress.
- The installation of Jet Mixer at Sludge Storage Tank No.1 was in progress.
- The installation of inspection windows of Chain & Flight Conveyors was in progress.
- The installation of DOU5 was in progress.
- The installation of DOU6B was in progress.
- Handover of E&M equipment spare parts were in progress.
- Grease and oil change of dewatering equipment was in progress.
- Removal of sludge in SST 1 & 2 were completed.
- Repairing of Solid Pump No.2 inlet elbow was in progress.

External Works:

- Construction of Permanent Concrete Carriageway was in progress.
- Upsizing foul drains adjacent to Gate no.4 was in progress

Environmental Monitoring Works

3. The environmental monitoring works of the Project were conducted by the ETs for the Contracts DC/2009/10 at the SCISTW under HATS 2A with same Environmental Permit in accordance with the EM&A Manual. The monitoring results were checked and reviewed. Site audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.
4. Summary of the non-compliance of the reporting month is tabulated in **Table I**.

Table I 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	N/A
	NM5	Noise	0	0	0	0	N/A
	AM7	1-hr TSP	0	0	0	0	N/A
		24-hr TSP	0	0	0	0	N/A

1-hour TSP Monitoring

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

Construction Noise

7. All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Environmental Licenses and Permits

8. Licenses/Permits granted to the Project include the Environmental Permit (EP); wastewater discharge licences (Portion 3, 4, 5 and C); Registered as a Chemical Waste Producer, Billing account for Disposal of Construction Waste for the Project and Construction Noise Permit.

Environmental Mitigation Implementation Schedule

9. According to the EIA Report Section 3.74, 4.56 and 13.44, air quality, noise and landscape and visual would be the key environmental issues and mitigation measures shall be implemented during the construction phase. Details of the implementation of mitigation measures are provided in the **Appendix F**.

Key Information in the Reporting Month

10. Summary of key information in the reporting month is tabulated in **Table II**

Table II Summary Table for Key Information in the Reporting Month

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	0	---	N/A	N/A	---
Status of submissions under EP	1	Monthly EM&A report for November 2016	Submitted on 21 December 2016	No Comment	---
Notifications of any summons & prosecutions received	0	---	N/A	N/A	---

Site Inspection Conducted by Government Department

11. No site inspection was conducted by Government Department in the reporting month.

Summary of Complaints and Prosecutions

12. No environmental complaint and prosecution was received for the Project in the reporting month.
13. There were no environmental complaint and prosecution received since the commencement of the Project. The Complaint Log is presented in **Appendix G**.
14. No notification of summons and prosecution was received by the Contractor in the reporting month.

Future Key Issues:

15. Major site activities for the coming two months include:
 - Construction of sub structure of Southern Sludge Cake Silos (SSCS) and Workshop Building (WB).

16. The environmental concerns in the coming months are mainly on chemicals storage, dust generated through demolition; the efficiency and maintenance of drainage system, noise from the operation of construction machinery on-site, waste management and the maintenance of equipment to prevent oil leakage within the construction work areas.

1. INTRODUCTION

Background

- 1.1 The Project ‘HATS Stage 2A - Upgrading Works at Stonecutters Island Sewage Treatment Works (SCISTW) - Sludge Dewatering Facilities’ under Contract No: DC/2009/17 mainly comprises the expansion of the sludge dewatering and construction of a workshop building at Stonecutters Island Sewage Treatment Works. The general location plan of the Project is shown in **Figure 1**.
- 1.2 The Project is under Harbour Area Treatment Scheme (HATS) Stage 2A and is a designated project with Register No. : AEIAR-121/2008. The current works under the Project and other Contracts at SCISTW for HATS 2A are covered by the same Environmental Permit (Permit No. EP-322/2008/G), which 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.
- 1.3 The environmental monitoring works for the Project were covered by Contract DC/2009/10’s ET.
- 1.4 China State -ATAL Joint Venture (hereafter called the CSAJV) was commissioned by the DSD to undertake the construction of the Contract No. DC/2009/17 “HATS Stage 2A - Upgrading Works at Stonecutters Island Sewage Treatment Works (SCISTW) - Sludge Dewatering Facilities.
- 1.5 Cinotech Consultants Limited was commissioned by China State -ATAL Joint Venture to undertake the Environmental Monitoring and Audit (EM&A) works for the project and was appointed as the Environmental Team (ET) of the Project under Condition 2.1 of the EP.
- 1.6 This is the 74th monthly EM&A report summarizing the EM&A works conducted for the Project in December 2016.

Project Organizations

- 1.7 The contacts of the Project are shown in **Table 1.1** and the organization chart of ET for Contract is shown in **Figure 2**.

Table 1.1 Key Project Contacts

Party	Role	Name	Position	Phone No.
Ove Arup & Partners Hong Kong Ltd	Engineer’s Representative	Mr. Ted Tang	Principal Resident Engineer	2370 4311
	Coordinator	Mr. Natalie Kwok	Resident Engineer	2371 9407
Cinotech	Environmental Team	Dr. Priscilla Choy	ET Leader	2151 2089
		Mr. Victor Wong	Project Coordinator & Audit Team	2151 2078
Mott MacDonald	Independent Environmental Checker	Dr. Anne Kerr	Independent Environmental Checker	2828 5757
China State-	Contractor	Mr. Charles Tse	Site Agent	9270 3384

Party	Role	Name	Position	Phone No.
ATAL Joint Venture		Mr. Leo Leung	Environmental Officer	2370 3010

Construction Programme

1.8 The site activities undertaken in the reporting month included:

Portion 6:

- The installation of Southern Sludge Cake Silo was in progress.
- The installation of Solid Pipe at Southern Sludge Cake Silo was in progress.
- The installation of Jet Mixer at Sludge Storage Tank No.1 was in progress.
- The installation of inspection windows of Chain & Flight Conveyors was in progress.
- The installation of DOU5 was in progress.
- The installation of DOU6B was in progress.
- Handover of E&M equipment spare parts were in progress.
- Grease and oil change of dewatering equipment was in progress.
- Removal of sludge in SST 1 & 2 were completed.
- Repairing of Solid Pump No.2 inlet elbow was in progress.

External Works:

- Construction of Permanent Concrete Carriageway was in progress.
- Upsizing foul drains adjacent to Gate no.4 was in progress

Summary of EM&A Requirements

1.9 The EM&A programme requires construction phase monitoring for air quality and construction noise, landscape and visual and environmental site audit. 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.

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

1.11 This report presents the monitoring results, observations, locations, equipment, period, for required monitoring parameter namely air quality, noise and audit works conducted for the Project in December 2016. For the methodology and QA/QC procedures of the monitoring parameters, please refer to the respective monthly reports for the other two contracts at SCISTW.

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 Two designated monitoring stations, AM6a and AM7 were selected for impact dust monitoring for the Project. **Table 2.1** describes the air quality monitoring locations and **Figure 1** indicated their positions in relation to the site boundary.

Table 2.1 Locations for Air Quality Monitoring

Monitoring Station	Monitored by	Location of Measurement
AM6a	DC/2009/10	Works site boundary
AM7		North West Kowloon Sewage Pumping Station

Monitoring Equipment

- 2.3 The details of the monitoring equipment and copies of the calibration certificates used during the reporting month could be referred to the monthly EM&A reports of Contract DC/2009/10.

Monitoring Parameters, Frequency and Duration

- 2.4 **Table 2.2** summarizes the monitoring parameters and frequencies of impact dust monitoring for the whole construction period. The air quality monitoring schedule for the reporting period could refer to the respective monthly reports.

Table 2.2 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 could be referred to the monthly report of Contract DC/2009/10.

Results and Observations

- 2.6 **Table 2.3** summarizes the monitoring results at AM6a and AM7 in reporting month.

Table 2.3 Summary of 1-hour and 24-hour TSP Monitoring Result in Reporting Month

Air Quality Monitoring Station	Average $\mu\text{g}/\text{m}^3$	Range $\mu\text{g}/\text{m}^3$	Action Level $\mu\text{g}/\text{m}^3$	Limit Level $\mu\text{g}/\text{m}^3$
1 hour TSP				
AM6a	71	16 -129	346	500
AM7	139	30 - 233	322	
24 hours TSP				
AM6a	73	38 – 126	196	260
AM7	124	34 – 156	207	

- 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 B**.
- 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 B**.
- 2.9 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results could be referred to the monthly reports of Contracts DC/2009/10.
- 2.10 According to field observations during site inspection, identifiable dust sources near the monitoring stations were mainly from construction works and vehicles movement operating for the Project.

3. NOISE

Monitoring Requirements

- 3.1 One noise monitoring station, namely NM5 was 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 one designated monitoring station as listed in **Table 3.1**.

Table 3.1 Location of Noise Monitoring Stations

Monitoring Station	Monitored By	Location of Measurement
NM5	DC/2009/10	Near FSD Diving Rescue and Training Centre

Monitoring Equipment

- 3.3 The details of the monitoring equipment and copies of the calibration certificates used during the reporting month could be referred to the monthly EM&A reports of Contract DC/2009/10.

Monitoring Parameters, Frequency and Duration

- 3.4 **Table 3.2** summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule could refer to the monthly report of respective Contracts.

Table 3.2 Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Period	Frequency
NM5	L_{eq} (30 min.) dB(A)	0700-1900 hrs. on normal weekdays	Once per week
	L_{eq} (5 min.) dB(A)	During restricted hours	Monitoring to be conducted when construction works were to being carried out

Monitoring Methodology and QA/QC Procedures

- 3.5 The monitoring methodology and QA/QC procedure could be referred to the monthly report for Contract DC/2009/10.

Results and Observations

- 3.6 **Table 3.3** summarizes the monitoring results at NM5 in the reporting month.

Table 3.3 Summary the Noise Monitoring Results in Reporting Month

For the time period 0700-1900 hrs. on weekdays		
Monitoring Station	Range, dB(A) Leq(30 min.)	Limit Level, dB(A) Leq(30 min.)
NM5	62.5 – 65.6	75.0

- 3.7 The construction noise monitoring at the designated location during weekdays and the restricted hours were conducted by the ET of Contract DC/2009/10. The monitoring results and graphical presentations could be referred to Appendix E of the DC/2009/10's monthly report.
- 3.8 No Action/Limit Level exceedance was recorded in the reporting month. Summary of exceedance is presented in **Appendix B**.
- 3.9 The major noise sources identified at the designated noise monitoring stations were vehicle movement noise and construction activities from this Project.

4. ENVIRONMENTAL AUDIT**Site Audits**

- 4.1 Site audits were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.
- 4.2 Environmental site audits were conducted on 8, 14, 20 and 28 December 2016 for the Project. No non-compliance was observed during the site audits.
- 4.3 Site inspections were undertaken to ensure and check that the implementation and maintenance of mitigation measures for Air Quality, Noise, Water Quality, Waste Management, Landscape and Visual are being properly carried out in the reporting month in accordance to section 14.1 of the EM&A Manual. No non-compliance was observed during the site inspections.
- 4.4 The summaries of site audits are attached in **Appendix C**.

Implementation Status of Environmental Mitigation Measures

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

Table 4.1 Observations of Site Audit

Parameters	Ref. Number	Observations	Follow Up Action
Water Quality	161208-O01	Discharge system should be improved by providing retention tank before discharging (External Works)	Remarked as ref.no 161220-O01
	161208-O02	Bunding for the gully should be established (External Works).	Bunding has been provided to the gully.
	161220-O01	Discharge system in the External Works should be reviewed according to the discharge licence.	The site water quality at the External Works was observed to be acceptable according to the discharge licence.
	161228-O01	Discharge point should be cleared of its surrounding from general refuse and earth stockpile.	The stockpile has been relocated away from the discharge point, while the identified general refuse was still observed. Remarked as 170103-O01.
Air Quality	161220-R03	The Contractor is reminded to provide dust control at all site area.	Site area was observed to be watered; Dust generation was not observed
Waste/ Chemical Management	161220-O02	Oil stain near the excavator should be cleared (External Works).	The identified oil stain has been cleared.
Landscape and Visual	N/A	There was no observation in the reporting period.	N/A
Noise	N/A	There was no observation in the reporting period.	N/A
Permit/ Licenses	N/A	There was no observation in the reporting period.	N/A

Review of Environmental Monitoring Procedures

- 4.7 The monitoring works was conducted by the monitoring teams of Contracts DC/2009/10. The monitoring procedures were reviewed by its respective ET.

Status of Environmental Licensing and Permitting

- 4.8 All permits/licenses obtained for the Contract DC/2009/17 are summarized in **Table 4.2**.

Table 4.2 Summary of Environmental Licensing and Permit Status

Permit No.	Valid Period		Details	Status
	From	To		
Water Discharge License				
WT0002116 4-2015	13/3/2015	31/3/2020	Location: Portion 6	Valid
WT0000227 76-2015	6/1/2016	31/10/2020	Location: Portion 5	Valid
Registered Chemical Waste Producer				
WPN5213- 269-C3388- 02	19/10/2010	N/A	Major chemical waste types are: Spent battery, waste mechanical oil and spent lubricant.	Valid
Billing Account for Disposal of Construction Waste				
A/C No.7011408	15/09/2010	N/A	N/A	Valid
Notification of Works Under APCO				
Ref:321235	7/09/2010	N/A	--	Valid
Construction Noise Permit				
GW- RW0583-16	20/10/2016	21/4/2017	Location: Portion 6	Valid

Status of Waste Management

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

Implementation Status of Event Action Plans

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

1-hr TSP

- 4.11 No Action/Limit Level exceedance was recorded.

24-hr TSP

- 4.12 No Action/Limit Level exceedance was recorded.

Construction Noise

- 4.13 No Action/Limit Level exceedance was recorded.

Landscape and Visual

4.14 No non-compliance was recorded.

Site Inspection Conducted by Government Department

4.15 No site inspection was conducted by Government Department in the reporting month.

Summary of Complaints and Prosecutions

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

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

5. FUTURE KEY ISSUES

Key Issues for the Coming Month

5.1 Key environmental issues in the coming month include:

- Generation of dust from stockpiles of excavated and dusty materials, unpaved site area and vehicle movement, roadworks, excavation works and loading and unloading dusty materials on-site;
- Accumulated materials to be recycled on-site;
- Noise from operation of equipment and machinery on-site;
- Storage of chemicals/fuel and chemical waste/waste oil on-site;
- Silty surface runoff generated from the site area during raining; and
- Silt and dust getting into the public area by the leaving site vehicles at the site exits without adequate wheel washing facilities.

Monitoring Schedule for the Next Month

5.2 The tentative environmental monitoring schedules for the next reporting month are shown in the monthly reports of Contract DC/2009/10 (Appendix C).

Construction Program for the Next Month

5.3 The tentative construction program is provided in **Appendix H**.

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 All Construction Noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Environmental Audit

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

Complaint, notification of summons and Prosecution

- 6.6 No environmental complaint, notification of summons 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 months:

Air Quality

- To mitigate dust generation by providing adequate water spraying or covering stockpile with tarpaulin during dry days;
- To regularly maintain the machinery and vehicles on site;
- To follow up any exceedance caused by the construction works;
- Non-Road Mobile Machinery (NRMM) labels must be demonstrated on the registered equipment for inspection.

Noise

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

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

Water Quality

- To identify any discharge of wastewater from the construction site;
- To avoid blockage of U channel and drainage system by sediment;
- To avoid water accumulation on site and carry out larviciding against mosquito breeding for stagnant water when mosquito larvae are observed; and
- To avoid spoilage of run-off from construction site to public area.
- The discharge quality must meet the requirements specified in the discharge licence.
- Drainage system should be well designed and maintained to prevent flooding and silty water getting into the public area during and after raining;

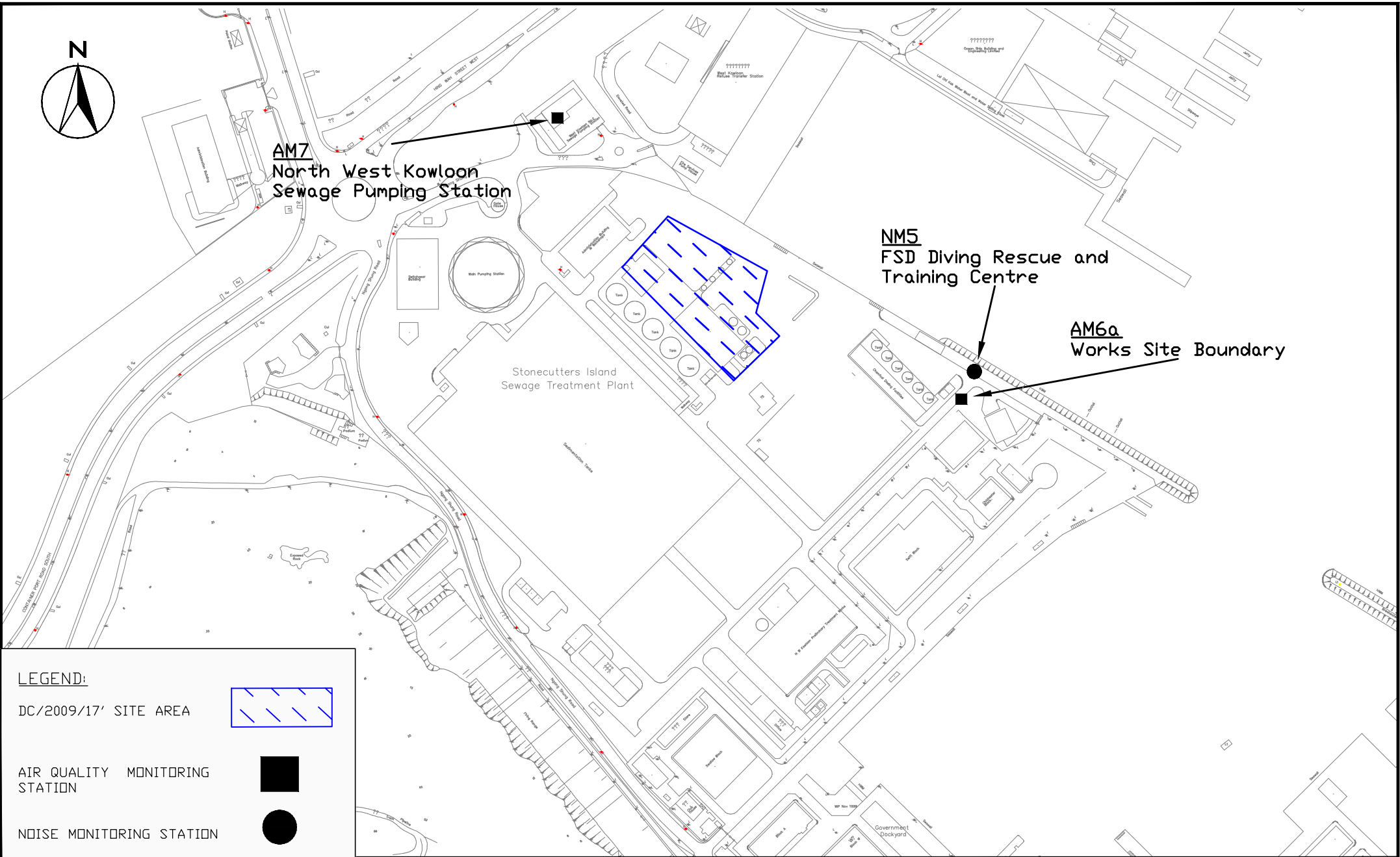
Waste/Chemical Management

- 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 and chemical containers on site;
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the equipment;
- 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 heavy materials being placed within tree protection zone.

FIGURES



LEGEND:

DC/2009/17' SITE AREA



AIR QUALITY MONITORING STATION



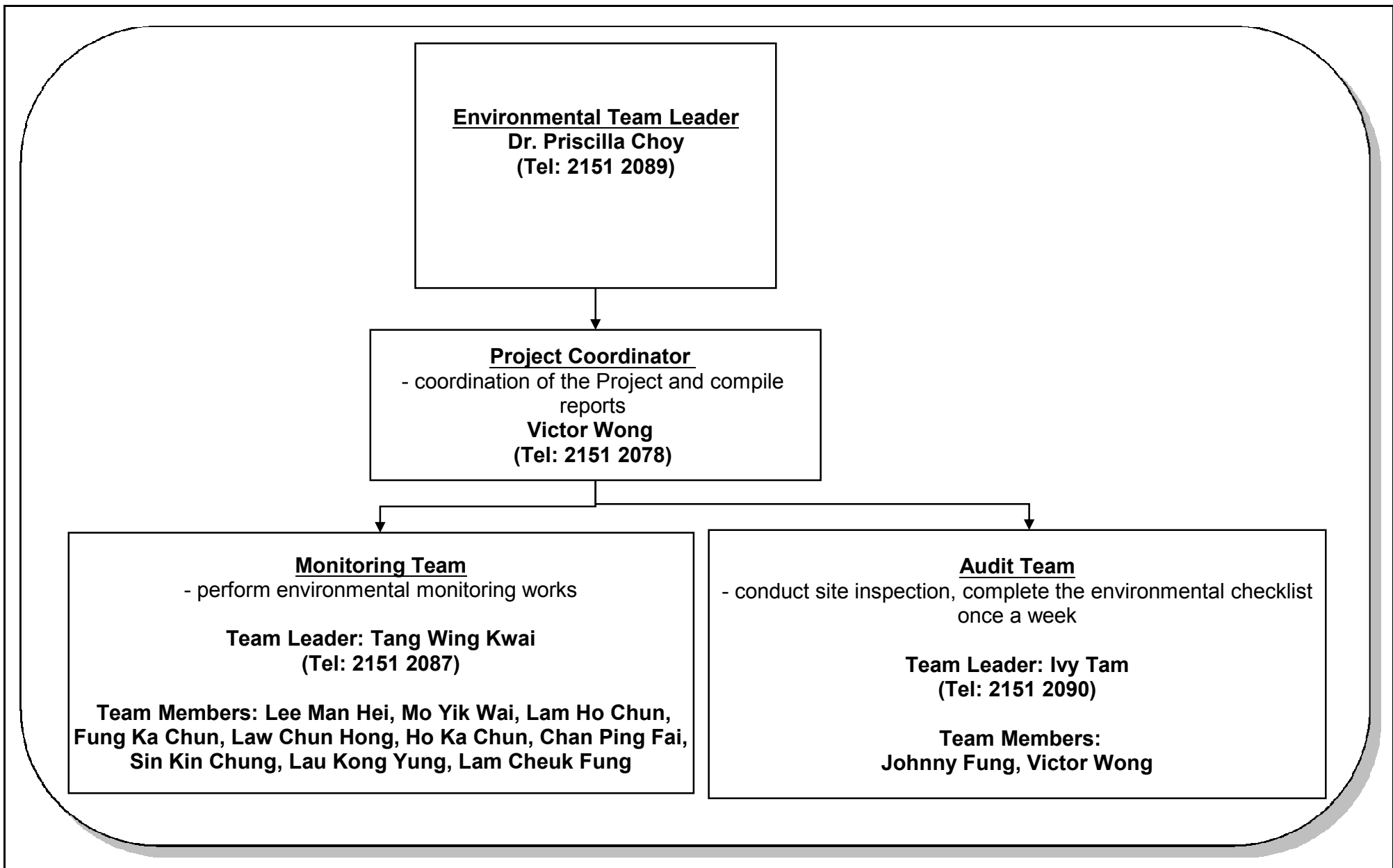
NOISE MONITORING STATION



Contract No. DC/2009/17
HATS 2A - Sludge Dewatering Facilities at Stonecutters Island STW

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.	MA10063	FIGURE NO.	1
		REV	-



Title	Contract No. DC/2009/17 HATS Stage 2A – Upgrading Works at SCISTW Sludge Dewatering Facilities ET's Organization Chart	Scale	N.T.S	Project No.	MA10063	CINOTECH
		Version	v.1	Figure	2	

**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

Table A-2 Action and Limit Level for Construction Noise

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

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

APPENDIX B
SUMMARY OF EXCEEDANCE

APPENDIX B – SUMMARY OF EXCEEDANCE

Reporting Month: December 2016

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

**APPENDIX C
SITE AUDIT SUMMARY**

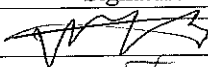
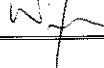
Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	161208
Date	8 December 2016 (Thursday)
Time	09:00 – 09:30

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

Ref. No.	Remarks/Observations	Related Item No.
161208-001	<i>Part A - Water Quality</i> <ul style="list-style-type: none"> • Discharge system should be improved by providing retention tank before discharging (External Works). 	A 4i
161208-002	<ul style="list-style-type: none"> • Bunding for the gully should be established (External Works). 	A 1
	<i>Part B – Landscape and Visual</i> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. 	
	<i>Part C - Air Quality</i> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. 	
	<i>Part D – Noise</i> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. 	
	<i>Part E – Waste / Chemical Management</i> <ul style="list-style-type: none"> • Sediment near the gully should be cleared (near Gate B) 	E 6
	<i>Part F - Permit / Licences</i> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. 	
	<i>Remark:</i> <ul style="list-style-type: none"> • - 	

	Name	Signature	Date
Recorded by	Victor Wong		8 December 2016
Checked by	Dr. Priscilla Choy		8 December 2016

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	161214
Date	14 December 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"> - 	

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

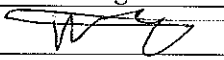

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	161220
Date	20 December 2016 (Tuesday)
Time	09:30 – 10:30

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

Ref. No.	Remarks/Observations	Related Item No.
161220-O01	<p>Part A - Water Quality</p> <ul style="list-style-type: none"> Discharge system in the External Works should be reviewed according to the discharge licence. <p>Part B – Landscape and Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	A 1
161220-R03	<p>Part C - Air Quality</p> <ul style="list-style-type: none"> The Contractor is reminded to provide dust control at all site area. <p>Part D – Noise</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	C 5
161220-O02	<p>Part E – Waste / Chemical Management</p> <ul style="list-style-type: none"> Oil stain near the excavator should be cleared (External Works). <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, item 161208-O02 is remarked as 161220-O01 for further improvement. 	E 7i

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



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	161228
Date	28 December 2016 (Tuesday)
Time	09:30 – 10:30

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

Ref. No.	Remarks/Observations	Related Item No.
161228-001	<p>Part A - Water Quality</p> <ul style="list-style-type: none"> Discharge point should be cleared of its surrounding from general refuse and earth stockpile. <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"> 	A 1

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

**APPENDIX D
SUMMARY OF THE AMOUNT OF
WASTE GENERATED**

Monthly summary waste Flow Table for 2016 (year)

Date	Actual Quantities of Inert C & D Materials Generated Monthly							Actual Quantities of non-inert C & D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Soil/Slurry	Reused in the contract	Reused in other Projects on site	Disposed to Public Fill	Imported Fill	Metals	Paper cardboard packaging	Plastics (see Note 3)	Chemical wastes	Others e.g. General refuses
	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in '000m ³)	(in Ton)	(in '000kg)	(in '000kg)	(in 'L)	(in 'TON)
2010 Aug to Dec	403.61	72.86	330.76	0	0	403.61	0	0	0	0	0	0
2011 Jan to Dec	16714.03	777.82	15936.21	0	0	16713.98	0	25.51	0.325	0	54	118.73
2012 Jan to Dec	2770.73	316.23	2454.50	0	0	2770.73	0	65.96	0.891	0.0085	0	343.97
2013 Jan to Dec	2837.06	377.29	2459.77	0	0	2837.06	0	28.13	1.59	0	200.0	314.32
2014 Jan to Dec	576.68	194.93	381.75	0	0	576.68	0	0.00	2.21	0	2000.0	145.52
2015 Jan to Dec	15878.75	1521.26	14073.58	40	244	15350.96	0	274.1	0.59	0	0	241.24
2016 Jan	599.36	62.46	536.90	0	0	599.36	0	9.43	0	0	0	6.99
2016 Feb	118.82	66.63	52.19	0	0	118.82	0	0	0	0	0	7.87
2016 Mar	81.91	37.55	44.37	0	0	81.91	0	7.51	0	0	0	7.27
2016 Apr	420.40	17.08	42.4	361	0	59.48	0	0	0	0	0	4.84
2016 May	112.97	45.50	67.47	0	0	112.97	0	4.07	0	0	0	15.96
2016 Jun	141.03	24.92	116.11	0	0	141.03	0	0	0	0	0	10.67
2016 Jul	208.65	30.73	177.92	0	0	208.65	0	0	0	0	0	23.15
2016 Aug	191.33	56.99	134.34	0	0	191.33	0	0	0	0	0	18.22
2016 Sep	141.75	67.50	74.245	0	0	141.75	0	12.22	0	0	0	39.59
2016 Oct	200.43	94.91	105.52	0	0	200.43	0	0	0	0	0	25.90
2016 Nov	158.06	16.39	141.67	0	0	158.06	0	0	0	0	0	53.86
2016 Dec	585.30	72.56	512.74	0	0	585.30	0	4	0	0	0	127.75
Total	42140.87	3853.63	37642.42	400.92	243.91	41252.11	0.00	430.93	5.60	0.01	2254.00	1505.85

Forecast of Total quantities of C&D Materials to be Generated from the Contract							Forecast of Total quantities of non-inert C&d Materials to be Genated from the Contract				
Total Quantity Generated	Hard Rock and Large Broke Concrete	Soil/Slurry	Reused in the contract	Reused in other Projects	Disposed to Public Fill	Imported Fill	Metals	Paper cardboard packaging	Plastics (see Note 3)	Chemical wastes	Others e.g. General refuses
(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in '000m ³)	(inTon)	(in '000kg)	(in '000kg)	(in 'L)	(inTon)
36,698	8,561	28,137	/	1,700	36,698	/	2000	100	20	15000	1650

Notes:

- (1) The performance targets are given in PS Clause 6(14)
- (2) The waste flow table shall also include C & D materials that are specified in the Contract to be imported for use at the Site
- (3) Plastics refer to plastic bottles/containers, Plastic sheets/form from packaging material.
- (4) The Contractor shall also submit the latest forecast of the total amount of C & D materials aspected to be generated from the Works together with a breakdown of the nature where the total amount of C & D materials expected to be generated from the Works is equal to or exceeding 30,000m (PS Clause 8(4) (to refers)[Delete Note (4) and the table above on the foreman where inapplicable.
- (5) The assumed density for inert C & D material and rock/broken concrete are 2000kg/m³ and 2500kg/m³ respectively. The asumed density for the general refuse is 1000kg/m³.

APPENDIX E
EVENT ACTION PLANS

APPENDIX E – Event / Action Plans

Table E-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 actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional monitoring	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
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
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	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	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;	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

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	<p>implemented;</p> <p>6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken;</p> <p>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</p> <p>8. If exceedance stops, cease additional monitoring</p>	<p>advise the ER accordingly;</p> <p>5. Supervise the implementation of remedial measures.</p>	<p>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.</p>	<p>control;</p> <p>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated</p>

Table E-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 Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. 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 until the exceedance is abated 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC 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 the ER until the exceedance is abated

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

APPENDIX F IMPLEMENTATION SCHEDULE OF ENVIRONMENTAL MITIGATION MEASURES (EMIS)

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Status
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
	Use of regular watering, with complete coverage, to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.		*
	Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.		^
	Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.		^
	Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.		^
	Imposition of speed controls for vehicles on unpaved site roads. Ten kilometers per hour is the recommended limit.		^
	Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an 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	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Status
B	Airborne Noise		
4.56– 4.61	Use of quiet PME, movable barriers and acoustic mats.	All construction sites	^
4.67	Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program.		^
	Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program.		^
	Mobile plant, if any, shall be sited as far away from NSRs as possible.		^
	Machines and plant (such as trucks) that may be in intermittent use shall be shut down between works periods or shall be throttled down to a minimum.		^
4.67	Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.		^
	Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities.		^
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)		^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Status
	Regulation should be observed and complied with for control of chemical wastes.		
6.378	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.		^
6.379	<p>Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows:</p> <ul style="list-style-type: none"> • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 		^
6.380	<p>Construction Works in Close Proximity of Storm Drains or Seafront:</p> <p>To minimize the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.</p> <ul style="list-style-type: none"> • The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works. • Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. • Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea. 	All construction sites	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Status
D	Waste Management		
9.107	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimize wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimize the use of timber formwork.	All construction sites	^
9.109	All waste materials should be segregated into categories covering: <ul style="list-style-type: none"> • excavated materials suitable for reuse on-site; • excavated materials suitable for public filling facilities; • remaining C&D waste for landfill; • chemical waste; and • general refuse for landfill. 	All construction sites	^
9.113	Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals.	All construction sites	^
	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 aluminum cans, PET bottles and paper by providing separate labeled 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 minimize 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.	All construction sites	^
	Training of site personnel in proper waste management and chemical waste handling procedures.		^
9.115	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.	All construction sites	^
	Provision of sufficient waste disposal points and regular collection of waste.		^
	Regular cleaning and maintenance programme for drainage systems, sumps and oil		^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Status
	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	^
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 aluminum cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.		^
9.137	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.		*
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

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Status
E	Terrestrial Ecology		
10.94	To implement effective noise mitigation measures as recommended in Section 4 of EIA.	All construction sites	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
10.98	Provision of proper drainage system and runoff control measures such as use of sand/silt traps, oil/grease separators, sedimentation tanks, etc.		^
F	Landscape and Visual		
Table 13.7	Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical.	All construction sites	^
	Existing trees to be retained on site should be carefully protected during construction.		^
	Trees unavoidably affected by the works should be transplanted where practical.		^
	Compensatory tree planting should be provided to compensate for felled trees.		^
	Control of night-time lighting.		^
Table 13.7	Erection of decorative screen hoarding compatible with the surrounding setting.	All construction sites	N/A
G	Marine Ecology		
11.137	To minimize the potential indirect impacts on water quality from construction site runoff and various construction activities, the practices outlined in ProPECC PN 1/94 Construction Site Drainage should be adopted.	All construction sites	^
H	Hazard to Life		
14A.201	Limiting use of cranes in terms of locations, lifting height, swing angle and setting up safety zone.	Exact location will be determined on construction site by the engineer	^

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

**APPENDIX G
COMPLAINT LOG**

APPENDIX G – COMPLAINT LOG**Reporting Month:** December 2016

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

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

**APPENDIX H
CONSTRUCTION PROGRAMME**

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2017												2018	
						Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
DC/2009/17 Detailed Works Programme Revision 3B_Updated up to 31-Dec-16																			
KEY DATE																			
Contract Dates																			
Commencement and Completion																			
Section 5 of the Works																			
KD000058	Expected Revised (EOT=125) Completion of Section 5 of the Works (2379 days)	0d		27-Feb-17*	0d														
KD0000582	Expected Revised (EOT=84) Completion of Section 5 of the Works (2463 days)	0d		22-May-17*	0d														
KD0000602	Expected Revised (EOT=43) Completion of Section 5 of the Works (2506 days)	0d		04-Jul-17*	0d														
Maintenance Period																			
KD000060	Original Completion of Maintenance Period	0d		19-May-17*	0d														
KD000061	Revised (EOT=14) Completion of Maintenance Period	0d		02-Jun-17*	0d														
KD000062	Revised (EOT=54) Completion of Maintenance Period	0d		26-Jul-17*	0d														
KD000063	Revised (EOT=77) Completion of Maintenance Period	0d		11-Oct-17*	0d														
KD000064	Revised (EOT=14) Completion of Maintenance Period	0d		24-Oct-17*	0d														
KD000065	Expected Revised (EOT=125) Completion of Maintenance Period	0d		27-Feb-18*	0d														
KD582	Expected Revised (EOT=84) Completion of Maintenance Period	0d		22-May-18*	0d														
KD592	Expected Revised (EOT=43) Completion of Maintenance Period	0d		04-Jul-17*	0d														
Completion																			
Vacating of Area																			
AD000150	Vacate of Portion 6 of the Site	0d		04-Jul-17*	0d														
AD000180	Vacate of Portion C of the Site	0d		04-Jul-17*	0d														
AD000190	Vacate of Portion D of the Site	0d		04-Jul-17*	0d														
AD000200	Vacate of Portion E of the Site	0d		04-Jul-17*	0d														
AD000210	Vacate of Portion F of the Site	0d		04-Jul-17*	0d														
AD000220	Vacate of Portion G of the Site	0d		04-Jul-17*	0d														
Extension of Time																			
Section 5 of the Works																			
KD0000472	Section 5 of the Works expected 125days EOT	126d	25-Oct-16 A	27-Feb-17	334d													Section 5 of the Works expected 125days EOT	
KD0000473	Section 5 of the Works expected 84 days EOT	84d	28-Feb-17	22-May-17	334d													Section 5 of the Works expected 84 days EOT	
KD0000483	Section 5 of the Works expected 43 days EOT	43d	23-May-17	04-Jul-17	334d													Section 5 of the Works expected 43 days EOT	
Section 5 of the Works																			
Completion																			

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Updated Detail Works Programme Revision 3-B			
Date	Revision	Checked	Approved
30-Dec-16			

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2017												2018	
						Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Commencement and Completion																			
S5000010	Key Date Achievement for Section 5 of the Works Completion	0d		04-Jul-17*	0d	◆ Key Date Achievement for Section 5 of the Works Completion													
Workshop Building																			
Structure																			
Superstructure																			
Roof Top, +22.75mPD																			
S5002560	WB: Water Tightness Test	30d	05-Dec-16 A	27-Jan-17 A		WB: Water Tightness Test													
Architectural Finishes																			
S5002610	WB: Block Work	60d	01-Oct-16 A	13-Jan-17	-2d	WB: Block Work													
S5002620	WB: Window and Door	45d	29-Nov-16 A	28-Feb-17	-2d	WB: Window and Door													
S5002630	WB: Plaster and Tile	45d	15-Nov-16 A	28-Feb-17	5d	WB: Plaster and Tile													
S5002640	WB: Finishes to Roof	40d	30-Nov-16 A	17-Jan-17	5d	WB: Finishes to Roof													
S5002650	WB: Painting	30d	05-Dec-16 A	14-Jan-17	5d	WB: Painting													
S5002660	WB: Shanghai Rendering	60d	06-Feb-17*	19-Apr-17	0d	WB: Shanghai Rendering													
S5002670	WB: Irrigation System	35d	08-Dec-16 A	19-Jan-17	27d	WB: Irrigation System													
S5002680	WB: Synthetic Timber Cladding	52d	06-Jan-17	11-Mar-17	0d	WB: Synthetic Timber Cladding													
S5002690	WB: Landscape on Roof	30d	01-Mar-17*	05-Apr-17	-20d	WB: Landscape on Roof													
S5002695	WB: Site Clearance	12d	25-Feb-17*	11-Mar-17	0d	WB: Site Clearance													
Procurement, Manufacture and Delivery																			
S5002915	WB: Manufacture Balancing Machine for Centrifuge	100d	30-Nov-16 A	01-Apr-17	257d	WB: Manufacture Balancing Machine for Centrifuge													
S5002920	WB: FAT for Balancing Machine for Centrifuge	53d	03-Apr-17	10-Jun-17	257d	WB: FAT for Balancing Machine for Centrifuge													
S5002925	WB: Delivery of Balancing Machine for Centrifuge	30d	10-Jun-17	17-Jul-17	257d	WB: Delivery of Balancing Machine for Centrifuge													
S5002935	WB: Manufacture various E&M Equipment / Material	45d	30-Nov-16 A	23-Jan-17	330d	WB: Manufacture various E&M Equipment / Material													
S5002940	WB: FAT Test for various E&M Equipment / Material	35d	24-Jan-17	09-Mar-17	330d	WB: FAT Test for various E&M Equipment / Material													
S5002945	WB: Delivery of various E&M Equipment / Materials	30d	10-Mar-17	15-Apr-17	330d	WB: Delivery of various E&M Equipment / Materials													
S5002950	WB: Procurement of Travelling Crane	36d	30-Nov-16 A	12-Jan-17	329d	WB: Procurement of Travelling Crane													
S5002955	WB: Manufacturing of Travelling Crane	30d	13-Jan-17	21-Feb-17	329d	WB: Manufacturing of Travelling Crane													
S5002960	WB: FAT Test for Travelling Crane	20d	22-Feb-17	16-Mar-17	329d	WB: FAT Test for Travelling Crane													
S5002965	WB: Delivery of Travelling Crane	30d	17-Mar-17	24-Apr-17	329d	WB: Delivery of Travelling Crane													
E&M Installation and T&C																			
S5002968	WB: E&M installation	35d	01-Nov-16 A	22-Jul-17	257d	WB: E&M installation													
S5002970	WB: Installation of Travelling Crane	40d	03-Jan-17*	23-Feb-17	0d	WB: Installation of Travelling Crane													

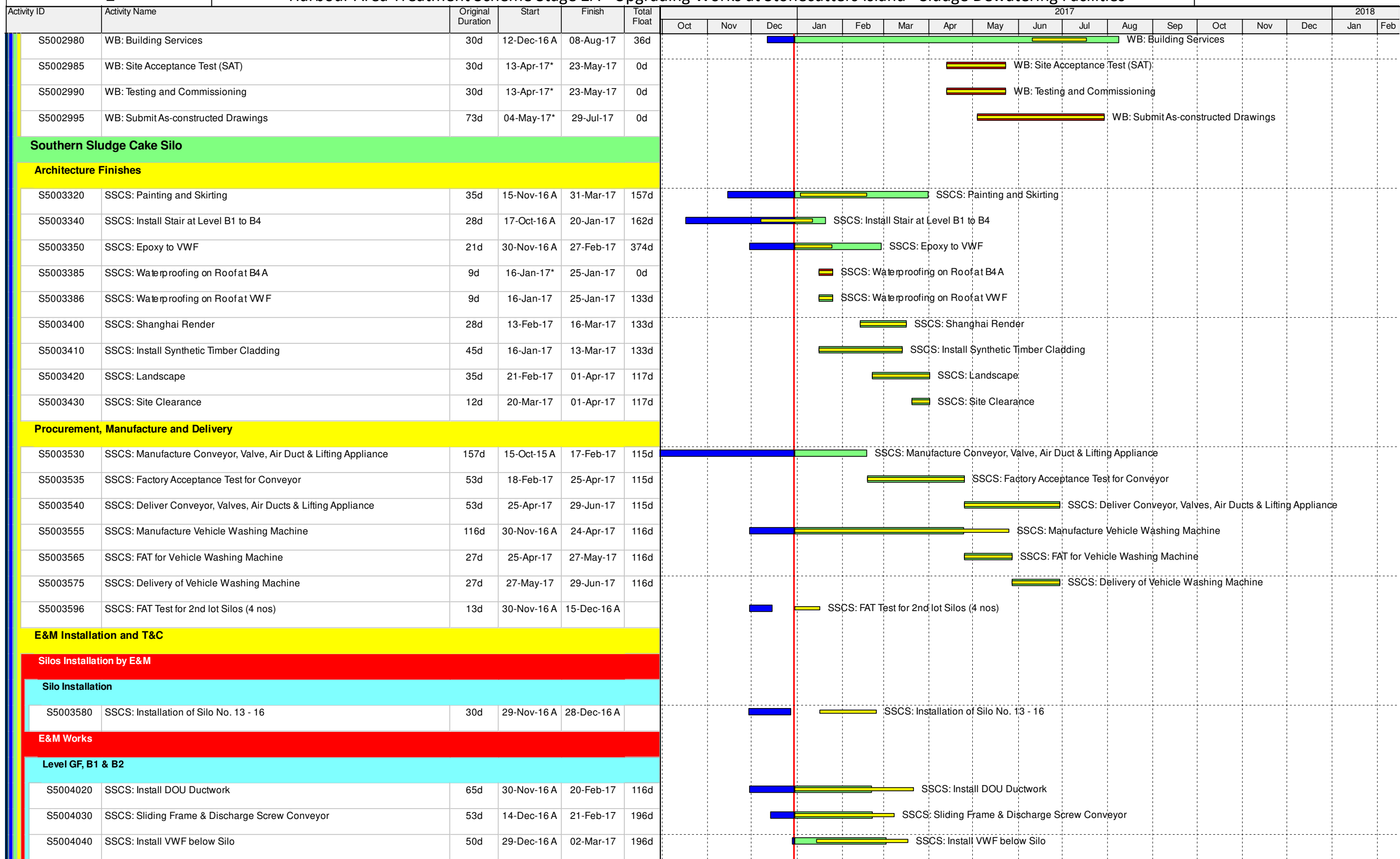
■ Actual Work ■ Remaining Level of Effort
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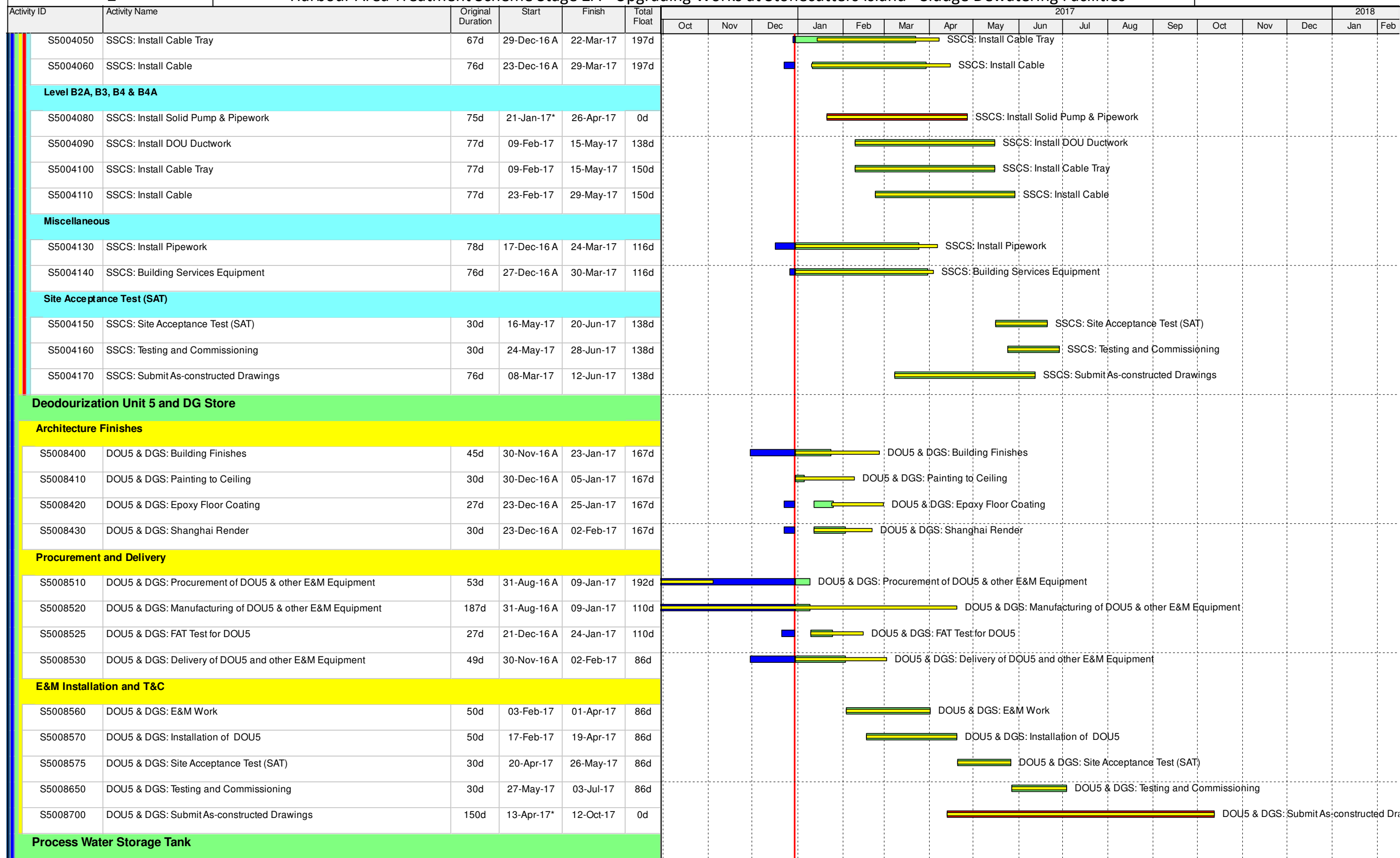
Updated Detail Works Programme Revision 3-B			
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30-Dec-16			



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Updated Detail Works Programme Revision 3-B			
Date	Revision	Checked	Approved
30-Dec-16			

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2017												2018	
						Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Structure																			
Northern PWST																			
S5009430	PWST: Remove Support inside Northern Water Tank	12d	12-Dec-16 A	23-Dec-16 A															
S5009440	PWST: Water Tightness Test to Northern Tank	7d	27-Dec-16 A	26-Jan-17	184d														
Southern PWST																			
S5009560	PWST: Roof of Southern Water Tank	24d	17-Nov-16 A	02-Dec-16 A															
S5009570	PWST: Plinth and Kerb on Roof at South Tank	18d	21-Nov-16 A	05-Dec-16 A															
S5009580	PWST: Remove Support inside Southern Water Tank	12d	12-Dec-16 A	23-Dec-16 A															
S5009590	PWST: Water Tightness Test to Southern Tank	7d	19-Jan-17	26-Jan-17	184d														
Architecture Finishes																			
S5009600	PWST: Finishes to Water Tanks	50d	30-Dec-16 A	11-Feb-17	234d														
S5009601	Completion of Architecture Finishes	0d		11-Feb-17	284d														
Procurement, Manufacture and Delivery																			
S5009660	PWST: Procure Tanks & other E&M Equipment / Material	55d	30-Nov-16 A	08-Feb-17	48d														
S5009670	PWST: Manufacture Tanks & other E&M Equipment / Material	120d	06-Dec-16 A	06-May-17	28d														
S5009675	PWST: Factory Acceptance Test for Tanks	27d	08-May-17	08-Jun-17	28d														
S5009680	PWST: Delivery of Tanks & other E&M Equipment / Material	53d	08-Jun-17	10-Aug-17	28d														
E&M Installation and T&C																			
S5009712	PWST: Install Hydro-pneumatic Tank(2 nos.)	9d	10-Aug-17	21-Aug-17	28d														
S5009714	PWST: E&M Installation to Water Tanks	10d	16-Aug-17	28-Aug-17	28d														
S5009720	PWST: Modify watermain connection to new structure	6d	21-Aug-17	28-Aug-17	28d														
S5009725	PWST: Site Acceptance Test (SAT)	20d	28-Aug-17	20-Sep-17	28d														
S5009730	PWST: Testing and Commissioning	25d	20-Sep-17	20-Oct-17	28d														
S5009740	PWST: Submit As-constructed Drawings	40d	01-Sep-17	19-Oct-17	29d														
External (Civil) Works																			
S5009970	Final Clearance before Handover	30d	13-Apr-17	22-May-17	112d														
S5009980	Submit As-constructed Drawings	60d	29-Apr-17	12-Jul-17	112d														
General Area																			
S5009832	Cable duct at portion 3 & 4	50d	01-Jun-16 A	14-Dec-16 A															
S5009838	Foul sewer & manholes F10 & F11 along area adjacent to gate 4	50d	08-Nov-16 A	25-Mar-17	112d														
S5009846	Storm water drainage & catch pit S8 along portion 5	50d	13-Feb-17	12-Apr-17	112d														
S5009866	PCCW cable duct & draw pit T1 & T2	48d	01-Jun-16 A	16-Dec-16 A															

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Updated Detail Works Programme Revision 3-B			
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Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	2017												2018	
						Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
S5009868	Storm water drainage & catch pits S10 & S10A	48d	01-Jun-16 A	23-Mar-17	308d	Storm water drainage & catch pits S10 & S10A													
S5009872	Sodium Hypochlorite Pipe in Chemical Trench	48d	01-Jun-16 A	20-May-17	308d	Sodium Hypochlorite Pipe in Chemical Trench													
S5009876	Sludge chamber No.1	48d	03-Jan-17*	03-Mar-17	0d	Sludge chamber No.1													
WB Area																			
S5009842	Storm water drainage & catch pit S41 & S43 around WB	47d	02-Dec-16 A	28-Jan-17	171d	Storm water drainage & catch pit S41 & S43 around WB													
SSCS Area																			
S5009878	Storm drainage and catch pits S23, S51A & S27	49d	01-Jun-16 A	25-Jan-17	78d	Storm drainage and catch pits S23, S51A & S27													
S5009882	Process watermain & chamber	49d	01-Jun-16 A	25-Mar-17	78d	Process watermain & chamber													
S5009884	Cable duct & draw pit P12A	49d	01-Jun-16 A	16-Dec-16 A		Cable duct & draw pit P12A													
PWST Area																			
S5009844	Storm water drainage & cable duct adjacent to PWST	47d	01-Jun-16 A	25-Jan-17	173d	Storm water drainage & cable duct adjacent to PWST													
Statutory Inspection and Training																			
E&M: Testing and Commissionings																			
S5010110	S5 Work: Submission of WWO46	43d	20-Sep-17	11-Nov-17	133d													S5 Work: Submission of WWO	
S5010120	S5 Work: Inspect Water Supply by WSD	30d	11-Nov-17	16-Dec-17	133d													S5 Work: Inspect V	
S5010130	S5 Work: Submission of FS Form 501	25d	11-Jul-17	08-Aug-17	36d													S5 Work: Submission of FS Form 501	
S5010140	S5 Work: Inspect FS Installation by FSD	12d	09-Aug-17	23-Aug-17	36d													S5 Work: Inspect FS Installation by FSD	
S5010150	S5 Work: Inspect DG Store by FSD	11d	31-Jul-17	12-Aug-17	36d													S5 Work: Inspect DG Store by FSD	
S5010210	S5 Work: Preparation & Submit Draft O&M Manuals	80d	29-Jun-17	03-Oct-17	115d													S5 Work: Preparation & Submit Draft O&M	
S5010220	S5 Work: Submit Training Programme and Syllabus	27d	03-Oct-17	04-Nov-17	115d													S5 Work: Submit Training Progra	
S5010230	S5 Work: Training of Employer Staff (3 Sessions)	53d	04-Nov-17	09-Jan-18	115d													S5 Work: T	
S5010250	S5: Preparation & Submit Modified O&M Manuals	53d	03-Feb-17	07-Apr-17	189d													S5: Preparation & Submit Modified O&M Manuals	
S5010260	S5: Preparation & Submit Final O&M Manuals	53d	03-Feb-17	07-Apr-17	189d													S5: Preparation & Submit Final O&M Manuals	

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