


Drainage Services Department
Advance Works for Shek Wu Hui Sewage
Treatment Works – Further Expansion Phase 1A

Monthly EM&A Report

(October 2018)

Verified by : Mr. Adi Lee 

Position : Independent Environmental Checker

Date : 16 Nov 2018

Drainage Services Department
**Advance Works for Shek Wu Hui Sewage
Treatment Works – Further Expansion Phase 1A**

Monthly EM&A Report

(October 2018)

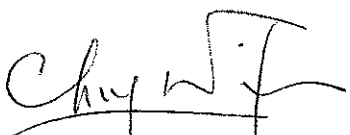

Certified by : Dr. Priscilla Choy
Position : Environmental Team Leader of
Contract No. DE/2014/01
Date : 14th November 2018

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1. EXECUTIVE SUMMARY

This is the Monthly EM&A Report for the Project which summarises the EM&A works undertaken by the Contractor's ET of Contract No. DE/2014/01 under FEP No. FEP-02/474/2013 in October 2018 (the reporting period).

1.1 Summary of Major Construction Works taken in the Reporting Period

1.1.1 In the reporting period, the major construction works being undertaken by the respective Contractors under the Project are summarized in the below table.

Works Contract	Contract Title	Major Construction Works
DC/2013/09	Advance Works for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A and Sewerage Works at Ping Che Road	The major construction works under Contract No. DC/2013/09 has been certified as substantially completed by DSD.
DE/2014/01	Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A – Advance Works and Ng Chow South Road Sewage Pumping Station	<ul style="list-style-type: none"> • Installation of Building Services at MBR Facilities Building. • Mechanical Installation of Air Blowers and associated accessories at 1/F, MBR Facilities Building. • Mechanical Installation of MBR Pre-treatment Screen Facilities. • Mechanical Installation in Bioreactor No.1 (BR1). • Electrical Installation in 3.3kV HV Switchroom and Transformer Room No.2 at 1/F, MBR Facilities Building. • Electrical Installation in LV Switchroom and 11kV HV Switchroom at G/F, MBR Facilities Building. • Electrical Installation in LV Switchroom No.3. • Installation of Deodorising System at G/F, MBR Facilities Building.

1.2 Environmental Monitoring and Audit Activities

1.2.1 The environmental monitoring activities under the EM&A programme are summarized in the below table. No Action and Limit Level exceedance of air quality and construction noise monitoring was recorded during the reporting period.

Environmental Issue	Environmental Monitoring Parameters / Inspection	Occasions	Action Level Exceedance	Limit Level Exceedance
Air Quality	1-hour TSP	30	0	0
	24-hour TSP	12	0	0
Construction Noise	L _{Aeq(30min)} Daytime	8	0	0

1.3 Environmental Complaint

- 1.3.1 No environmental complaint, notification of summons or successful prosecutions were received during the reporting period. It is summarized in the below table.

Works Contract	Environmental Complaints	Notification of Summons	Successful Prosecutions	Status / Follow-up Actions
DC/2013/09	0	0	0	N/A
DE/2014/01	0	0	0	N/A

1.4 Site Inspection

- 1.4.1 Joint site inspections to evaluate the site environmental performance by the RE, the ET and the Contractor were carried out on the following dates during the reporting period.

Contract No. DC/2013/09: No site inspection was carried out in the reporting period

Contract No. DE/2014/01: 4, 11, 18 and 25 October 2018

- 1.4.2 IEC conducted site audit on 11 October 2018. No environmental non-compliance was identified in the reporting period.

1.5 Reporting Changes

- 1.5.1 The EM&A Programme of Contract No. DC/2013/09 was handed over to the ET of Contract No. DE/2014/01 since August 2018. Thus, the Monthly EM&A Report starting from September 2018 onwards will present the EM&A works undertaken by the ET of Contract No. DE/2014/01.

1.6 Future Key Issues

1.6.1 Key issues to be considered in the next reporting period for the Project are as follows:

Works Contract	Major Construction Works	Potential Pollution Issues	Mitigation Measures
DC/2013/09	The construction works have been certified as substantially completed by DSD.	N/A	N/A
DE/2014/01	<ul style="list-style-type: none"> • Installation of Building Services at MBR Facilities Building. • Mechanical Installation of Air Blowers and associated accessories at 1/F, MBR Facilities Building. • Mechanical Installation of MBR Pre-treatment Screen Facilities. • Mechanical Installation in Bioreactor No.1 (BR.1). • Electrical Installation in 3.3kV HV Switchroom and Transformer Room No.2 at 1/F, MBR Facilities Building. • Electrical Installation in LV Switchroom and 11kV HV Switchroom at G/F, MBR Facilities Building. • Electrical Installation in LV Switchroom No.3. • Installation of Deodorising System at G/F, MBR Facilities Building. • Mechanical Installation in Chemical Rooms. 	<ul style="list-style-type: none"> • Storage of chemicals containers • Waste accumulation on site • Silt and dust getting into the public area by the leaving site vehicles at the site exits without adequate wheel washing facilities 	<ul style="list-style-type: none"> • Waste should be disposed properly and avoid accumulation • Accumulated materials to be recycled on-site • Wheel washing should be provided to vehicles before leaving the site area

2. INTRODUCTION

2.1 Background

- 2.1.1 The existing Shek Wu Hui Sewage Treatment Works (SWHSTW) is operated and maintained by the Drainage Services Department (DSD). It provides secondary level treatment to sewage collected from Sheung Shui, Fanling and adjacent areas, with design capacity of 93,000m³/day at ADWF.
- 2.1.2 To cope with the latest population growth and new developments in the catchment, further expansion of SWHSTW is planned to be carried out in three phases, namely Phases 1A, 1B and 2. Further Expansion Phase 1A is to cope with the forecast increase in sewage flow from local developments and extension of village sewerage in Sheung Shui, Fanling and adjacent areas. The scope of the Phase 1A Project comprises the followings:
- (a) the construction of proposed treatment facilities to increase the treatment capacity of SWHSTW by at least 40,000m³/day with tertiary treatment level, with suitable allowance to cater for a further increase of treatment capacity by 20,000m³/day in Phase 1B; and
 - (b) modification/upgrading of the existing facilities of SWHSTW.
- 2.1.3 To cope with the projected sewage flow buildup and meet the tight implementation programme, Advance Works for SWHSTW Further Expansion Phase 1A (hereinafter referred as “the Project”) are proposed to be carried out between 2015 and 2018. The Phase 1A Advance Works comprise a civil works contract and an Electrical & Mechanical (E&M) works contract. The civil works Contract No. DC/2013/09 “Advance Works for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A and Sewerage Works at Ping Che Road” is supervised by the Sewerage Projects Division (SPD) of DSD. The E&M works Contract No. DE/2014/01 “Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A – Advance Works and Ng Chow South Road Sewage Pumping Station” is supervised by the Electrical & Mechanical Projects Division (E&MPD) of DSD.
- 2.1.4 The scope of Phase 1A Advance Works comprises the followings:
- (a) the conversion of one existing bioreactor (BR1) and two existing final sedimentation tanks (FST1 and FST2) into one membrane bioreactor; and
 - (b) the ancillary works.
- 2.1.5 This Project is a part of designated project under item F.2 of Part 1, Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance. The EIA for the further expansion of SWHSTW Phases 1A, 1B and 2 is covered under the EIA Report of NENT NDAs (Register No. AEIAR-175-2013).
- 2.1.6 An Environment Permit (EP) No. EP-474/2013 for the further expansion of SWHSTW Phases 1A, 1B and 2 was issued by EPD to CEDD on 21 November 2013. On 23 January 2014, Further Environmental Permit (FEP) No. FEP-01/474/2013 was issued by EPD to DSD for the further expansion of SWHSTW Phase 1A works. On 15 February 2018, FEP No. FEP-02/474/2013 was issued by EPD to DSD covering the upgrading works of SWHSTW Phases 1A, 1B and 2.
- 2.1.7 With the issue of FEP No. FEP-02/474/2013, DSD has surrendered FEP No. FEP-01/474/2013 on 15 August 2018 which covering Phase 1A works only.

2.2 Project Programme

Two construction works contracts of the Project, i.e. civil works and E&M works, were commenced in October 2015 and October 2017 respectively. The major construction works under Contract No. DC/2013/09 has been certified as substantially completed by DSD and the remaining work is completed by the end of July 2018. The works of Contract No. DE/2014/01 is completed in early 2019 tentatively. *Table 2.1* summarises the information of the awarded Works Contracts.

Table 2.1 Summary of Awarded Works Contracts

Works Contract	Description	Construction Start Date	Contractor	Environmental Team
DC/2013/09	Advance Works for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A and Sewerage Works at Ping Che Road	October 2015	Tsun Yip Waterworks Construction Co Ltd (Tsun Yip)	Action-United Environmental Services & Consulting (AUES)
DE/2014/01	Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A – Advance Works and Ng Chow South Road Sewage Pumping Station	October 2017	Jardine Engineering Corporation Limited (JEC)	Cinotech Consultants Limited (Cinotech)

2.3 Purpose of the Report

- 2.3.1 The Environmental Monitoring and Audit (EM&A) programme for Contract No. DC/2013/09 and No. DE/2014/01 commenced in October 2015 and October 2017 respectively. This is the Monthly EM&A Report for the Project which summarises the EM&A works undertaken by the Contractor's ET of Contract No. DE/2014/01 in October 2018 (the reporting period).

2.4 Project Organization

Organization structure and contact details of relevant parties with respect to on-site environmental management are shown in *Table 2.2* below.

Table 2.2 Key Project Contacts

Works Contract	Organization	Role	Name	Tel No.
DC/2013/09	DSD	Resident Engineer	Ms. Konica Cheung	2594 7463
	ANewR Consulting Limited	Independent Environmental Checker	Mr. Adi Lee	2618 2836
		Site Agent	Mr. Ken Wong	9161 9627
	Tsun Yip	Environmental Officer	Mr. M. T. Ho	9507 9634
		Environmental Team Leader	Mr. T. W. Tam	2959 6059
DE/2014/01	DSD	Resident Engineer	Mr. Fong Mo	2594 7329
	ANewR Consulting Limited	Independent Environmental Checker	Mr. Adi Lee	2618 2836
		Project Manager	Mr. Kim Hung Lau	2947 1125
	JEC	Environmental Officer	Mr. George Ng	2947 1125
		Environmental Team Leader	Dr. Priscilla Choy	2151 2089

3. ENVIRONMENTAL MONITORING AND AUDIT

- 3.1 The Project has been divided into two construction works contracts which are covered by EP No. EP-474/2013 and FEP No. FEP-02/474/2013. As per the EP Conditions, EM&A Report for Works Contract No. DE/2014/01 prepared by the Contractor’s ET is provided in *Appendix A*.
- 3.2 The EM&A Report provides details of the project information, EM&A requirements, impact monitoring and audit results for the corresponding Contracts.
- 3.3 A summary of the major construction activities undertaken by the respective Contractors of various Works Contracts during the reporting period are presented in *Table 3.1*.

Table 3.1 Summary of Major Construction Activities in the Reporting Period

Works Contract	Contract Title	Major Construction Works
DC/2013/09	Advance Works for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A and Sewerage Works at Ping Che Road	The major construction works under Contract No. DC/2013/09 has been certified as substantially completed by DSD.
DE/2014/01	Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A – Advance Works and Ng Chow South Road Sewage Pumping Station	<ul style="list-style-type: none"> • Installation of Building Services at MBR Facilities Building. • Mechanical Installation of Air Blowers and associated accessories at 1/F, MBR Facilities Building. • Mechanical Installation of MBR Pre-treatment Screen Facilities. • Mechanical Installation in Bioreactor No.1 (BR1). • Electrical Installation in 3.3kV HV Switchroom and Transformer Room No.2 at 1/F, MBR Facilities Building. • Electrical Installation in LV Switchroom and 11kV HV Switchroom at G/F, MBR Facilities Building. • Electrical Installation in LV Switchroom No.3. • Installation of Deodorising System at G/F, MBR Facilities Building.

- 3.4 As the major construction works under Contract No. DC/2013/09 has been certified as substantially completed by DSD and the remaining work is completed by the end of July 2018, air quality and construction noise monitoring have been handed over to the ET of Contract No. DE/2014/01.
- 3.5 Impact monitoring for air quality and construction noise were conducted in accordance with the Updated EM&A Manual in the reporting period. The monitoring results conducted by the ET of Contract No. DE/2014/01 for this reporting month are summarised in *Tables 3.2 to 3.4*. Details of the monitoring requirements, locations, equipment, methodology and QA/QC procedures are presented in the Monthly EM&A Report of Contract No. DE/2014/01 as provided in *Appendix A*.

3.6 No Action and Limit Level exceedance of air quality and construction noise monitoring was recorded during the reporting period.

Table 3.2 Summary of 1-Hour TSP Monitoring Results in the Reporting Period

Monitoring Station ID	Location	TSP Concentration (mg/m ³)	Action Level (mg/m ³)	Limit Level (mg/m ³)	Exceedance due to the Project Construction (Yes/No)
AM1	No. 31 Wai Loi Tsuen	20.2 – 93.2	286	500	No
AM2	Fu Tei Au	20.3 – 75.9	276	500	No

Note:

- (1) The environmental monitoring works of the Project were conducted by the Environmental Team of Contract No. DE/2014/01 in accordance with the Updated EM&A Manual.

Table 3.3 Summary of 24-Hour TSP Monitoring Results in the Reporting Period

Monitoring Station ID	Location	TSP Concentration (mg/m ³)	Action Level (mg/m ³)	Limit Level (mg/m ³)	Exceedance due to the Project Construction (Yes/No)
AM1a	SWHSTW site boundary	19.8 – 99.2	147	260	No
AM2a	RE's Site Office	36.8 – 110.5	155	260	No

Note:

- (1) The environmental monitoring works of the Project were conducted by the Environmental Team of Contract No. DE/2014/01 in accordance with the Updated EM&A Manual.

Table 3.4 Summary of Construction Noise Monitoring Results in the Reporting Period

Monitoring Station ID	Location	Noise Level (LAeq,30mins, dB(A))	Action Level (dB(A))	Limit Level (dB(A))	Exceedance due to the Project Construction (Yes/No)
NM1	No. 31 Wai Loi Tsuen	53.3 – 57.2	When one documented complaint is received	>75	No
NM2	Fu Tei Au	52.1 – 61.8		>75	No

Note:

- (1) The environmental monitoring works of the Project were conducted by the Environmental Team of Contract No. DE/2014/01 in accordance with the Updated EM&A Manual.

- 3.7 No environmental complaint, notification of summons or successful prosecutions were received during the reporting period. Log for environmental complaints, notification of summons and successful prosecutions are provided in *Table 3.5*.
- 3.8 Regular site inspections were conducted by the Contractor's ET on a weekly basis to check the implementation of environmental pollution control and mitigation measures for the Project. No non-compliance was identified in the reporting period. The site inspection for Contract No. DC/2013/09 was ceased upon received EPD's reply letter on 24 August 2018. Joint site inspections for Contract No. DE/2014/01 were carried out on 4, 11, 18 and 25 October 2018 during the reporting period. In addition, IEC conducted site audit on 11 October 2018. No environmental non-compliance was identified in the reporting period.

Table 3.5 Log for Environmental Complaints, Notification of Summons and Successful Prosecutions for the Reporting Month

Works Contract	Environmental Complaints	Notification of Summons	Successful Prosecutions
DC/2013/09	0	0	0
DE/2014/01	0	0	0

4. WASTE MANAGEMENT

- 4.1 Waste management was carried out by on-site Environmental Officer or an Environmental Supervisor of the Contractor from time to time.
- 4.2 The quantities of waste for disposal in this Reporting Period are summarized in *Tables 4.1* and *4.2* and the Monthly Summary Waste Flow Table of Contract No. DE/2014/01 is presented in the EM&A Report as provided in *Appendix A*. Whenever possible, materials were reused on-site as far as practicable.

Table 4.1 Summary of Quantities of Inert C&D Materials and C&D Wastes for Contract No. DC/2013/09

Type of Waste	Quantity			Disposal Location
	Prior Months	Reporting Month	Cumulated	
Total C&D Materials (Inert) (in '000m ³)	24.00	0	24.00	--
Hard Rock and Large Broken Concrete (Inert) (in '000m ³)	2.26	0	2.26	--
Reused in this Project (Inert) (in '000m ³)	3.67	0	3.67	--
Reused in other Projects (Inert) (in '000m ³)	2.23	0	2.23	--
Disposal as Public Fill (Inert) (in '000m ³)	15.93	0	15.93	--
Metals (in '000kg)	142.00	0	142.00	--
Paper / Cardboard Packing (in '000kg)	0.07	0	0.07	--
Plastics (in '000kg)	0	0	0	--
Chemical Wastes (in '000kg)	0	0	0	--
General Refuses (in '000m ³)	1.19	0	1.19	--

Table 4.2 Summary of Quantities of Inert C&D Materials and C&D Wastes for Contract No. DE/2014/01

Type of Waste	Quantity			Disposal Location
	Prior Months	Reporting Month	Cumulated	
Total C&D Materials (Inert) (in '000m ³)	0	0	0	--
Hard Rock and Large Broken Concrete (Inert) (in '000m ³)	0	0	0	--
Reused in this Project (Inert) (in '000m ³)	0	0	0	--
Reused in other Projects (Inert) (in '000m ³)	0	0	0	--
Disposal as Public Fill (Inert) (in '000m ³)	0	0	0	--
Metals (in '000kg)	0	0	0	--
Paper / Cardboard Packing (in '000kg)	0.048	0.009	0.057	Lau Choi Kee Papers Co.Ltd.
Plastics (in '000kg)	0	0	0	--
Chemical Wastes (in '000kg)	0	0	0	--
General Refuses (in tonne)	35.33	7.96	43.29	NENT

5. IMPLEMENTATION STATUS ON THE ENVIRONMENTAL PROTECTION REQUIREMENTS

5.1 The Contractor has implemented all mitigation measures and requirements as stated in the EIA Reports, EM&A Manuals, EP No. EP-474/2013 and FEP No. FEP-02/474/2013. Summary of the relevant permits, licenses, and/or notifications on environmental protection for this Project in this reporting period are summarised in *Tables 5.1* and *5.2*.

Table 5.1 Summary of Environmental Licenses and Permits for Contract No. DC/2013/09

Item	Valid License/Permit	License/Permit Number
1	Further Environmental Permit	FEP-02/474/2013 (Valid from 15 February 2018)
2	Air Pollution Control (Construction Dust) Regulation	N/A
3	Chemical Waste Producer Registration	WPN5213-624-T3148-04
4	Water Pollution Control Ordinance	WT00022503-2015
5	Billing Account for Disposal of Construction Waste	Account Number: 7022898

Table 5.2 Summary of Environmental Licenses and Permits for Contract No. DE/2014/01

Item	Valid License/Permit	License/Permit Number
1	Further Environmental Permit	FEP-02/474/2013 (Valid from 15 February 2018)
2	Chemical Waste Producer Registration	WPN5213-624-T3685-01
3	Billing Account for Disposal of Construction Waste	Account Number: 7024165

6. CONCLUSION AND RECOMMENDATION

6.1 Conclusion

- 6.1.1 This is the Monthly EM&A Report for the Project which summarises the EM&A works undertaken by the Contractor's ET of Contract No. DE/2014/01 in October 2018 (the reporting period).
- 6.1.2 The EM&A Programme of Contract No. DC/2013/09 was handed over to the ET of Contract No. DE/2014/01 since August 2018. Thus, the Monthly EM&A Report starting from September 2018 onwards will present the EM&A works undertaken by the ET of Contract No. DE/2014/01.
- 6.1.3 No Action and Limit Level exceedance of 1-hour and 24-hour TSP monitoring was recorded during the reporting period.
- 6.1.4 No Action and Limit Level exceedance of construction noise monitoring was recorded during the reporting period.
- 6.1.5 Joint site inspections to evaluate the site environmental performance by the RE, the ET and the Contractors were carried out on the following dates during the reporting period.

Contract No. DC/2013/09: No site inspection was carried out in the reporting period
Contract No. DE/2014/01: 4, 11, 18 and 25 October 2018

- 6.1.6 IEC conducted site audit on 11 October 2018. No environmental non-compliance was identified in the reporting period.
- 6.1.7 No documented complaint, notification of summons or successful prosecution was received during the reporting period.

6.2 Recommendation

- 6.2.1 The following recommendations were made for future reporting periods:

Air Quality

- Maintain wet surface on access road
- All vehicles must be used wheel washing facility before off site
- Spray water during breaking works
- A cleaning truck was regularly performed on the public road to prevent fugitive dust emission

Noise

- Restrain operation time of plants from 07:00 to 19:00 on any working day except for Public Holiday and Sunday.
- Keep good maintenance of plants
- Shut down the plants when not in used

Water Quality

- Identify any discharge of wastewater from the construction site
- Avoid blockage of U channel and drainage system by sediment
- Avoid water accumulation on site and carry out larviciding against mosquito breeding for stagnant water when mosquito larvae are observed
- Avoid spoilage of run-off from construction site to public area
- The discharge quality must meet the requirements specified in the discharge license

Waste/Chemical Management

- On-site sorting prior to disposal
- Follow requirements and procedures of the “Trip-ticket System”
- Predict required quantity of concrete accurately
- Collect the unused fresh concrete at designated locations in the sites for subsequent disposal

APPENDIX A

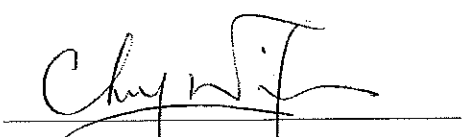
MONTHLY EM&A REPORT FOR CONTRACT NO. DE/2014/01

Jardine Engineering Corporation, Limited

**Contract No. DE/2014/01
Provision of Electrical and Mechanical Facilities
for Shek Wu Hui Sewage Treatment Works –
Further Expansion Phase 1A –
Advance Works and Ng Chow South Road
Sewage Pumping Station**

**Monthly Environmental
Monitoring and Audit Report
October 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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L	Construction Programme

ABBREVIATION AND ACRONYM

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

EXECUTIVE SUMMARY

Introduction

1. This is the 13th Monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for DSD Contract No. DE/2014/01 “Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A – Advance Works and Ng Chow South Road Sewage Pumping Station” (The Project) which documents the key information of EM&A and environmental monitoring works undertaken by other Contract at the Shek Wu Hui Sewage Treatment Works under Phase 1A with Environmental Permit (Permit No. FEP-02/474/2013).
2. The site activities undertaken in the reporting month included:
 - Installation of Building Services at MBR Facilities Building.
 - Mechanical Installation of Air Blowers and associated accessories at 1/F, MBR Facilities Building.
 - Mechanical Installation of MBR Pre-treatment Screen Facilities.
 - Mechanical Installation in Bioreactor No.1 (BR1).
 - Electrical Installation in 3.3kV HV Switchroom and Transformer Room No.2 at 1/F, MBR Facilities Building.
 - Electrical Installation in LV Switchroom and 11kV HV Switchroom at G/F, MBR Facilities Building.
 - Electrical Installation in LV Switchroom No.3.
 - Installation of Deodorising System at G/F, MBR Facilities Building.

Environmental Monitoring Works

3. From August 2018 onward, the environmental monitoring works of the Project were conducted by the ET of Contract No. DE/2014/01, which took over all the monitoring stations from Contract No. DC/2013/09 under the same FEP. The impact monitoring methodology conducted by DE/2014/01 will follow the requirements of the Updated EM&A Manual for Shek Wu Hui Sewage Treatment Works.
4. 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.
5. Summary of the non-compliance of the reporting month is tabulated in **Table I**.

Table I Summary Table for Non-compliance (Exceedances) 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	
DE/2014/01	AM1	1-hr TSP	0	0	0	0	N/A
	AM1a	24-hr TSP	0	0	0	0	N/A
	AM2	1-hr TSP	0	0	0	0	N/A
	AM2a	24-hr TSP	0	0	0	0	N/A
	NM1	Noise	0	0	0	0	N/A
	NM2		0	0	0	0	N/A

1-hour TSP Monitoring

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

24-hour TSP Monitoring

7. All 24-hour TSP monitoring at the monitoring station of AM1a and AM2a was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise

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

Environmental Licenses and Permits

9. Licenses/Permits granted to Shek Wu Hui Sewage Treatment Works - Further Expansion Phase 1A include the Environmental Permit (EP no. FEP-02/474/2013); Registered as a Chemical Waste Producer and Billing account for Disposal of Construction Waste for the Project.

Environmental Mitigation Implementation Schedule

10. According to the Updated EM&A Manual, air quality, noise and waste management 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 J**.

Key Information in the Reporting Month

11. 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	---
Reporting Changes	---	---	---	---	---
Notifications of any summons & prosecutions received	0	---	N/A	N/A	---

Site Inspection Conducted by Government Department

12. No site inspection for Contract DE/2014/01 was conducted by Government Department in the reporting month.

Summary of Complaints, Prosecutions, Reporting Changes and Notification of Summons

13. No environmental complaint was received during the reporting period. No prosecution, reporting changes and notification of summons were received or reported since the commencement of the Project.
14. There were no environmental complaint received since the commencement of the Project. The Complaint Log is presented in **Appendix K**.

Future Key Issues

15. Key issues to be considered in the coming month for the Contract include:
 - Storage of chemicals containers.
 - Waste accumulation on site.
 - Silt and dust getting into the public area by the leaving site vehicles at the site exits without adequate wheel washing facilities.

1. INTRODUCTION

Background

- 1.1 The Project ‘Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A – Advance Works and Ng Chow South Road Sewage Pumping Station’ under Contract No: DE/2014/01 mainly comprises the Design, manufacture, supply, delivery, installation, inspection, testing and commissioning of E&M installations for the Advance Works in the SWHSTW. The general location plan of the Project is shown in **Figure 1**.
- 1.2 The Project is under North East New Territories New Development Areas and is part of the designated project with Register No. : AEIAR-175/2013. The current works under the Project and other Contracts at SWHSTW are covered by the Environmental Permit (Permit No. FEP-02/474/2013), which was issued on 15th February 2018 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 on air quality and noise were covered by the ET of Contract DE/2014/01 for the Project.
- 1.4 The Jardine Engineering Corporation, Limited was commissioned by the DSD to undertake the construction of the Contract No. DE/2014/01 “Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A – Advance Works and Ng Chow South Road Sewage Pumping Station”.
- 1.5 The site activities undertaken in the reporting month included:
 - Installation of Building Services at MBR Facilities Building.
 - Mechanical Installation of Air Blowers and associated accessories at 1/F, MBR Facilities Building.
 - Mechanical Installation of MBR Pre-treatment Screen Facilities.
 - Mechanical Installation in Bioreactor No.1 (BR1).
 - Electrical Installation in 3.3kV HV Switchroom and Transformer Room No.2 at 1/F, MBR Facilities Building.
 - Electrical Installation in LV Switchroom and 11kV HV Switchroom at G/F, MBR Facilities Building.
 - Electrical Installation in LV Switchroom No.3.
 - Installation of Deodorising System at G/F, MBR Facilities Building.
- 1.6 Cinotech Consultants Limited was commissioned and appointed by The Jardine Engineering Corporation Limited as the Environmental Team (ET) of Contract No. DE/2014/01 under Condition 2.1 of the FEP. The Environmental Monitoring and Audit (EM&A) works were conducted and reported during the reporting month according to the Updated EM&A Manual of this designated project.
- 1.7 This is the monthly EM&A report summarizing the EM&A works conducted for the Project in October 2018.

Project Organizations

- 1.8 The contacts of the Project are shown in **Table 1.1** and the Project Organization Chart is shown in **Figure 4**.

Table 1.1 Key Project Contacts

Party	Role	Name	Position	Phone No.
Drainage Service Department	Resident Site Engineer	Mr. Fong Mo	Resident Engineer	2594 7329
Cinotech	Environmental Team	Dr. Priscilla Choy	ET Leader	2151 2089
ANewR	Independent Environmental Checker	Mr. Adi Lee	Independent Environmental Checker	2618 2836
The Jardine Engineering Corporation, Limited	Contractor	Mr. Kim Hung Lau	Project Manager	2947 1125
		Mr. George Ng	Environmental Officer	2947 1125

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 during this reporting month.

2. AIR QUALITY**Monitoring Requirements**

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

Monitoring Locations

- 2.2 Four designated monitoring stations, AM1, AM1a, AM2 and AM2a were selected for impact dust monitoring for the Project. **Table 2.1** describes the air quality monitoring locations and **Figure 2** indicated their positions in relation to the site boundary.

Table 2.1 Locations for Air Quality Monitoring

Monitoring Station	Monitored by	Location of Measurement
AM1	DE/2014/01	No. 31 Wai Loi Tsuen
AM2		Fu Tei Au
AM1a		SWHSTW site boundary
AM2a		RE's Site Office

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 is shown in **Appendix B**.

Table 2.2 Impact Dust Monitoring Parameters, Frequency and Duration

Monitoring Station	Parameter	Period	Frequency
AM1	1-hour TSP	0700-1900 hrs	three times every 6 days
AM2			
AM1a	24-hour TSP	0000-2400 hrs	once every 6 days
AM2a			

Monitoring Equipment

- 2.4 **Table 2.3** summarizes the equipment used in the impact air quality monitoring programme. The high volume sampler for 24-hour TSP monitoring at AM1 has been relocated to the alternative monitoring station of AM1a. The copies of their calibration certificates is shown in **Appendix C**.

Equipment	Model and Make
HVS	Tisch Model no. TE-5170
Handheld Particle Counter	Hal Technology Model no. Hal-HPC301 / Hal-HPC300
Calibrator	Tisch Model TE-5025A

Monitoring Methodology and QA/QC Procedure

- 2.5 The monitoring methodology and QA/QC procedures for impact air quality monitoring are presented as follow:
- 2.6 The general weather conditions (i.e. sunny, cloudy or rainy) were recorded by the field staff's observation on the monitoring day. The wind data is adopted from the website of Hong Kong Observatory (Ta Kwu Ling weather stations).

1 Hour TSP Monitoring Procedures with Laser Dust Monitor

- 2.7 The measuring procedures of the 1-hour dust meters were in accordance with the Manufacturer's Instruction Manual as follows:
- The 1-hour dust meter is placed at least 1.3 meters above ground.
 - Set POWER to "ON" and make sure that the battery level will not flash or in low level.
 - Allow the instrument to stand for about 3 minutes and then the cap of the air sampling inlet will be released.
 - Push the knob at MEASURE position.
 - Set time/mode setting to [BG] by pushing the time setting switch. Then, start the background measurement by pushing the start/stop switch once. It will take 6 sec. to complete the background measurement.
 - Push the time setting switch to change the time setting display to [MANUAL] at the bottom left of the liquid crystal display. Finally, push the start/stop switch to stop the measuring after 1 hour sampling.
 - Information such as sampling date, time, count value and site condition will be recorded during the monitoring period.

Maintenance/Calibration

- 2.8 The following maintenance/calibration was required for the direct dust meters:
- Check the meter at a 3-month interval and calibrate the meter at a 1-year interval throughout all stages of the air quality monitoring.

24 Hours TSP Monitoring with High Volume Sampler

Instrumentation

- 2.9 High Volume Sampler (HVS) completed with appropriate sampling inlets was employed for air quality monitoring. Each sampler comprised of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).
- 2.10 The following guidelines were adopted during the installation of HVS:
- Sufficient support was provided to secure the samplers against gusty wind.
 - No two samplers were placed less than 2 meters apart.
 - The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
 - A minimum of 2 meters of separation from walls, parapets and penthouses was required

for rooftop samples.

- A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
- No furnaces or incineration flues were nearby.
- Airflow around the sampler was unrestricted.
- The samplers were more than 20 meters from the drip line.
- Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.

Filer Preparation

- 2.11 Fiberglass filters, which have a collection efficiency of larger than 99% of particles of 0.3 μm in diameter, were used. A HOKLAS accredited laboratory, Wellab Ltd., was responsible for the preparation of 24-hr conditioned and pre-weighed filter papers for Cinotech's monitoring team.
- 2.12 All filters, which were prepared by Wellab Ltd., were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was < 50% and not variable by more than ± 5 %. A convenient working RH was 40%. Wellab Ltd. has a comprehensive quality assurance and quality control programme.

Operating/Analytical Procedures

- 2.13 Operating/analytical procedures for the air quality monitoring were highlighted as follows.
- Prior to the commencement of the dust sampling, the flow rate of the HVS was properly set (between 1.1 m³/min. and 1.4 m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.
 - The power supply was checked to ensure the sampler worked properly.
 - On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air quality monitoring station.
 - The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
 - The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
 - The shelter lid was closed and secured with the aluminum strip.
 - The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
 - After sampling, the filter was removed and sent to the Wellab Ltd. for weighing. The elapsed time was also recorded.
 - Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than ± 3 °C; the relative humidity (RH) should be < 50% and not vary by more than ± 5 %. A convenient working RH is 40%. Weighing results were

returned to Cinotech for further analysis of TSP concentrations collected by each filter.

Maintenance and Calibration

- 2.14 The high volume motors and their accessories will be properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
- 2.15 All HVSs are calibrated (five point calibration) using TE-5025A Calibration Kit prior to the commencement of the impact monitoring. The five-point calibration would be carried out every two months

Results and Observations

- 2.16 **Table 2.4** summarizes the monitoring results at AM1, AM1a, AM2 and AM2a in the reporting month.

Table 2.4 Summary of 1-hour and 24-hour TSP Monitoring Result in the Reporting Period

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				
AM1	47.6	20.2 – 93.2	286	500
AM2	47.4	20.3 – 75.9	276	
24 hours TSP				
AM1a	54.9	19.8 – 99.2	147	260
AM2a	70.6	36.8 – 110.5	155	

- 2.17 The monitoring data and graphical presentations for 1-hour and 24-hour TSP monitoring results are shown in **Appendix D**.
- 2.18 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 F**.
- 2.19 The monitoring works for 1-hour and 24-hour TSP monitoring were conducted as scheduled in the reporting month.
- 2.20 Action/Limit Level exceedance was not recorded during the reporting period. Summary of exceedance is presented in **Appendix F**.
- 2.21 According to field observations during site inspection, identifiable dust emission sources near the monitoring stations were vehicles movement on Chuk Wan Street.

3. NOISE

Monitoring Requirements

- 3.1 Two noise monitoring station, namely NM1 and NM2 were designated in the Updated 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 the designated monitoring stations as listed in **Table 3.1** and **Figure 3** indicated their positions in relation to the site boundary

Table 3.1 Location of Noise Monitoring Stations

Monitoring Station	Monitored By	Location of Measurement
NM1	DE/2014/01	No. 31 Wai Loi Tsuen
NM2		Fu Tei Au

Monitoring Parameters, Frequency and Duration

- 3.3 **Table 3.2** summarizes the monitoring parameters, frequency and total duration of monitoring.

Table 3.2 Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Period	Frequency
NM1	L ₁₀ (30 min.) dB(A)	0700-1900 hrs on normal weekdays	Once per week
NM2	L ₉₀ (30 min.) dB(A)		
	L _{eq} (30 min.) dB(A)		

Monitoring Equipment

- 3.4 **Table 3.3** summarizes the noise quality monitoring equipment and **Appendix C** shows the copies of calibration certificates for the equipment used during the reporting period.

Table 3.3 Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	SVANTEK, Model no: SVAN 957/977 BSWA, Model no: BSWA 801
Calibrator	SVANTEK, Model no: SV 30A; Brüel & Kjær, Model no: 4231
Anemometer	SMART SENSOR AR836

Monitoring Methodology and QA/QC Procedures

- 3.5 The monitoring methodology and QA/QC procedure are presented as follow:
- 3.6 General weather conditions (i.e. sunny, cloudy or rainy) were recorded by field observation during equipment checking.

Field Monitoring

3.7 The monitoring procedures are as follows:

- The Sound Level Meter was set on a tripod at a height of 1.2 m above the ground. All monitoring stations were conducted at a distance of 1 m away from the exterior of the building façade.
- The battery condition was checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - Frequency weighting : A
 - Time weighting : Fast
 - Measurement time : 30 minutes
- Noise monitoring was carried out 30 minutes during on the monitoring days. Monitoring data was recorded and stored automatically within the sound level meter system. At the end of the monitoring period, noise levels in term of L_{eq} , L_{90} and L_{10} were recorded.
- All the monitoring data within the sound level meter system was downloaded through the computer software, and all these data was checked and reviewed within the computer.
- Since no wind or gusts shall exceed 5m/s or 10m/s respectively during the noise monitoring, a portable anemometer was used to check the wind speed at the monitoring stations. Weather conditions such as fog and rain were avoided during the monitoring.

Maintenance and Calibration

3.8 Maintenance and Calibration procedures were as follows:

- The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
- Prior to and after noise measurement, the meter was calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement was required after re-calibration or repair of the equipment.
- The sound level meter and calibrator were checked and calibrated at yearly intervals.

Results and Observations

3.9 **Table 3.4** summarizes the noise monitoring results in the reporting period.

Table 3.4 Summary the Noise Monitoring Results in Reporting Period

0700-1900 hrs. during weekdays		
Noise Monitoring Station	Range, dB(A), L_{eq} (30 min.)	Limit Level, dB(A)
NM1	53.3 – 57.2	75.0
NM2	52.1 – 61.8	75.0

3.10 The monitoring results and graphical presentations can be referred to **Appendix E**.

- 3.11 No Action/Limit Level exceedance was recorded in the reporting month. Summary of exceedance is presented in **Appendix F**.
- 3.12 The major noise source identified at the designated noise monitoring stations was vehicles movement on Chuk Wan Street.

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. The summaries of site audits are attached in **Appendix G**.
- 4.2 Site audits were conducted on 4, 11, 18 and 25 October 2018 by ET after the commencement of construction works for the Contract. A joint site audit with the representative of IEC was carried out on 11 October 2018. The details of observations during site audit can refer to **Table 4.1**.

Implementation Status of Environmental Mitigation Measures

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

Table 4.1 Observations of Site Audit

Parameters	Date	Ref. No	Observations	Follow Up Action
Water Quality	N/A	N/A	--	--
Air Quality	N/A	N/A	--	--
Noise	N/A	N/A	--	--
Waste/Chemical Management	4/10/2018	181004-R01	Reminder: Chemical containers should be stored properly with drip tray.	The identified containers have been relocated for storage.
Permit/ Licenses	N/A	N/A	--	--

Review of Environmental Monitoring Procedures

- 4.5 The monitoring works conducted by Contract No. DE/2014/01 were reviewed at a regular basis to ensure the monitoring procedures were carried out properly.

Status of Environmental Licensing and Permitting

- 4.6 All permits/licenses obtained for the Contract DE/2014/01 are summarized in **Table 4.2**.

Table 4.2 Summary of Environmental Licensing and Permit Status

Permit No.	Valid Period		Details	Status
	From	To		
Environmental Permit				
FEP-02/474/2013	15/2/2018	N/A	The FEP was approved on 15/2/2018	Valid
Registered Chemical Waste Producer				
WPN5213-624-T3685-01	3/7/2017	N/A	The application was approved on 3/7/2017	Valid

Permit No.	Valid Period		Details	Status
	From	To		
Billing Account for Disposal of Construction Waste				
A/C No.7024165	4/2/2016	N/A	The application was approved on 4/2/2016	Valid

Status of Waste Management

- 4.7 The amount of wastes generated by the activities of the Project in the reporting month is shown in **Appendix H** and **Table 4.3**.

Table 4.3 Quantities of Waste Generated from the Reporting Month

Type of waste		Quantity	Disposal Location
C&D Materials (inert)		0 m ³	-
C&D Materials (non-inert)	General Refuse	7.96 tonne	NENT
	Chemical Waste	0 kg	-
	Paper/ cardboard	9 kg	Lau Choi Kee Papers Co.Ltd.
	Plastics	0 kg	-
	Metals	0 kg	-

Implementation Status of Event Action Plans

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

1-hr TSP

- 4.9 No Action/Limit Level exceedance was recorded.

24-hr TSP

- 4.10 No Action/Limit Level exceedance was recorded.

Construction Noise

- 4.11 No Action/Limit Level exceedance was recorded.

Landscape and Visual

- 4.12 No non-compliance was recorded.

Site Inspection Conducted by Government Department

- 4.13 No site inspection for Contract DE/2014/01 was conducted by Government Department in the reporting month.

Summary of Complaints, Prosecutions, Reporting Changes and Notification of Summons

- 4.14 No environmental complaint, prosecution, reporting changes and notification of summons were received or reported since the commencement of the Project. There were no environmental complaint received since the commencement of the Project. The Complaint Log is presented in **Appendix K**.

5. FUTURE KEY ISSUES**Key Issues for the Coming Month**

5.1 Key issues to be considered in the coming month for the Contract include:

Table 5.1 Future Key Issue for the next Reporting Month

Major Construction Works	Potential Pollution Issues	Mitigation Measures
<ul style="list-style-type: none"> • Installation of Building Services at MBR Facilities Building. • Mechanical Installation of Air Blowers and associated accessories at 1/F, MBR Facilities Building. • Mechanical Installation of MBR Pre-treatment Screen Facilities. • Mechanical Installation in Bioreactor No.1 (BR1). • Electrical Installation in 3.3kV HV Switchroom and Transformer Room No.2 at 1/F, MBR Facilities Building. • Electrical Installation in LV Switchroom and 11kV HV Switchroom at G/F, MBR Facilities Building. • Electrical Installation in LV Switchroom No.3. • Installation of Deodorising System at G/F, MBR Facilities Building. • Mechanical Installation in Chemical Rooms. 	<ul style="list-style-type: none"> • Storage of chemicals containers. • Waste accumulation on site. • Silt and dust getting into the public area by the leaving site vehicles at the site exits without adequate wheel washing facilities. 	<ul style="list-style-type: none"> • Waste should be disposed properly and avoid accumulation. • Accumulated materials to be recycled on-site. • Wheel washing equipment should be provided to vehicles before leaving the site area.

Monitoring Schedule for the Next Reporting Period

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

Construction Program for the Next Reporting Period

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

6. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 6.1 Environmental monitoring and audit works were performed in the reporting month for the Project. The results were checked and reviewed by the ET of Contract DE/2014/01.

1-hour TSP Monitoring

- 6.2 The monitoring works for the Project were covered by the ET of Contract DE/2014/01. 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 The monitoring works for the Project were covered by the ET of Contract DE/2014/01. No Action/Limit Level exceedance was recorded during the 24-hour TSP monitoring.

- 6.4 The 24-hour TSP monitoring was conducted as scheduled in the reporting month.

Construction Noise Monitoring

- 6.5 The monitoring works for the Project were covered by the ET of Contract DE/2014/01. All Construction Noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Environmental Audit

- 6.6 Weekly environmental site audits were conducted by the ET of Contract No. DE/2014/01 at the site area during the reporting month. No non-compliance was recorded.

Complaint, notification of summons and Prosecution

- 6.7 No environmental complaint was received in the reporting month
- 6.8 No notification of summons and prosecution were received in the reporting month.

Recommendations for Future Reporting Months:

- 6.9 The following recommendations were made for future reporting months:

Air Quality

- 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.

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.

FIGURES

NOTES :

1. DIMENSIONS ARE TO BE SHOWN AS INDICATED UNLESS OTHERWISE SPECIFIED.
2. LICENSE REFER TO DRAWING NO. DEM1619/M02.
3. CONTRACTOR TO VERIFY ALL DIMENSIONS AND LOCATIONS OF EXISTING UTILITIES AND STRUCTURES PRIOR TO COMMENCEMENT OF WORKS.



WORKING AREA OF ADVANCE WORKS

REV. NO.	DATE	DESCRIPTION	BY	CHECKED
1	22 APR 2016	ISSUED	Y. Y. CHAN	Y. Y. CHAN
2	22 APR 2016	REVISED	E. Y. CHAN	E. Y. CHAN
3	22 APR 2016	REVISED	E. Y. CHAN	E. Y. CHAN
4	22 APR 2016	REVISED	E. Y. CHAN	E. Y. CHAN
5	22 APR 2016	REVISED	E. Y. CHAN	E. Y. CHAN

PROJECT NO. 40101 AND 30101
 CONTRACT NO. 40101/01 AND 30101/01
 DRAWING NO. DEM1619/M02
 SHEET NO. 1 OF 03
 AS SHOWN

PROVISION OF ELECTRICAL AND MECHANICAL FACILITIES FOR SUEK INDUSTRIAL PARK PHASE 2 - FURTHER EXPANSION PHASE - ADVANCE WORKS AND NO. 100 SOUTH ROAD SEWAGE PUMPING STATION

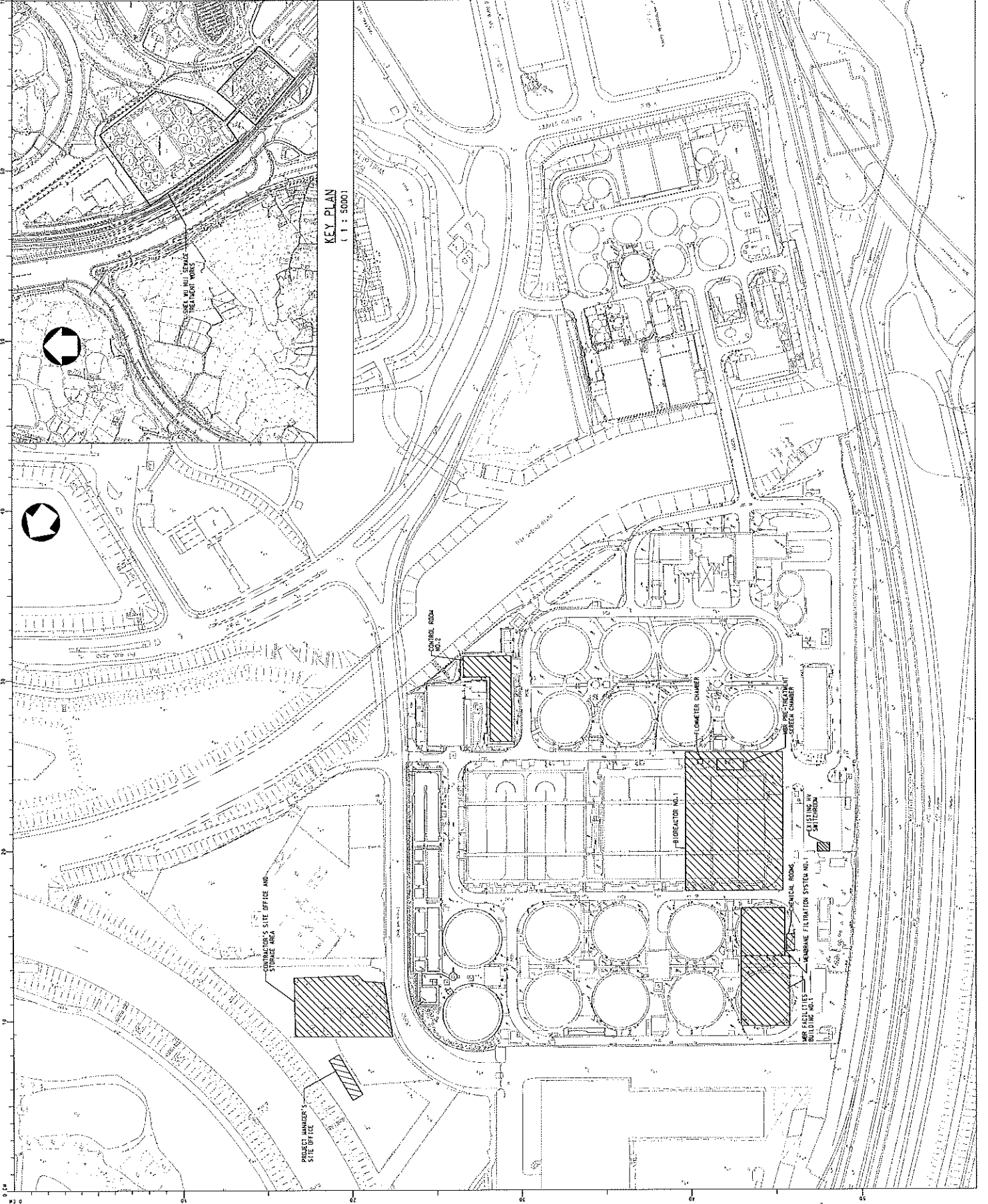
KEY PLAN AND LOCATION PLAN

DETAILED KEY PLAN (1:5000)

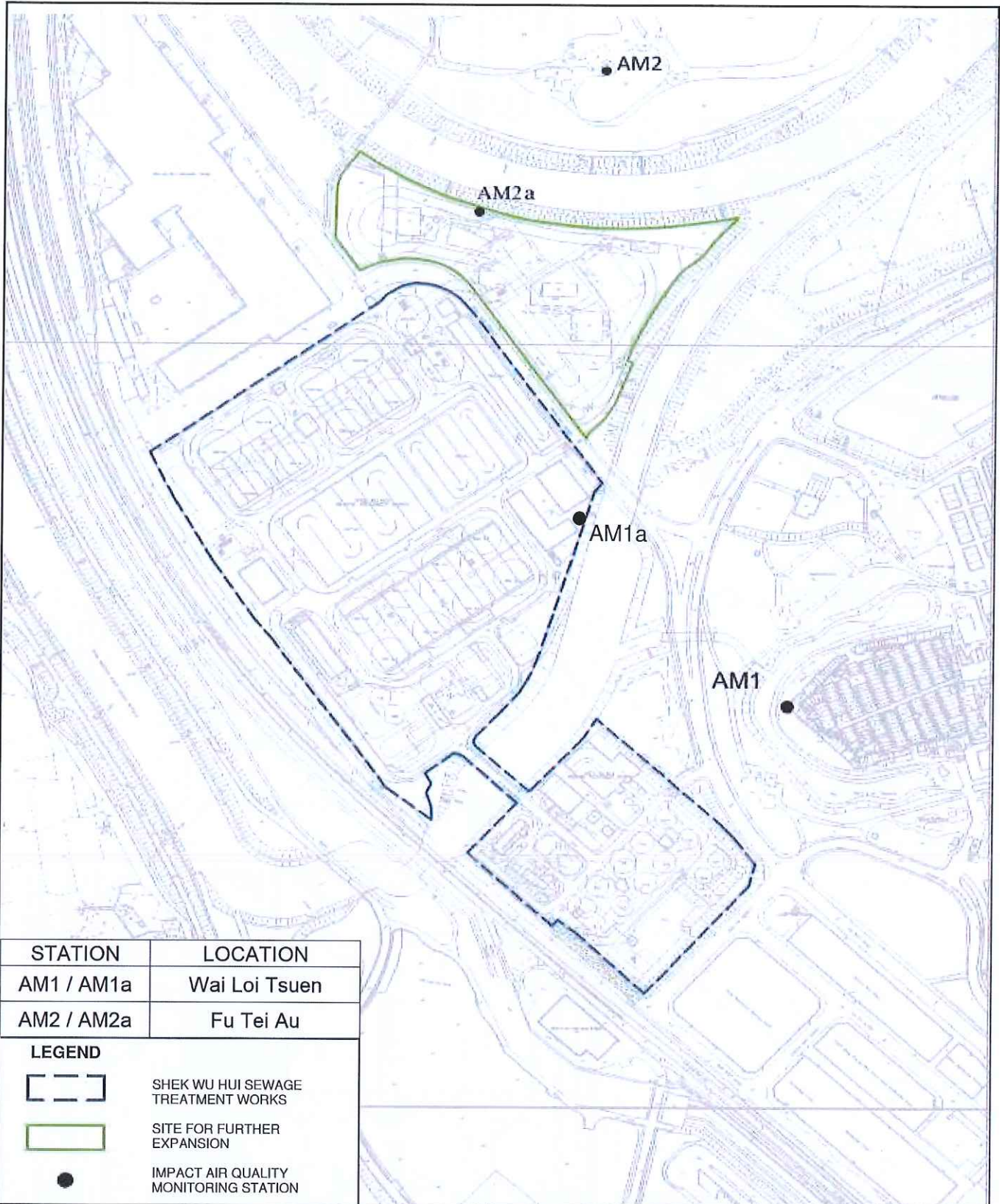
OFFICE OF ELECTRICAL AND MECHANICAL PROJECTS DIVISION



DRAINAGE SERVICES DEPARTMENT
 GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION






KEY PLAN
 (1 : 5000)

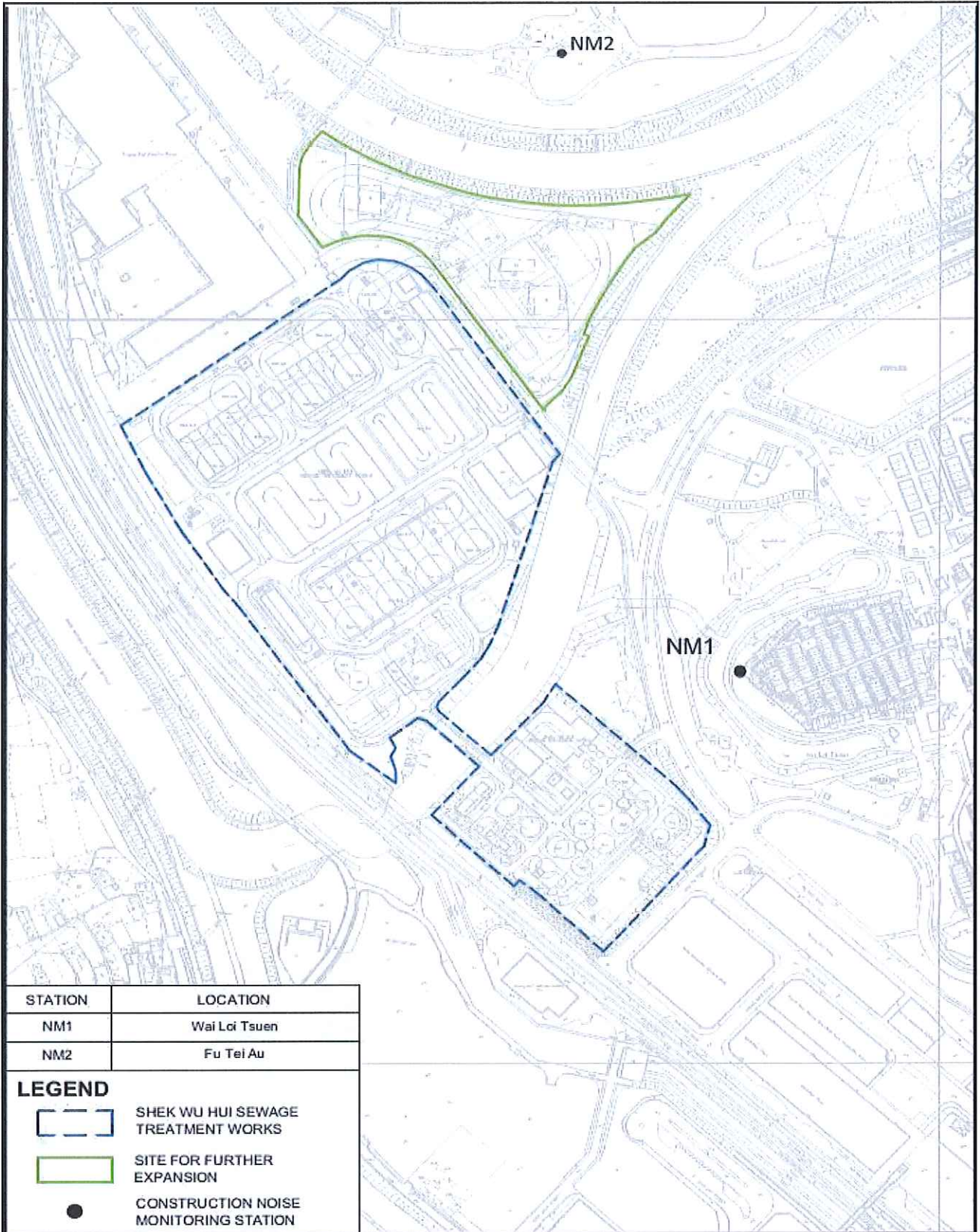


STATION	LOCATION
AM1 / AM1a	Wai Loi Tsuen
AM2 / AM2a	Fu Tei Au

LEGEND

-  SHEK WU HUI SEWAGE TREATMENT WORKS
-  SITE FOR FURTHER EXPANSION
-  IMPACT AIR QUALITY MONITORING STATION

Title	Contract No. DE/2014/01 Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A – Advance Works and Ng Chow South Road Sewage Pumping Station	Scale N.T.S	Project No. MA16002	CINOTECH
	Locations of Impact Air Quality Monitoring Stations	Date Aug-18	Figures 2	



Title	Contract No. DE/2014/01 Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A – Advance Works and Ng Chow South Road Sewage Pumping Station	Scale N.T.S	Project No. MA16002	CINOTECH
	Locations of Impact Noise Monitoring Stations	Date Oct-17	Figures 3	

Environmental Team Leader
Dr. Priscilla Choy
(Tel: 2151 2089)

Project Coordinator
- coordination of the Project and compile reports
Jonathan Lee
(Tel: 2151 2035)

Monitoring Team
- perform environmental monitoring works

Team Leader: Tang Wing Kwai
(Tel: 2151 2087)

**Team Members: Lee Man Hei, Mo Yik Wai, Lam Ho Chun,
Fung Ka Chun, Law Chun Hong, Ho Ka Chun, Chan Ping Fai,
Sin Kin Chung, Lau Kong Yung, Lam Cheuk Fung**

Audit Team

- conduct site inspection, complete the environmental checklist once a week

Team Leader: Ivy Tam
(Tel: 2151 2090)

Team Members: Jonathan Lee, Victor Wong

Title

Contract No. DE/2014/01
Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works –
Further Expansion Phase 1A – Advance Works and Ng Chow South Road Sewage Pumping Station

Scale

N.T.S

Project No.

MA16002

Version

v.1

Figure

4

ET's Organization Chart

CINOTECH

**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
AM1	286	N/A	500	N/A
AM1a	N/A	147	N/A	260
AM2	276	N/A	500	N/A
AM2a	N/A	155	N/A	260

Table A-2 Action and Limit Level for Construction Noise

Monitoring Stations	Time Period	Action Level	Limit Level in dB(A)
NM1	0700-1900 hours on normal weekdays	When one documented complaint is received	>75*
NM2			

Note: (*) Reduces to 70 dB(A) for schools and 65 dB(A) during the school examination periods.

**APPENDIX B
ENVIRONMENTAL MONITORING
SCHEDULES**

Contract No. DE/2014/01
Provision of Electrical and Mechanical Facilities
for Shek Wu Hui Sewage Treatment Works
Impact Air and Noise Monitoring Schedule for October 2018

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Oct	2-Oct	3-Oct	4-Oct	5-Oct	6-Oct
			24 hr TSP	1 hr TSP X3 Noise		
7-Oct	8-Oct	9-Oct	10-Oct	11-Oct	12-Oct	13-Oct
		24 hr TSP	1 hr TSP X3 Noise			
14-Oct	15-Oct	16-Oct	17-Oct	18-Oct	19-Oct	20-Oct
		1 hr TSP X3 Noise			24 hr TSP	
21-Oct	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct	27-Oct
	24 hr TSP				1 hr TSP X3 Noise	
28-Oct	29-Oct	30-Oct	31-Oct			
			24 hr TSP			

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

Air Quality Monitoring Station

- AM1 - No. 31 Wai Loi Tsuen (1hr)
- AM2 - Fu Tei Au (1hr)
- AM2a - RE's Site Office (24hr)
- AM1a - SWHSTW site boundary (24hr)

Noise Monitoring Station

- NM1 - No. 31 Wai Loi Tsuen
- NM2 - Fu Tei Au

Contract No. DE/2014/01
Provision of Electrical and Mechanical Facilities
for Shek Wu Hui Sewage Treatment Works
Tentative Impact Air and Noise Monitoring Schedule for November 2018

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

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

Air Quality Monitoring Station

- AM1 - No. 31 Wai Loi Tsuen (1hr)
- AM2 - Fu Tei Au (1hr)
- AM2a - RE's Site Office (24hr)
- AM1a - SWHSTW site boundary (24hr)

Noise Monitoring Station

- NM1 - No. 31 Wai Loi Tsuen
- NM2 - Fu Tei Au

**APPENDIX C
COPIES OF CALIBRATION
CERTIFICATES**

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16002/70/0002

Station: AM1a - SWHISTW site boundary Operator: HM
 Date: 28-Sep-18 Next Due Date: 27-Nov-18
 Equipment No.: A-01-70 Serial No. 3216

Ambient Condition			
Temperature, Ta (K)	301.6	Pressure, Pa (mmHg)	760.5

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	$mc \times Q_{std} + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	13-Feb-19	$Q_{std} = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)] ^{1/2} Y-axis
1	11.6	3.39	57.87	6.8	2.59
2	9.7	3.10	52.92	5.7	2.37
3	7.5	2.72	46.53	4.5	2.11
4	5.2	2.27	38.75	3.3	1.81
5	3.3	1.81	30.87	2.3	1.51

By Linear Regression of Y on X
 Slope, mw = 0.0401 Intercept, bw = 0.2603
 Correlation coefficient* = 0.9996

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; W = $(mw \times Q_{std} + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.98

Remarks: _____

Conducted by: Lee Man Hee Signature: Lee
 Checked by: Wk Tang Signature: Kwan

Date: 28/9/2018
 Date: 28/9/2018

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16002/45/0002

Station: AM2a - RE's Site Office Operator: HM
 Date: 28-Sep-18 Next Due Date: 27-Nov-18
 Equipment No.: A-01-45 Serial No. 1309

Ambient Condition			
Temperature, Ta (K)	303	Pressure, Pa (mmHg)	759.8

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	13-Feb-19	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X-axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	12.5	3.51	59.91	6.8	2.59
2	10.3	3.18	54.38	5.9	2.41
3	7.5	2.72	46.40	4.4	2.08
4	5.4	2.30	39.38	3.2	1.77
5	3.3	1.80	30.78	2.3	1.50

By Linear Regression of Y on X

Slope, mw = 0.0382 Intercept, bw = 0.3067
 Correlation coefficient* = 0.9984

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.86

Remarks: _____

Conducted by: Chh Man Hee Signature: Chh Man Hee Date: 28/9/2018
 Checked by: W.K. Tang Signature: W.K. Tang Date: 28/9/2018



RECALIBRATION
DUE DATE:
February 13, 2019

Certificate of Calibration

Calibration Certification Information			
Cal. Date: February 13, 2018	Rootsmeter S/N: 438320	Ta: 293	°K
Operator: Jim Tisch		Pa: 763.3	mm Hg
Calibration Model #: TE-5025A	Calibrator S/N: 2896		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4670	3.2	2.00
2	3	4	1	1.0380	6.4	4.00
3	5	6	1	0.9220	8.0	5.00
4	7	8	1	0.8840	8.8	5.50
5	9	10	1	0.7250	12.8	8.00

Data Tabulation						
Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H (Ta/Pa)}$ (y-axis)	
1.0172	0.6934	1.4293	0.9958	0.6788	0.8762	
1.0129	0.9758	2.0213	0.9916	0.9553	1.2392	
1.0107	1.0962	2.2599	0.9895	1.0732	1.3854	
1.0097	1.1422	2.3702	0.9885	1.1182	1.4530	
1.0043	1.3853	2.8586	0.9832	1.3562	1.7524	
QSTD	m=	2.06726	QA	m=	1.29448	
	b=	-0.00045		b=	-0.00028	
	r=	0.99992		r=	0.99992	

Calculations	
Vstd= $\Delta Vol \left(\frac{Pa - \Delta P}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)$	Va= $\Delta Vol \left(\frac{Pa - \Delta P}{Pa} \right)$
Qstd= $Vstd / \Delta Time$	Qa= $Va / \Delta Time$
For subsequent flow rate calculations:	
$Qstd = 1/m \left(\left(\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)} \right) - b \right)$	$Qa = 1/m \left(\left(\sqrt{\Delta H (Ta/Pa)} \right) - b \right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg
Key	
ΔH: calibrator manometer reading (in H2O)	
ΔP: rootsmeter manometer reading (mm Hg)	
Ta: actual absolute temperature (°K)	
Pa: actual barometric pressure (mm Hg)	
b: intercept	
m: slope	

RECALIBRATION
US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

Tisch Environmental, Inc.
 145 South Miami Avenue
 Village of Cleves, OH 45002

www.tisch-env.com
 TOLL FREE: (877)263-7610
 FAX: (513)467-9009

TEST REPORT

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

Test Report No.:	29955
Date of Issue:	2018-10-18
Date Received:	2018-10-16
Date Tested:	2018-10-16
Date Completed:	2018-10-18
Next Due Date:	2018-12-17

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC300
Serial No.	: 3020408
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-26-01

Test Conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

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

Results:

Correlation Factor (CF)	1.121
-------------------------	-------

PREPARED AND CHECKED BY:

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



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	29668
Date of Issuc:	2018-08-18
Date Received:	2018-08-16
Date Tested:	2018-08-16
Date Completed:	2018-08-18
Next Due Date:	2018-10-17

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description : Handheld Particle Counter
 Manufacturer : Hal Technology
 Model No. : Hal-HPC300
 Serial No. : 3020408
 Flow rate : 0.1 cfm
 Zero Count Test : 0 count per 5 minutes
 Equipment No. : A-26-01

Test Conditions:

Room Temperatre : 17-22 degree Celsius
 Relative Humidity : 40-70%

Test Specifications & Methodology:

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

Results:

Correlation Factor (CF)	1.143
-------------------------	-------

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


PATRICK TSE
 Laboratory Manager

TEST REPORT

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

Test Report No.:	29664
Date of Issue:	2018-08-13
Date Received:	2018-08-11
Date Tested:	2018-08-11
Date Completed:	2018-08-13
Next Due Date:	2018-10-12

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC301
Serial No.	: 3011701012
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-27-07

Test Conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

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

Results:

Correlation Factor (CF)	1.161
-------------------------	-------

PREPARED AND CHECKED BY:

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


PATRICK TSE
 Laboratory Manager

TEST REPORT

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

Test Report No.:	29499
Date of Issue:	2018-08-13
Date Received:	2018-08-11
Date Tested:	2018-08-11
Date Completed:	2018-08-13
Next Due Date:	2019-08-12

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21459
Microphone No.	: 43676
Equipment No.	: N-08-08

Test conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	29814
Date of Issue:	2018-09-15
Date Received:	2018-09-14
Date Tested:	2018-09-14
Date Completed:	2018-09-15
Next Due Date:	2019-09-14

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 977
Serial No.	: 45467
Microphone No.	: 62838
Equipment No.	: N-08-13

Test conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/171215A
Date of Issue:	2017-12-18
Date Received:	2017-12-15
Date Tested:	2017-12-15
Date Completed:	2017-12-18
Next Due Date:	2018-12-17

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description : Sound & Vibration Analyser
Manufacturer : BSWA
Model No. : BSWA 801
Serial No. : 35921
Equipment No. : N-13-02

Test conditions:

Room Temperature : 20 degree Celsius
Relative Humidity : 64%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	29817
Date of Issue:	2018-09-29
Date Received:	2018-09-28
Date Tested:	2018-09-28
Date Completed:	2018-09-29
Next Due Date:	2019-09-28

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24780
Equipment No.	: N-09-05

Test conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Methodology:


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

Results:

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

PREPARED AND CHECKED BY:

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



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/171103
Date of Issue:	2017-11-06
Date Received:	2017-11-03
Date Tested:	2017-11-03
Date Completed:	2017-11-06
Next Due Date:	2018-11-05

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2326353
Equipment No.	: N-02-01

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 64 %

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	29683
Date of Issue:	2018-08-20
Date Received:	2018-08-17
Date Tested:	2018-08-17
Date Completed:	2018-08-20
Next Due Date:	2019-08-19

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2412367
Equipment No.	: N-02-03

Test conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70 %

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:

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



PATRICK TSE

Laboratory Manager

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

Appendix D - 1-hour TSP Monitoring Results

Location AM1 - No.31 Wai Loi Tsuen			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
4-Oct-18	9:00	Sunny	48.0
4-Oct-18	10:00	Sunny	44.6
4-Oct-18	11:00	Sunny	53.7
10-Oct-18	9:00	Cloudy	86.2
10-Oct-18	10:00	Cloudy	93.2
10-Oct-18	11:00	Cloudy	71.5
16-Oct-18	13:00	Cloudy	41.1
16-Oct-18	14:00	Cloudy	35.4
16-Oct-18	15:00	Cloudy	40.0
22-Oct-18	13:00	Fine	21.3
22-Oct-18	14:00	Fine	20.2
22-Oct-18	15:00	Fine	21.3
26-Oct-18	8:30	Sunny	46.0
26-Oct-18	9:30	Sunny	49.3
26-Oct-18	10:30	Sunny	42.6
		Minimum	20.2
		Maximum	93.2
		Average	47.6

Location AM2 - Fu Tei Au			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
4-Oct-18	13:30	Sunny	65.2
4-Oct-18	14:30	Sunny	62.9
4-Oct-18	15:30	Sunny	70.9
10-Oct-18	13:30	Cloudy	67.5
10-Oct-18	14:30	Cloudy	72.6
10-Oct-18	15:30	Cloudy	75.9
16-Oct-18	9:00	Cloudy	34.3
16-Oct-18	10:00	Cloudy	35.4
16-Oct-18	11:00	Cloudy	37.7
22-Oct-18	9:00	Sunny	20.3
22-Oct-18	10:00	Sunny	22.4
22-Oct-18	11:00	Sunny	21.3
26-Oct-18	13:05	Sunny	43.7
26-Oct-18	14:05	Sunny	47.1
26-Oct-18	15:05	Sunny	33.6
		Minimum	20.3
		Maximum	75.9
		Average	47.4

Appendix D- 24-hour TSP Monitoring Results

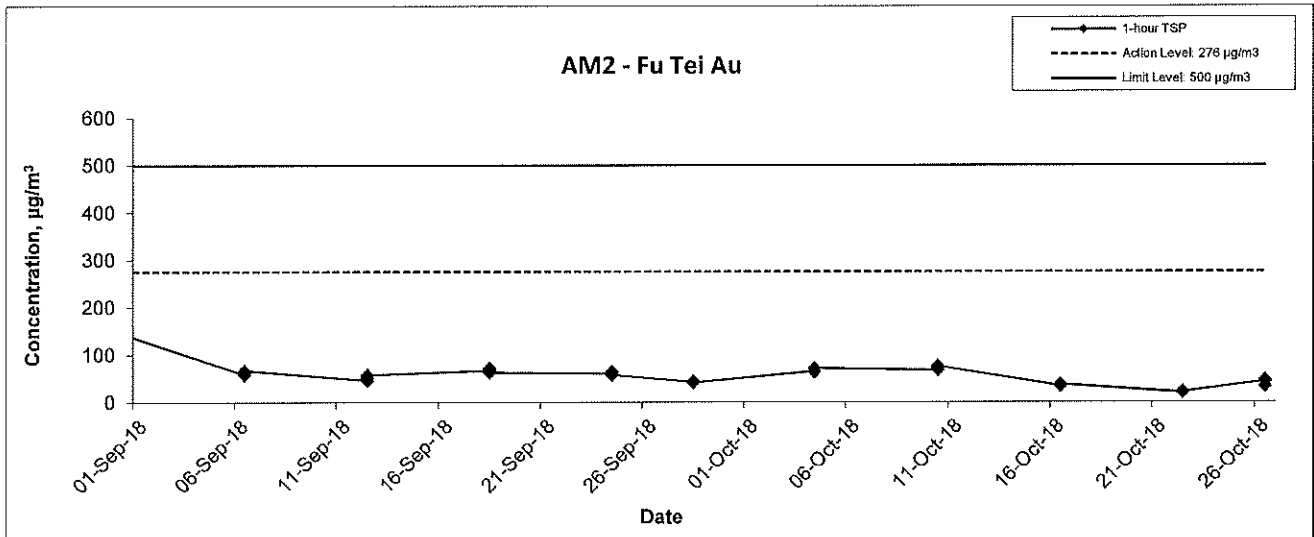
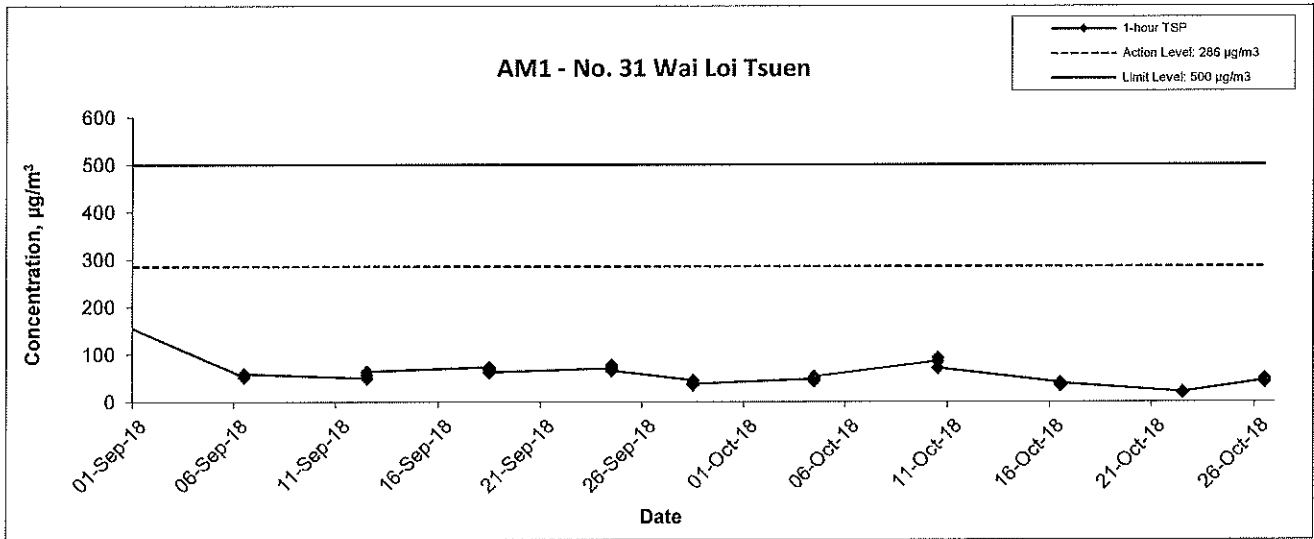
AM1a - SWHSTW site boundary

Sampling Date	Start Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
					Initial	Final		Initial	Final		Initial	Final			
03-Oct-18	09:00	Sunny	298.3	765.0	2.9802	3.1065	0.1263	16200.5	16224.5	24.0	1.23	1.23	1.23	1773.6	71.2
09-Oct-18	09:00	Cloudy	299.1	763.6	2.9456	3.0398	0.0942	16224.5	16248.5	24.0	1.23	1.23	1.23	1769.0	53.2
15-Oct-18	09:00	Cloudy	298.6	763.7	3.6180	3.6530	0.0350	16248.6	16272.6	24.0	1.23	1.23	1.23	1770.9	19.8
19-Oct-18	09:00	Sunny	296.4	760.0	2.9839	3.0560	0.0721	16272.6	16296.6	24.0	1.23	1.23	1.23	1773.5	40.7
25-Oct-18	09:00	Sunny	297.9	766.4	3.6080	3.6885	0.0805	16296.6	16320.6	24.0	1.23	1.23	1.23	1776.9	45.3
31-Oct-18	09:00	Sunny	295.1	764.9	2.9750	3.1520	0.1770	16320.6	16344.6	24.0	1.24	1.24	1.24	1784.5	99.2
														Min	19.8
														Max	99.2
														Average	54.9

AM2a - RE's Site Office

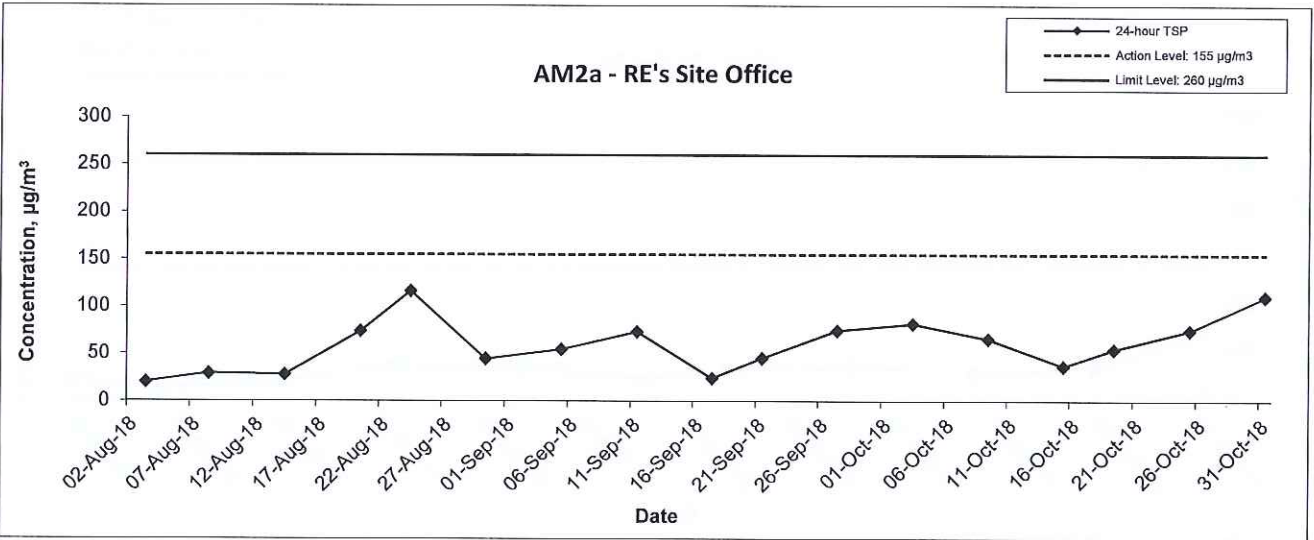
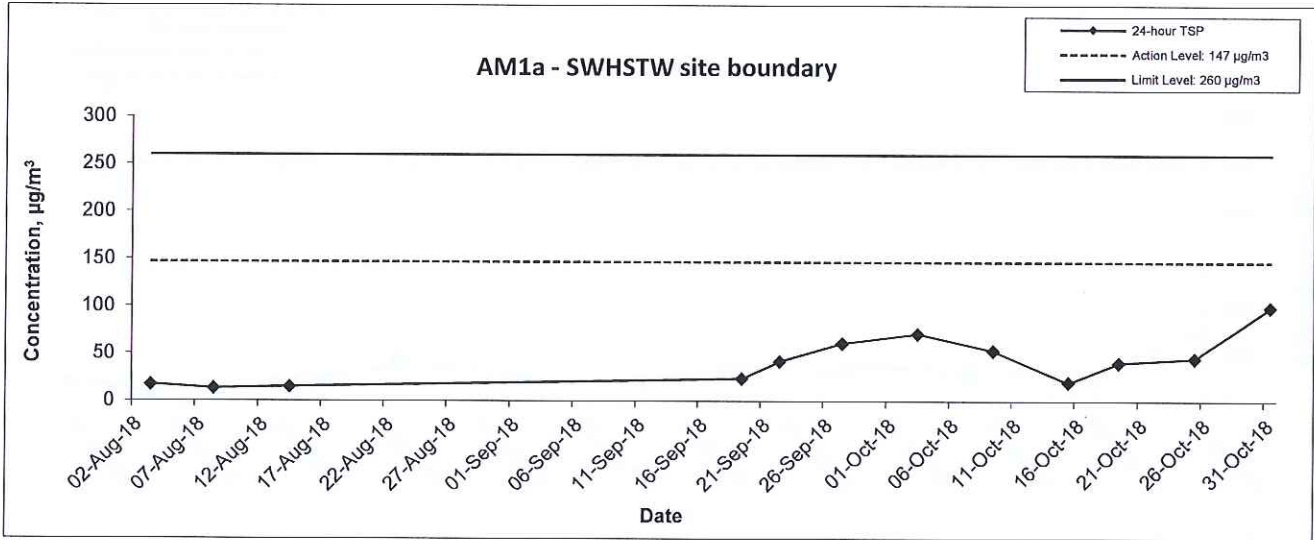
Sampling Date	Start Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
					Initial	Final		Initial	Final		Initial	Final			
03-Oct-18	09:00	Sunny	298.7	765.3	2.9572	3.1030	0.1458	7213.2	7237.2	24.0	1.24	1.24	1.24	1784.4	81.7
09-Oct-18	09:00	Cloudy	299.6	763.2	2.9801	3.0967	0.1166	7237.2	7261.2	24.0	1.24	1.23	1.23	1778.4	65.6
15-Oct-18	09:00	Cloudy	298.8	763.5	3.6278	3.6934	0.0656	7261.2	7285.2	24.0	1.24	1.24	1.24	1781.6	36.8
19-Oct-18	09:00	Sunny	296.7	760.4	3.0131	3.1109	0.0978	7285.2	7309.2	24.0	1.24	1.24	1.24	1784.8	54.8
25-Oct-18	09:00	Sunny	297.4	766.8	2.9399	3.0732	0.1333	7309.2	7333.2	24.0	1.24	1.24	1.24	1791.1	74.4
31-Oct-18	09:00	Sunny	295.6	765.3	2.9753	3.1737	0.1984	7333.2	7357.2	24.0	1.25	1.25	1.25	1795.5	110.5
														Min	36.8
														Max	110.5
														Average	70.6

1-hr TSP Concentration Levels



Title Contract No. DE/2014/01 Provision of Electrical and Mechanical and Facilities for Shek Wu Hui Sewage Treatment Works Graphical Presentation of 1-hour TSP Monitoring Results	Scale N.T.S	Project No. MA16002	CINOTECH
	Date Oct 18	Appendix D	

24-hr TSP Concentration Levels



Title Contract No. DE/2014/01 Provision of Electrical and Mechanical and Facilities for Shek Wu Hui Sewage Treatment Works Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA16002	CINOTECH
	Date Oct 18	Appendix D	

APPENDIX E
NOISE MONITORING RESULTS AND
GRAPHICAL PRESENTATIONS

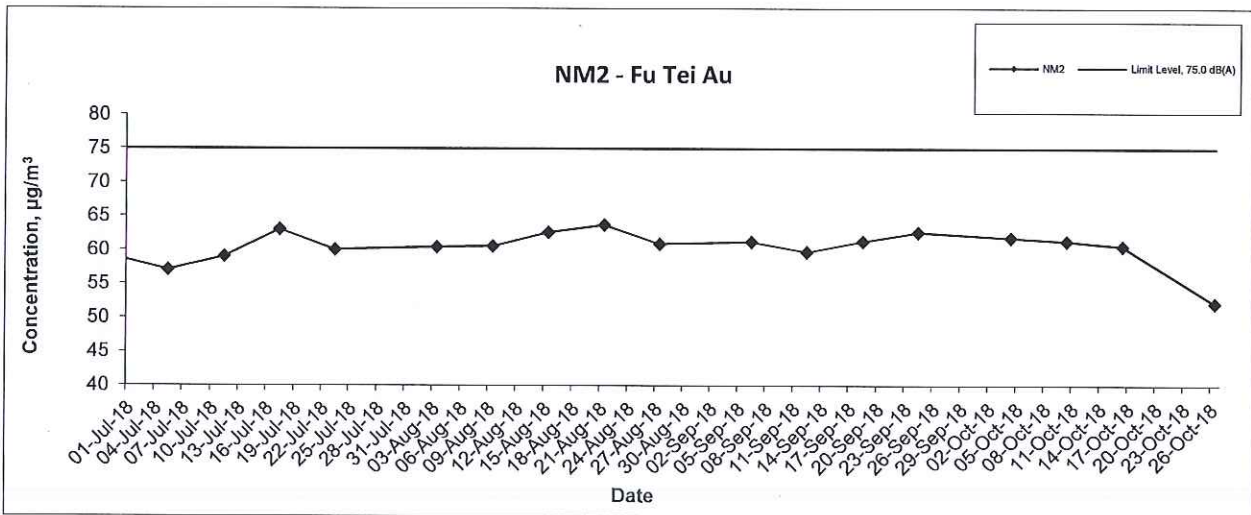
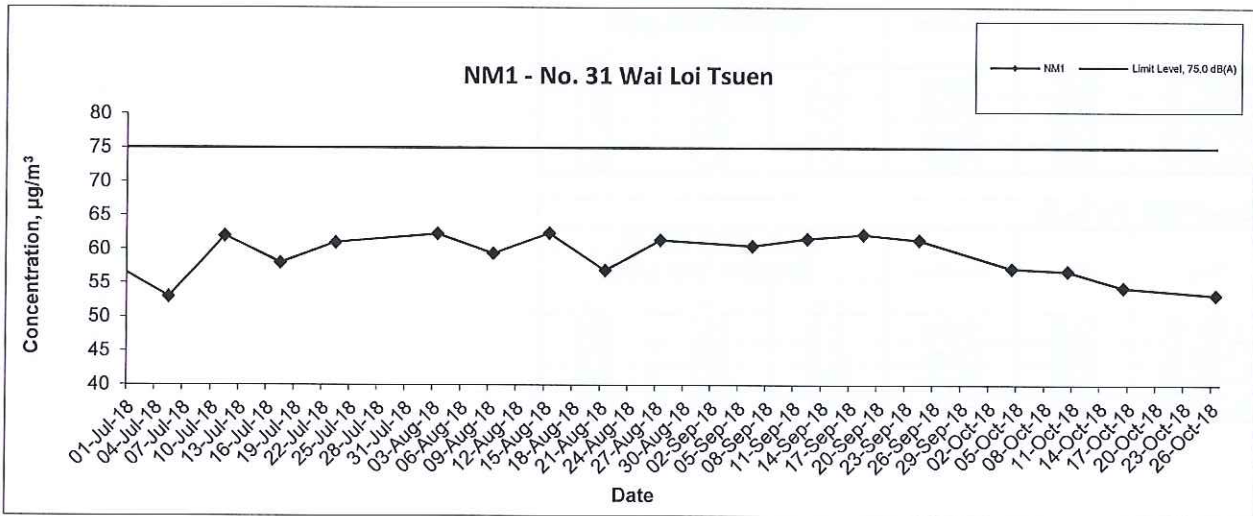
Appendix E - Noise Monitoring Results

(0700-1900 hrs on Normal Weekdays)

Location NM1 - No.31 Wai Loi Tsuen					
Date	Time	Weather	Unit: dB (A) (30-min)		
			Measured Noise Level		
			L _{eq}	L ₁₀	L ₉₀
4-Oct-18	9:30	Sunny	57.2	59.8	52.3
10-Oct-18	9:30	Cloudy	56.8	59.1	53.1
16-Oct-18	13:20	Cloudy	54.4	56.6	51.3
26-Oct-18	10:00	Sunny	53.3	55.2	51.2

Location NM2 - Fu Tei Au					
Date	Time	Weather	Unit: dB (A) (30-min)		
			Measured Noise Level		
			L _{eq}	L ₁₀	L ₉₀
4-Oct-18	13:30	Sunny	61.8	64.7	56.9
10-Oct-18	13:45	Cloudy	61.3	64.9	57.0
16-Oct-18	9:20	Cloudy	60.5	62.3	55.2
26-Oct-18	13:10	Sunny	52.1	57.1	38.2

Noise Levels



Title Contract No. DE/2014/01 Provision of Electrical and Mechanical and Facilities for Shek Wu Hui Sewage Treatment Works Graphical Presentation of Noise Monitoring Results	Scale	Project No.	CINOTECH
	Date	Appendix	
	N.T.S	MA16002	
	Oct-18	E	

APPENDIX F
SUMMARY OF EXCEEDANCE

APPENDIX F – SUMMARY OF EXCEEDANCE

Reporting Month: October 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 G
SITE AUDIT SUMMARY

Contract No: DE/2014/01

Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works - Further Expansion Phase 1A - Advance Works and Ng Chow South Road Sewage Pumping Station


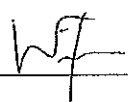
Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	181004
Date	04 October 2018 (Thursday)
Time	04:00-05:00

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

Ref. No.	Remarks/Observations	Related Item No.
181004-R01	<p>Part C - Water Quality</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part D - Air Quality</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part F - Waste / Chemical Management</p> <ul style="list-style-type: none">Chemical containers should be properly stored with drip tray provided. <p>Part G - Permit / Licenses</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Others / Remarks</p> <ul style="list-style-type: none">Follow-up on previous audit session (Ref. No.: 180927), no major environmental deficiency was observed.	F 7ii

	Name	Signature	Date
Recorded by	Jonathan Lee		9 October 2018
Checked by	Dr. Priscilla Choy		9 October 2018

Contract No: DE/2014/01

Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works - Further Expansion Phase 1A - Advance Works and Ng Chow South Road Sewage Pumping Station

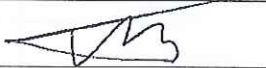
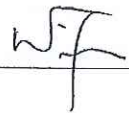
Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	181011
Date	11 October 2018 (Thursday)
Time	09:30-10:30

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

Ref. No.	Remarks/Observations	Related Item No.
	<p>Part C - Water Quality</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part D - Air Quality</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part F - Waste / Chemical Management</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part G - Permit / Licenses</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Others / Remarks</p> <ul style="list-style-type: none">Follow-up on previous audit session, no major environmental deficiency was observed.	

	Name	Signature	Date
Recorded by	Victor Wong		11 October 2018
Checked by	Dr. Priscilla Choy		11 October 2018

Contract No: DE/2014/01

Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works - Further Expansion Phase 1A - Advance Works and Ng Chow South Road Sewage Pumping Station

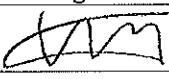
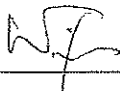
Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	181018
Date	18 October 2018 (Thursday)
Time	09:30-10:30

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

Ref. No.	Remarks/Observations	Related Item No.
	<p><i>Part C - Water Quality</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part D - Air Quality</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part E - Construction Noise Impact</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part F - Waste / Chemical Management</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part G - Permit / Licenses</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Others / Remarks</i></p> <ul style="list-style-type: none">• Follow-up on previous audit session, no major environmental deficiency was observed.	

	Name	Signature	Date
Recorded by	Victor Wong		18 October 2018
Checked by	Dr. Priscilla Choy		18 October 2018

Contract No: DE/2014/01

Provision of Electrical and Mechanical Facilities for Shek Wu Hui Sewage Treatment Works - Further Expansion Phase 1A - Advance Works and Ng Chow South Road Sewage Pumping Station

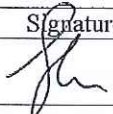
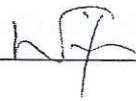
Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	181025
Date	25 October 2018 (Thursday)
Time	04:00-05:00

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

Ref. No.	Remarks/Observations	Related Item No.
	<p>Part C - Water Quality</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part D - Air Quality</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part F - Waste / Chemical Management</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part G - Permit / Licenses</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Others / Remarks</p> <ul style="list-style-type: none">Follow-up on previous audit session, no major environmental deficiency was observed.	

	Name	Signature	Date
Recorded by	Jonathan Lee		29 October 2018
Checked by	Dr. Priscilla Choy		29 October 2018

**APPENDIX H
SUMMARY OF AMOUNT OF WASTE
GENERATED**

Name of Department: Drainage Services Department

Contract No. : DE/2014/01

Monthly Summary Waste Flow Table for 2018

Month	Annual Quantities of Inert C&D Materials Generated Monthly						Annual Quantities of C&D Materials Generated Monthly					
	Total Quantity Generated (in '000m ³)	Hard Rock & Large Broken Concrete (in '000m ³)	Reused in the Contract (in '000m ³)	Reused in other Projects (in '000m ³)	Disposed as Public Fill (in '000m ³)	Imported Fill (in '000m ³)	Metals (in '000 kg)	Paper/ cardboard packaging (in '000 kg)	Plastics (see Note 3) (in '000 kg)	Chemicals Waste (in '000 kg)	Others, e.g. general refuse (in '000 kg)	
Jan	0	0	0	0	0	0	0	0	0	0	0	
Feb	0	0	0	0	0	0	0	0	0	0	1.00	
Mar	0	0	0	0	0	0	0	0	0	0	0	
Apr	0	0	0	0	0	0	0	0	0	0	7.16	
May	0	0	0	0	0	0	0	0	0	0	5.31	
Jun	0	0	0	0	0	0	0	0	0	0	8.24	
Sub-total	0	0	0	0	0	0	0	0	0	0	21.71	
Jul	0	0	0	0	0	0	0	0	0	0	4.63	
Aug	0	0	0	0	0	0	0	0.022	0	0	2.98	
Sep	0	0	0	0	0	0	0	0.026	0	0	6.01	
Oct	0	0	0	0	0	0	0	0.009	0	0	7.96	
Nov	-	-	-	-	-	-	-	-	-	-	-	
Dec	-	-	-	-	-	-	-	-	-	-	-	
Total	0	0	0	0	0	0	0	0.057	0	0	43.29	

Forecast of Total Quantities of C&D Materials to be Generated from the Contractor

Total Quantity Generated (in '000 m ³)	Hard Rock & Large Broken Concrete (in '000 m ³)	Reused in the Contract (in '000 m ³)	Reused in other Projects (in '000 m ³)	Disposed as Public Fill (in '000 m ³)	Imported Fill (in '000 m ³)	Metals (in '000 kg)	Paper/ cardboard packaging (in '000 kg)	Plastics (see Note 3) (in '000 kg)	Chemicals Waste (in '000 kg)	Others, e.g. general refuse (in '000 kg)
0	0	0	0	0	0	0	1	1	0.5	50

Notes:

(1) The performance targets are given in PS Clause 6.21.8(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.

The Contractor shall also submit the latest forecast of the total amount of C&D materials expected 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 50,000 m³. (PS Clause 6.21.7(4)(b) refers).

APPENDIX I
EVENT ACTION PLANS

APPENDIX I – Event / Action Plans

Table I-1 Event / Action Plan For Air Quality

EVENT	ACTION				CONTRACTOR
	ET	IEC	ER	ER	
ACTION LEVEL					
1. Exceedance for one sample	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	1. Notify Contractor.	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate. 	
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented 	<ol style="list-style-type: none"> 1. Submit proposals for remedial actions to IEC within three working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate. 	

ACTION					CONTRACTOR	
EVENT	ET	IEC	IER	ER		
LIMIT LEVEL						
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform Contractor ,IEC, ER, 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. 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate 		
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be 	<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; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance 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, 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by 		

EVENT	ACTION				CONTRACTOR
	ET	IEC	ER	CONTRACTOR	
	<p>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>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>the ER until the exceedance is abated</p>	

Table I-2 Event / Action Plan For Construction Noise

EVENT	ACTION			CONTRACTOR
	ET	IEC	ER	
Action Level being exceeded	<ol style="list-style-type: none"> 1. Notify IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC; 2. Implement noise mitigation proposals.
Limit Level being exceeded	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC, ER, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 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 Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

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

APPENDIX J IMPLEMENTATION SCHEDULE OF ENVIRONMENTAL MITIGATION MEASURES (EMIS)

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures	Who to implement the measures?	Location of the measure	When to implement the measures?	Requirements / Relevant Legislations
A	Air Quality					
S2.4.1.3	<p>Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices:</p> <ul style="list-style-type: none"> • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty material remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extended beyond the pedestrian barriers, fencing or traffic cones; • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; 	To minimize the dust impact	Contractor	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	Air Pollution Control Ordinance (APCO) and Air Pollution Control (Construction Dust) Regulation

	<ul style="list-style-type: none"> Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system. 							
B	Noise							
S3.4.1.1	Use of movable barrier, enclosure, acoustic mat and quiet plant. Use of wooden frames barrier with a small-cantilevered upper portion of superficial density not less than 14kg/m ² on a skid footing with 25mm thick internal sound absorptive lining.	To minimize construction noise impact arising from the Project at the affected noise sensitive receivers (NSRs)	Contractor	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	EIAO-TM,		
S3.4.1.2	<p>Good Site Practice:</p> <ul style="list-style-type: none"> Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program. Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program. Mobile plant, if any, should be sited as far away from NSRs as possible. Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities. 	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work Sites	Construction period of Advance Works and Main Works of Phase 1A	EIAO-TM, NCO		
C	Ecological Impact							
S4.2.1.2	Avoid unnecessary lighting.	Minimize mortality impacts on birds.	Design/ Contractor/ Plant Operator	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	EIAO-TM		
S4.2.1.3	Good construction site practice to minimise dust generation should be followed on all construction sites. Measures to avoid, minimise and mitigate impacts on air quality are detailed in this schedule	Minimize dust generation from construction sites.	Contractor	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	EIAO-TM		
S4.2.1.4	The following measures to avoid, minimise and mitigate impact on water quality during construction phase shall be implemented	Avoid, minimise and mitigate impact	Contractor	Work Sites	Construction phase of Advance Works	EIAO-TM		

<ul style="list-style-type: none"> • Temporary sewerage and drainage to be designed and installed to collect wastewater and prevent it from entering water bodies; • Proper locations well away from nearby water bodies should be used for temporary storage of materials (i.e. equipment, filling materials, chemicals and fuel) and temporary stockpiles of construction debris and spoil, and these should be identified before commencement of works; • To prevent muddy water entering nearby water bodies, work sites close to nearby water bodies should be isolated, using such items as sandbags or silt curtains with lead edge at bottom and properly supported props. Other protective measures should also be taken to ensure that no pollution or siltation occurs to the water gathering grounds of the work sites; • Construction debris and spoil should be covered and/or properly disposed of as soon as possible to avoid these being washed into nearby water bodies; • Proper locations for discharge outlets of temporary wastewater treatment facilities well away from sensitive receivers should be identified; • Adequate lateral support should be erected where necessary in order to prevent soil/mud from slipping into water bodies; • Site boundaries should be clearly marked and any works beyond the boundary strictly prohibited; • Regular water monitoring and site audit should be carried out at adequate points along any watercourses where construction works are underway upstream within their catchments and also on the Ng Tung, Sheung Yue and Shek Sheung Rivers. If the monitoring and audit results show that pollution occurs, adequate measures including temporarily cessation of works should be considered; • Excavation profiles should be properly designed and executed with attention to the relevant requirements for environment, health and safety; • Where soil to be excavated is situated beneath the groundwater table, it may be necessary to lower the groundwater table by installing well points or similar means; • Stockpiling sites should be lined with impermeable sheeting and bundled. Stockpiles should be properly covered by impermeable sheeting to reduce dust emission during dry season or contaminated run-off during rainy season. Watering should be avoided on stockpiles of contaminated soil to minimize contaminated runoff and construction materials should be properly covered and located away from nearby water bodies; and • Supply of suitable clean backfill material after excavation, if required. • Vehicles containing any excavated materials should be suitably covered to limit potential dust emissions or contaminated run-off, and truck 	<p>on water quality</p>	<p>and Main Works of Phase 1A</p>
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	<p>bodies and tailgates should be sealed to prevent discharge during transport or during wet season;</p> <ul style="list-style-type: none"> • Speed control for the trucks carrying contaminated materials should be enforced; • Vehicle wheel washing facilities at construction sites' exit points should be established and used, where necessary; and • Other measures as detailed in this schedule. 							
D	Water Quality Impact							
S5.2.2.1	Construction Site Runoff Practices and measures provided in the Practice Note for Professional Persons on Construction Site Drainage, (PROPECC PN1/94) should be followed where applicable.	Control construction runoff	Contractors	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	EIAO-TM, WPCO, EIAO		
S5.2.2.2–S5.2.2.3	<p>Sewage from Workforce</p> <ul style="list-style-type: none"> • Portable chemical toilets and sewage holding tanks should be provided for handling the construction sewage generated by the workforce. A licensed Contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance. • Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the Project. Regular environmental audit on construction site should be conducted in order to provide an effective control of any malpractices and achieve continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the Project would not cause water quality impact after undertaking all required measures 	Handling of site sewage	Contractors	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	EIAO-TM, WPCO, EIAO		
E	Waste Management							
S6.2.2.1	<p>Good Site Practices and Waste Reduction Measures:</p> <ul style="list-style-type: none"> • Nomination of an approved person, such as a site manager, to be responsible for the implementation of good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site; • Training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling; • Provision of sufficient waste disposal points and regular collection for disposal; • Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • Regular cleaning and maintenance programme for drainage systems, 	Minimize waste Generation during construction	Contractor	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	Waste Disposal Ordinance (WDO)		

<p>sumps and oil interceptors;</p> <ul style="list-style-type: none"> An Environmental Management Plan (EMP) should be prepared by the contractor and submitted to the Engineer for approval. 	<p>Waste Reduction Measures:</p> <ul style="list-style-type: none"> Segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal; Proper storage and site practices to minimize the potential for damage and contamination of construction materials; Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; Sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc.); and Provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling. 	<p>Reduce waste generation</p>	<p>Contractor</p>	<p>Work Sites</p>	<p>Prior to the commencement of construction of Advance Works and Main Works of Phase 1A</p>	<p>WDO</p>
<p>S6.2.4.1 - S6.2.4.2</p>	<p>Storage, Collection and Transportation of Waste Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include:</p> <ul style="list-style-type: none"> Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away, and Different locations should be designated to stockpile each material to enhance reuse. Remove waste in timely manner; Employ the trucks with cover or enclosed containers for waste transportation; Obtain relevant waste disposal permits from the appropriate authorities; and Disposal of waste should be done at licensed waste disposal facilities. 	<p>Minimize waste impacts arising from waste storage</p>	<p>Contractor</p>	<p>Work Sites</p>	<p>Construction phase of Advance Works and Main Works of Phase 1A</p>	<p>WDO</p>
<p>S6.2.5.3</p>	<p>C&D Material from Buildings Demolition and New Building Construction</p> <ul style="list-style-type: none"> The Contractor should recycle as much as possible of the C&DM on-site. Public fill and C&DM waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. For example, concrete and masonry can be crushed and used as fill, and steel reinforcing bar can be used by scrap steel mills. Different areas of the work sites should be designated for such segregation and storage. The use of wooden hoardings shall not be allowed. An alternative material, such as metal, aluminium or alloy etc, could be used. Government has developed a charging policy for the disposal of waste to landfill at present. It will provide additional incentive to reduce the 	<p>Minimize waste impacts from demolition and new building construction</p>	<p>Contractor</p>	<p>Work Sites</p>	<p>Construction phase of Advance Works and Main Works of Phase 1A</p>	<p>Land (Miscellaneous Provisions) Ordinance, WDO, ETWB TCW No. 19/2005</p>

	<p>volume of generated waste and ensure proper segregation to allow reuse of the inert material on site when implemented.</p> <ul style="list-style-type: none"> In order to minimize the impacts of the demolition works, the generated wastes must be cleared as quickly as possible after demolition. Therefore, the demolition and clearance works should be undertaken simultaneously. To facilitate proper segregation of inert and non-inert C&D material arising from demolition works, selective demolition method should be adopted. 				
S6.2.5.4	<p>Chemical Waste</p> <ul style="list-style-type: none"> If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producers. Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste contractor. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation 	Contractor	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	Waste Disposal (Chemical Waste General) Regulation, Code of Practice on the Packaging, Labelling and Storage of Chemical Waste
S6.2.5.5	<p>General Refuse</p> <ul style="list-style-type: none"> General refuse should be stored in enclosed bins separately from construction and chemical wastes. Recycling bins should also be placed to encourage recycling. Preferably enclosed and covered areas should be provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean. A reputable waste collector should be employed to remove general refuse on a daily basis. 	Contractor	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	Waste Disposal (Chemical Waste General) Regulation, Code of Practice on the Packaging, Labelling and Storage of Chemical Waste

**APPENDIX K
COMPLAINT LOG**

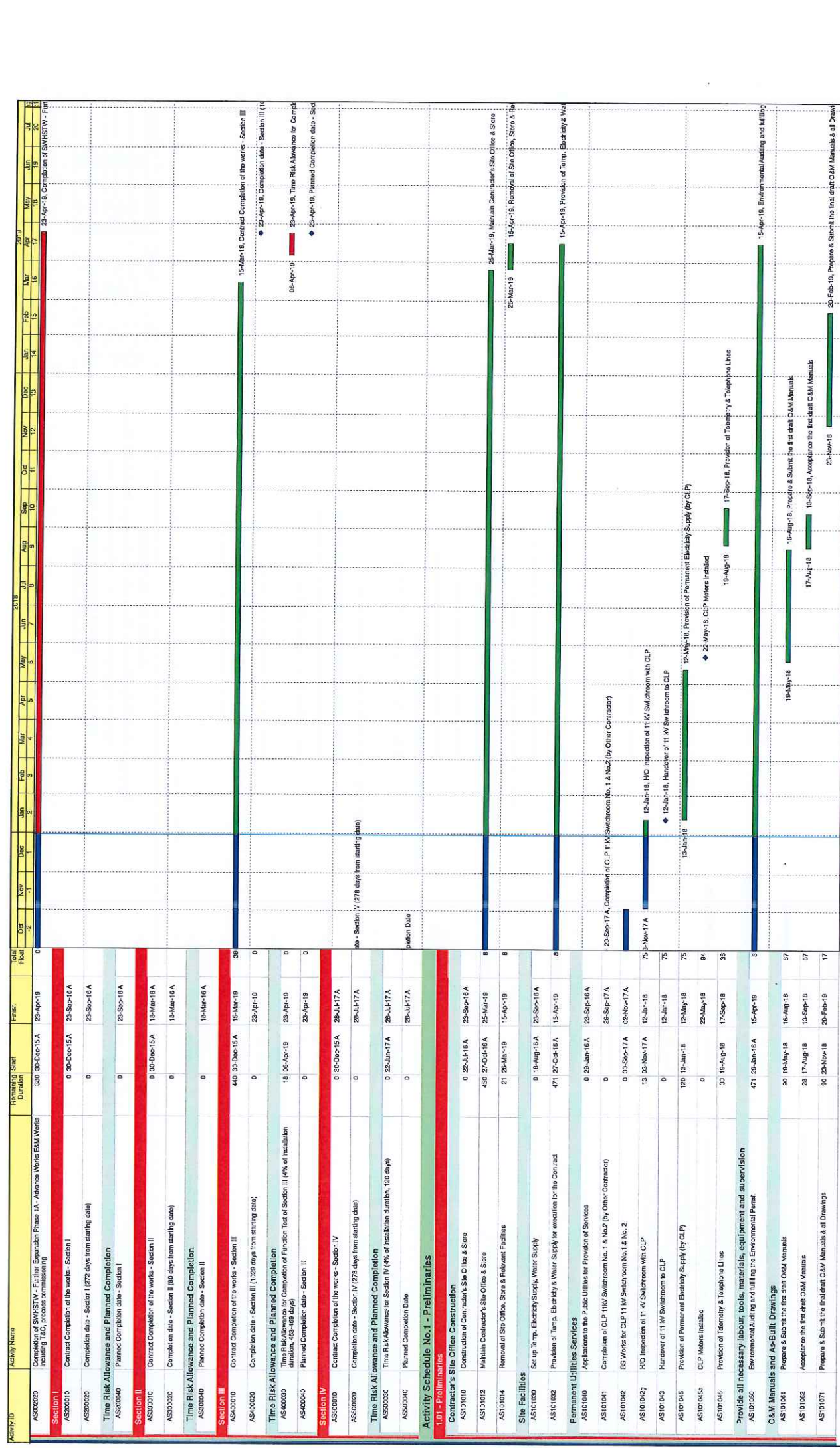
APPENDIX K – COMPLAINT LOG

Reporting Month: October 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 month.

**APPENDIX L
CONSTRUCTION PROGRAMME**



Activity ID	Activity Name	Remaining Start	Remaining Duration	Final	Total Float
AS200020	Completion of SWHSTW - Further Expansion Phase 1A - Advance Works E&M Works including T&C, process commissioning	30-Dec-15A	381	23-Apr-19	0
Section I					
AS200010	Contract Completion of the works - Section I	30-Dec-15A	0	23-Sep-16A	0
AS200020	Completion date - Section I (272 days from starting date)		0	23-Sep-16A	0
Time Risk Allowance and Planned Completion					
AS200040	Planned Completion date - Section I		0	23-Sep-16A	0
Section II					
AS200010	Contract Completion of the works - Section II	30-Dec-15A	0	18-Mar-16A	0
AS200020	Completion date - Section II (80 days from starting date)		0	18-Mar-16A	0
Time Risk Allowance and Planned Completion					
AS200040	Planned Completion date - Section II		0	18-Mar-16A	0
Section III					
AS200010	Contract Completion of the works - Section III	30-Dec-15A	440	15-Mar-19	38
AS200020	Completion date - Section III (1025 days from starting date)		0	23-Apr-19	0
Time Risk Allowance and Planned Completion					
AS200040	Time Risk Allowance for Completion of Function Test of Section III (4% of installation duration, 45-49 days)		18	06-Apr-19	0
AS200040	Planned Completion date - Section III		0	23-Apr-19	0
Section IV					
AS200010	Contract Completion of the works - Section IV	30-Dec-15A	0	28-Jul-17A	0
AS200020	Completion date - Section IV (278 days from starting date)		0	28-Jul-17A	0
Time Risk Allowance and Planned Completion					
AS200040	Time Risk Allowance for Section IV (4% of installation duration, 120 days)		0	22-Jun-17A	0
AS200040	Planned Completion Date		0	28-Jul-17A	0
Activity Schedule No.1 - Preliminaries					
LO1 - Preliminaries					
Contractor's Site Office Construction					
AS101010	Construction of Contractor's Site Office & Store	22-Jul-16A	0	23-Sep-16A	0
AS101012	Maintain Contractor's Site Office & Store	27-Oct-16A	450	25-Mar-19	0
AS101014	Removal of Site Office, Store & Relevant Facilities	26-Mar-19	21	15-Apr-19	0
Site Facilities					
AS101020	Set up Temp. Electricity Supply, Water Supply	19-Aug-16A	0	23-Sep-16A	0
AS101022	Provision of Temp. Electricity & Water Supply for installation for the Contract	27-Oct-16A	471	15-Apr-19	0
Permanent Utilities Services					
AS101040	Applications to the Public Utilities for Provision of Services	29-Jan-16A	0	23-Sep-16A	0
AS101041	Completion of CLP 11kV Switchroom No. 1 & No.2 (by Other Contractor)	29-Sep-17A	0	29-Sep-17A	0
AS101042	BS Works for CLP 11 kV Switchroom No. 1 & No. 2	02-Nov-17A	0	02-Nov-17A	0
AS101042g	H/O Inspection of 11 kV Switchroom with CLP	03-Nov-17A	13	12-Jan-18	75
AS101043	Handover of 11 kV Switchroom to CLP	13-Jan-18	0	12-Jan-18	75
AS101045	Provision of Permanent Electricity supply (by CLP)	13-Jan-18	120	12-May-18	75
AS101045a	CLP Meters Installed		0	23-May-18	04
AS101045b	Provision of Telemetry & Telephone Lines	19-Aug-18	30	17-Sep-18	36
Provide all necessary labour, tools, materials, equipment and supervision					
AS101050	Environmental Auditing and Lifting the Environmental Permit	20-Jan-16A	471	15-Apr-19	0
O&M Manuals and As-Built Drawings					
AS101061	Prepare & Submit the first draft O&M Manuals	19-May-18	90	16-Aug-18	87
AS101062	Acceptance the first draft O&M Manuals	17-Aug-18	28	13-Sep-18	87
AS101071	Prepare & Submit the final draft O&M Manuals & all Drawings	23-Nov-18	90	20-Feb-19	17

File Name: DE201401G3
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Contract No. DE/2014/01
**Provision of E&M Facilities for Shek Wu Hui Sewage Treatment Works
 Further Expansion Phase 1A - Advance Works and
 Ng Chow South Road Sewage Pumping Station
 Master Programme**

Date	Revision	Checked	Approved
08-Jan-16	Rev. 0	KH Lau	KM
22-Jun-17	Rev. D	KH Lau	KM
12-Jul-17	Rev. E	KH Lau	KM
17-Oct-17	Rev. F	KH Lau	KM
27-Mar-18	Rev. G	KH Lau	KM

Activity ID	Activity Name	Remaining Duration	2019												Total Float			
			Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov		Dec		
AS101072	Acceptance the final O&M Manuals & all Drawings	28	21-Feb-19														21-Feb-19	34
Training to Employer's Staff on the O&M of the Plant		17	45	21-Feb-19	06-Apr-19													
AS101080	Provide training for the Employer's Staff																	
PM's Site Office		6	471	29-Mar-16A	15-Apr-19													
AS101090	Provide E&M equipment & Office Stationary for the use of Project Manager and Supervisors																	
AS101180	Provide aerial support to the Project Manager's site office																	
Site Progress		8	471	07-Jun-16A	15-Apr-19													
AS101100	Provide all necessary photographs, video clips and accessories																	
Contract Vehicle		0	30	Dec-15A	28-Jan-16A													
AS101110	Provision of one contract vehicle services (Electric Vehicle) during the normal working hours																	
AS101120	Provide Contract Vehicle Services, one (Petrol-Electric) & one (Electric) during the normal working hours																	
AS101130	Provide O&M of the Contract Cars; Driving Services; Mobile Phone Services (normal working hours)																	
AS101140	Provide O&M of the Electric Contract Cars; Driving Services (outside normal working hours)																	
AS101150	Provide O&M of the Petrol-Electric Contract Cars; Driving Services (outside normal working hours)																	
Uniform		9	471	29-Jan-16A	15-Apr-19													
AS101170	Uniform for Site Personnel and self-employed workers																	
Independent Checking Engineer		9	471	29-Jan-16A	15-Apr-19													
AS101180	Provision of Independent Certified Engineer in accordance with the Specification																	
Automated External Defibrillator (AED)		0	18	Nov-16A	12-Dec-16A													
AS101190	Provide Automated External Defibrillator (AED) and associated accessories																	
AS101192	Provide Training for Qualified on-site personnel for the use of AED																	
Site Management Plan for Trip Ticket System		0	30	Dec-15A	13-Mar-16A													
AS102010	Complete site management plan for the ticket system																	
AS102020	Implementation of site management plan for trip ticket system																	
Site Cleaning and Tidiness		4	471	26-Sep-17A	19-Apr-19													
AS102030	(i) Site and works area in Shek Wu Hui Sewage Treatment Works - Daily																	
AS102020	(ii) Site and works area in Ng Chow Nam Road Sewage Pumping Station - Daily																	
AS103030	(i) Site and works area in Shek Wu Hui Sewage Treatment Works - Weekly																	
AS103040	(ii) Site and works area in Ng Chow Nam Road Sewage Pumping Station - Weekly																	
Subcontractor Management Plan		9	471	29-May-16A	15-Apr-19													
AS104010	Complete sub-contractor management plan																	
AS104020	Quarterly updating of sub-contractor management plan																	
Waste Management Plan		8	471	29-Mar-16A	15-Apr-19													
AS105010	Complete waste management plan																	
AS105020	Review and updating of waste management plan																	
Safety Scheme		4	471	26-Feb-16A	27-Feb-16A													
AS106010	Complete Safety Plan																	
AS106020	Update Safety Plan																	
AS106050	Provide Safety Officer																	
AS106070	Attend Site Safety and Environment Management Committee																	
AS106080	Attend Site Safety and Environment Committee																	
AS106090	Arrange and attend weekly safety walk																	
AS108100	Arrange and attend weekly environmental walk																	
AS108110	Provide safety and environment training - (i) 1 day course (for first attachment)																	
AS105120	Provide safety and environment training - (ii) 0.5 day revalidation course																	
AS105130	Provide safety and environment training - site specific induction training																	

Contract No. DE/2014/01

Provision of E&M Facilities for Shek Wu Hui Sewage Treatment Works

Further Expansion Phase 1A - Advance Works and

Ng Chow South Road Sewage Pumping Station

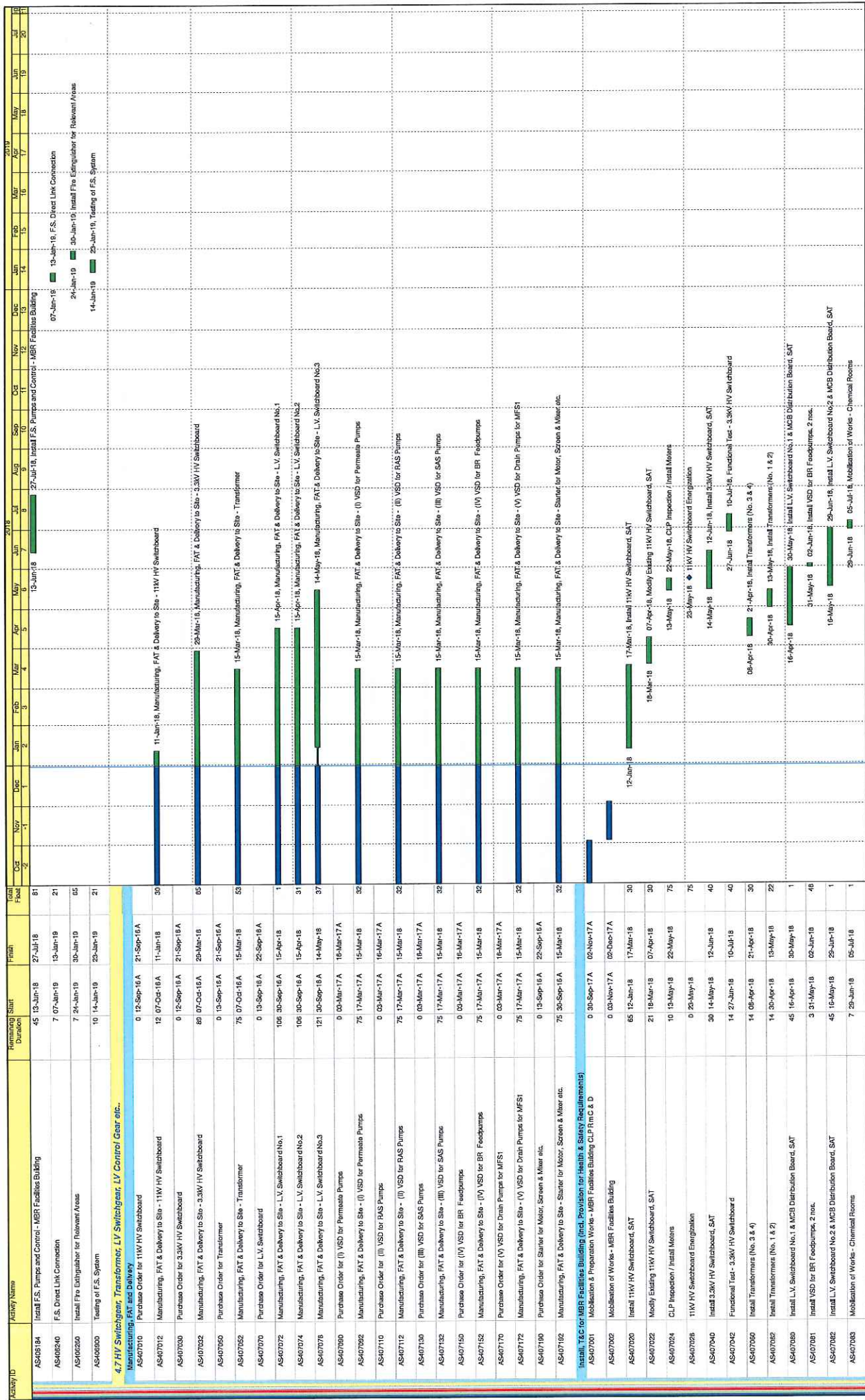
Master Programme

File Name: DE/201401G3
 Layout: DE/1401 (Rev. G) - WBS
 TASK Filter: All Activities

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Date	Revision	Checked	Approved
08-Jan-16	Rev. 0	KH Lau	KM
22-Jun-17	Rev. D	KH Lau	KM
12-Jul-17	Rev. E	KH Lau	KM
17-Oct-17	Rev. F	KH Lau	KM
27-Mar-18	Rev. G	KH Lau	KM

Activity ID	Activity Name	Remaining Start	Finish	Total Float	2018	2019	2020																							
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
AS403012	Manufacturing, FAT & Delivery to Site - Membrane Modules	151	28-Mar-18A	58																										
AS403030	Purchase Order for Permeate Pumps	0	13-Sep-18A																											
AS403032	Manufacturing, FAT & Delivery to Site - Permeate Pumps	88	07-Oct-18A	0																										
AS403050	Purchase Order for Return Activated Sludge Pumps	0	13-Sep-18A																											
AS403052	Manufacturing, FAT & Delivery to Site - Return Activated Sludge Pumps	0	07-Oct-18A																											
AS403070	Purchase Order for Backwash Pumps (Item Deleted)	0	31-Aug-18A																											
AS403072	Manufacturing, FAT & Delivery to Site - Backwash Pumps (Item Deleted)	0	31-Aug-18A																											
AS403090	Purchase Order for Air Scouring Blowers	0	15-Aug-18A																											
AS403092	Manufacturing, FAT & Delivery to Site - Air Scouring Blowers	30	11-Apr-18A	102																										
AS403110	Purchase Order for Air Compressor	0	18-Dec-17A																											
AS403112	Manufacturing, FAT & Delivery to Site - Air Compressor	120	22-Dec-17A	57																										
AS403130	Purchase Order for Chemical Dosing System (I) NaOCl dosing pumps	0	05-Jun-17A																											
AS403132	Manufacturing, FAT & Delivery to Site - Chemical Dosing System (I) NaOCl dosing pumps	121	30-Jun-17A	80																										
AS403150	Purchase Order for Chemical Dosing System (I) Citric Acid dosing pumps	0	05-Jun-17A																											
AS403152	Manufacturing, FAT & Delivery to Site - Chemical Dosing System (I) Citric Acid dosing pumps	121	30-Jun-17A	116																										
AS403170	Purchase Order for Chemical Dosing System (II) Chemical storage tank	0	06-Feb-17A																											
AS403172	Manufacturing, FAT & Delivery to Site - Chemical Dosing System (II) Chemical storage tank	121	01-Mar-17A	118																										
AS403180	Purchase Order for Permeate Drain Pumps, Drain Pumps for MFSI and Cleaning Drain Pumps	0	28-Aug-17A																											
AS403182	Manufacturing, FAT & Delivery to Site - Permeate Drain Pumps, Drain Pumps for MFSI and Cleaning Drain Pumps	123	08-Sep-17A	93																										
AS403210	Purchase Order for Wash water pumping system	0	28-Aug-17A																											
AS403212	Manufacturing, FAT & Delivery to Site - Wash water pumping system	121	06-Sep-17A	125																										
AS403230	Purchase Order for Associated ductworks, pipeworks and valves	11	23-Jun-18	53																										
AS403232	Manufacturing, FAT & Delivery to Site - Associated ductworks, pipeworks and valves	90	03-Feb-18	53																										
AS403260	Purchase Order for Other associated equipment for MFSI	11	23-Jun-18	23																										
AS403262	Manufacturing, FAT & Delivery to Site - Other associated equipment for MFSI	60	03-Feb-18	23																										
AS403262	Manufacturing, FAT & Delivery to Site - Other associated equipment for MFSI	60	03-Feb-18	23																										
AS403262	Manufacturing, FAT & Delivery to Site - Other associated equipment for MFSI	60	03-Feb-18	23																										
AS403262	Manufacturing, FAT & Delivery to Site - Other associated equipment for MFSI	60	03-Feb-18	23																										
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AS403262	Manufacturing, FAT & Delivery to Site - Other associated equipment for MFSI	60	03-Feb-18	23																										
AS403262	Manufacturing, FAT & Delivery to Site - Other associated equipment for MFSI	60	03-Feb-18	23																										
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AS403262	Manufacturing, FAT & Delivery to Site - Other associated equipment for MFSI	60	03-Feb-18	23																										
AS403262	Manufacturing, FAT & Delivery to Site																													



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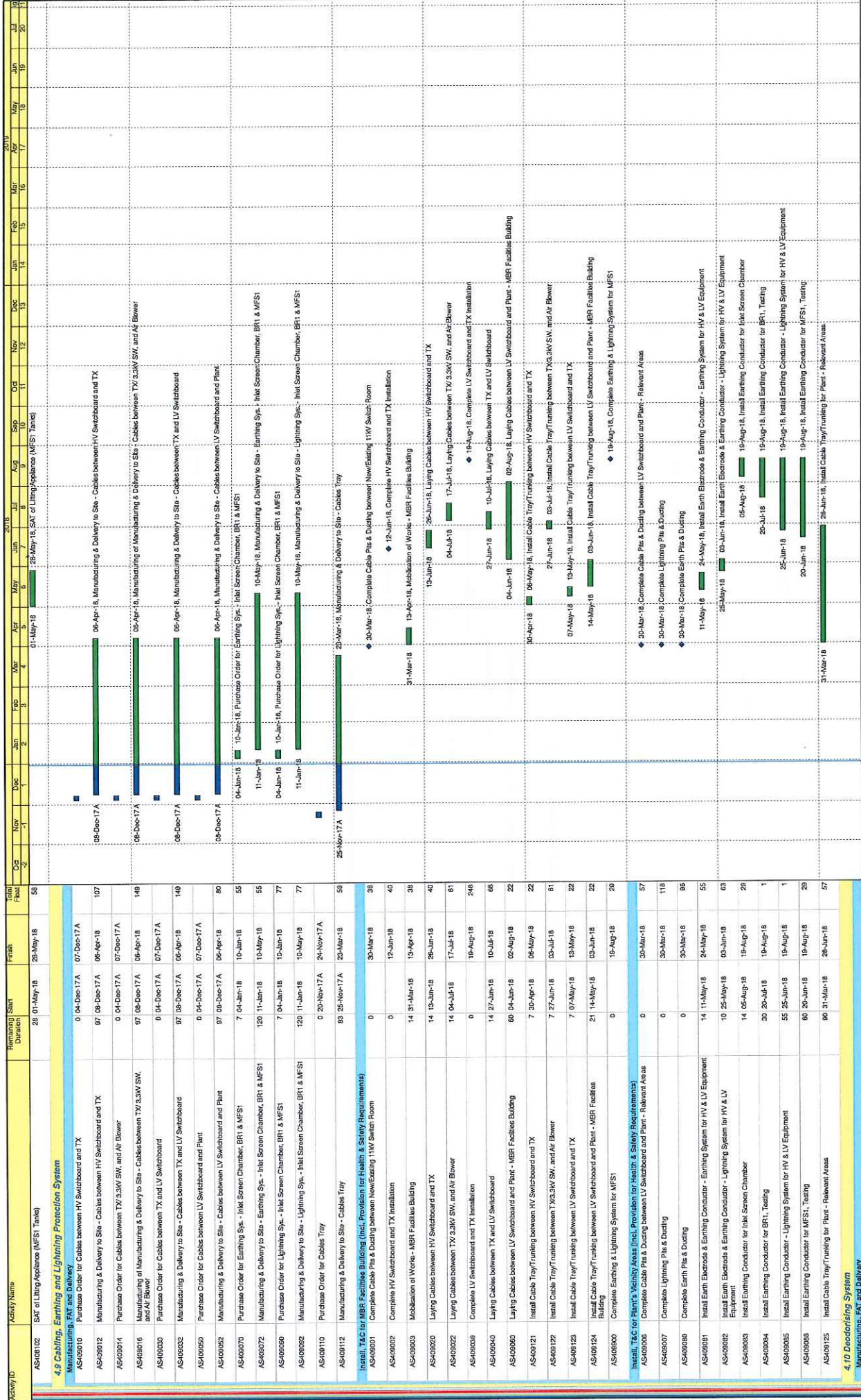
Contract No. DE/2014/01
 Provision of E&M Facilities for Shek Wu Hui Sewage Treatment Works
 Further Expansion Phase 1A - Advance Works and
 Ng Chow South Road Sewage Pumping Station
 Master Programme

Legend:

- Remaining Work
- Critical Activity
- Milestone
- Actual Progress

Date	Revision	Checked	Approved
08-Jan-16	Rev. 0	KH Lau	KM
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12-Jul-17	Rev. E	KH Lau	KM
17-Oct-17	Rev. F	KH Lau	KM
27-Mar-18	Rev. G	KH Lau	KM





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 Provision of E&M Facilities for Shek Wu Hui Sewage Treatment Works
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Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Post	Dec	Nov	Oct	Sept	Aug	July	June	May	April	March	Feb	Jan	2018	2019	2020
ASH10010	Purchase Order for Decoloration system with submillifier	0	10-Jul-17A	26-Jul-17A																
ASH10012	Manufacturing, FAT & Delivery to Site - Decoloration system with submillifier	136	27-Jul-17A	15-May-18	68															
ASH10030	Purchase Order for S.S. Ducting & Accessories	0	24-Jul-17A	25-Jul-17A																
ASH10032	Manufacturing & Delivery to Site - S.S. Ducting & Accessories	136	27-Jul-17A	15-May-18	90															
ASH10020	Install, T&C for MBR Facilities Building (incl. Provision for Health & Safety Requirements)	45	15-May-18	29-Jun-18	66															
ASH10040	Install S.S. Ducting, Accessories & Decoloring Control System	35	15-Jun-18	19-Jul-18	66															
4.11 Maintenance Platform & Covers																				
ASH11010	Purchase Order for maintenance platforms, stairways, hand railings and covers	7	01-Apr-18*	07-Apr-18	4															
ASH11012	Manufacturing & Delivery to Site - maintenance platforms, stairways, hand railings and covers	80	08-Apr-18	06-Jun-18	4															
ASH11030	Purchase Order for Maintenance Platform in Basement of MBR Facilities Building	7	01-Apr-18	07-Apr-18	19															
ASH11032	Manufacturing & Delivery to Site - Maintenance Platform in Basement of MBR Facilities Building	45	08-Apr-18	22-May-18	19															
ASH11050	Purchase Order for FRP covers for Membrane Facilities Tanks	0	02-May-17A	08-May-17A																
ASH11052	Manufacturing & Delivery to Site - FRP covers for Membrane Facilities Tanks	91	09-May-17A	31-Mar-18	20															
ASH11070	Purchase Order for Steel Cover for Air Blower Opening on 1/F of MBR Bldg. (Not required)	0	30-Dec-17A	30-Dec-17A																
ASH11072	Manufacturing & Delivery to Site - Steel Cover for Air Blower Opening on 1/F of MBR Bldg. (Not required)	0	30-Dec-17A	30-Dec-17A																
Install, T&C for Maintenance Platform & Covers (incl. Provision for Health & Safety Requirements)																				
ASH11020	Install maintenance platforms, stairways, hand railings and covers	75	07-Jun-18	29-Aug-18	4															
ASH11040	Install Hand Rail & Maintenance Platform in Basement of MBR Facilities Building	45	23-May-18	06-Jul-18	19															
ASH11060	Install FRP covers for Membrane Facilities Tanks	90	10-Apr-18	06-Jun-18	17															
ASH11080	Install Steel Cover for Air Blower Opening on 1/F of MBR Bldg. (Not required)	0	30-Dec-17A	30-Dec-17A																
4.12 SCADA																				
ASH12010	Purchase Order for Proposed SCADA	0	03-Jul-17A	19-Jul-17A																
ASH12012	Manufacturing & Delivery to Site - Proposed SCADA	90	19-Jul-17A	30-Mar-18	40															
ASH12030	Purchase Order for PLC System	0	10-Jul-17A	19-Jul-17A																
ASH12032	Manufacturing & Delivery to Site - PLC System	90	19-Jul-17A	30-Mar-18	40															
ASH12050	Purchase Order for Instrumentation in Flowmeter and MBR Pre-treatment Screen Chambers	91	31-Dec-17	31-Mar-18	23															
ASH12052	Manufacturing & Delivery to Site - Instrumentation in Flowmeter and MBR Pre-treatment Screen Chambers	90	01-Apr-18	29-Jun-18	23															
ASH12070	Purchase Order for Instrumentation in BR1	91	31-Dec-17	31-Mar-18	37															
ASH12072	Manufacturing of Instrumentation in BR1	90	01-Apr-18	29-Jun-18	37															
ASH12090	Purchase Order for Instrumentation in MFS1 & MFB	91	31-Dec-17	31-Mar-18	51															
ASH12092	Manufacturing & Delivery to Site - Instrumentation in MFS1 & MFB	90	01-Apr-18	29-Jun-18	51															
ASH1210	Purchase Order UPS for PLC Systems A	0	03-Jul-17A	19-Jul-17A																
ASH1212	Manufacturing & Delivery to Site - UPS for PLC Systems A	90	19-Jul-17A	30-Mar-18	177															
ASH12130	Purchase Order UPS for PLC Systems B	0	03-Jul-17A	19-Jul-17A																
ASH12132	Manufacturing & Delivery to Site - UPS for PLC Systems B	90	19-Jul-17A	30-Mar-18	177															
Install, T&C for SCADA (incl. Provision for Health & Safety Requirements)																				
ASH12001	Mobilisation of Works - Areas for laying works of optical fibres	7	03-Apr-18	09-Apr-18	8															
ASH12020	Laying Fibre Optical Ethernet Ring	30	10-Apr-18	09-May-18	9															
ASH12021	Set Up and Demonstrate at Site Functionality of the Proposed SCADA/PLC System A	45	10-May-18	23-Jun-18	9															
ASH12022	Mocky Setting Master Station at Control Room	45	24-Jun-18	07-Aug-18	12															
ASH12023	Install SCADA Master Station	35	08-Aug-18	11-Sep-18	12															
ASH12024	Wiring for Control & Monitoring Circuits, Termination - SCADA	30	12-Sep-18	11-Oct-18	12															

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Remaining Work

Critical Activity

Milestone

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Date

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Rev. D
Rev. E
Rev. F
Rev. G

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Activity ID	Activity Name	Remaining Start	Duration	Finish	Total Float	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
AS112014	ICE Certified / Re-submit Process Commissioning Plan	28	21-Sep-18	18-Oct-18	21																				
AS112016	Acceptance of Process Commissioning Plan	14	19-Oct-18	01-Nov-18	21																				
AS112020	Commencing of Process Commissioning	0	23-Nov-18	22-Dec-18	0																				
AS112022	Preparation for the Process Commissioning	30	23-Nov-18	22-Dec-18	0																				
AS112024	Process Commissioning	80	23-Dec-18	22-Mar-19	0																				
AS112030	Sample analysis of the testing conducted for process commissioning by an Independent Lab. (HOLAS)	70	26-Jun-19	05-Apr-19	0																				
AS112040	Completion of Process Commissioning	0	05-Apr-19	05-Apr-19	0																				
Section IV of Works																									
Value with Electric Actuators																									
Manufacturing, FAT and Delivery																									
AS001100	Procurement of Valves with electric actuators	0	13-Feb-18A	28-Apr-16A																					
AS001120	Manufacturing & Delivery / FAT of Valve with electric actuators	0	28-Mar-18A	08-Sep-18A																					
AS001100	Install, T&C for Valve with Electric Actuators (incl. Provision for Health & Safety Requirements)	0	31-Aug-16A	08-Sep-16A																					
AS002120	Install Valves with Electric Actuators	0	10-Sep-16A	25-Sep-16A																					
Modification of Control System																									
Manufacturing, FAT and Delivery																									
AS003100	Procurement of Control System	0	19-Mar-16A	01-Jun-16A																					
AS003120	Manufacturing, FAT & Delivery of Control System	0	02-Jun-18A	25-Sep-18A																					
AS004100	Install, T&C for Control System (incl. Provision for Health & Safety Requirements)	0	17-Mar-17A	11-May-17A																					
Associated Pipework and Fillings																									
Manufacturing, FAT and Delivery																									
AS005100	Procurement of Associated Pipework and Fillings	0	28-Feb-16A	01-Jun-16A																					
AS005120	Manufacturing, FAT & Delivery of Associated Pipework and Fillings	0	29-Mar-18A	08-Sep-18A																					
AS006100	Install, T&C for Associated Pipework & Fillings (incl. Provision for Health & Safety Requirements)	0	10-Sep-16A	25-Sep-16A																					
AS006200a	Availability of New Rising Main to Hung Lung SPS (By Others)	0		11-Apr-17A																					
AS006200a	Pipe connection to New Rising Main to Hung Lung SPS	0	01-Mar-17A	27-Mar-17A																					
Commissioning of the Pumping System																									
AS013100	Site Tests / Functional Test for level control and sensing equipment	0	12-Apr-17A	11-May-17A																					
AS013100a	Further Coordination with DSD for Carrying Out Commissioning Test	0	12-May-17A	06-Jun-17A																					
AS013120	Commissioning of the Pumping System	0	06-Jun-17A	08-Jun-17A																					
AS013120a	Upload PLC Programme for Modified Pump Control System	0	28-Jul-17A	28-Jul-17A																					

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