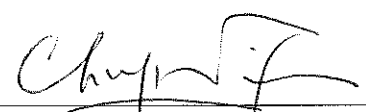


Sun Fook Kong – Biwater Joint Venture

**Contract No. DC/2009/10
HATS Stage 2A – Upgrading
Works at Stonecutters Island Sewage
Treatment Works - Main Pumping
Station, Sedimentation Tanks and
Ancillary Facilities**

**Quarterly Environmental
Monitoring and Audit Report**
April 2018 to June 2018

(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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Attn: Mr K K Kam

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

Our Reference
EC/AFK/DC/bw/
T261332/22.01/L-1370

**Contract No. DC/2009/10 – Upgrading Works at Stonecutters Island Sewage
Treatment Works – Main Pumping Station, Sedimentation Tanks and Ancillary
Facilities**

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Submission of 29th Quarterly EM&A Report for April to June 2018 (v1.0)

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9 January 2019

By Post

Dear Sir,

We refer to the Quarterly EM&A Report for April to June 2018 (v1.0) received on 8 January 2019 and we confirm that we have no comment.

Yours faithfully
for MOTT MACDONALD HONG KONG LIMITED



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c.c.

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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
SBJV	Sun Fook Kong - Biwater Joint Venture

EXECUTIVE SUMMARY

Introduction

1. This is the 29th Quarterly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for DSD Contract No. DC/2009/10 “HATS Stage 2A – Upgrading Works at Stonecutters Island Treatment Works – Main Pumping Station, Sedimentation Tanks and Ancillary Facilities” (The Project) which documents the key information of EM&A and environmental monitoring works undertaken at the SCISTW under HATS Stage 2A Environmental Permit (Permit No. EP-322/2008/G).
2. The site activities undertaken in the reporting quarter included:

April 2018:

Section 3 - MPS2

- Defects rectification for handover to ST2
- Installation of FRP platform and Handrailing in Inlet Chamber
- Fire detection system and sprinkler installation at MPS2
- Process water pipework modification for WSD connection works
- Weather Station and H2S Sensors installation

Section 5 – External works

- DN1200 NWK overflow pipes
- External underground drainage works and cable drawpits
- CLP trench modification

Section 5 - Polymer Storage Building

- Green Roof installation

Section 5 - (Refurbishment works)

- Synthetic timber Installation Chemical Dosing bldg and flow distribution chamber

Pump Upgrading

- Manufacturing of first pump propeller

May 2018:

Section 3 - MPS2

- Modification of FRP platform of MPS2
- Installation of Green Roof of MPS2
- Installation of polycarbonate sheet for car park cover outside MPS2
- Construction of Signage B near existing main entrance
- Formation work for pavement outside Riser Shaft

Section 5 – External works

- Replacement work for CLP Trench covers
- Completed painting works for wall of new transformer room

Section 5 - Polymer Storage Building

- Green Roof installation

Section 5 - (Refurbishment works)

- Synthetic timber Installation Chemical Dosing bldg and flow distribution chamber

Pump Upgrading

- Manufacturing of first pump propeller

June 2018:

Section 3 - MPS2

- Cleaning works for Wet Well B
- Green Roof of MPS2
- Rectification works for FSI

Riser Shaft

- Subbase formation work for pavement outside Riser Shaft

Overflow Chamber

- Install Overflow Pipes to Overflow Chamber
- Install DN1200 Overflow Pipes outside NaOCl
- CLP trench modification

Section 5 - Polymer Storage Building

- Subbase Formation of carriageway

Signage B

- Construction of Signage B near existing main entrance

Environmental Monitoring Works

- The environmental monitoring works conducted for the Project in this reporting quarterly period at air quality monitoring stations AM6a and noise monitoring stations NM5. Alternative location for AM6 was adopted in January 2016 as AM6a.
- All the environmental monitoring works were conducted 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.
- Summary of the non-compliance of the reporting quarter is tabulated in **Table I**.

Table I Summary Table for Non-compliance Recorded in the Reporting Quarter

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
	NM6	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
	AM8	1-hr TSP	0	0	0	0	N/A
		24-hr TSP	0	0	0	0	N/A

Remark

(*) Alternative location for AM6 was adopted in January 2016 as AM6a (Please refer to Section 2.2).

1-hour TSP Monitoring

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

24-hour TSP Monitoring

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

Construction Noise

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

Environmental Licenses and Permits

9. Licenses/Permits granted to the Project include the Environmental Permit (EP); Billing account for Disposal of Construction Waste, Registered as Chemical Waste Producer and Construction Noise Permits.

Environmental Mitigation Implementation Schedule

10. 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 G**.

Key Information in the Reporting Quarter

11. Summary of key information in the reporting quarter is tabulated in **Table II**.

Table II Summary Table for Key Information in the Reporting Quarter

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	0	---	N/A	N/A	---
Status of submissions covering the reporting quarter	3	Monthly EM&A Reports for March 2018 to May 2018	Submitted to IEC for verification	No Comment	---
Notifications of any summons & prosecutions received	0	---	N/A	N/A	---

Summary of Complaints and Prosecutions

12. No environmental complaint and prosecution was received for the Project in the reporting quarter.
13. There were no environmental complaint and prosecution received since the commencement of the Project. The Complaint Log is presented in **Appendix H**.
14. The environmental concerns in the coming months are mainly on chemicals and general refuse storage, on-site treatment of surface runoff and dust control.

1. INTRODUCTION

Background

- 1.1 The Project ‘HATS Stage 2A - Upgrading works at Stonecutters Island Treatment Works – Main Pumping Station, Sedimentation Tanks and Ancillary Facilities’ under Contract No: DC/2009/10 mainly comprises the construction of a large underground pumping station with an internal diameter of 55 metres and a depth of more than 40 metres, the provision of additional double-tray sedimentation tanks, a new computer control system, the expansion and modification of existing installations of the SCISTW as well as the construction of other ancillary facilities. 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 at SCISTW for HATS 2A is covered by 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 Since the Contracts DC/2009/05, DE/2009/02 and DC/2007/23 in the SCISTW had been substantial completed, the environmental monitoring works at NM5, NM6, AM6, AM7 and AM8 have since been handed over to the ET of DC/2009/10 from August and September 2012.
- 1.4 Sun Fook Kong -Biwater Joint Venture (hereafter called the SBJV) was commissioned by the DSD to undertake the construction of the Contract No.DC/2009/10 “HATS 2A – Upgrading works at Stonecutters Island Treatment Works – Main Pumping, Sedimentation Tanks and Ancillary Facilities”. The date of commencement of construction of the Project is 24th February 2011.
- 1.5 Cinotech Consultants Limited was commissioned by SBJV 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. The date of commencement of EM&A works is 14th April 2011.

Project Organizations

- 1.6 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	Principle Resident Engineer	2370 4311
		Ms. Natalie Kwok	ER’s Coordinator	2370 4356
Cinotech	Environmental Team	Dr. Priscilla Choy	ET Leader	2151 2089
		Mr. Victor Wong	Project Coordinator	2151 2078
Mott MacDonald	Independent Environmental Checker	Dr. Anne Kerr	Independent Environmental Checker	28285757

Party	Role	Name	Position	Phone No.
Sun Fook Kong -Biwater Joint Venture	Contractor	Mr. Keith Ho	Site Agent	2620 0070
		Mr. Leo Leung	Environmental Officer	2620 0070

Summary of EM&A Requirements

- 1.7 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.
- 1.8 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in **Section 4** of this report.
- 1.9 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 for April 2018 to June 2018.

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 Three designated monitoring stations, AM6a, AM7 and AM8 were selected for impact dust monitoring for the Project. 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**.

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
AM8		Block A of Government Dockyard

Monitoring Parameters, Frequency and Duration

- 2.3 **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 be referred to 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

- 2.4 The monitoring methodology and QA/QC procedures are presented in the DC/2009/10.
- 2.5 The general weather conditions (i.e. sunny, cloudy or rainy) were recorded by the field staff's observation on the monitoring day.

Results and Observations

- 2.6 All 1-hour and 24-hour TSP monitoring was conducted as scheduled in the reporting quarter. No Action/Limit Level exceedance was recorded. Summary of exceedance is presented in **Appendix B**.
- 2.7 The graphical plots of the 1-hour and 24-hour TSP monitoring results are shown in **Appendix C**.
- 2.8 According to field observations during site inspection, the identified dust sources at the monitoring stations were mainly from loading of material, vehicles movement and construction works of this Contract in site.

3. NOISE

Monitoring Requirements

- 3.1 Two noise monitoring stations, namely NM5 and NM6 was designated in the EM&A Manual for impact monitoring. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.
- 3.2 Monitoring station (NM6) serves as an alternative location for FSD Diving Rescue and Diving Training Centre which is regarded as a Noise Sensitive Receiver (NSR) as it is an institution. Monitoring station (NM6), was set up at the proposed location in accordance with the Monitoring Proposal submitted by ET of Contract DC/2009/05, as agreed by the ER and IEC.

Monitoring Locations

- 3.3 Noise monitoring was conducted at two designated monitoring stations 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
NM6		Customs' Marine Base (Block H of Government Dockyard) Rooftop

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 be referred to monthly reports of the respective contracts.

Table 3.2 Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Period	Frequency
NM5	$L_{eq}(30 \text{ min.})$ dB(A)	0700-1900 hrs. on weekdays	Weekly
NM6	$L_{eq}(5 \text{ min.})$ 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 could be referring to Section 3 of the monthly report for Contract DC/2009/10.

Results and Observations

- 3.6 The construction noise monitoring at the designated location was conducted by the ET of Contract DC/2009/10 as scheduled in the reporting quarter. The Graphical presentation of the noise monitoring result was shown in **Appendix D**.
- 3.7 No Action/Limit Level exceedance was recorded in the reporting quarter. Summary of exceedance is presented in **Appendix B**.

- 3.8 The major noise sources identified at the designated noise monitoring stations were generated by on-site vehicle movement and construction equipment from the Project. Noise sources of the construction activities from other Contracts in the Stonecutters Island STW have also been observed during the reporting quarter.

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 13 environmental site audits were conducted by ET and 3 IEC site audits were conducted for the Project in reporting quarter. No non-compliance was observed during the site audits.
- 4.3 Site inspections were undertaken to ensure and check that the implementation and maintenance of landscape and visual mitigation measures are being properly carried out in the reporting quarter in accordance to section 14.1 of the EM&A Manual. No non-compliance was observed during the site inspections.

Review of Environmental Monitoring Procedures

- 4.4 The monitoring works were conducted by the monitoring teams of Contracts DC/2009/10. The monitoring procedures have been reviewed monthly.

Status of Environmental Licensing and Permitting

- 4.5 All permits/licenses obtained for the Contract DC/2009/10 are summarized in **Table 4.1**.

Table 4.1 Summary of Environmental Licensing and Permit Status

Reference Number	Valid Period		Details	Status
	From	To		
<i>Water Discharge License</i>				
WT00023103-2015	19/1/2016	31/1/2021	The application was approved on 19-1-2016.	Valid
WT00024404-2016	19/5/2016	31/5/2021	The application was approved on 19-5-2016.	Valid
WT00025973-2016	22/11/2016	31/5/2021	The application was approved on 22/11/2016.	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

Waste Management Status

- 4.6 The amount of Inert and Non Inert wastes generated by the construction activities of the Project in the reporting quarter is summarized in the waste flow table as shown in **Appendix E**.

Implementation Status of Environmental Mitigation Measures

- 4.7 Details of the implementation of mitigation measures are provided in the **Appendix G**.
- 4.8 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 4.2a-c**.

Table 4.2a: Observations and Recommendations of Site Audits (April 2018)

Parameters	Ref. Number	Observations	Follow Up Action
Water Quality	180426-O01	Sediment near the drainage gully should be removed as inert waste (Portion 6)	Sediment trap for the drainage gully has been replaced.
Air Quality	180412-R01	Reminder: The exposed stockpile should be covered by impervious sheeting for dust suppression	The stockpile has been covered
Waste/ Chemical Management	180404-O01	General refuse and other waste should be sorted and disposed regularly (Portion 4).	The C&D waste was observed to be disposed properly
Landscape and Visual	180418-O01	C&D waste should be placed outside the tree protective zone (External works)	The identified waste has been removed; Fence for the tree protective zone has been re-established
Noise	N/A	There was no observation in the reporting month.	N/A
Permit/ Licenses	N/A	There was no observation in the reporting month.	N/A

Table 4.2b: Observations and Recommendations of Site Audits (May 2018)

Parameters	Ref. Number	Observations	Follow Up Action
Water Quality	N/A	There was no observation in the reporting month.	N/A
Air Quality	180510-R01	Reminder: Stockpile should be covered by impervious sheeting properly.	The stockpile has been covered
	180523-R01	Stockpile should be covered by impervious sheeting properly (Portion 4).	The stockpile has been covered
	180531-R01	Stockpile should be covered by impervious sheeting properly (Portion 4).	The stockpile has been covered.
Waste/ Chemical Management	180503-O01	General refuse and other waste should be sorted and disposed regularly (Portion 4, External works).	The identified general refuse has been cleared.
	180517-O01	General refuse should be cleared regularly (Portion 3).	Remarked as ref. no. 180607-O02
Landscape and Visual	N/A	There was no observation in the reporting month	N/A
Noise	N/A	There was no observation in the reporting month.	N/A
Permit/ Licenses	N/A	There was no observation in the reporting month.	N/A

Table 4.2c: Observations and Recommendations of Site Audits (June 2018)

Parameters	Ref. Number	Observations	Follow Up Action
Water Quality	N/A	There was no observation in the reporting month.	N/A
Air Quality	N/A	There was no observation in the reporting month.	N/A
Waste/ Chemical Management	180607-O01	General refuse and other waste should be sorted and disposed regularly (Portion 3).	The identified general refuse has been cleared.
Landscape and Visual	180607-O02	Fences should be erected around the retained tree.	Fences were provided around the retained tree.
Noise	N/A	There was no observation in the reporting month.	N/A
Permit/ Licenses	N/A	There was no observation in the reporting month.	N/A

Implementation Status of Event Action Plans

4.9 The Event Action Plans for air quality and noise are presented in **Appendix F**.

1-hr TSP

4.10 No Action/Limit Level exceedance was recorded in the reporting quarter.

24-hr TSP

4.11 No Action/Limit Level exceedance was recorded in the reporting quarter.

Construction Noise

4.12 No Action/Limit Level exceedance was recorded in the reporting quarter.

Landscape and Visual

4.13 No non-compliance was recorded in the reporting quarter.

Summary of Complaints and Prosecutions

4.14 No environmental complaint and prosecution was received for the Project in the reporting quarter.

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

5. FUTURE KEY ISSUES

Key Issues for the Coming Months

5.1 Key environmental issues in the coming months include:

- Storage of chemicals/fuel and chemical waste/waste oil on-site;
- Drainage system should be well designed and maintained to prevent flooding and silty water getting into the public area on rainy days;
- Leakage of oil from equipment;
- Generation of runoff during rainstorm;
- Dust generation should be mitigated by adequate water spraying, especially in dry days;
- Stockpile should be properly covered by tarpaulin to mitigate dust generation; and
- Silt and dust getting into the public area by the leaving site vehicles at the site exits without adequate wheel washing facilities.

Construction Program for the Coming Quarter

5.2 The tentative construction program is provided in **Appendix I**.

6. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 6.1 Environmental monitoring and audit works were performed in the reporting quarter 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 quarter. 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 quarter. No Action/Limit Level exceedance was recorded.

Construction Noise Monitoring

- 6.4 All construction noise monitoring was conducted as scheduled in the reporting quarter. No Action/Limit Level exceedance was recorded.

Environmental Audit

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

Complaint and Prosecution

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

Recommendations for the coming reporting months:

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

Air Quality

- To prohibit any open burning on site;
- To provide adequate water spray on site;
- To mitigate dust generation by adequate water spraying or covering by tarpaulin during dry days;
- To cover stockpile of excavated soil with tarpaulin to reduce dust generation;
- To regularly maintain the machinery and vehicles on site; and
- 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 sources inside the site;
- To follow up any exceedance caused by the construction works;
- To space out noisy equipment and position the equipment as far away as possible from sensitive receivers;
- To provide temporary noise barriers for operations of noisy equipment near the noise sensitive receivers in an appropriate location.
- To provide adequate lubricant on mechanical equipments to reduce frictional noise; and
- To well maintain the mechanical equipments / machineries to avoid abnormal noise nuisance.

Water Quality

- To identify any discharge of wastewater from the construction site;
- To provide adequate temporary drainage system with adequate capacity;
- To provide adequate wastewater treatment facilities to treat the wastewater generated during construction works and heavy rain;
- To properly cover the stockpile and slope to prevent the generation of surface runoff; and
- To avoid water accumulation on site and carry out larviciding against mosquito breeding for stagnant water when mosquito larvae are observed.

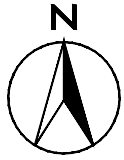
Waste/Chemical Management

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

Landscape and Visual

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

FIGURES



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



AIR QUALITY MONITORING
STATION



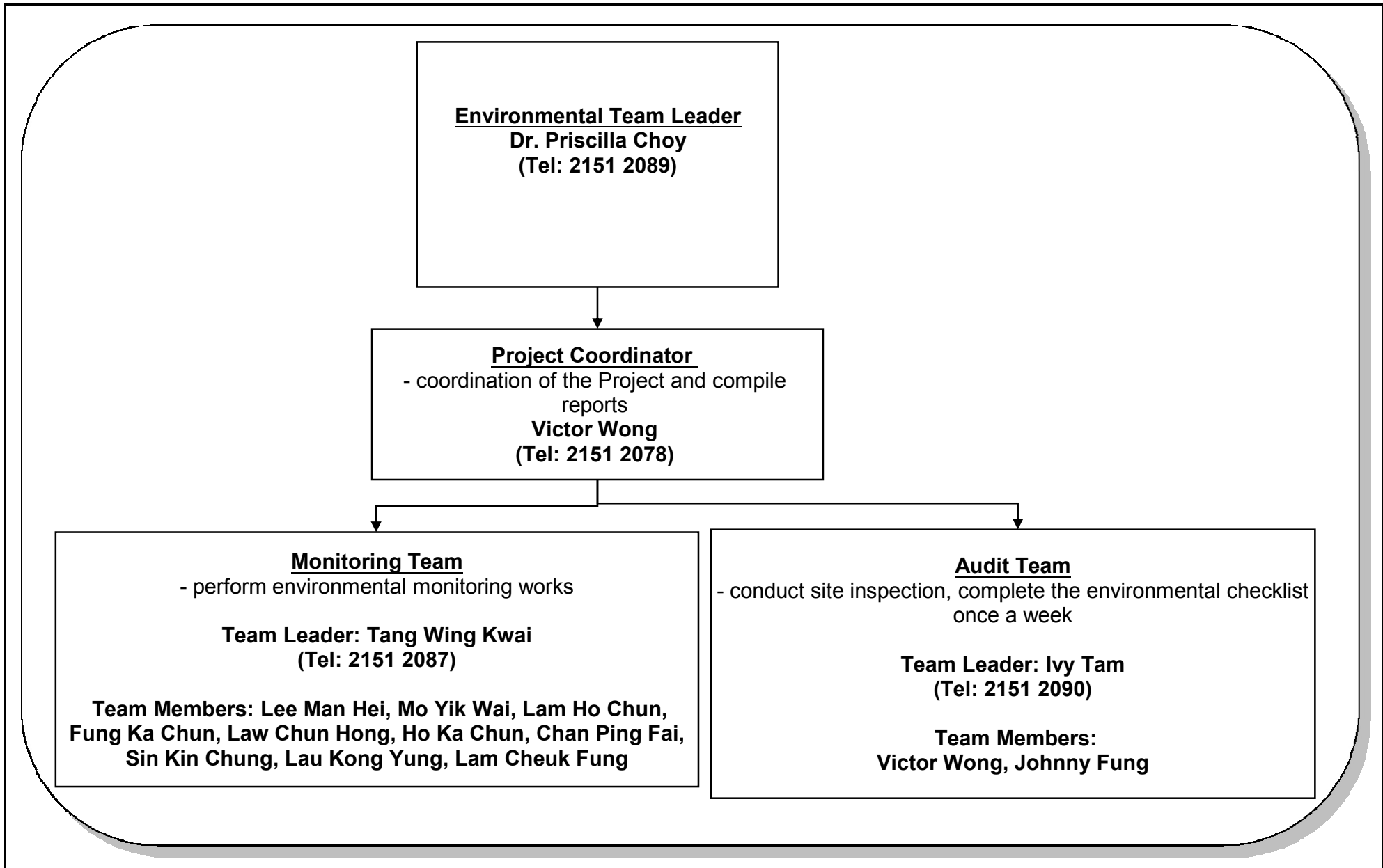
NOISE MONITORING STATION



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
			-	



Title	Contract No. DC/2009/10 HATS Stage 2A – Upgrading Works at SCISTW Main Pumping Station, Sedimentation Tanks and Ancillary Facilities ET's Organization Chart	Scale	Project	CINOTECH
		Version	Figure	
		N.T.S	MA11007	
		v.1	2	

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

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

Table A-2 Action and Limit Level for Construction Noise

Monitoring Stations	Time Period	Action Level	Limit Level in dB(A)
NM5 NM6	0700-1900 hours on normal weekdays	When one documented complaint is received	75
	Restricted Hours 0700-1900 of normal weekdays, public holiday and Sunday	--	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

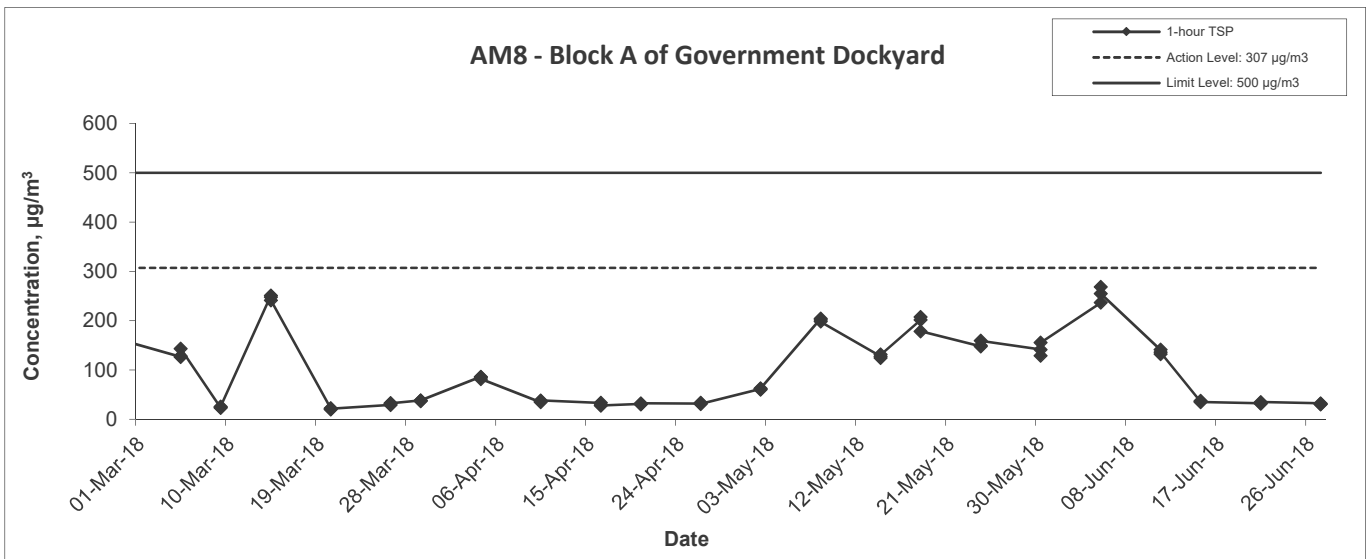
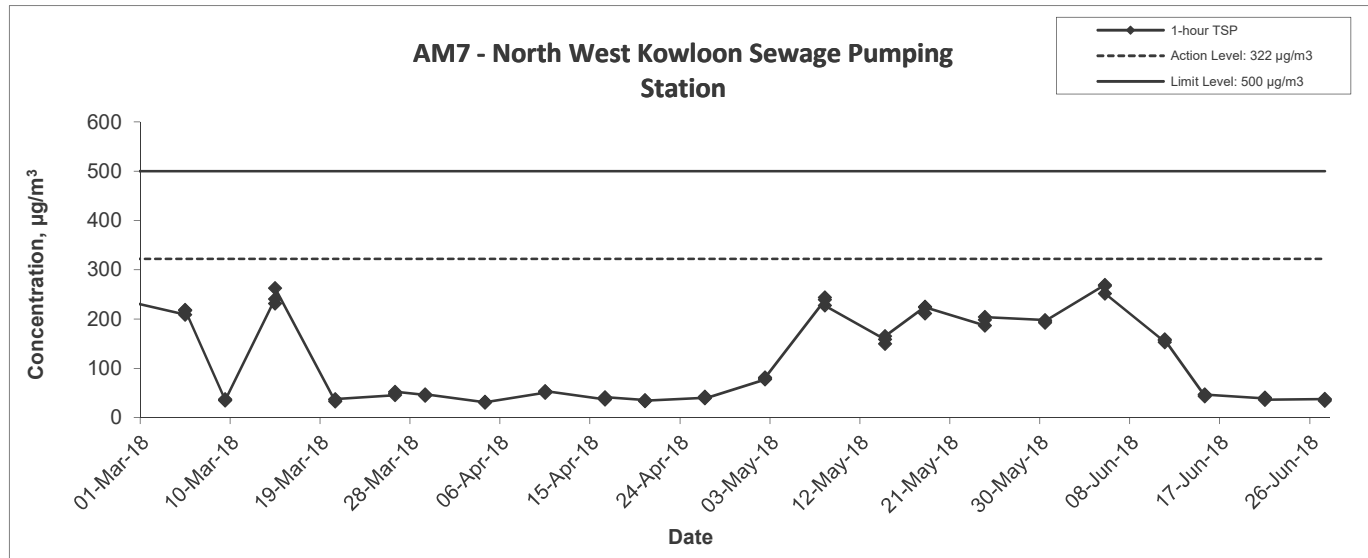
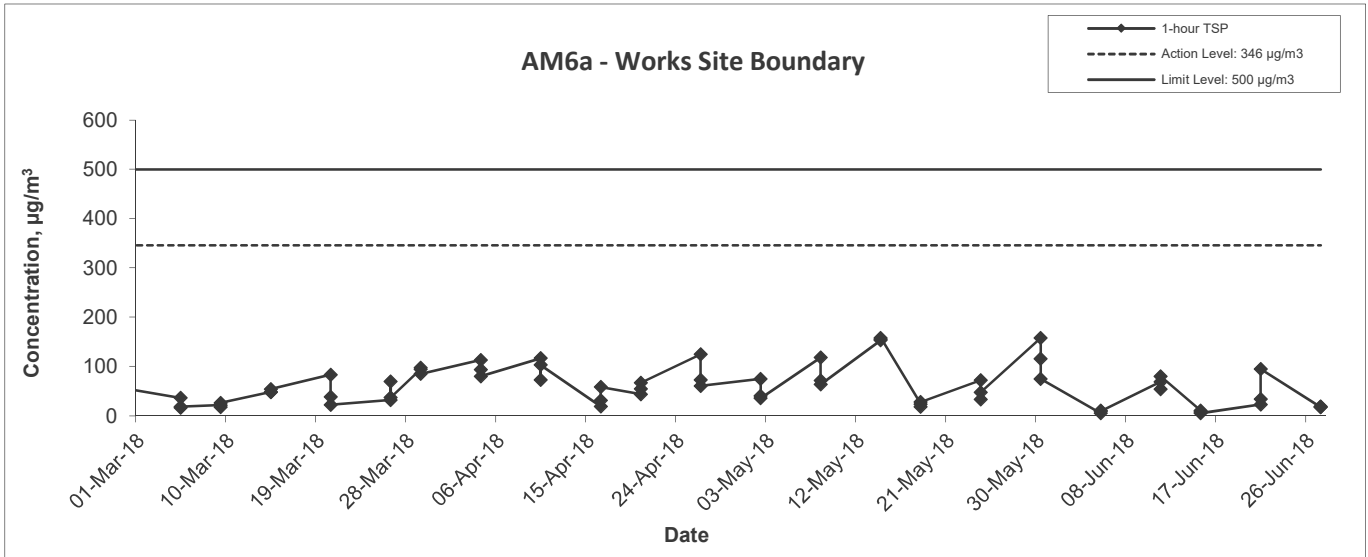
APPENDIX B – SUMMARY OF EXCEEDANCE

Reporting Quarterly: April 2018 to June 2018

- 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
1-HOUR AND 24-HOUR TSP
GRAPHICAL PRESENTATION**

1-hr TSP Concentration Levels



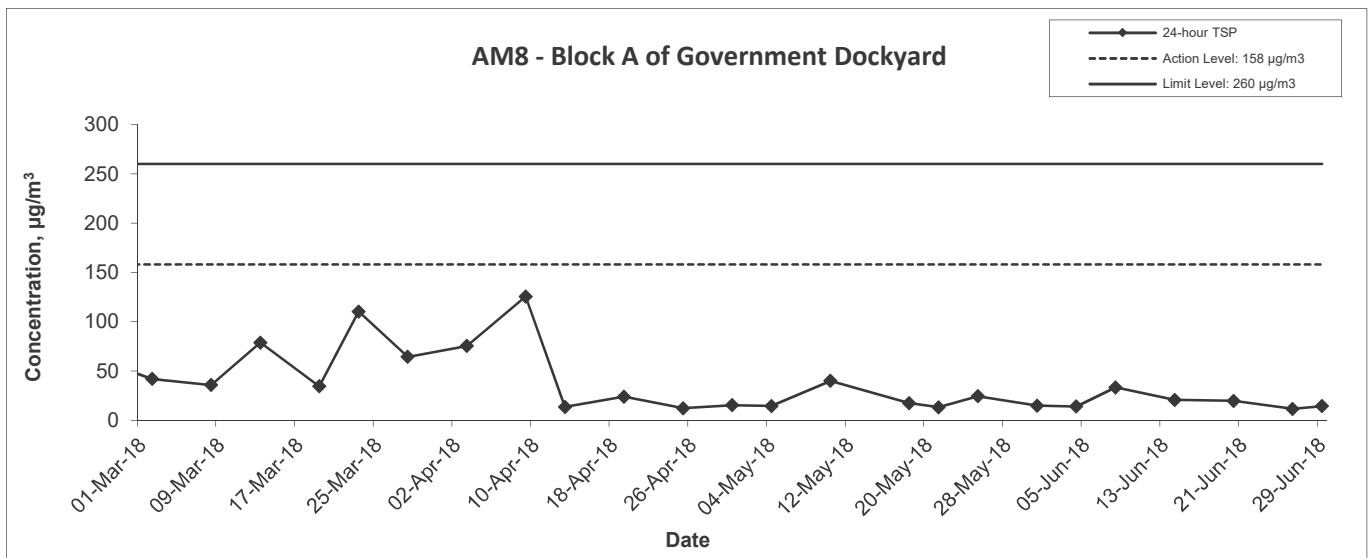
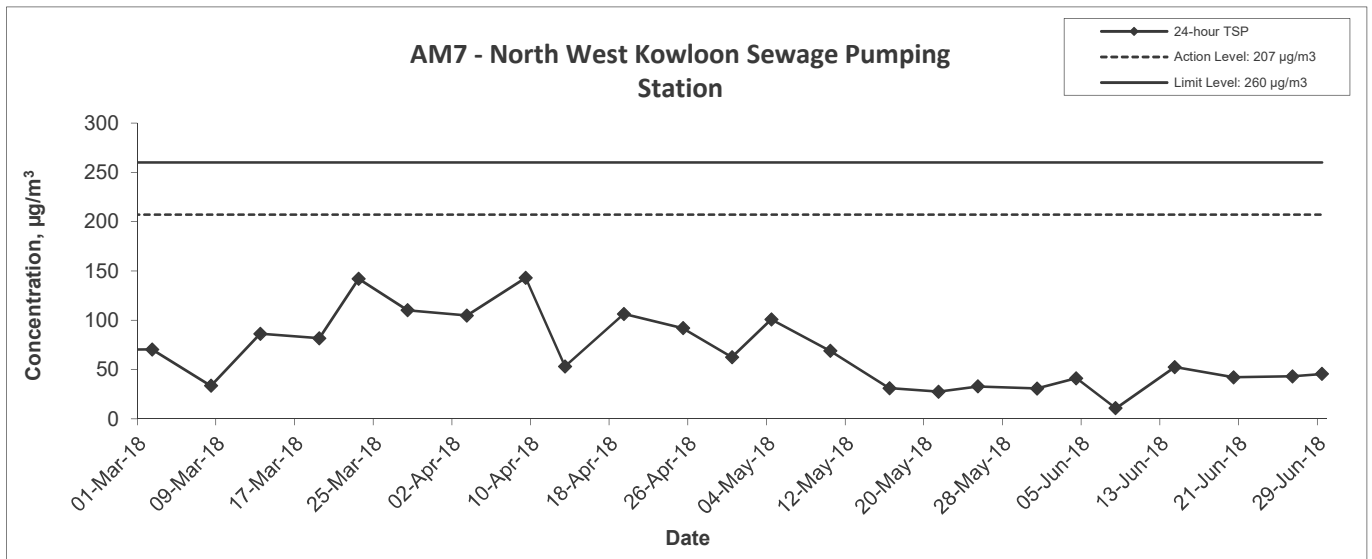
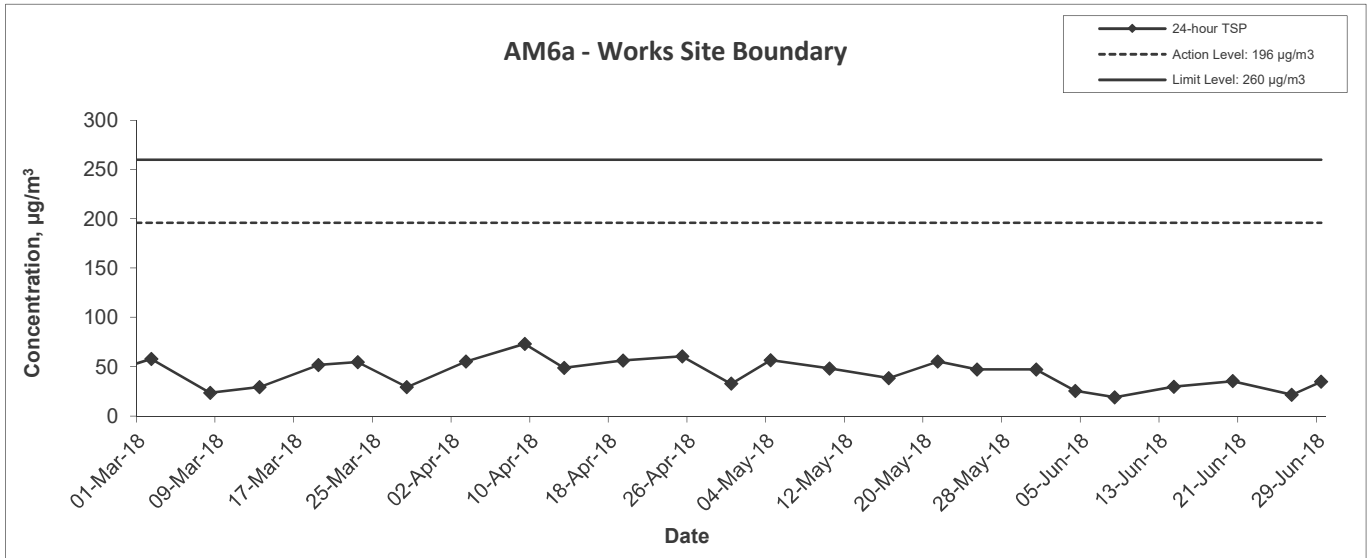
Title Contract No. DC/2009/10
 HATS 2A – Upgrading Works at SCISTW–
 Main Pumping Station, Sedimentation Tanks and Ancillary
 Graphical Presentation of 1-hour TSP Monitoring Results

Scale N.T.S
 Date Jun-18

Project No. MA11007
 Appendix



24-hr TSP Concentration Levels

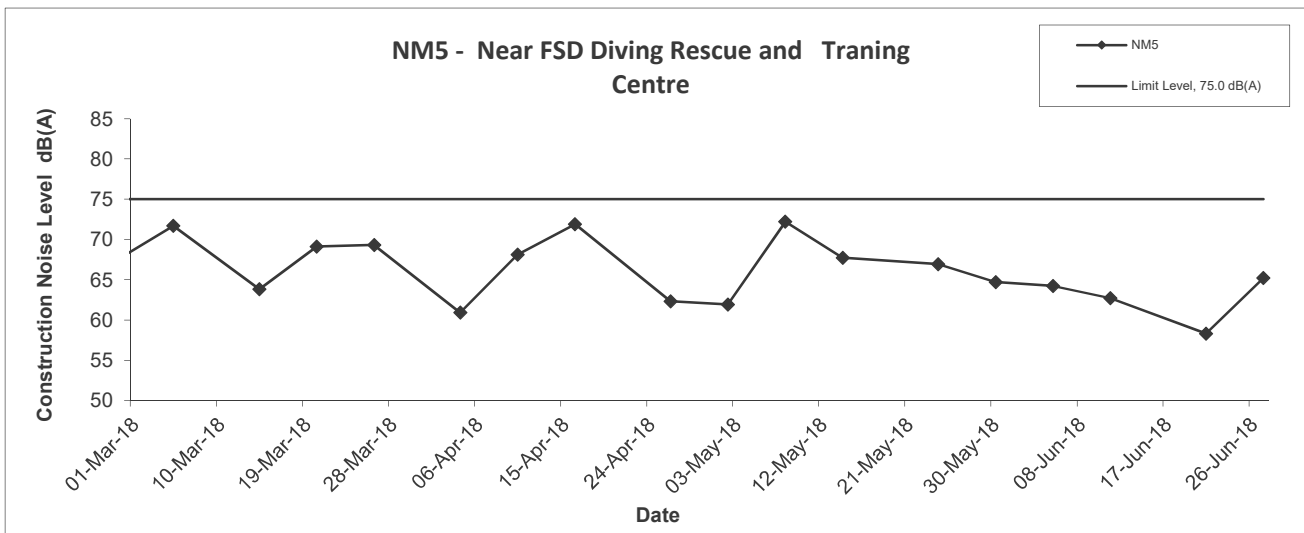
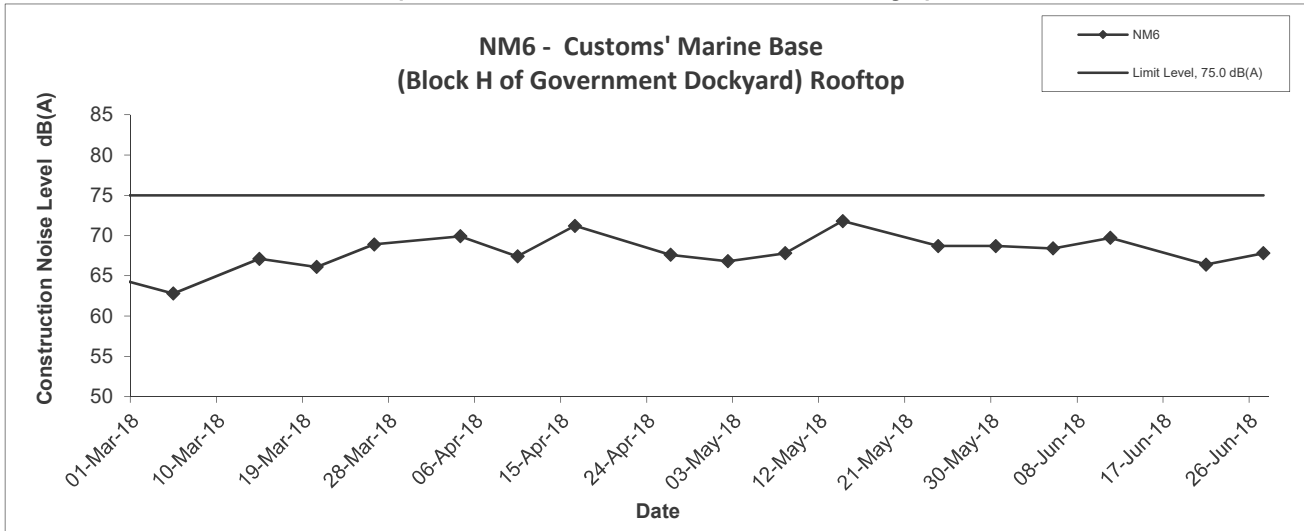


Title Contract No. DC/2009/10 HATS 2A – Upgrading Works at SCISTW– Main Pumping Station, Sedimentation Tanks and Ancillary Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA11007	
	Date Jun 18	Appendix -	

**APPENDIX D
NOISE MONITORING GRAPHICAL
PRESENTATIONS**

Noise Levels

(0700-1900 hrs on Normal Weekdays)



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	CINOTECH
	Date	Jun 18	Appendix		

**APPENDIX E
SUMMARY OF AMOUNT OF WASTE
GENERATED**

Name of Department: DSD

Contract No. : DC/2009/10

Monthly Summary Waste Flow Table for 2018 (year)

Month	Actual Quantities of inert C&D Materials Generated Monthly						Actual Quantities of C&D Materials Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard	Plastics (see Note 3)	Chemical Waste	Other, e.g. general refuse
	(In '000m ³)	(In '000m ³)	(In '000m ³)	(In '000m ³)	(In '000m ³)	(In '000m ³)	(In '000kg)	(In '000kg)	(In '000kg)	(In '000kg)	(In '000m ³)
Jan	0.182	0.182	0	0	0.182	0	0.000	0.000	0.000	0	0.005
Feb	0.008	0.008	0	0	0.008	0	0.000	0.000	0.000	0.18	0.008
Mar	0.203	0.203	0	0	0.203	0	0.000	0.000	0.000	0	0.007
Apr	0.204	0.204	0	0	0.204	0	0.000	1.180	0.000	0	0.011
May	0.206	0.206	0	0	0.206	0	0.000	0.000	0.000	0	0.003
June	0.129	0.129	0	0	0.129	0	0.000	0.000	0.000	0	0.003
Sub-total	0.932	0.932	0.000	0.000	0.932	0.000	0.000	1.180	0.000	0.180	0.037
July											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	0.932	0.932	0	0	0.932	0	0.000	1.180	0.000	0.18	0.037
Total throughout project year	58.284	58.284	0.000	0.000	58.284	0.000	372.871	9.348	3.314	2.227	1.918

- Notes:
- (1) The performance targets are given in PS Clause 25.41(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/foam from packaging material
 - (4) The conversion factor for tonne to m³ for inert C&D materials is 1.9 tonne/m³.
 - (5) The conversion factor for tonne to m³ for general refuse is 1.8 tonne/m³.

APPENDIX F
EVENT ACTION PLANS

APPENDIX F – Event / Action Plans

Table F-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

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 F-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 G
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)**

APPENDIX G 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 H
COMPLAINT LOG**

APPENDIX H – COMPLAINT LOG**Reporting Quarter:** April 2018 to June 2018

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 quarter.

APPENDIX I
CONSTRUCTION PROGRAMME

Activity ID	Activity Name	Activity % Complete	Original Duration	Start	Finish	2018				2019				2020		
						Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Target Works Programme (Completion for Section 3, 4 and 5)																
Works for Section 3																
MPS2																
Wet Well A																
Pump No. #4 (Hall A)																
A4710	Off site RTD repairing No. 4	0%	40	28-Mar-18	07-May-18											
A4730	Reinstall motor	0%	15	07-May-18	28-May-18											
Pump No. #1 (Hall A)																
A8460	Installation pipe clamps at DN1400 Suction DI pipe at Pump hall level (under monitoring)	80%	100	14-Sep-17 A	24-Jan-18											
Vibration monitoring system (VMS)																
A8965	Rectification works of VMS (Hall A)	15%	45	25-Dec-17 A	15-Feb-18											
A8970	Verification of site installation of VMS (30 days observation- Hall A)	0%	30	15-Feb-18	17-Mar-18											
Discharge Channel and Wet well inspection																
A8480	Isolation of MPS2 (B) by closing DN3000 KGV and stoplogs	0%	5	13-Mar-18	19-Mar-18											
A8490	Wet well B cleansing	0%	35	19-Mar-18	03-May-18											
A9300	Erect scaffold for Sparge System pipes material change	0%	18	03-May-18	25-May-18											
A9390	Dismantling of DI pipes of sparging system	0%	12	25-May-18	08-Jun-18											
A9610	Replace Stainless steel pipe for sparging system	0%	30	08-Jun-18	16-Jul-18											
A9615	Enhancement works for PVC lining inside Wet well (B)	0%	12	16-Jul-18	30-Jul-18											
A9630	SAT for sparging system	0%	18	30-Jul-18	20-Aug-18											
Process water system (Flushing water and cooling water)																
A8560	Re-submit and Approval of WSD WWO542 for flushing water supply	0%	30	22-Jan-18*	28-Feb-18											
A9410	Ordering and delivery of DN150 DI pipes for replacement	30%	20	03-Jan-18 A	17-Jan-18											
A9420	Replacement of existing S.S. pipe to DI pipes	0%	24	18-Jan-18	14-Feb-18											
A9430	Hydraulic Testing of pipelines	0%	6	15-Feb-18	24-Feb-18											
A9440	DCS test for cooling system	0%	24	26-Feb-18	24-Mar-18											
A9450	Application of WSD WWO46 and water meter connection	0%	45	26-Feb-18	23-Apr-18											
F.S system (Office level, FS pump room)																
A8380	Application of WSD WWO46 for FS Water connection	75%	60	19-Jul-17 A	18-Jan-18											
A8580	Modification works of FS sprinkler in Ground floor external wall	90%	15	11-Dec-17 A	03-Jan-18											
A9460	Install Beam detection fire system in G/Fand B/4	35%	12	26-Dec-17 A	10-Jan-18											
A9470	Install smoke detection fire system in B/3 and B/2	60%	12	08-Dec-17 A	06-Jan-18											
A9480	Testing and commissioning	0%	5	10-Jan-18	16-Jan-18											
A9490	scaffolding dismantling	0%	10	15-Jan-18	26-Jan-18											
A9500	Submission of FS501/314	0%	0		19-Jan-18*											
A9510	FSD inspection	0%	10	01-Feb-18	12-Feb-18											
Documentation																
A8750	As-built drawings for MPS2	65%	180	19-Jun-17 A	19-Mar-18											
A8760	Final version of O&M manual for MPS2	85%	90	19-Jun-17 A	17-Jan-18											
A8770	Final Version of Training material for MPS2	0%	30	02-Jan-18	05-Feb-18											
A8774	Training to DSD/ST2	0%	90	16-Apr-18*	01-Aug-18											
A8780	Handover inspection to DSD/ST2	0%	12	17-May-18	31-May-18											
A8790	Handover of spare part to DSD/ST2	0%	18	01-Jun-18	22-Jun-18											
A8800	Handover of MPS2 to DSD/ST2	0%	0		20-Aug-18											
New CEPT																
Sludge Scrapers/ Collection system																
A5995	Visa application for Polychem Engineer	15%	45	13-Dec-17 A	15-Feb-18											
A6005	Programme download and site trial	0%	6	15-Feb-18	26-Feb-18											
A6008	Testing and commissioning	0%	12	26-Feb-18	12-Mar-18											
A6010	RT of FMM system of PSTs and FTs	0%	30	12-Mar-18	11-Apr-18											
A6020	Rectification works for sludge scraper at FT5	15%	24	27-Dec-17 A	25-Jan-18											
A6030	Rectification works for sludge scraper at FT6	0%	24	13-Mar-18	14-Apr-18											
A8510	Install temporary pipelines for sludge pump test	0%	7	19-Mar-18	27-Mar-18											
A9400	SAT for sludge pump 1,2	0%	2	27-Mar-18	29-Mar-18											
A9640	Install temporary pipelines for sludge pump test	0%	7	14-Apr-18	23-Apr-18											
A9890	SAT for Sludge Pump 5,6	0%	1	23-Apr-18	24-Apr-18											
FeCl3 Dosing System																
A9520	Corrective maintenance of FeCl3 pumpset	0%	45	29-Jan-18*	24-Mar-18											
A9530	Install servo actuator to FeCl3 dosing system (VO)	0%	60	13-Mar-18	28-May-18											
A9540	DSC test for installed equipment (VO)	0%	24	28-May-18	26-Jun-18											
Process Air System																
A5550	SAT for S.S. pipeworks after strenghtening works	0%	18	22-Jan-18*	10-Feb-18											
Lifting appliance																
A9650	Lightning protection installation	0%	24	12-Mar-18*	12-Apr-18											
Documentation																
A8835	Training Session to DSD/ST2	65%	120	01-Nov-17 A	22-Feb-18											
A8840	Handover inspection to DSD/ST2	0%	12	24-Apr-18	08-May-18											
A8850	Handover of CEPT to DSD/ST2	0%	0		08-May-18											
Inlet Chamber																
A9550	Relocation flushing valve onto access platform (VO)	0%	18	22-Jan-18*	10-Feb-18											
A9560	DCS SAT for flushing system of 3.6KGV	0%	24	27-Mar-18	30-Apr-18											
E&M installation																
A8230	Installation of monorail lifting appliances	0%	30	15-Jan-18*	21-Feb-18											
A8240	T&C of monorail lifting appliances	0%	3	22-Feb-18	24-Feb-18											

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

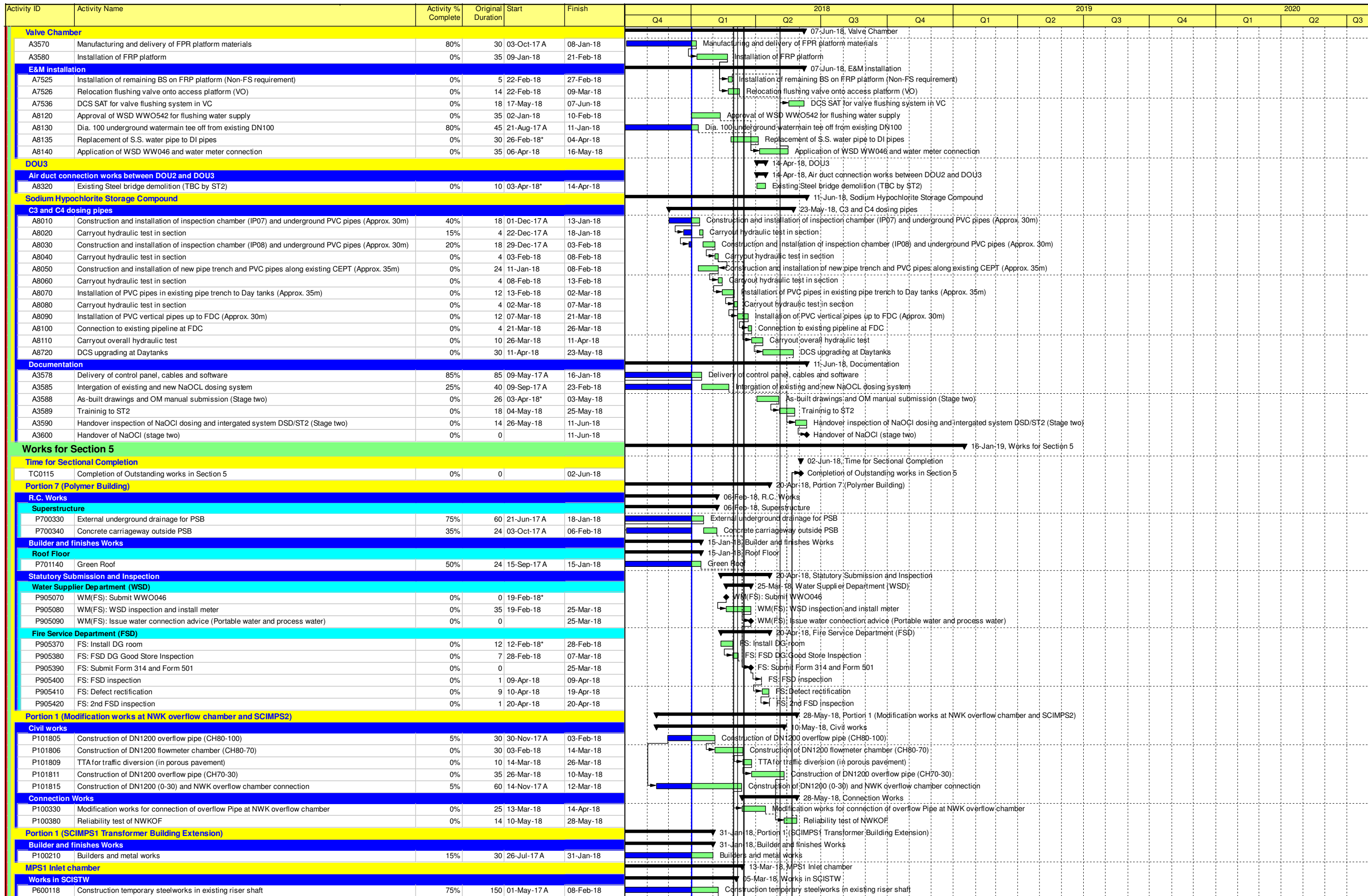
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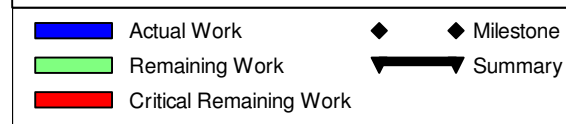
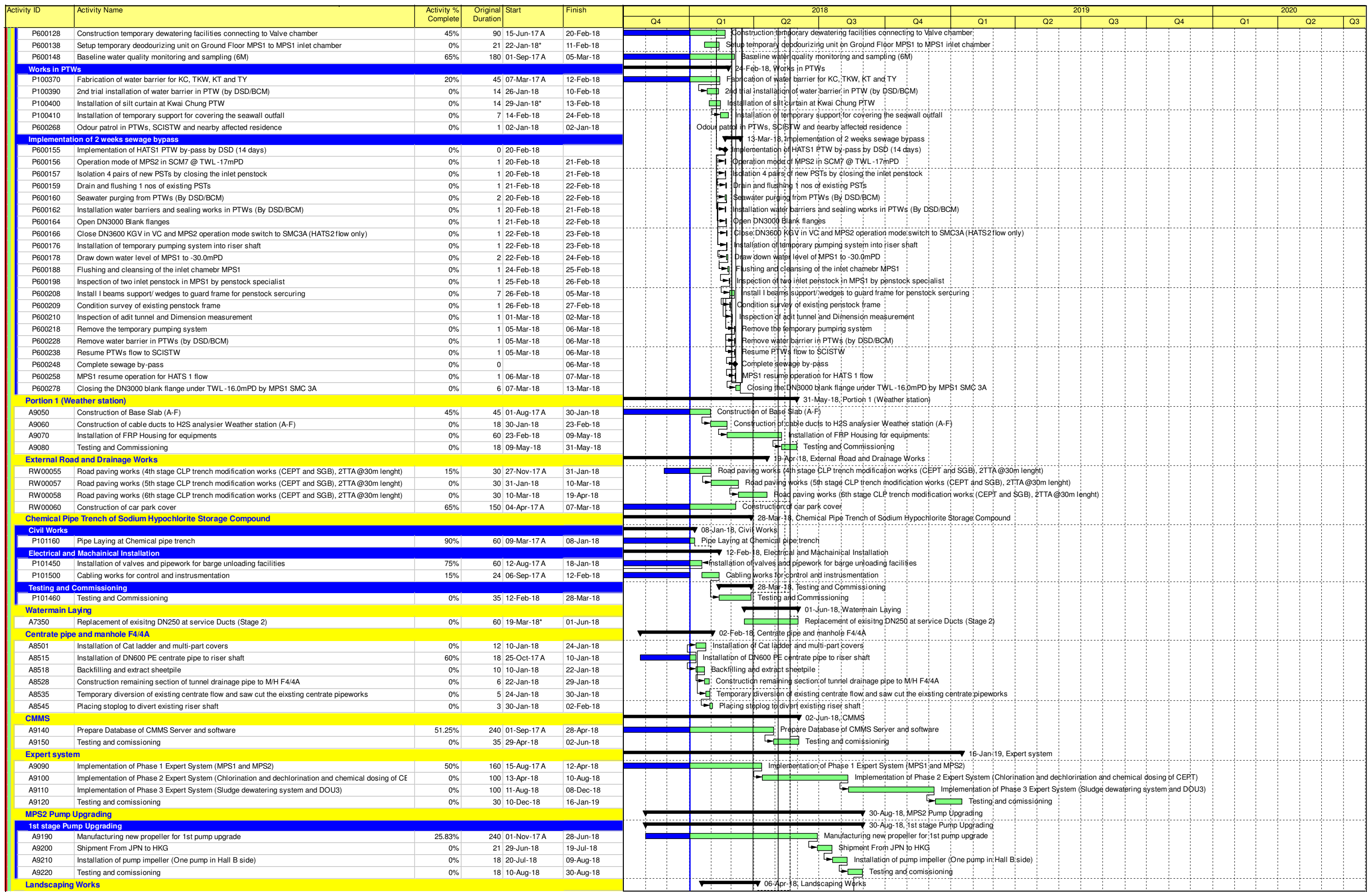
Sheet 1 of 5

Date	Revision	Checked	Approved
06-Sep-17	Rev. 1		

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

Target Works Programme for Completion of Section 3, 4 and 5



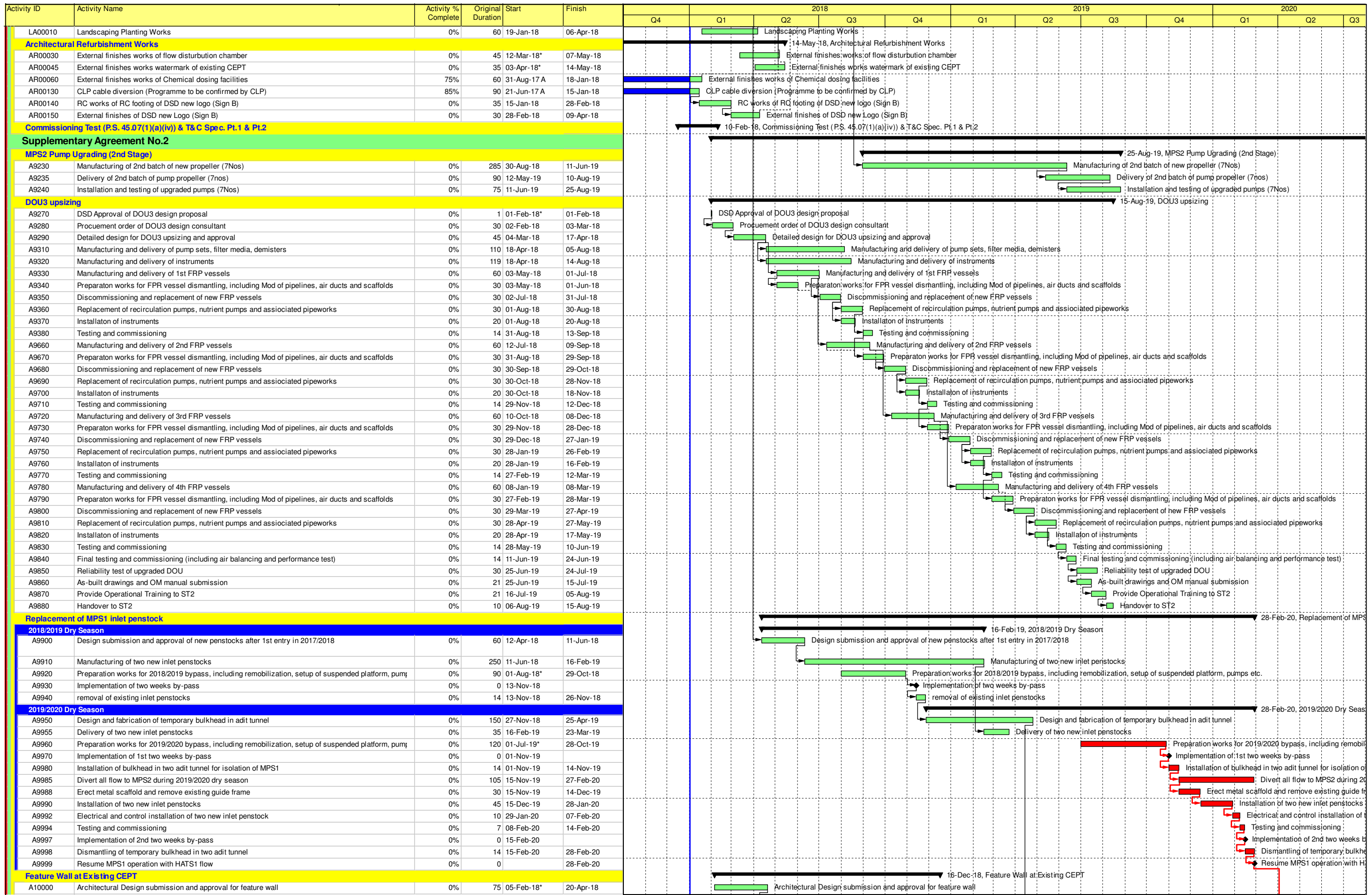


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Date	Revision	Checked	Approved
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HATS Stage 2A - Upgrading works at StoneCutters Island Sewage Treatment Works
Target Works Programme for Completion of Section 3, 4 and 5



■ Actual Work
 ■ Remaining Work
 ■ Critical Remaining Work
 ◆ Milestone
 ▼ Summary

Date	Revision	Checked	Approved
06-Sep-17	Rev. 1		

Activity ID	Activity Name	Activity % Complete	Original Duration	Start	Finish	2018				2019				2020				
						Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	
A10010	Design and construction of architectural features installation	0%	240	21-Apr-18	16-Dec-18													
Existing Riser shaft																		
A10020	RC design for top slab of existing riser shaft	0%	90	26-Apr-19	24-Jul-19													
A10030	Cosntruction top slab of existing riser shaft	0%	120	14-Apr-20	11-Aug-20													

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

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

Target Works Programme for Completion of Section 3, 4 and 5