

The EIA Ordinance Register Office Environmental Protection Department 27th floor, Southorn Centre 130 Hennessy Road Wanchai Hong Kong Your reference:

Our reference:

ence: HKDSD201/50/105544

Date: 13 February 2019

BY HAND

Dear Sirs

Agreement No. SP 01/2015 Environmental Monitoring and Audit for Advance Works for Shek Wu Hui Sewage Treatment Works – Further Expansion Phase 1A Monthly EM&A Report for January 2019

On behalf of Drainage Services Department, we are pleased to submit herewith three hard copies and two electronic copies of the captioned report in accordance with Condition 3.4 of the Further Environmental Permit No. FEP-02-474/2013.

Should you have any queries, please do not hesitate to contact the undersigned or our Ms Hazel Chan on 2618 2831.

Yours faithfully ANEWR CONSULTING LIMITED

Adi Lee Independent Environmental Checker LYMA/LHHN/CYYH/lhmh

Encl.

 cc DSD – Ms Konica Cheung (email: wycheung@dsd.gov.hk) – w/ encl. DSD – Mr Fong Mo (email: mfong@dsd.gov.hk) – w/o encl.
 Wellab – Dr Priscilla Choy (email: priscilla.choy@wellab.com.hk) – w/o encl.
 JEC – Mr George Ng (email: george.ng@jec.com) – w/o encl.



Drainage Services Department

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

Monthly EM&A Report

(January 2019)

Verified by	•	Mr. Adi Lee
Position	:	Independent Environmental Checker
Date	:	14 February 2019

Drainage Services Department

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

Monthly EM&A Report

(January 2019)

		Chyp I
Certified by	:	Dr. Priscilla Choy
		Environmental Team Leader of
Position	:	Contract No. DE/2014/01
Date	:	12 February 2019

Table of Contents

1.	EXECU	JTIVE SUMMARY	. 1
	1.1	Summary of Major Construction Works taken in the Reporting Period	. 1
	1.2	Environmental Monitoring and Audit Activities	. 1
	1.3	Environmental Complaint	2
	1.4	Site Inspection	2
	1.5	Reporting Changes	2
	1.6	Future Key Issues	3
2.	INTRC	DUCTION	. 4
	2.1	Background	. 4
	2.2	Project Programme	. 5
	2.3	Purpose of the Report	. 5
	2.4	Project Organization	. 5
3.	ENVIR	ONMENTAL MONITORING AND AUDIT	. 7
4.	WAST	E MANAGEMENT	10
5.	IMPLE	MENTATION STATUS ON THE ENVIRONMENTAL PROTECTION REQUIREMENTS	11
6.	CONC	LUSION AND RECOMMENDATION	12
	6.1	Conclusion	12
	6.2	Recommendation	12

List of Tables

LISC OF TRADICS	
Table 2.1	Summary of Awarded Works Contracts
Table 2.2	Key Project Contacts
Table 3.1	Summary of Major Construction Activities in the Reporting Period
Table 3.2	Summary of 1-Hour TSP Monitoring Results in the Reporting Period
Table 3.3	Summary of 24-Hour TSP Monitoring Results in the Reporting Period
Table 3.4	Summary of Construction Noise Monitoring Results in the Reporting Period
Table 3.5	Log for Environmental Complaints, Notification of Summons and Successful Prosecutions for
	the Reporting Month
Table 4.1	Summary of Quantities of Inert C&D Materials and C&D Wastes for Contract No. DC/2013/09
Table 4.2	Summary of Quantities of Inert C&D Materials and C&D Wastes for Contract No. DE/2014/01
Table 5.1	Summary of Environmental Licenses and Permits for Contract No. DC/2013/09
Table 5.2	Summary of Environmental Licenses and Permits for Contract No. DE/2014/01

List of Appendix

Appendix A Monthly EM&A Report for Contract No. DE/2014/01

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 January 2019 (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	 Installation of Building Services at MBR Facilities Building Installation of Air pipes for air blowers at 1/F, MBR Facilities Building. Installation of MBR Pre-treatment Screen Facilities. Installation of ancillary aeration blowers and associated accessories beside Bioreactor No.1 (BR1). Installation of pipework in Bioreactor No.1 (BR1). Installation of permeate pipes at G/F, MBR facilities Building. Installation of chemical dosing system in Chemical Rooms. Electrical installation in Bioreactor No.1 (BR1) and 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
Ain Ouelity	1-hour TSP	30	0	0
Air Quality	24-hour TSP	12	0	0
Construction Noise	LAeq(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: 3, 9. 17, 23 and 30 January 2019

1.4.2 IEC conducted site audit on 17 January 2019. 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 follow:

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	 Installation of Building Services at MBR Facilities Building Installation of Air pipes for air blowers at 1/F, MBR Facilities Building. Installation of MBR Pretreatment Screen Facilities. Installation of ancillary aeration blowers and associated accessories beside Bioreactor No.1 (BR1). Installation of pipework & diffusers in Bioreactor No.1 (BR1). Installation of permeate pipes at G/F, MBR facilities Building. Installation of pipework in Membrane Filtration Tanks. Installation of chemical dosing system in Chemical Rooms. Electrical installation in Bioreactor No.1 (BR1) and MBR Facilities Building. 	 Leakage from chemicals containers Waste accumulation on site 	 Waste should be stored and disposed properly to avoid accumulation and leakage Accumulated waste to be recycled on-site whenever possible

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 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)	Wellab Limited (Wellab)	

Table 2.1Summary of Awarded Works Contracts

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 January 2019 (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 2.2Key Project Contacts

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

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	5
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	 Building Installation of Air pipes for air blowers at 1/F, MBR Facilities Building. Installation of MBR Pre-treatment Screen Facilities. Installation of ancillary aeration blowers and associated accessories beside Bioreactor No.1 (BR1).

 Table 3.1
 Summary of Major Construction Activities in the Reporting Period

- 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.

Monitoring Station ID	Location	TSP Concentration (mg/m ³)	Action Level (mg/m ³)	Limit Level (mg/m3)	Exceedance due to the Project Construction (Yes/No)
AM1	No. 31 Wai Loi Tsuen	87.1 – 145.3	286	500	No
AM2	Fu Tei Au	70.4 - 151.0	276	500	No

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

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/m3)	Exceedance due to the Project Construction (Yes/No)
AM1a	SWHSTW site boundary	50.7 – 95.9	147	260	No
AM2a	RE's Site Office	55.7 – 124.1	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	51.3 - 64.5	When one documented	75	No
NM2	Fu Tei Au	49.5 - 64.7	complaint is received	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 3, 9, 17, 23 and 30 January 2019 during the reporting period. In addition, IEC conducted site audit on 17 January 2019. No environmental non-compliance was identified in the reporting period.

Table 3.5Log 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
	Prior	Reporting	Cumulated	Location
	Months	Month	Cumulated	
Total C&D Materials (Inert) (in '000m ³)	24.00	0	24.00	
Hard Rock and Large Broken Concrete	2.26	0	2.26	
(Inert) (in 000m^3)	2.20	0	2.20	
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 4.2Summary of Quantities of Inert C&D Materials and C&D Wastes for Contract No.
DE/2014/01

Type of Waste		Quantity		Disposal
	Prior	Reporting	Cumulated	Location
	Months	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	
				Lau Choi Kee
Paper / Cardboard Packing (in '000kg)	0.089	0.016	0.105	Papers
				Co.Ltd.
Plastics (in '000kg)	0	0	0	
Chemical Wastes (in '000kg)	0	0	0	
General Refuses (in tonne)	55.79	4.06	59.85	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
1		(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
1	Futurei Environmentai Fermit	(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 January 2019 (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: 3, 9, 17, 23 and 30 January 2019

- 6.1.6 IEC conducted site audit on 17 January 2019. 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

- 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 license.

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.

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 January 2019

> > (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.

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

WELLAB LTD Room 1701, Technology Park, 18 On Lai Street, Shatin, NT, Hong Kong Tel: (852) 2898 7388 Fax: (852) 2898 7076 Email: info@wellab.com.hk

TABLE OF CONTENTS

		Page
EX	ECUTIVE SUMMARY	1
	Introduction	1
	Environmental Monitoring Works	
	Environmental Licenses and Permits	
	Environmental Mitigation Implementation Schedule	
	Key Information in the Reporting Month	
	Site Inspection Conducted by Government Department Summary of Complaints, Prosecutions, Reporting Changes and Notification of Summor	
	Future Key Issues	
1.	INTRODUCTION	4
	Background	4
	Project Organizations	4
	Summary of EM&A Requirements	5
2.	AIR QUALITY	6
	Monitoring Requirements	6
	Monitoring Locations	
	Monitoring Parameters, Frequency and Duration	
	Monitoring Equipment	
	Monitoring Methodology and QA/QC Procedure	7
	Results and Observations	9
3.	NOISE	11
	Monitoring Requirements	11
	Monitoring Locations	
	Monitoring Parameters, Frequency and Duration	
	Monitoring Equipment	
	Monitoring Methodology and QA/QC Procedures Results and Observations	
4	ENVIRONMENTAL AUDIT	
4.		14
	Site Audits	
	Implementation Status of Environmental Mitigation Measures Review of Environmental Monitoring Procedures	
	Status of Environmental Licensing and Permitting	
	Status of Waste Management	
	Implementation Status of Event Action Plans	15
	Site Inspection Conducted by Government Department	
	Summary of Complaints, Prosecutions, Reporting Changes and Notification of Summon	ns.15
5.	FUTURE KEY ISSUES	17
	Key Issues for the Coming Month	
	Monitoring Schedule for the Next Reporting Period	
	Construction Program for the Next Reporting Period	
6.	CONCLUSIONS AND RECOMMENDATIONS	18
	Conclusions	18
	Recommendations for Future Reporting Months:	18

LIST OF TABLES

- Table I Summary Table for Non-compliance (Exceedances) Recorded in the Reporting Month
- Table II Summary Table for Key Information in the Reporting Month
- **Key Project Contacts** Table 1.1
- Table 2.1 Locations for Air Quality Monitoring
- Impact Dust Monitoring Parameters, Frequency and Duration Table 2.2
- Summary of Monitoring Equipment Table 2.3
- Locations for Noise Monitoring Stations Table 3.1
- Noise Monitoring Parameters, Frequency and Duration Table 3.2
- **Observations of Site Audit** Table 4.1
- Table 4.2 Summary of Environmental Licensing and Permit Status
- Quantities of Waste Generated from the Reporting Month Table 4.3
- Table 5.1 Future Key Issue for the next Reporting Month

LIST OF FIGURES

- General Location Plan of the Project Figure 1
- Figure 2 Locations of Air Quality Stations
- Figure 3 Locations of Noise Monitoring Stations
- Figure 4 **Project Organization Chart**

LIST OF APPENDICES

А	Action and Limit Levels for Air Quality and Noise
В	Environmental Monitoring Schedules
С	Copies of Calibration Certificates
D	1-hour and 24-hour TSP Monitoring Results and Graphical Presentations
E	Noise Monitoring Results and Graphical Presentations
F	Summary of Exceedance
G	Site Audit Summary
Н	Summary of Amount of Waste Generated
т	

- Ι **Event Action Plans**
- J Environmental Mitigation Implementation Schedule (EMIS)
- Κ Complaint Log
- **Construction Programme** L

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 16th Monthly Environmental Monitoring and Audit (EM&A) Report prepared by Wellab 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
 - Installation of Air pipes for air blowers at 1/F, MBR Facilities Building.
 - Installation of MBR Pre-treatment Screen Facilities.
 - Installation of ancillary aeration blowers and associated accessories beside Bioreactor No.1 (BR1).
 - Installation of pipework in Bioreactor No.1 (BR1).
 - Installation of permeate pipes at G/F, MBR facilities Building.
 - Installation of pipework in Membrane Filtration Tanks.
 - Installation of chemical dosing system in Chemical Rooms.
 - Electrical installation in Bioreactor No.1 (BR1) and 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	Sun	nmary Table	e for Non-co	mpliance (E	xceedances)	Recorded in the	e Reporting
	Moi	nth					
	1						

Monitored	Monitoring	D	No. Excee		No. of Exe Due to the		Action
Ву	Station	Parameter	Action Level	Limit Level	Action Level	Limit Level	Taken
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	INDISE	0	0	0	0	N/A

1

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**

Event	Event Details		Action Taken	Status	Remark
Event	Number	Nature	ACTION TAKEN	Status	Kennark
Complaint received	0		N/A	N/A	
Reporting Changes					
Notifications of any summons & prosecutions received	0		N/A	N/A	

 Table II
 Summary Table for Key Information in the Reporting Month

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:

- Leakage from chemicals containers.
- Waste accumulation on site.

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
 - Installation of Air pipes for air blowers at 1/F, MBR Facilities Building.
 - Installation of MBR Pre-treatment Screen Facilities.
 - Installation of ancillary aeration blowers and associated accessories beside Bioreactor No.1 (BR1).
 - Installation of pipework in Bioreactor No.1 (BR1).
 - Installation of permeate pipes at G/F, MBR facilities Building.
 - Installation of pipework in Membrane Filtration Tanks.
 - Installation of chemical dosing system in Chemical Rooms.
 - Electrical installation in Bioreactor No.1 (BR1) and MBR Facilities Building.
- 1.6 Wellab 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 January 2019.

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 1.1Ke	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		
Wellab	Environmental Team	Dr. Priscilla Choy	ET Leader	2151 2089		
ANewR	Independent Environmental Checker	Mr. Adi Lee	Independent Environmental Checker	2618 2836		
The Jardine Engineering	Contractor	Mr. Kim Hung Lau	Project Manager	2947 1125		
Corporation, Limited	Conductor	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		No. 31 Wai Loi Tsuen
AM2	DE/2014/01	Fu Tei Au
AM1a	DE/2014/01	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 AM2	1-hour TSP	0700-1900 hrs	three times every 6 days
AM1a AM2a	24-hour TSP	0000-2400 hrs	once every 6 days

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 alterative monitoring station of AM1a. The copies of their calibration certificates is shown in **Appendix C**.

Table 2.3 Summary of Monitoring Equipment		
Equipment	Model and Make	
HVS	Tisch Model no. TE-5170	
Handheld Particle Counter	Met One Instruments Model no. AEROCET-831	
Calibrator	Tisch Model TE-5025A	

Table 2.3 Summary of Monitoring Equipment

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 Wellab'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 $\pm 5\%$. 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 $\pm 3^{\circ}$ C; the relative humidity (RH) should be < 50% and not vary by more than $\pm 5\%$. A convenient working RH is 40%. Weighing results were returned to Wellab 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.

Air Quality Monitoring Station	Average μg/m ³	Range µg/m³	Action Level µg/m ³	Limit Level µg/m ³	
	1 hour TSP				
AM1	112.5	87.1 - 145.3	286	500	
AM2	105.1	70.4 - 151.0	276	500	
	24 hours TSP				
AM1a	64.0	50.7 - 95.9	147	260	
AM2a	83.8	55.7 – 124.1	155	200	

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

- 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 Table3.1 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		No. 31 Wai Loi Tsuen
NM2	DE/2014/01	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	g Parameters, Free	quency and Duration
-----------	------------------	--------------------	---------------------

Monitoring Stations	Parameter	Period	Frequency
NM1	$L_{10}(30 \text{ min.}) dB(A)$ $L_{20}(30 \text{ min.}) dP(A)$	0700-1900 hrs on	Once per week
NM2	L90(30 min.) dB(A) Leq(30 min.) dB(A)	normal weekdays	Once per week

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 3.3Noise 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 B&K Model no.: 4231

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. <u>Field Monitoring</u>

- 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), Leq(30 min.)	Limit Level, dB(A)				
NM1	51.3 - 64.5	75.0				
NM2	49.5 - 64.7	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 3, 9, 17, 23 and 30 January 2019 by ET after the commencement of construction works for the Contract. A joint site audit with the representative of IEC was carried out on 17 January 2019. 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 nonconformance 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	23/01/2019	190123-R01	General refuse/construction waste should be cleared to avoid accumulation	Item was rectified on 30 Jan 2019.	
Permit/ Licenses	N/A	N/A			

Table 4.1Observations of Site Audit

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

	Valid Period		D (1	G4 4			
Permit No.	From	То	Details	Status			
Environmental Permit							
FEP-02/474/2013	15/2/2018	N/A	The FEP was approved on 15/2/2018	Valid			
Registered Chemical Waste Producer							

Valid Period		eriod		G ()
Permit No.	From	То	Details	Status
WPN5213-624- T3685-01	3/7/2017	N/A	The application was approved on 3/7/2017	Valid
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 4.3Quantities of Waste Generated from the Reporting Month

Type of waste		Quantity	Disposal Location
C&D Materials (inert)		$0 m^3$	-
C&D Materials	General Refuse	4.06 tonne	NENT
(non-inert)	Chemical Waste	0 <i>kg</i>	-
	Paper/ cardboard	16 kg	Lau Choi Kee Papers Co. Ltd (35 Po Wan Road, Sheung Shui, NT)
	Plastics	0 kg	-
	Metals	0 <i>kg</i>	-

Implementation Status of Event Action Plans

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

<u>1-hr TSP</u>

4.9 No Action/Limit Level exceedance was recorded.

<u>24-hr TSP</u>

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
 Installation of Building Services at MBR Facilities Building Installation of Air pipes for air blowers at 1/F, MBR Facilities Building. Installation of MBR Pre- treatment Screen Facilities. Installation of ancillary aeration blowers and associated accessories beside Bioreactor No.1 (BR1). Installation of pipework & diffusers in Bioreactor No.1 (BR1). Installation of permeate pipes at G/F, MBR facilities Building. Installation of pipework in Membrane Filtration Tanks. Installation of chemical dosing system in Chemical Rooms. Electrical installation in Bioreactor No.1 (BR1) and MBR Facilities Building. 	 Leakage from chemicals containers. Waste accumulation on site. 	 Waste should be stored and disposed properly to avoid accumulation and leakage. Accumulated waste to be recycled on-site whenever possible.

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.

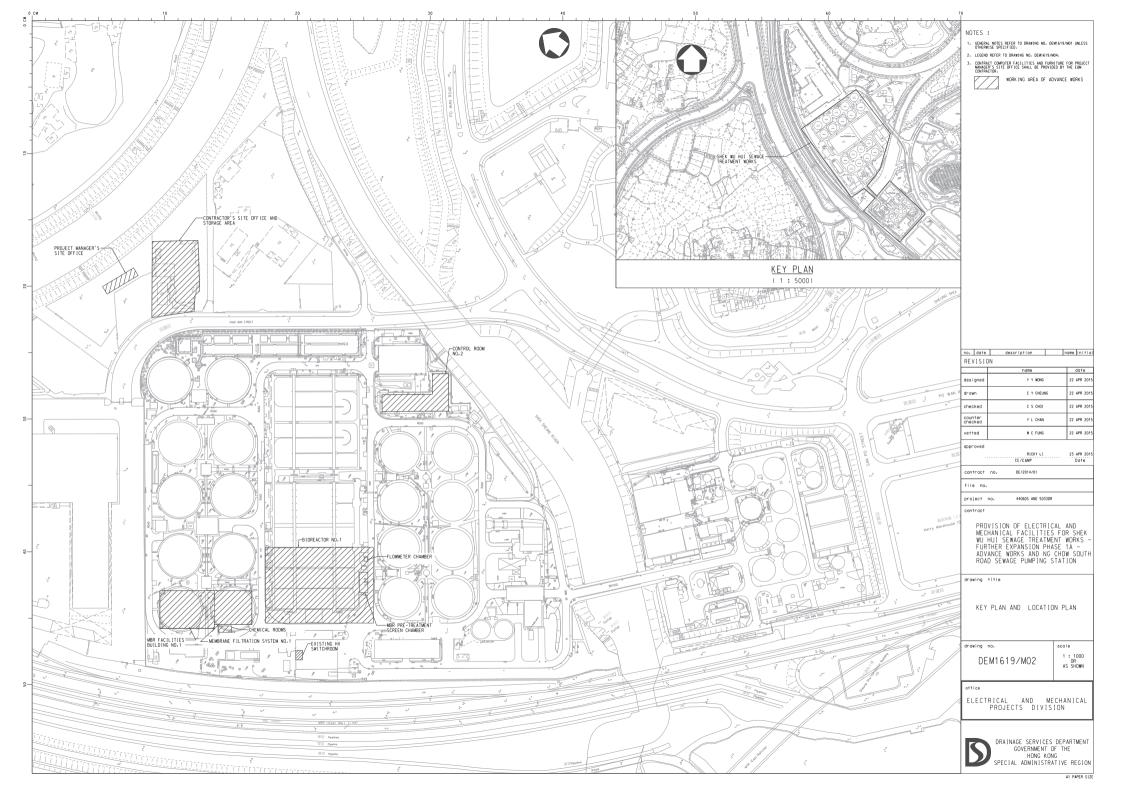
Water Quality

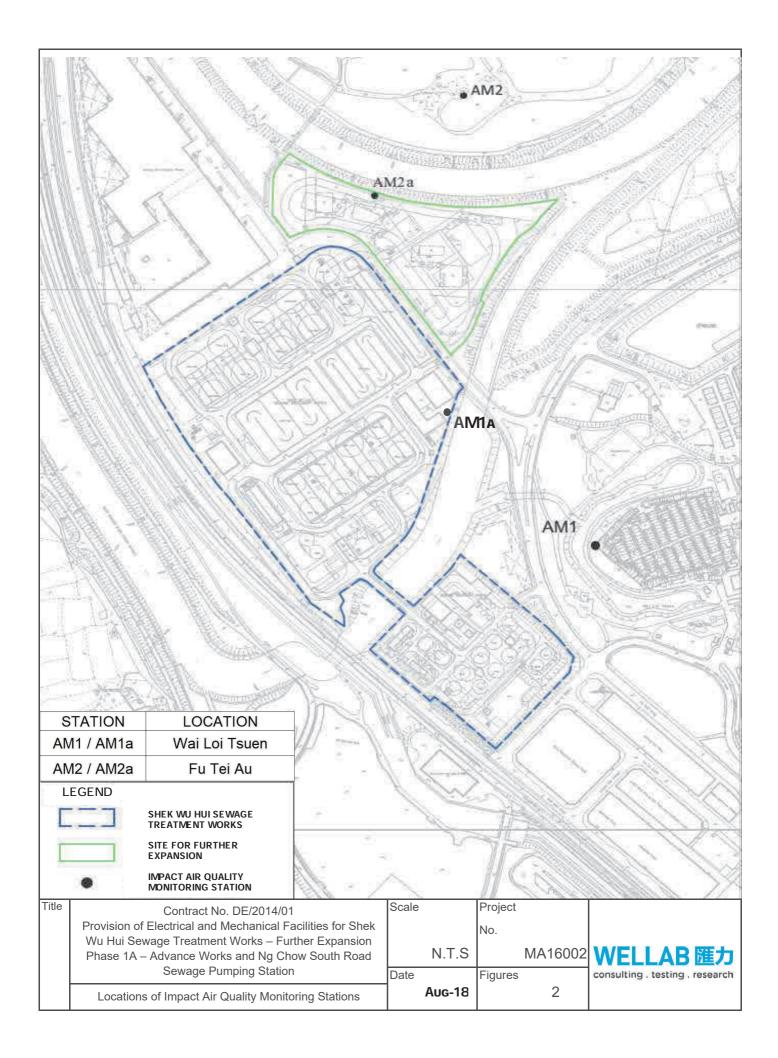
- To identify any discharge of wastewater from the construction site;
- To avoid blockage of U channel and drainage system by sediment;
- To avoid water accumulation on site and carry out larviciding against mosquito breeding for stagnant water when mosquito larvae are observed; and
- To avoid spoilage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

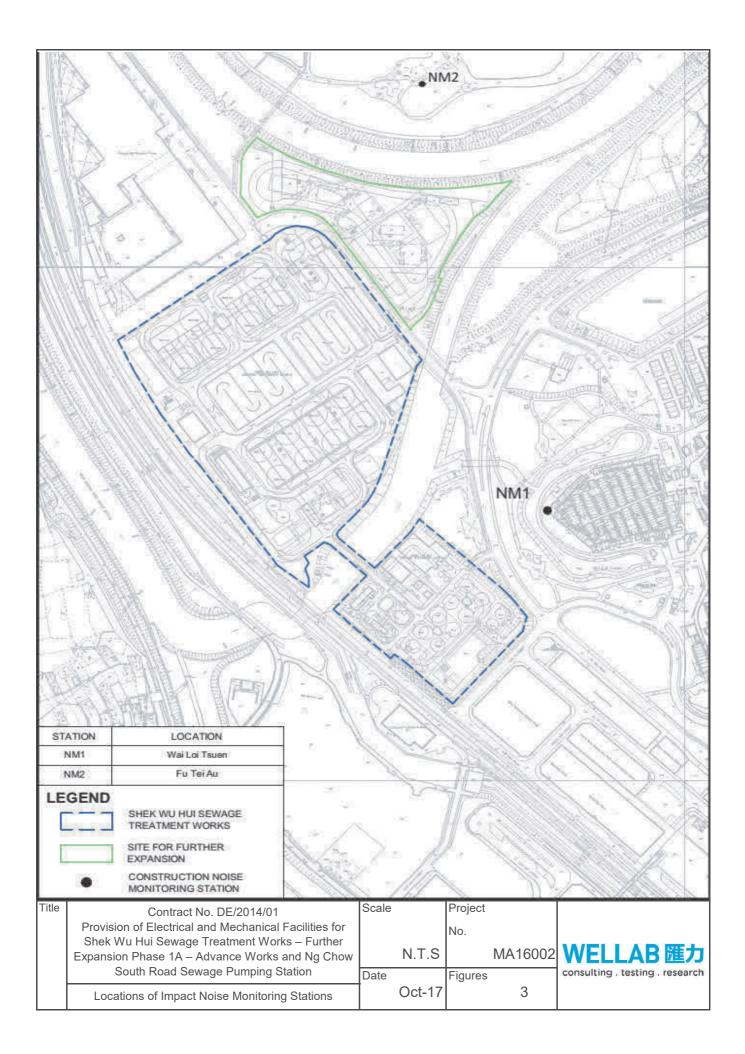
Waste/Chemical Management

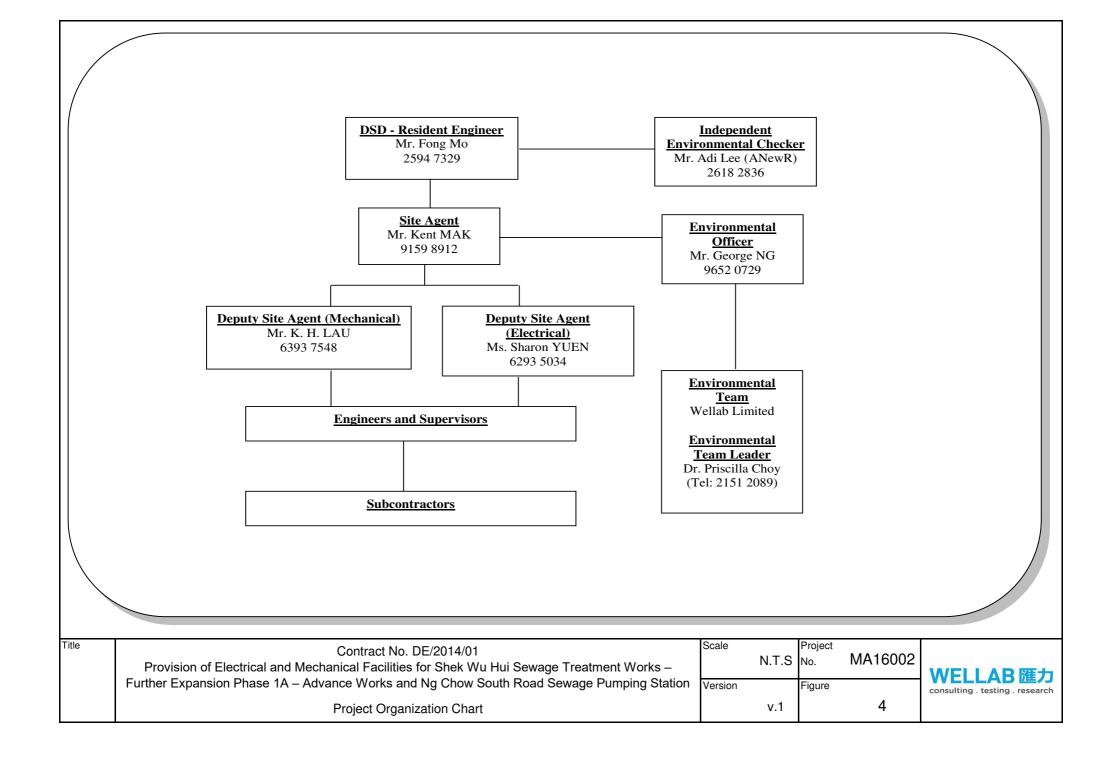
- To provide proper rubbish bins / skips for waste collection;
- To check for any accumulation of wasted materials or rubbish on site;
- To provide proper storage area or drip trays for oil and chemical containers on site;
- To avoid any discharge or accidental spillage of chemical waste or oil directly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

FIGURES









APPENDIX A ACTION AND LIMIT LEVELS FOR AIR QUALITY AND NOISE QUALITY Jardine Engineering Corporation Ltd.

Appendix A Action and Limit Levels

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

Monitoring Stations	Action Le	vel (µg/m ³)	Limit Level (µg/m ³)		
Monitoring Stations	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 1000 hours on normal wooldays	When one	>75*
NM2	0700-1900 hours on normal weekdays	documented complaint is received	10

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 January 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
~	ÿ	1-Jan	2-Jan	3-Jan	4-Jan	5-Jan
					1 hr TSP X3	
				24 hr TSP		
6-Jan	7-Jan	8-Jan	9-Jan	10-Jan	11-Jan	12-Jan
				1 h., TOD V2		
				1 hr TSP X3 Noise		
				Noise		
			24 hr TSP			
13-Jan	14-Jan	15-Jan	16-Jan	17-Jan	18-Jan	19-Jan
			1 hr TSP X3			
			Noise			
			1000			
		24 hr TSP				
20-Jan	21-Jan	22-Jan	23-Jan	24-Jan	25-Jan	26-Jan
		1 hr TSP X3				
		Noise				
	24 hr TSP				24 hr TSP	
27-Jan	28-Jan	29-Jan	30-Jan	31-Jan		
	1 hr TSP X3					
	Noise					
				24 hr TSP		

Air Quality Monitoring Station

Noise 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) 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 February 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Feb	2-Feb
					1 hr TSP X3	
3-Feb	4-Feb	5-Feb	6-Feb	7-Feb	8-Feb	9-Feb
3-Feb	4-reb	5-Feb	0-FeD	7-Feb	8-Feb	9-Feb
	1 hr TSP X3					1 hr TSP X3
	Noise					1 101 110
	24 hr TSP				24 hr TSP	
10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	15-Feb	16-Feb
					1 hr TSP X3	
					Noise	
				24 hr TSP		
17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	22-Feb	23-Feb
17-Feb	18-100	19-100	20-100	21-100	22-100	25-100
				1 hr TSP X3		
				Noise		
			24 hr TSP			
24-Feb	25-Feb	26-Feb	27-Feb	28-Feb		
		1 hr TSP X3				
		Noise				
	24 hr TSP					
	24 III 15r					
				l		

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

Air Quality Monitoring Station

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

APPENDIX C COPIES OF CALIBRATION CERTIFICATES



TEST REPORT

Test Report No.:	30573
Date of Issue:	2018-12-24
Date Received:	2018-12-21
Date Tested:	2018-12-21
Date Completed:	2018-12-24
Next Due Date:	2019-02-23
Page	1 of 1

Page:

OI 3

ATTN:

Mr. W. K. Tang

Certificate of Calibration		
Item for Calibration:		
Description	: Dust Monitor	
Manufacturer	: Met One Instruments	
Model No.	: AEROCET-831	
Serial No.	: X24476	
Flow rate	: 0.1 cfm	
Zero Count Test	: 0 count per 1 minute	
Equipment No.	: WA-01-05	
Test Conditions:		
Room Temperatre	: 17-22 degree Celsius	
Relative Humidity	: 40-70%	

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental 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)	1.186

PREPARED AND CHECKED BY:

For and On Behalf of WELLAB Ltd.

atick 1.6

PATRICK TSE Laboratory Manager



TEST REPORT

Test Report No.:	30573A
Date of Issue:	2018-12-24
Date Received:	2018-12-21
Date Tested:	2018-12-21
Date Completed:	2018-12-24
Next Due Date:	2019-02-23
Pane [,]	1 of 1

Page:

1 of 1

ATTN:

Mr. W. K. Tang

Cer	rtificate of Calibration
Item for Calibration:	
Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X24477
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-06
Test Conditions:	
Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental 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)	1.159

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

PATRICK TSE Laboratory Manager



TEST REPORT

APPLICANT: Wellab Limited (EM&A Department) Room 1701, Technology Park, 18 On Lai Street, Shatin, NT, Hong Kong

Test Report No.:	30677D
Date of Issue:	2019-01-14
Date Received:	2019-01-11
Date Tested:	2019-01-11
Date Completed:	2019-01-14
Next Due Date:	2019-03-13
Page:	1 of 1

ATTN:

Mr. W. K. Tang

	Certificate of Calibration		
Item for Calibration:			
Description	: Dust Monitor		
Manufacturer	: Met One Instruments		
Model No.	: AEROCET-831		
Serial No.	: X24475		
Flow rate	: 0.1 cfm		
Zero Count Test	: 0 count per 1 minute		
Equipment No.	: WA-01-07		
Test Conditions:			
Room Temperatre	: 17-22 degree Celsius		
Relative Humidity	: 40-70%		

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental 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)	1.195

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



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	
Page:	1 of 1	

ATTN:

Mr. W.K. Tang

Certificate of Calibration

Item for calibration:

	Description	: 'SVANTEK' Integrating Sound Level Meter
	Manufacturer	: SVANTEK
	Model No.	: SVAN 957
	Serial No.	: 21459
	Microphone No.	: 43676
۰ <i>۰</i>	Equipment No.	: N-08-08
•		

Test conditions:

Room Temperatre Relative Humidity : 17-22 degree Celsius : 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.

TRICK TSE

Laboratory Manager

ELLAB 進 sting & Research .

WELLAB LIMITED Rms 1214, 1502, 1516, 1701 & 1716, Technology Park, 18 On Lai Street, Shatin, N.T., Hong Kong. Tel: 2898 7388 Fax: 2898 7076 Website: www.wellab.com.hk

TEST REPORT 29815 **APPLICANT:** Cinotech Consultants Limited Test Report No.: 2018-09-15 Date of Issue: Room 1710, Technology Park, 2018-09-14 Date Received: 18 On Lai Street, Date Tested: 2018-09-14 Shatin, NT, Hong Kong Date Completed: 2018-09-15 Next Due Date: 2019-09-14 1 of 1 Page: **ATTN:** Mr. W.K. Tang **Certificate of Calibration**

Item for calibration:

Description Manufacturer Model No. Serial No. Microphone No. Equipment No.

: 'SVANTEK' Integrating Sound Level Meter : SVANTEK : SVAN 977 : 45482 : 63626 : N-08-14

Test conditions:

Room Temperatre **Relative Humidity** : 17-22 degree Celsius :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.:	30524
Date of Issue:	2018-12-17
Date Received:	2018-12-15
Date Tested:	2018-12-15
Date Completed:	2018-12-17
Next Due Date:	2019-12-16
Page:	1 of 1

ATTN:

Mr. W.K. Tang

Certificate of Calibration

Item for calibration:

Description Manufacturer Model No. Serial No. Equipment No. : Sound & Vibration Analyser
: BSWA
: BSWA 801
: 35924
: N-13-01

Test conditions:

Room Temperatre Relative Humidity : 17-22 degree Celsius : 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

	TE	ST REPO	RT	
APPLICANT:	Cinotech Consultan Room 1710, Technol 18 On Lai Street,		Test Report No.: Date of Issue: Date Received:	30524A 2018-12-17 2018-12-15
	Shatin, NT, Hong K	ong	Date Tested: Date Completed: Next Due Date:	2018-12-15 2018-12-17 2019-12-16
ATTN:	Mr. W.K. Tang		Page:	1 of 1
	Certific	ate of Cal	ibration	
Item for calibra	tion:			
I N N S	a tion: Description Manufacturer Model No. Serial No. Equipment No.	: Sound : BSWA : BSWA : 35921 : N-13-0	801	
I N S F	Description Manufacturer Model No. Serial No. Equipment No.	: BSWA : BSWA : 35921	801	
N N S H Test conditions: F	Description Manufacturer Model No. Serial No. Equipment No.	: BSWA : BSWA : 35921 : N-13-0	801 2 legree Celsius	
I M S E Fest conditions: F	Description Manufacturer Model No. Serial No. Equipment No. Room Temperatre Relative Humidity	: BSWA : BSWA : 35921 : N-13-0 : 17-22 d	801 2 legree Celsius	

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.

(That



TEST REPORT Test Report No .: 29816 **APPLICANT: Cinotech Consultants Limited** Date of Issue: 2018-09-29 Room 1710, Technology Park, Date Received: 2018-09-28 18 On Lai Street, Shatin, NT, Hong Kong Date Tested: 2018-09-28 Date Completed: 2018-09-29 Next Due Date: 2019-09-28 1 of 1 Page: Mr. W.K. Tang ATTN: Item for calibration: : Acoustical Calibrator Description : SVANTEK Manufacturer : SV30A Model No. Serial No. :24803 : N-09-03 Equipment No. **Test conditions:** : 17-22 degree Celsius Room Temperatre 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	$114.0 \pm 0.1 \text{ dB}$	

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



2019-09-28

1 of 1

TEST REPORT

APPLICANT:		Test Report No.:	29817
	Room 1710, Technology Park,	Date of Issue:	2018-09-29
	18 On Lai Street,	Date Received:	2018-09-28
	Shatin, NT, Hong Kong	Date Tested:	2018-09-28
		Date Completed:	2018-09-29

ATTN: Mr. W.K. Tang

Item for calibration:

Description: Acoustical CalibratorManufacturer: SVANTEKModel No.: SV30ASerial No.: 24780Equipment No.: N-09-05

Test conditions:

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

Next Due Date:

Page:

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	$94.0 \pm 0.1 \text{ dB}$
At 114 dB SPL	114.0	$114.0 \pm 0.1 \text{ dB}$

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



1 of 1

TEST REPORT

APPLICANT:	Cinotech Consultants Limited	Test Report No .:	29683
	Room 1710, Technology Park,	Date of Issue:	2018-08-20
	18 On Lai Street,	Date Received:	2018-08-17
	Shatin, NT, Hong Kong	Date Tested:	2018-08-17
		Date Completed:	2018-08-20
		Next Due Date:	2019-08-19

ATTN: Mr. W.K. Tang

Item for calibration:

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

Page:

Test conditions:

Room Temperatre Relative Humidity : 17-22 degree Celsius : 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.



File No. MA16002/70/0003

Station:	AM1a - SWIIST	AM1a - SWIISTW site boundary			HM		
Date:	23-Nov-18		ſ	Next Due Date:	22-Jan-		
Equipment No.:	A-01-70			Serial No.			
ner en grat af			Ambient (Condition		10 10 10 jun	
Temperatu	re Ta (K)	295.9	Pressure, Pa			766.9	
2 on point	10, 10, 15		,	(
and a sector to a	· · · · · · · · · · · · · · · · · · ·	Ori	fice Transfer Sta	ndard Informa	ation	in the	
Serial	l No.	2896	Slope, me	0.0585	Intercep	t, bc	-0.00045
Last Calibra	ation Date:	13-Feb-18		me x Qstd + bo	e⊷[∆H x (Pa/760)) x (298/Ta)] ¹	12
Next Calibr	00 80260 ⁸	13-Feb-19		Qstd = $\{[\Delta H x]$	(Pa/760) x (298/	Га)] ^{1/2} -bc} / п	ie
		Statestic 20				80-3	
test test			Calibration of	TSP Sampler			ar fear an
A.11. C		Or				HVS	
Calibration Point	∆H (orifice), in. of water	[ΔH x (Pa/76	0) x $(298/Ta)$] ^{1/2}	Qstd (CFM) X - axis	ΔW (IIVS), in. of water	12 200	60) x (298/Ta)] ^{1/2} (-axis
L	11.7		3,45	58.92	6.9		2.65
2	9.8		3,16	53.93	5.8		2.43
3	7.6	2	2.78	47.49	4.6		2.16
4	5,1	2	2.28	38.90	3.4		1.86
5	3,3	1	.83	31.30	2.4		1,56
Slope , mw == Correlation e	ocfficient* =	- 0.9	993	Intercept, bw [.] -	0.339	1	
*If Correlation (Coefficient < 0.99	0, check and rec	alibrate.				
	4	a 202	Set Point C	alculation			
From the TSP Fi	ield Calibration C	Curve, take Qstd	= 43 CFM				
From the Regres	sion Equation, th	e "Y" value acco	ording to				
			std + bw = $ \Delta W $	(De/760) = (2)	19/20-11/2		
		mw x Q	$s(a + bw - j\Delta w)$	((r w/ / 00) X (2:	70/ L'AJ		
Therefore, Se	et Point; W = (m	w x Qstd + hw ý	'x(760/Pa)x(Ta / 298) =	3.98		
al. 100							
Remarks:							
	2						
			,	1 .			ale lance
Conducted by:	128 MAN MOR	Signature:	A	det .		, , , , , , , , , , , , , , , , , , ,	02/11/2018
Checked by:	with lang	Signature:	Ku	In		Date:	1211117918



						File No.	MA16002/70/0004
Station:	AM1a - SWHS	TW site boundar	У	_ Operator:	HM		
Date:	22-Jan-19			Vext Due Date:	21-Mar	-19	
Equipment No .:	A-01-70		_	Serial No.	3216		
			-				
			Ambient C	Condition	1		
Temperatu	re, Ta (K)	286	Pressure, Pa	(mmHg)		771.4	
			-				
		Or	ifice Transfer Sta	ndard Inform	ation		. <u> </u>
Serial	No.	2896	Slope, mc	0.0585	Intercep	t, bc	-0.00045
Last Calibra	tion Date:	13-Feb-18		me x Qstd + bo	: = [ΔH x (Pa/760)) x (298/Ta)] ^{1/2}
Next Calibra		13-Feb-19	1		(Pa/760) x (298/		
			L		• • • • • • • • • • • • • • • • • • • •		
· · · · · · · · · ·	an an the state of t		Calibration of	TSP Sampler			·
		Or	fice			HVS	
Calibration Point	ΔH (orifice), in. of water		0) 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	11.7		3.52	60.11	7.7		2.85
2	9.7		3.20	54.73	6.0		2.52
3	7.4		2.80	47.80	4.9		2,28
4	5.0		2.30	39.30	3.4		1.90
5	3.4	1	1.90	32.41	2.5		1.63
By Linear Regr Slope , mw = Correlation co *If Correlation C	0.0433 pefficient* = coefficient < 0.99	- 0.9	9970 calibrate.	Intercept, bw :	0.205	7	
			Set Point C:	alculation			
From the TSP Fi From the Regress							
		mw x Q	std + bw = $[\Delta W x]$	(Pa/760) x (29	98/Ta)] ^{1/2}		
Therefore, Set	t Point; W = (m	w x Qstd + bw)	² x (760 / Pa) x ('	Ta / 298) =	4.04		
Remarks:							
Conducted by:	<i>lêt <u>Hai Hîtî</u> wi</i> kî, Taniy	Signature: Signature:	he: Kiwa			Date: - Date: -	22/1/2019



File No. MA16002/45/0003

Station:	AM2a - RE's Si	te Office		Operator: HM				
Date:	23-Nov-18		. 1	Next Due Date;	22-Jan			
Equipment No.:	A-01-45	A-01-45		Serial No.				
	an all to parts		Ambient (Condition	and show the			
Temperatur	е, Та (К)	296.2	Pressure, Pa	ı (mmllg)		766.5		
*1				160 217.4 2				
the set of the set of		Ori	ifice Transfer Sta	ndard Inform	ation	greditati i	a series and a	
Serial	No.	2896	Slope, me	0.0585	Intercep	t, bc	-0.00045	
Last Calibra	tion Date:	13-Feb-18		me x Qstd + be	с = ΔH x (Ра/760	9) x (298/Ta)	1/2	
Next Calibra	tion Date:	13-Feb-19	C 	$Qstd = \{ [\Delta H x] \}$	(Pa/760) x (298/	f`a) ^{1/2} -bc} / :	mc	
		a.,		19				
, ting a con-	<u>- 181 q 53</u>		Calibration of	TSP Sampler	ang			
Calibration		Or	fice			HVS		
Point	ΔH (orifice), in. of water	[Δ11 x (Pa/76	0) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	∧W (HVS), in. of water		760) x (298/Ta)] ^{1/2} Y-axis	
1	12.6	1	3.58	61.10	7.1		2.68	
2	10.5		3.26	55.78	5.8	like -	2,43	
3	7.6		2.78	47.45	1.6		2.16	
4	5.5		2.36	40.37	3.3		1.83	
5	3.4		1.86	31.74	2.4		1.56	
Slope , mw = Correlation co		0.9	976	Intercept, bw -	0.325	9		
*If Correlation C	anterior anterior	0, check and rec	alibrate.	-				
			Set Point C:	alculation		1 I		
From the TSP Fie	eld Calibration C	urve, take Ostd					8	
From the Regress								
C	•							
		mw x Q	std + bw = $\Delta W x$: (Pa/760) x (29	$(8/T_{\rm H})]^{1/2}$			
Therefore Cat	Daint W = (ma	ren Oatel I have Y	² x (760 / Pa) x ('	T. (200)	1.04			
Therefore, Set	Form; $w = (m)$	$w \ge Q \sin (1 + h w)$	x(10011-a)x(14/290)~	3.82			
					70			
Remarks:								
i-								
s								
Conducted by:	127. Mar HT-2	Signature:	he	, ' 7		Date:	23/11/2018	
Checked by:		Signature:		añ		Date: -	221,112-12	
CHICKER OF.	1 iang	orgnature.	1,00	····			471 (11 rold	
	v							



						File No.	MA16002/45/0004
Station:	AM2a - RE's Si	ite Office	Operator: HM				
Date:	22-Jan-19		Next Due Date:		21-Mar-19		
Equipment No.:	A-01-45	••• 40 • • •		Serial No.	1309		
			Ambient (Condition			
Temperatu	ıre, Ta (K)	286.4	Pressure, Pa	a (mmHg)		771.5	
	n din De Vindea - Line e en	Ori	fice Transfer Sta	ndard Inform	ation		
Seria	l No.	2896	Slope, mc	0.0585	Intercep		-0.00045
Last Calibr	ation Date:	13-Feb-18		mc x Qstd + be	$c = [\Delta H x (Pa/760)]$)) x (298/Ta)] ^{1/2}
Next Calibr	ation Date:	13-Feb-19		$Qstd = \{ [\Delta H x] \}$	(Pa/760) x (298/	$[Ta)]^{1/2} - bc\} /$	me
		•					
		A constant of the second s	Calibration of	TSP Sampler			
Calibration		Or	fice			HVS	
Point	ΔH (orifice), in. of water	[ΔH x (Pa/76	0) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water		760) x (298/Ta)] ^{1/2} Y-axis
1	12.4	3	.62	61.84	7.0		2.72
2	10.6	3	.35	57.18	5.9		2.50
3	7.8	2	87	49.05	4.8		2.25
4	5.4	2	.39	40.81	3.6		1.95
5	3.3	1	.87	31.91	2.4		1.59
By Linear Regr Slope , mw =	ession of Y on X 0.0367	<u>.</u>	:	Intercept, bw ·	0.436	3	
Correlation c	oefficient* =	0.9	985		· · · · · · · · · · · · · · · · · · ·		
*If Correlation C	Coefficient < 0.99	0, check and rec	alibrate.	-			
an a territer de			Set Point C	alculation			
From the TSP Fi	eld Calibration C	urve_take_Ostd :					
	sion Equation, the						
i ioni ino itograd	Sion Equation, ur		rung to				
÷		mw x Qs	$td + bw = [\Delta W x]$	(Pa/760) x (29	98/Ta)] ^{1/2}		
Therefore, Se	t Point; W – (mv	$v x Qstd + bw)^2$	x (760 / Pa) x ('	Ta / 298) = .	3.84		
Remarks:							
- ronarks.							
-							
Conducted by:	1 the law - Un-	Signature:	h.			Date:	2.2.1.1.2.10
		Signature: -	14.	." Dvő		-	10/10.9
Checked by.	Vere ung	orginature	- Prw.	pv.		Date: _	66 (11 201

					Å			Calibration Due date:
				VI	\$ /		Febr	wary 13, 201
nvir	o n m	ent	al		1		ne sast ar aine	
)			$\int O$			
	4	4.6	2 1			0.0	A.	
	0e	rafa	cate e	2pt	Oal	wra	rtion	
	al-unati Produkt							
			Calibration	Certificatio	on Informat	ion		
Cal. Date:	February 1	3, 2018	Rootsr	neter S/N:	438320	Ta;	293	°K
Operator:	Jim Tisch					Pa;	763.3	mm Hg
Calibration	Model #:	TE-5025A	Calib	rator S/N:	2896			
							10 10 10 10 10 10 10 10 10 10 10 10 10 1	
		Vol. Init	Vol. Final	∆Vol.	∆Time	ΔP	ΔН	
	Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(in H2O)	4
	1	1	2	1	1.4670	3.2	2.0	
	2	3	4	1	1.0380	6.4	4.0	
	3	5	6 8	1	0.9220	8.0 8.8	5.0	
	5	9	10	1	0.7250	12.8	8.0	
		-1	•					
			0	ata Tabula	tion			-
		00g 50g	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)}$	V Tstd			AULTO/DO	7
	Vstd	Qstd		NEWTRA CARDS SA		Qa	√∆Н(Та/Ра	/
	(m3)	(x-axis)	(y-axi		Va	(x-axis)	(y-axis)	
	1.0172	0.6934	1.429		0.9958	0.6788	0.876	
	1.0123	1.0962	2.023		0.9895	1.0732	1.385	
	1.0097	1.1422	2.370	1000	0.9885	1,1182	1,453	
	1.0043	1.3853	2.858	6	0.9832	1.3562	1.752	4
		m=	2.067			m⊭	1.2944	
	QSTD	b=	-0.000		QA	b=	-0.0002	
		t=	0.999	92		r=	0.99993	<u> </u>
		2000200000 NJ		Calculation				69
	Vstd=	ΔVol((Pa-ΔP)	/Pstd){Tstd/Ta		1002.00	ΔVol((Pa-ΔP	P)/Pa)	
	Qstd=	Vstd/∆Time	<u></u>	2		Va/ATime		-
		11	For subsequ	ent flow ra	te calculatio	15:		4
	Qstd=	1/m((√∆H(-	Pa <u>Tstd</u> Pstd Ta)-b)	Qa=	1/m ((\/ AH	(Та/Ра))-ь)	
í.	Standard	Conditions						
Tstd:				[RECAL	IBRATION	
Pstd:		mm Hg ey			US EPA reco	mmends ar	inual recalibrat	ion per 1998
ΔH: calibrat		er reading (ii	n H2O)				egulations Part	Construction Construction Construction Construction
ΔP: rootsme	eter manome	ter reading (Reference Met	
	bsolute temp						ended Particula	
Pa: actual b b: intercept		essure (mm l	Hg)		the	e Atmosphe	re, 9.2.17, page	e 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

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 (µg/m³)					
4-Jan-19	9:00	Cloudy	87.1					
4-Jan-19	10:00	Cloudy	91.9					
4-Jan-19	11:00	Cloudy	96.4					
10-Jan-19	13:00	Sunny	108.4					
10-Jan-19	14:00	Sunny	109.1					
10-Jan-19	15:00	Sunny	109.5					
16-Jan-19	13:00	Sunny	145.3					
16-Jan-19	14:00	Sunny	141.8					
16-Jan-19	15:00	Sunny	131.9					
22-Jan-19	9:00	Sunny	97.4					
22-Jan-19	10:00	Sunny	106.2					
22-Jan-19	11:00	Sunny	96.0					
28-Jan-19	9:00	Cloudy	114.2					
28-Jan-19	10:00	Cloudy	124.9					
28-Jan-19	11:00	Cloudy	127.8					
		Minimum	87.1					
		Maximum	145.3					
		Average	112.5					

Location AM2 - Fu Tei Au										
Date Time		Weather	Particulate Concentration (µg/m3							
4-Jan-19	14:00	Cloudy	73.7							
4-Jan-19	15:00	Cloudy	70.4							
4-Jan-19	16:00	Cloudy	83.6							
10-Jan-19	9:00	Sunny	105.7							
10-Jan-19	10:00	Sunny	102.7							
10-Jan-19	11:00	Sunny	103.3							
16-Jan-19 8:00		Sunny	128.2							
16-Jan-19 9:00		Sunny	132.0							
16-Jan-19 10:00		Sunny	151.0							
22-Jan-19 13:00		Sunny	93.3							
22-Jan-19	14:00	Sunny	104.2							
22-Jan-19	15:00	Sunny	110.8							
28-Jan-19	13:00	Cloudy	99.8							
28-Jan-19	14:00	Cloudy	108.6							
28-Jan-19	15:00	Cloudy	109.2							
		Minimum	70.4							
		Maximum	151.0							
		Average	105.1							

Appendix D- 24-hour TSP Monitoring Results

AM1a - SWHSTW site boundary

Sampling Date	Start Time	Weather	Air	Atmospheric	Filter Weight (g)		Particulate	Elapse Time		Sampling	Flow Rate	e (m ³ /min.)	Av. flow	Total vol.	Conc.
		Condition	Temp. (K)	Pressure, Pa (mmHg)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m ³)
3-Jan-19	9:00	Cloudy	285.3	772.6	3.3929	3.5101	0.1172	16608.6	16632.6	24.0	1.25	1.25	1.25	1803.8	65.0
9-Jan-19	9:00	Cloudy	288.7	770.7	3.3276	3.4348	0.1072	16632.6	16656.6	24.0	1.24	1.24	1.24	1788.4	59.9
15-Jan-19	9:00	Sunny	290.2	767.7	3.3724	3.4629	0.0905	16656.6	16680.6	24.0	1.24	1.23	1.24	1778.7	50.9
21-Jan-19	9:00	Cloudy	287.1	770.7	2.9645	3.1365	0.1720	16680.6	16704.6	24.0	1.25	1.25	1.25	1794.4	95.9
25-Jan-19	9:00	Cloudy	287.3	769.7	3.3578	3.4458	0.0880	16704.6	16728.6	24.0	1.21	1.20	1.21	1735.6	50.7
31-Jan-19	9:00	Sunny	291.9	768.4	3.3774	3.4837	0.1063	16728.6	16752.6	24.0	1.19	1.19	1.19	1718.8	61.8
		-		-			-						-	Min	50.7
														Max	95.9

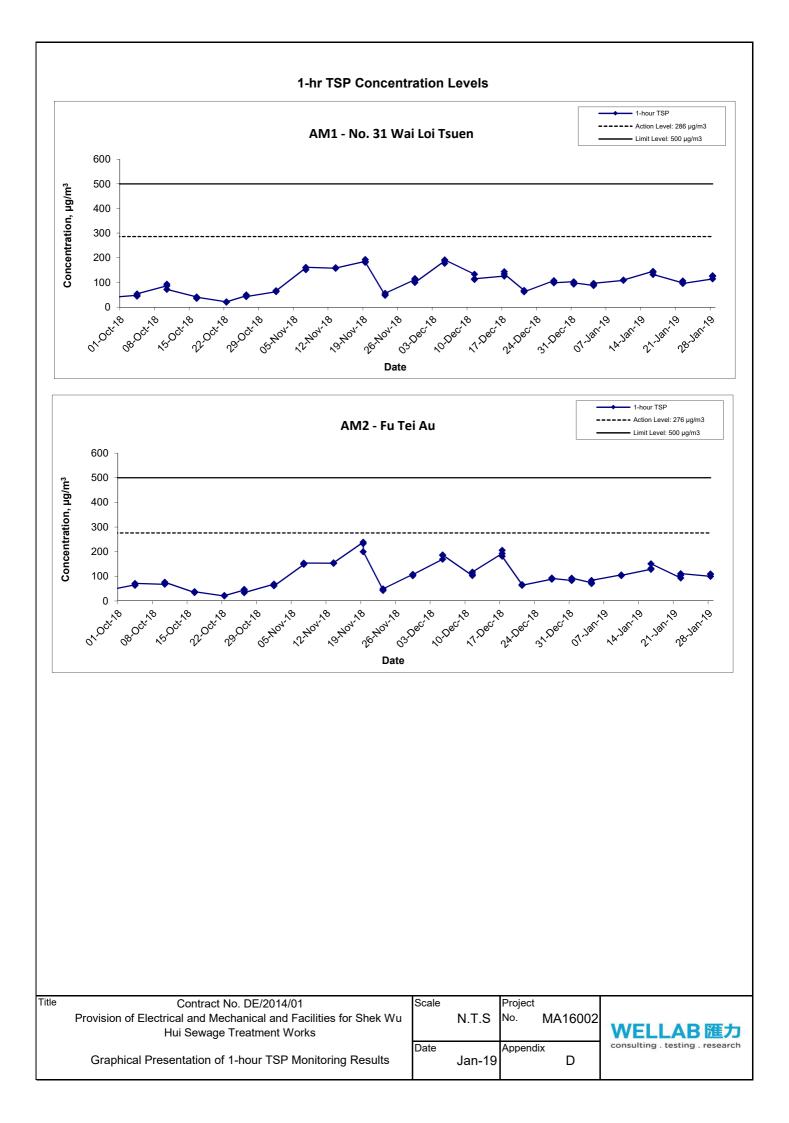
AM2a - RE's Site Office

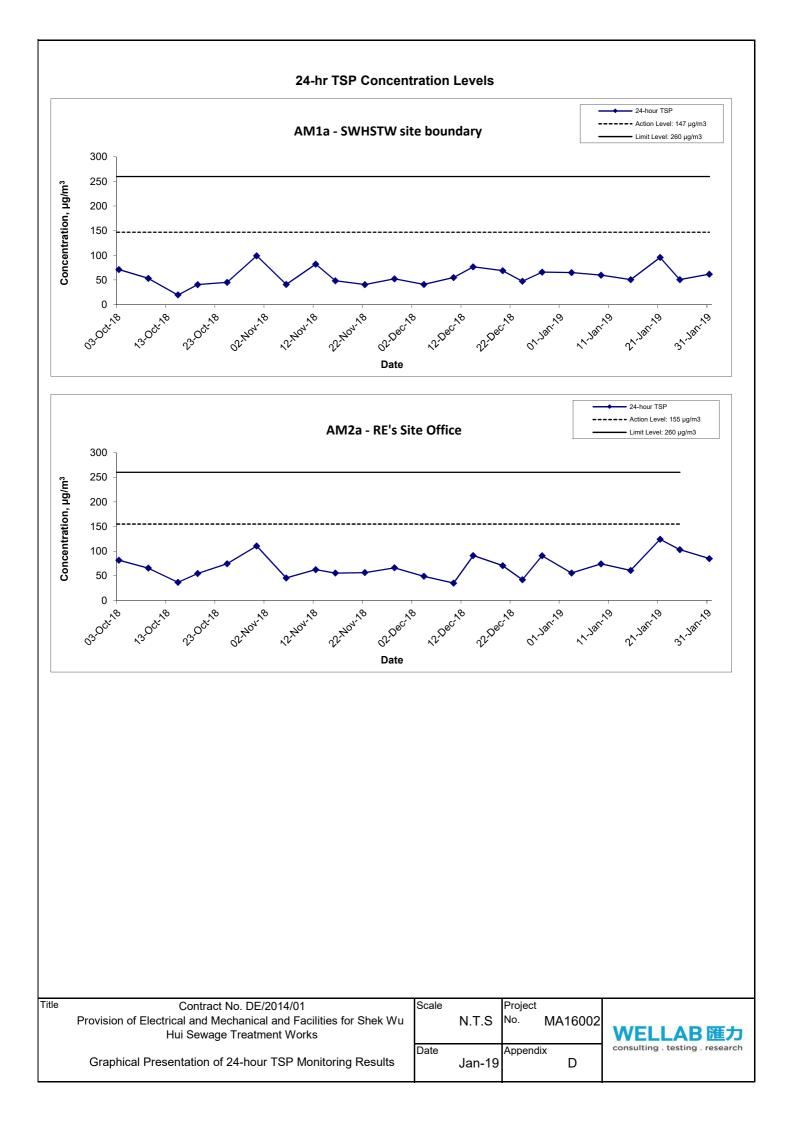
Sampling Date	Start Time	Weather	Air	Atmospheric	Filter Weight (g)		Particulate	Elapse Time		Sampling	Flow Rate (m ³ /min.)		Av. flow	Total vol.	Conc.
		Condition	Temp. (K)	Pressure, Pa (mmHg)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m ³)
3-Jan-19	9:00	Cloudy	295.5	772.3	3.3942	3.4921	0.0979	7621.2	7645.2	24.0	1.22	1.22	1.22	1757.5	55.7
9-Jan-19	9:00	Cloudy	288.8	770.8	3.3783	3.5102	0.1319	7645.2	7669.2	24.0	1.24	1.24	1.24	1779.7	74.1
15-Jan-19	9:00	Sunny	290.4	767.4	3.3714	3.4792	0.1078	7669.2	7693.2	24.0	1.23	1.23	1.23	1769.2	60.9
21-Jan-19	9:00	Cloudy	287.7	770.2	2.9954	3.2167	0.2213	7693.2	7717.2	24.0	1.24	1.24	1.24	1783.0	124.1
25-Jan-19	9:00	Cloudy	287.6	769.6	3.3857	3.5644	0.1787	7717.2	7741.2	24.0	1.20	1.20	1.20	1732.8	103.1
31-Jan-19	9:00	Sunny	291.5	768.1	3.3660	3.5117	0.1457	7741.2	7765.2	24.0	1.19	1.19	1.19	1715.7	84.9
														Min	55.7
														Max	124.1

Average 83.8

64.0

Average





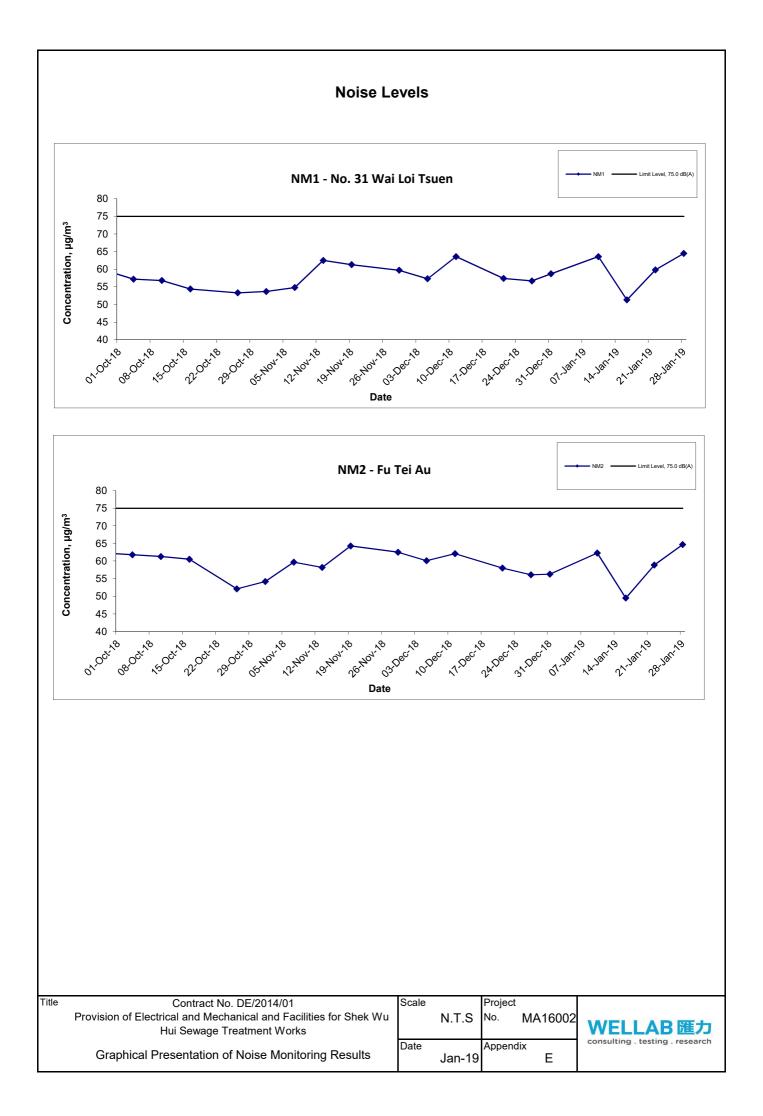
APPENDIX E NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Appendix E - Noise Monitoring Results

(0700-1900 hrs on Normal Weekdays)

Location NM1 - No.31 Wai Loi Tsuen						
Unit: dB (A) (30			:: dB (A) (30-i	-min)		
Date	Time	Weather	Measured Noise Level		_evel	
			L _{eq}	L ₁₀	L ₉₀	
10-Jan-19	13:10	Sunny	63.6	65.2	59.2	
16-Jan-19	15:30	Sunny	51.3	54.1	50.0	
22-Jan-19	9:30	Sunny	59.8	62.3	56.7	
28-Jan-19	13:55	Cloudy	64.5	65.8	61.3	

Location NM2 - Fu Tei Au						
			Unit	: dB (A) (30-i	min)	
Date	Time	Weather	Mea	sured Noise I	_evel	
			L _{eq}	L ₁₀	L ₉₀	
10-Jan-19	9:10	Sunny	62.3	64.5	58.4	
16-Jan-19	11:00	Sunny	49.5	51.6	40.0	
22-Jan-19	14:00	Sunny	58.9	61.7	52.5	
28-Jan-19	13:00	Cloudy	64.7	66.3	60.8	



APPENDIX F SUMMARY OF EXCEEDANCE

APPENDIX F – SUMMARY OF EXCEEDANCE

Reporting Month: January 2019

- 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

Checklist Reference Number	190103
Date	3 January 2019 (Thursday)
Time	09:30-10:30

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

Ref. No.	Remarks/Observations	Related Item No
	Part C - Water Quality	
	 No environmental deficiency was identified during the site inspection. 	
	Part D - Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	 <i>Part E – Construction Noise Impact</i> No environmental deficiency was identified during the site inspection. 	
	 Part F – Waste / Chemical Management No environmental deficiency was identified during the site inspection. 	
	<i>Part G - Permit / Licenses</i>No environmental deficiency was identified during the site inspection.	
	Others / Remarks	
	• Follow-up on previous audit session, no major environmental deficiency was observed.	

	Name	Signature	Date
Recorded by	Victor Wong	1223	3 January 2019
Checked by	Dr. Priscilla Choy	WF	3 January 2019

Checklist Reference Number	190109	
Date	9 January 2019 (Thursday)	
Time	09:30-10:30	

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

Ref. No.	Remarks/Observations	Related Item No.
	Part C - Water Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part D - Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part E – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	 Part F – Waste / Chemical Management No environmental deficiency was identified during the site inspection. 	
	Part G - Permit / Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Others / Remarks	
	• Follow-up on previous audit session, no major environmental deficiency was observed.	

	Name	Signature	Date
Recorded by	Jonathan Lee	M	14 January 2019
Checked by	Dr. Priscilla Choy	WI	14 January 2019

Checklist Reference Number	190117	
Date	17 January 2019 (Thursday)	
Time	09:30-10:30	

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

Ref. No.	Remarks/Observations	Related Item No.		
	Part C - Water Quality			
	• No environmental deficiency was identified during the site inspection.			
	Part D - Air Quality			
	• No environmental deficiency was identified during the site inspection.			
	Part E – Construction Noise Impact			
	• No environmental deficiency was identified during the site inspection.			
	 Part F – Waste / Chemical Management No environmental deficiency was identified during the site inspection. 			
	<i>Part G - Permit / Licenses</i>No environmental deficiency was identified during the site inspection.			
	Others / Remarks			
	• Follow-up on previous audit session, no major environmental deficiency was observed.			

	Name	Signaturø	Date
Recorded by	Jonathan Lee	<u> </u>	22 January 2019
Checked by	Dr. Priscilla Choy	WF	22 January 2019
		· · · · · · · · · · · · · · · · · · ·	

Checklist Reference Number	190123
Date	23 January 2019 (Wednesday)
Time	09:30-10:30

	. No.	Non-Compliance	Related Item No.
1	-	None identified	м

Ref. No.	Remarks/Observations	Related Item No.
	 Part C - Water Quality No environmental deficiency was identified during the site inspection. 	
	 No environmental deficiency was identified during the site inspection. No environmental deficiency was identified during the site inspection. 	
190123-R01	 <i>Part E – Construction Noise Impact</i> No environmental deficiency was identified during the site inspection. 	
	 Part F – Waste / Chemical Management General refuse/ Construction waste should be cleared regularly to avoid accumulation. 	F1i, F1iii
	 <i>Part G - Permit / Licenses</i> No environmental deficiency was identified during the site inspection. 	
	Others / Remarks	
	• Follow-up on previous audit session, no major environmental deficiency was observed.	

X	
-Dr	23 January 2019
NI	23 January 2019
	NF

Checklist Reference Number	190130
Date	30 January 2019 (Wednesday)
Time	09:45-10:45

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

Ref. No.	Remarks/Observations	Related Item No.
	Part C - Water Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part D - Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part E – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
190130-R01	 <i>Part F – Waste / Chemical Management</i> General refuse/ Construction waste should be disposed properly. 	F1iii
	Part G - Permit / Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Others / Remarks	
	• Follow-up on previous audit session, all environmental deficiency was rectified.	

	Name	Signature	Date
Recorded by	Jonathan Lee	<u> </u>	01 February 2019
Checked by	Dr. Priscilla Choy	NI	01 February 2019
			· · · · · · · · · · · · · · · · · · ·

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

		Annual Quan	tities of Inert C	&D Materials Ger	nerated Monthly		Annual Quantities of C&D Materials Generated Monthly					
Month	Total Quantity Generated	Hard Rock & Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemicals Waste	Others, e.g. general refuse	
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(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	0	0	0	0	0	0	0	0	0	0	5.30	
Dec	0	0	0	0	0	0	0	0.032	0	0	7.20	
Total	0	0	0	0	0	0	0	0.089	0	0	55.79	

	Forecast of Total Quantities of C&D Materials to be Generated from the Contractor									
Total Quantity Generated	Hard Rock & Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemicals Waste	Others, e.g. general refuse
(in '000 m ³)	(in '000 m ³)	(in '000 m ³)	(in '000 m ³)	(in '000 m ³)	(in '000 m ³)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)
0	0	0	0	0	0	0	1	0.5	0.5	70

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).

Name of Department: Drainage Services Department

Contract No. : DE/2014/01

Monthly Summary Waste Flow Table for 2019

		Annual Quan	tities of Inert Co	&D Materials Ger	nerated Monthly		An	nual Quantities of	f C&D Materials	Generated Mont	hly
Month	Total Quantity Generated	Hard Rock & Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemicals Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)
Jan	0	0	0	0	0	0	0	0.016	0	0	4.06
Feb	0	0	0	0	0	0	0	0	0	0	0
Mar	0	0	0	0	0	0	0	0	0	0	0
Apr	0	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0	0	0	0
Jun	0	0	0	0	0	0	0	0	0	0	0
Sub-total	0	0	0	0	0	0	0	0.016	0	0	4.06
Jul	0	0	0	0	0	0	0	0	0	0	0
Aug	0	0	0	0	0	0	0	0	0	0	0
Sep	0	0	0	0	0	0	0	0	0	0	0
Oct	0	0	0	0	0	0	0	0	0	0	0
Nov	0	0	0	0	0	0	0	0	0	0	0
Dec	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0.016	0	0	4.06

	Forecast of Total Quantities of C&D Materials to be Generated from the Contractor									
Total Quantity Generated	Hard Rock & Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemicals Waste	Others, e.g. general refuse
(in '000 m ³)	(in '000 m ³)	(in '000 m ³)	(in '000 m ³)	(in '000 m ³)	(in '000 m ³)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)
0	0	0	0	0	0	0	0.5	0.5	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

ACTION							
ET	IEC	ER	CONTRACTOR				
1. Identify source, investigate the causes of exceedance and propose	1. Check monitoring data submitted by ET;	1. Notify Contractor.	1. Rectify any unacceptable practice;				
remedial measures;	2. Check Contractor's working		2. Amend working methods				
 Inform IEC and ER; Repeat measurement to confirm finding; Increase monitoring frequency to 	method.		if appropriate.				
 Identify source; Inform IEC and ER; Advise the ER on the effectiveness of the proposed remedial measures; Repeat measurements to confirm findings; Increase monitoring frequency to daily; Discuss with IEC and Contractor on remedial actions required; If exceedance continues, arrange meeting with IEC and ER; If exceedance continues, attace 	 Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ET on the effectiveness of the proposed remedial measures; Supervise Implementation of remedial measures. 	 Confirm receipt of notification of exceedance writing; Notify Contractor; Ensure remedial measures properly implemented 	 Submit proposals for remedial actions to IEC within three working days of notification; Implement the agreed proposals; Amend proposal if appropriate. 				
	ET 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily. 1. 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	ETIEC1. Identify source, investigate the causes of exceedance and propose remedial measures;1. Check monitoring data submitted by ET;2. Inform IEC and ER; 3. Repeat measurement to confirm finding;2. Check Contractor's working method.4. Increase monitoring frequency to daily.1. Check monitoring data submitted by ET;3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings;1. Check contractor's working method.3. Advise the ER on the effectiveness of the proposed remedial measures; findings;3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures;5. Increase monitoring frequency to daily;4. Advise the ET on the effectiveness of the proposed remedial measures;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 additional5. Supervise Implementation of remedial measures.	ETIECER1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.1. Check monitoring data submitted by ET; 2. Check Contractor's working method.1. Notify Contractor.1. 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;1. Check monitoring data submitted by ET; 2. Check Contractor's working method;1. Confirm receipt of notification of exceedance writing; 2. Notify Contractor; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 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 additional1. Coeffectiveness remedial measures.				

	ACTION			
EVENT	ET	IEC	ER	CONTRACTOR
LIMIT LEVEL				
1. Exceedance for	1. Identify source, investigate the	1. Check monitoring data submitted	1. Confirm receipt of	1. Take immediate action to
one sample	causes of exceedance and propose	by ET;	notification of failure in	avoid further exceedance;
	remedial measures;	2. Check Contractor's working	writing;	2. Submit proposals for
	2. Inform Contractor ,IEC, ER, and	method;	2. Notify Contractor;	remedial actions to IEC
	EPD;	3. Discuss with ET and Contractor	3. Ensure remedial	within 3 working days of
	3. Repeat measurement to confirm	on possible remedial measures;	measures properly	notification;
	finding;	4. Advise the ER on the	implemented	3. Implement the agreed
	4. Increase monitoring frequency to	effectiveness of the proposed		proposals;
	daily;	remedial measures;		4. Amend proposal if
	5. Assess effectiveness of Contractor's	5. Supervise implementation of		appropriate
	remedial actions and keep IEC, EPD	remedial measures		
	and ER informed of the results.			
2. Exceedance for	1. Notify IEC, ER, Contractor and	1. Discuss amongst ER, ET, and	1. Confirm receipt of	1. Take immediate action to
two or more	EPD;	Contractor on the potential remedial	notification of exceedance	avoid further exceedance;
consecutive	2. Identify source;	actions;	in writing;	2. Submit proposals for
samples	3. Repeat measurement to confirm	2. Review Contractor's remedial	2. Notify Contractor;	remedial actions to IEC
	findings;	actions whenever necessary to	3. In consolidation with the	within 3 working days of
	4. Increase monitoring frequency to	assure their effectiveness and advise	IEC, agree with the	notification;
	daily;	the ER accordingly;	Contractor on the remedial	3. Implement the agreed
	5. Carry out analysis of Contractor's	3. Supervise the implementation of	measures to be	proposals;
	working procedures to determine	remedial measures.	implemented;	4. Resubmit proposals if
	possible mitigation to be		4. Ensure remedial	problem still not under
	implemented;		measures properly	control;
	6. Arrange meeting with IEC and ER to		implemented;	5. Stop the relevant portion
	discuss the remedial actions to be		5. If exceedance continues,	of works as determined by

	ACTION							
EVENT	ET	IEC	ER	CONTRACTOR				
	taken;		consider what portion of	the ER until the exceedance				
	7. Assess effectiveness of Contractor's		the work is responsible and	is abated				
	remedial actions and keep IEC, EPD		instruct the Contractor to					
	and ER informed of the results;		stop that portion of work					
	8. If exceedance stops, cease additional		until the exceedance is					
	monitoring		abated.					

Table I-2 Event / Action Plan For Construction Noise

	ACTION			
EVENT	ЕТ	IEC	ER	CONTRACTOR
Action Level	1. Notify IEC and Contractor;	1. Review the analysed results	1. Confirm receipt of notification	1. Submit noise mitigation
being exceeded	2. Carry out investigation;	submitted by the ET;	of failure in writing;	proposals to IEC;
	3. Report the results of investigation to	2. Review the proposed remedial	2. Notify Contractor;	2. Implement noise mitigation
	the IEC, ER and Contractor;	measures by the Contractor and	3. Require Contractor to propose	proposals.
	4. Discuss with the Contractor and	advise the ER accordingly;	remedial measures for the	
	formulate remedial measures;	3. Supervise the implementation	analysed noise problem;	
	5. Increase monitoring frequency to	of remedial measures.	4. Ensure remedial measures are	
	check mitigation effectiveness		properly implemented.	
Limit Level	1. Identify source;	1. Discuss amongst ER, ET, and	1. Confirm receipt of notification	1. Take immediate action to
being exceeded	2. Inform IEC, ER, EPD and	Contractor on the potential	of failure in writing;	avoid further exceedance;
	Contractor;	remedial actions;	2. Notify Contractor;	2. Submit proposals for
	3. Repeat measurements to confirm	2. Review Contractors remedial	3. Require Contractor to propose	remedial actions to IEC within
	findings;	actions whenever necessary to	remedial measures for the	3 working days of
	4. Increase monitoring frequency;	assure their effectiveness and	analysed noise problem;	notification;
	5. Carry out analysis of Contractor's	advise the ER accordingly;	4. Ensure remedial measures	3. Implement the agreed
	working procedures to determine	3. Supervise the implementation	properly implemented;	proposals;
	possible mitigation to be implemented;	of remedial measures.	5. If exceedance continues,	4. Resubmit proposals if
	6. Inform IEC, ER and EPD the causes		consider what portion of the	problem still not under
	and actions taken for the exceedances;		work is responsible and instruct	control;
	7. Assess effectiveness of Contractor's		the Contractor to stop that	5. Stop the relevant portion of
	remedial actions and keep IEC, EPD		portion of work until the	works as determined by the
	and ER informed of the results;		exceedance is abated.	ER until the exceedance is
	8. If exceedance stops, cease			abated.
	additional monitoring.			

APPENDIX J ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE (EMIS)

Objectives of the Who to Location When to **Requirements** / EM&A Recommended of the Relevant **Recommended Mitigation Measures** implement the implement the Ref. Measures measures? measures? Legislations measure Air Quality Α Dust suppression measures stipulated in the Air Pollution Control S2.4.1.3 To minimize the Contractor Work Sites Construction phase Air Pollution Control (Construction Dust) Regulation and good site practices: dust impact of Advance Works Ordinance (APCO) Any excavated or stockpile of dusty material should be covered entirely • and Main Works of and Air Pollution by impervious sheeting or spraved with water to maintain the entire Phase 1A Control (Construction surface wet and then removed or backfilled or reinstated where Dust) Regulation 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 ٠ 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, ٠ 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 spraved with ٠ 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 ٠ 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; Cement or dry PFA delivered in bulk should be stored in a closed silo ٠ fitted with an audible high level alarm which is interlocked with the

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
	 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. 					
В	Noise					
S3.4.1.1	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	 Good Site Practice: 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	Contractor	Work Sites	Construction period of Advance Works and Main Works of Phase 1A	EIAO-TM, NCO
С	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

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
S4.2.1.4	 The following measures to avoid, minimise and mitigate impact on water quality during construction phase shall be implemented Temporary severage 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 indentified before insult and safety; Where soil to be excavated is situated beneath the groundwater table, it may be necessary to lower the		Contractor	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	EIAO-TM

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
	 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 bodies and tailgates should be sealed to prevent discharge during transport or during wet season; 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					
\$5.2.2.1	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
\$5.2.2.2- \$5.2.2.3	 Sewage from Workforce 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
Е	Waste Management					
S6.2.2.1	 Good Site Practices and Waste Reduction Measures: 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; 	Minimize waste Generation during construction	Contractor	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	Waste Disposal Ordinance (WDO)

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
	 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, sumps and oil interceptors; An Environmental Management Plan (EMP) should be prepared by the contractor and submitted to the Engineer for approval. 					
\$6.2.3.1	 Waste Reduction Measures: 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. 		Contractor	Work Sites	Prior to the commencement of construction of Advance Works and Main Works of Phase 1A	WDO
S6.2.4.1 - S6.2.4.2	 Storage, Collection and Transportation of Waste Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: 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. 	Minimize waste impacts arising from waste storage	Contractor	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	WDO
\$6.2.5.3	 C&D Material from Buildings Demolition and New Building Construction 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 	Minimize waste impacts from building demolition and new	Contractor	Work Sites	Construction phase of Advance Works and Main Works of Phase 1A	Land (Miscellaneou s Provisions) Ordinance, WDO,

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
	 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 volume of generated waste and ensure proper segregation to allow reuse of the inert material on site when implemented. 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. 	building construction				ETWB TCW No. 19/2005
\$6.2.5.4	 Chemical Waste 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 	Control the chemical waste and ensure proper storage, handling and disposal	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
\$6.2.5.5	 General Refuse 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. 	Minimize production of the general refuse and avoid odour, pest and litter impacts	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

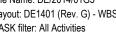
Reporting Month: January 2019

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

Note: Note: <th< th=""><th>ctivity ID</th><th>Activity Name</th><th>Remaining Duration</th><th></th><th>Finish</th><th>Total Float C</th><th>)ct</th><th>Nov</th><th>Dec</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>20 Jun</th><th>.lul</th><th>Aug</th><th>en</th><th>Oct N</th><th>lov Dec</th><th>Jan</th><th>Feb</th><th>Mar</th><th>2019 Apr</th><th>May</th><th>Jun</th><th>Jul</th></th<>	ctivity ID	Activity Name	Remaining Duration		Finish	Total Float C)ct	Nov	Dec	Jan	Feb	Mar	Apr	May	20 Jun	.lul	Aug	en	Oct N	lov Dec	Jan	Feb	Mar	2019 Apr	May	Jun	Jul
Convertie	Shek Wu Hu	ii STW - Master Programme DE/2014/01	Duration				-2	-1	1	2	3		5	6	7	8	9 1	0	11	12 13	14	15	16	17			
Norm Answer (Norm) C 4 (2 - 1) C - 1 </td <td>Starting Date</td> <td>& Completion Date</td> <td></td>	Starting Date	& Completion Date																									
Series Control Series	AS000010	Contract Date (LOA)	0	28-Dec-15 A	Í																						
Name Name <th< td=""><td>AS000020</td><td>Contract Starting Date</td><td>0</td><td>30-Dec-15 A</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	AS000020	Contract Starting Date	0	30-Dec-15 A																							
Notice Notice<	AS000110	Original Contract Period	297	30-Dec-15 A	23-Oct-18	182				-							·		23-Oc	-18, Original Con	tract Period				••••••		
Base is also in the constraint of a series of the constraint of the const	AS000220	Contract Completion Date for the whole of the Works	0		23-Apr-19	0																		• :	23-Apr-19, Cor	tract Compl	etion Date for
approximation where the source into the source inthe source into the source into the source int	Access Date																										
m m	AS001010	PM's Site Office and Contractor's Site Office and Storage Area, (within 120 days)	0	30-Dec-15 A	27-Apr-16 A																						
Addition Sympose Server, Colf, Numerican Server, Serve	AS001012	Planned Access Date for PM's Site Office and Contractor's Site Office and Storage	0	27-Apr-16 A	27-Apr-16 A																						
Num Num <td>AS001020</td> <td></td> <td>0</td> <td>30-Dec-15 A</td> <td>06-Nov-17 A</td> <td></td>	AS001020		0	30-Dec-15 A	06-Nov-17 A																						
$ \frac{1}{1000} = \frac{1}{1000} $ $ \frac{1}{$		days)																									
Answer State Answer 2014 with and and a state of a state		and its vicinity					-		1																		
Style="body: 0 withow bases into X1: withow 0 4000.0 No.000.0 No.000.0 <td></td>																											
Name Name <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>_ [</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>								_ [
Bit Hubbar Bit Hubbar <td></td> <td>(within 566 days)</td> <td></td>		(within 566 days)																									
Address Advisor		(MFS1) and its vicinity						'														- - - -					
Addition Addition <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>																											
Additional bit 72 40° Solution 100																											
Answer						0						30-Mar-18	I: 30-Mar-18	*, New Access	Date for MF	B -B/F											
Address file for the Sector P 1 Address file for the Sector P 1 and Sector P 1 and Sector P 1 Address file for the Sector P 1 Address file for	AS001120	New Access Date for MFB -G/F	0	06-Dec-17 A	06-Dec-17 A				1			<u>.</u>											<u> </u>				
Automation Weil Heil Heilenen	AS001150	New Access Date for MFB -CLP Rm C	0	29-Sep-17 A	29-Sep-17 A																						
Normalized RML VERSION Normalized RML <	AS001160	New Access Date for MFB -CLP Rm D	0	26-Sep-17 A	26-Sep-17 A																						
Addition Addition <td< td=""><td>AS001170g</td><td>New Access Date for MFB -11kV Switchroom</td><td>0</td><td>03-Nov-17 A</td><td>03-Nov-17 A</td><td></td><td>I.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	AS001170g	New Access Date for MFB -11kV Switchroom	0	03-Nov-17 A	03-Nov-17 A		I.																				
Address for tor M1-11 (1) (1) (1) (1) (1) (1) (1) (1) (1) (AS001175g	New Access Date for MFB -LV Switchroom 1 at G/F	1	30-Mar-18	30-Mar-18*	17						30-Mar-18	l 30-Mar-18	*, New Access	Date for MF	B -LV Switchr	oom 1 at G/F										
Adden to date further Lip* Adden to date further Lip* <th< td=""><td>AS001180</td><td>New Access Date for MFB -1/F (Air Blowers Area)</td><td>1</td><td>20-Feb-18</td><td>20-Feb-18*</td><td>17</td><td></td><td></td><td></td><td>20-</td><td>Feb-18</td><td>20-Feb-18*,</td><td>New Access D</td><td>ate for MFB - 1</td><td>/F (Air Blowe</td><td>rs Area)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	AS001180	New Access Date for MFB -1/F (Air Blowers Area)	1	20-Feb-18	20-Feb-18*	17				20-	Feb-18	20-Feb-18*,	New Access D	ate for MFB - 1	/F (Air Blowe	rs Area)											
Address Busic Bus	AS001180g	New Access Date for MFB -1/F (Other Areas)	1	30-Mar-18	30-Mar-18*	22				-		30-Mar-18	I 30-Mar-18	, New Access	Date for MF	B -1/F (Other	Areas)										
Accord Max Accord Max Mark Mark Max Mark Max Mark Max Mark Mark Mark Max Mark Max Mark	AS001200	New Access Date for MFB -LR/F	1	30-Mar-18	30-Mar-18*	237						30-Mar-18	l 30-Mar-18	*, New Access	Date for MF	B -LR/F											
Addition Addition <th< td=""><td>AS001220</td><td>New Access Date for MFB -UR/F</td><td>1</td><td>30-Mar-18</td><td>30-Mar-18*</td><td>237</td><td></td><td></td><td></td><td></td><td></td><td>30-Mar-18</td><td>l 30-Mar-18</td><td>*, New Access</td><td>Date for MF</td><td>B-UR/F</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	AS001220	New Access Date for MFB -UR/F	1	30-Mar-18	30-Mar-18*	237						30-Mar-18	l 30-Mar-18	*, New Access	Date for MF	B-UR/F											
Add A	AS001240	New Access Date for MFB -Parapet & Roof	1	30-Mar-18	30-Mar-18*	237						30-Mar-18	l 30-Mar-18	*, New Access	Date for MF	B - Parapet &	Roof										
Addrivida New Access Data for Starsador Na. 1 - 14 Lana (2nd Hulf) 0 <	AS001300	New Access Date for Pre-treatment Screen Chamber	1	03-Jan-18	03-Jan-18*	4			03-Jan-18	I 03-Jan-	18*, New Acc	cess Date for	Pre-treatment	Screen Cham	ber												
A 500 534 No No A 500 546 No No No No A 500 546 No	AS001320	New Access Date for Flowmeter Chamber	1	30-Mar-18	30-Mar-18*	87				-		30-Mar-18	l 30-Mar-18	*, New Access	Date for Flov	vmeter Cham	ber										
A8013420 New Access Date for Boreador No. 1: 14Lane (1t Half) No. 4: 0 No.	AS001340	New Access Date for Bioreactor No. 1 - 2nd Lane	0	06-Dec-17 A	06-Dec-17 A				I .																		
Associate for Bioreactor No. 1 - Peet Anorc Zone 1 0 Mar. 18	AS001342	New Access Date for Bioreactor No. 1 - 1st Lane (2nd Half)	1	25-Jan-18	25-Jan-18*	77			2	5-Jan-18 🛛	25-Jan-18*	, New Access	Date for Biore	actor No. 1 -	1st Lane (2nd	Half)											
Assonance	AS001342g	New Access Date for Bioreactor No. 1 - 1st Lane (1st Half)	1	30-Mar-18	30-Mar-18*	10						30-Mar-18	l 30-Mar-18	*, New Access	Date for Bior	eactor No. 1	1st Lane (1st Half)										
Assontase Auslability of CLP Cable Ducks Cut P Cable Ducks <	AS001344	New Access Date for Bioreactor No. 1 - Post Anoxic Zone	1	30-Mar-18	30-Mar-18*	13						30-Mar-18	l 30-Mar-18	*, New Access	Date for Bior	eactor No. 1	Post Anoxic Zone										
AS01400 New Access Date for Other Cable Ducks 1 30-Mar-18 <	AS001360	New Access Date for Membrane Tanks	1	30-Mar-18	30-Mar-18*	17				-		30-Mar-18	l 30-Mar-18	*, New Access	Date for Mer	nbrane Tanks							++				
AS001420 New Access Date for Chemical Room 1 30 Apr:18 30 Apr:18 30 Apr:18 30 Apr:18 72 AS0140 New Access Date for LV Switchroom No.3 1 30 Apr:18 30 Apr:18 30 Apr:18 37 AS00140 New Access Date for LV Switchroom No.3 1 30 Apr:18 30 Apr:18 30 Apr:18 37 AS002010 Completion of NCSRPSP E&M Worksinduding testing and commissioning 0 30 -Dec 15A 28-Jul 17A 4 File Name: DE/2014/01G3 Layout: DE1/401 (Rev. G) - WBS TASK filter: All Activities Astual Progress Joint Completion Provision of E&M Facilities for Shek Wu Hui Sewage Treatment Works Further Expansion Phase 1A - Advance Works and Ng Choow South Road Sewage Pumping Station Ng Choow South Road Sewage Pumping Station	AS001380	Availability of CLP Cable Ducts	0	03-Nov-17 A	03-Nov-17 A		I.																				
AS001440 New Access Date for LV Switchroom No.3 1 30-Apr-18 1 30-Apr-18 New Access Date for LV Switchroom No.3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AS001400	New Access Date for Other Cable Ducts	1	30-Mar-18	30-Mar-18*	8						; 30-Mar-18	l 30-Mar-18	*, New Access	Date for Oth	er Cable Duc	s										
AS001440 New Access Date for LV Switchroom No.3 1 30 Apr-18 Apr-18 New Access Date for LV Switchroom No.3 Loc 1 LV Switchroom No.3	AS001420	New Access Date for Chemical Room	1	30-Apr-18	30-Apr-18*	72							30-Apr-18	30-Apr-18*	New Access	Date for Che	mical Room										
Key Dates						37																					
A 5002010 Completion of NCSRPSP E&M Works including testing and commissioning 0 30-Dec 15A 28-Jul-17A 0 0 30-Dec 15A 28-Ju																											
File Name: DE/2014/013 Image: Note Contract No. DE/2014/013 08-Jan-16 Rev. 0 KH Lau KM Layout: DE1401 (Rev. G) - WBS TASK filter: All Activities Milestone Milestone Ng Chow South Road Sewage Pumping Station 08-Jan-16 Rev. 0 KH Lau KM		Completion of NCSRPSP E&M Works including testing and commissioning	0	30-Dec-15 A	28-Jul-17 A																						
File Name: DE/2014/013 Image: Note Contract No. DE/2014/013 08-Jan-16 Rev. 0 KH Lau KM Layout: DE1401 (Rev. G) - WBS TASK filter: All Activities Milestone Milestone Ng Chow South Road Sewage Pumping Station 08-Jan-16 Rev. 0 KH Lau KM										ŀ		1	<u>i</u>		. :			1		:	i	<u>i</u>	<u>i i</u>		<u> </u>		
Implemented bill/bill Differentiation		File Name: DE/2011/01C3		Remair	ning Work									Cant		DE /24	14/01				Da	ate	Revisio	on	Checked	Ap	proved
Further Expansion Phase 1A - Advance Works and 12- Jul-17 Rev. E KH Lau KM Ng Chow South Road Sewage Pumping Station 17-Oct-17 Rev. F KH Lau KM		Layout: DE1401 (Rev. G) - WBS								р	rovisio	on of F	&M Far					Treat	ment V	Vorks						KM	
Ng Chow South Road Sewage Pumping Station 17-Oct-17 Rev. F KH Lau KM		TASK filter: All Activities	•								101310						-									_	
Master Programme 27-Mar-18 Rev. G KH Lau KM		Page 1 of 16		Actual	Progress								-													_	
												Ū				-					27-Mar	r-18	Rev. G	KI	H Lau	KM	



ctivity ID	Activity Name	Remaining Start Duration	Finish	Tota Float					Mar Apr	May	2018 Jun Jul	I Aug	Sep	Oct	Nov Dec		Feb		2019 Apr May		Jul Ig
AS002020	Completion of SWHSTW - Further Expansion Phase 1A - Advance Works E&M Works including T&C, process commissioning	380 30-Dec-15 A	23-Apr-19	C		1	2	3	4 5	6	7 8	9	10	11	12 13	14	15	16	17 18 23-Apr-19,	19 Completion of SWHS	20 11 STW - Furl
Section I AS200010	Contract Completion of the works - Section I	0 30-Dec-15 A	22 Sop 16 A																		
AS200010	Completion date - Section I (272 days from starting date)	0	23-Sep-16 A																		
	owance and Planned Completion		20 000 10/1																		
AS200040	Planned Completion date - Section I	0	23-Sep-16 A																		
Section II	Oesteet Oestelsing of the words. Contine II	0 00 Dec 45 A	10 Mar 10 A																		
AS300010	Contract Completion of the works - Section II	0 30-Dec-15 A																			
AS300020	Completion date - Section II (80 days from starting date)	0	18-Mar-16 A																		
AS300040	owance and Planned Completion Planned Completion date - Section II	0	18-Mar-16 A																		
Section III AS400010	Contract Completion of the works - Section III	440 30-Dec-15 A	15-Mar-19	39)													15-Mar	19, Contract Comple	tion of the works - S	action III
AS400020	Completion date - Section III (1029 days from starting date)	0	23-Apr-19	C)														♦ 23-Apr-19,	Completion date - Se	ction III (
	owance and Planned Completion																				
AS400030	Time Risk Allowance for Completion of Function Test of Section III (4% of installation duration, 463-469 days)	18 06-Apr-19	23-Apr-19	0														06-Apr-19	23-Apr-19,		
AS400040	Planned Completion date - Section III	0	23-Apr-19	0															◆ 23-Apr-19,	Planned Completion	Jate - Se
Section IV AS500010	Contract Completion of the works - Section IV	0 30-Dec-15 A	28-Jul-17 A																		
AS500020	Completion date - Section IV (278 days from starting date)	0	28-Jul-17 A		ate - Section IV (278 c	lays from startin	ng date)														
	owance and Planned Completion																				
AS500030	Time Risk Allowance for Section IV (4% of installation duration, 120 days)	0 22-Jun-17 A	28-Jul-17 A																		
AS500040	Planned Completion Date	0	28-Jul-17 A		pletion Date																
Activity Sch 1.01 - Prelimir	edule No.1 - Preliminaries																				
Contractor's	Site Office Construction																				
AS101010	Construction of Contractor's Site Office & Store	0 22-Jul-16 A	23-Sep-16 A		_																
AS101012	Maintain Contractor's Site Office & Store	450 27-Oct-16 A	25-Mar-19	8	3														Mar-19, Maintain Cor		
AS101014	Removal of Site Office, Store & Relevant Facilities	21 26-Mar-19	15-Apr-19	8	3												26	-Mar-19	15-Apr-19, Rer	noval of Site Office, S	store & Re
AS101030	Set up Temp. Electricity Supply, Water Supply	0 18-Aug-16 A	23-Sep-16 A																		
AS101032	Provision of Temp. Electricity & Water Supply for execution for the Contract	471 27-Oct-16 A	15-Apr-19	8	3								<u> </u>						15-Apr-19, Pro	vision of Temp. Elect	ricity & Wa
Permanent U AS101040	tilities Services Applications to the Public Utilities for Provision of Services	0 29-Jan-16 A	23-Sep-16 A																		
AS101041	Completion of CLP 11kV Switchroom No. 1 & No.2 (by Other Contractor)	0	29-Sep-17 A		29-Sep-17 A, Compl	etion of CLP 11	kV Switchroon	m No. 1 & No.2 (k	by Other Contractor												
AS101042	BS Works for CLP11 kV Switchroom No.1 & No. 2	0 30-Sep-17 A	02-Nov-17 A		_																
AS101042g	H/O Inspection of 11 kV Switchroom with CLP	13 03-Nov-17 A	12-Jan-18	75	5 3-Nov-17 A		12	Jan-18, H/O Insp	pection of 11 kV Swite	hroom with CLP											
AS101043	Handover of 11 kV Switchroom to CLP	0	12-Jan-18	75	5		♦ 12	Jan-18, Handove	er of 11 kV Switchroo	m to CLP											
AS101045	Provision of Permanent Electricity Supply (by CLP)	120 13-Jan-18	12-May-18	75	5	13-Ja	ın-18 🗖	····		12-M	lay-18, Provision of Per	rmanent Electricity	Supply (by C	LP)							
AS101045a	CLP Meters Installed	0	22-May-18	94	ł					◆ 2	22-May-18, CLP Meters	rs Installed									
AS101046	Provision of Telemetry & Telephone Lines	30 19-Aug-18	17-Sep-18	36	5						1	19-Aug-18 💻	17-	Sep-18, Provisio	on of Telemetry & Tel	lephone Lines					
Provide all no AS101050	ecessary labour, tools, materials, equipment and supervision Environmental Auditing and fulfilling the Environmental Permit	471 29-Jan-16 A	15-Apr-19	8	3														15-Apr-19, Env	ironmental Auditing a	and fulfillin
	s and As-Built Drawings																				
AS101061	Prepare & Submit the first draft O&M Manuals	90 19-May-18	16-Aug-18	87					1	9-May-18					first draft O&M Mar						
AS101062	Acceptance the first draft O&M Manuals	28 17-Aug-18	13-Sep-18	87							1	17-Aug-18	13-S		ce the first draft O&M	vi Manuals					0
AS101071	Prepare & Submit the final draft O&M Manuals & all Drawings	90 23-Nov-18	20-Feb-19	17										23-No	v-18		20	J-⊢eb-19, Prépa	re & Submit the final	oratt O&M Manuals	* all Draw
	File Name: DE/2014/01G3 Layout: DE1401 (Rev. G) - WBS TASK filter: All Activities Page 2 of 16	Remain Critical Milesto	Activity				P		Further E	acilities f xpansior	ract No. DE, for Shek Wu n Phase 1A - Road Sewag	u Hui Sew - Advance	age Tre Work	s and	Works	Da 08-Jan- 22-Jun- 12-Jul-1 17-Oct-	16 17 7 17	Revision Rev. 0 Rev. D Rev. E Rev. F	KH Lau KH Lau KH Lau KH Lau	KM KM KM KM	ved
JE										Μ	laster Progra	amme				27-Mar-	·18	Rev. G	KH Lau	KM	

<i>r</i> ity ID	Activity Name	Remaining Start Duration	Finish	Total Float		Dec	Jan	Feb	Mar	Apr	May	20 Jun	Jul	Aug	Sep	Oct				Feb	Mar	2019 Apr	May	Jun	Jul
AS101072	Acceptance the final draft O&M Manuals & all Drawings	28 21-Feb-19	20-Mar-19	34	-2 -1	1	2	3	4	5	6	7	8	9	10	11	12	13	14 21-Fe	15 eb-19	16 20;-Mi	17 lar-19, Acce	18 eptance the f	19 inal draft O{	20 M Manuals &
Training to F	Employer's Staff on the O&M of the Plant																								
AS101080	Provide Training for the Employer's Staff	45 21-Feb-19	06-Apr-19	17	7												-		21-Fe	eb-19 💻		06-Apr-1	9, Provide T	raining for t	he Employer's
PM's Site Off	fice																								
AS101090	Provide E&M equipment & Office Stationary for the use of Project Manager and	471 29-Mar-16 A	15-Apr-19	8	3	-																15-A	pr-19, Provi	de E&M equ	upment & Offic
AS101160	Supervisors Provide clerical support to the Project Manager's site office	471 28-Apr-16 A	15-Apr-19	8	3												-					15-A	or-19. Provi	de clerical si	upport to the P
AS101100	S Provide all necessary photographs, video clips and accessories	471 07-Jun-16 A	15-Apr-19	8	3												-					15-A	or-19. Provi	de all neces	sary photograp
AS101110	hicle Provision of one contract vehicle service (Electric Vehicle) during the normal working	0 30-Dec-15 A	28-Jan-16 A																						
	hours																								
AS101120	Provide Contract Vehicle Service; one (Petrol-Electricity) & one (Electric) during the normal working hours	0 30-Dec-15 A	28-Jan-16 A																						
AS101130	Provide O&M of the Contract Cars; Driving Services; Mobile Phone Services (normal working hours)	471 29-Jan-16 A	15-Apr-19	8	3																	15-A	pr-19, Provid	te O&M of t	the Contract C
AS101140	Provide O&M of the Electric Contract Cars; Driving Services (outside normal working	471 29-Jan-16 A	15-Apr-19	8	3			: 						1	1 1 1		-					15-A	pr-19, Provi	de O&M of t	the Electric Co
AS101150	hours) Provide O&M of the Petrol-Electricity Contract Cars; Driving Services (outside normal	471 29-Jan-16 A	15-Apr-19	8	3																	15-A	or-19. Provi	de O&M of t	the Petrol-Elec
	working hours)																								
AS101170	Uniform for Site Personnel and self-employed workers	471 29-Jan-16 A	15-Apr-19	8	3																	15-A	apr-19. Unifo	rm for Site F	Personnel and
AS101180	Checking Engineer Provision of Independent Certified Engineer in accordance with the Specification	471 29-Jan-16 A	15-Apr-19	8	3																	15-A	or-19 Provi	sion of Inder	pendent Certif
			107.0110																						
Automated E AS101190	External Defibrillator (AED) Provide Automated External Defibrillator (AED) and associated accessories	0 18-Nov-16 A	12-Dec-16 A														-								
AS101192	Provide Training for Qualified on-site personnels for the use of AED	0 13-Dec-16 A	22-Dec-16 A														-								
Site Manager	ment Plan for Trip Ticket System																								
AS102010	Complete site management plan for trip ticket system	0 30-Dec-15 A	13-Mar-16 A																						
AS102020	Implementation of site management plan for trip ticket system	471 14-Mar-16 A	15-Apr-19	8	3							_										15-A	pr-19, Imple	mentation o	of site manager
Site Cleaning	g and Tidiness																								
AS103010	(i) Site and works area in Shek Wu Hui Sewage Treatment Works - Daily	471 26-Sep-17 A	19-Apr-19	4	1			· ·						1		1	:					19	Apr-19, (i)	Site and wc	orks area in Sh
AS103020	(ii) Site and works area in Ng Chow Nam Road Sewage Pumping Station - Daily	0 05-Jun-16 A	27-Sep-16 A																						
				_																			Ann 10 (3)		ula ana ia Ob
AS103030	(i) Site and works area in Shek Wu Hui Sewage Treatment Works - Weekly	471 26-Sep-17 A	19-Api-19	4	*												-					19	Api-19, (i)	Sile and wo	orks area in Sh
AS103040	(ii) Site and works area in Ng Chow Nam Road Sewage Pumping Station - Weekly	0 05-Jun-16 A	27-Sep-16 A														-								
Subocontrac	tor Management Plan																								
AS104010	Complete sub-contractor management plan	0 30-Dec-15 A	27-Feb-16 A																						
AS104020	Quarterly updating of sub-contractor management plan	471 29-May-16 A	15-Apr-19	8	3	· · • · · · · · · · · · · · · · · · · ·		······								·						15-A	pr-19, Quar	erly updatin	ng of sub-contra
Waste Manaç	gement Plan																								
AS105010	Complete waste management plan	0 30-Dec-15 A	28-Mar-16 A																						
AS105020	Review and updating of waste management plan	471 29-Mar-16 A	15-Apr-19	8	3												:					15-A	Apr-19, Revie	w and upda	ating of waste n
0-1-1-0-1																									-
AS106010	Complete Safety Plan	0 30-Dec-15 A	27-Feb-16 A					++																	
																						10	Apr 10	Into Cofet	Plan
AS106030	Update Safety Plan	471 29-Feb-16 A		4																			Apr-19, Upd		
AS106050	Provide Safety Officer	471 28-Apr-16 A	15-Apr-19	8	3									1								15-A	Apr-19, Provid	le Safety Of	ficer
AS106070	Attend Site Safety and Environment Management Committee	471 28-Apr-16 A	15-Apr-19	8	3																	15-A	pr-19, Attend	Site Safety	y and Environn
AS106080	Attend Site Safety and Environment Committee	471 28-Apr-16 A	15-Apr-19	8	3									1 								15-A	pr-19, Atten	d Site Safet	y and Environn
AS106090	Arrange and attend weekly safety walk	471 28-Apr-16 A	15-Apr-19	-																					nd weekly safe
				8																					
AS106100	Arrange and attend weekly environmental walk	471 28-Apr-16 A	15-Apr-19	8	3																	15-A	pr-19, Arran	je and atter	nd weekly envi
AS106110	Provide safety and environment training - (i) 1 day course (for first attendance)	471 28-Apr-16 A	15-Apr-19	8	3									1	1	:	:				; ;	15-A	pr-19, Provid	le safety an	id environmen
AS106120	Provide safety and environment training - (ii) 0.5 day revalidation course	471 28-Apr-16 A	15-Apr-19	8	3									1 1 1			1					15-A	pr-19, Provi	de safety an	id environment
AS106130	Provide safety and environment training - site specific induction training	471 28-Apr-16 A	15-Apr-19	8										1								15-A	pr-19, Provid	le salety and	id environment
									· · · · · · · · ·									_							
	File Name: DE/2014/01G3	Remai	•								Contra	act No	. DE/2	014/01					Da		Revision		Checked	_	Approved
	Layout: DE1401 (Rev. G) - WBS	Critica					Pr	ovision	n of E&N				-	-		eatmer	nt Wor	ks	08-Jan- 22-Jun-		Rev. 0 Rev. D		I Lau I Lau	KM KM	
	TASK filter: All Activities	Milesto								er Expa					-				12-Jul-1		Rev. D Rev. E		Lau Lau	KM	
		Actual	Progress							Chow So									17-Oct-		Rev. E		Lau	KM	
	Page 3 of 16								115				rogram	-	.9 Jul				27-Mar-		Rev. G		l Lau	KM	
											ivid	ster P	ografi	me										+	

ID	Activity Name		Remaining	Start	Finish	Total								2	018									2019	
40100140		- A	Duration		15 Apr 10	Float Oct -2	Nov -1	Dec 1	Jan 2	Feb 3	Mar 4	Apr 5	May 6	Jun 7	Jul 8	Aug 9	Sep 10	Oct 11	Nov 12	Dec 13	Jan 14	Feb 15		17 18	Jun Jul 19 20
AS106140	Provide safety and environment training			28-Apr-16 A		8								1	1			1						15-Apr-19, Provide s	
AS106150	Provide safety and environment training instructed by the Engineer	g:Participate in safety promotional campaign as	471	28-Apr-16 A	15-Apr-19	8													1					15-Apr-19, Provide s	afety and environ
AS107010	Arrange and hold Pre-work Activities of	Site Safety Cycle	471	28-Apr-16 A	15-Apr-19	8																		15-Apr-19, Arrange a	and hold Pre-worl
AS107020	Provide safety bulletin board		471	28-Apr-16 A	15-Apr-19	8		-					1				1			1	1			15-Apr-19, Provide s	afety bulletin boa
AS107030	Use of quality powered mechanical equ	ipment	471	28-Apr-16 A	15-Apr-19	8																		15-Apr-19, Use of qu	uality powered me
AS109010	Confined Space Training for Competen		471	28-Apr-16 A		0																	<u></u>	15-Apr-19, Confined	
						0																			
AS109020	Confined Space Training for Certified W	Vorkers to certified workers	471	28-Apr-16 A	15-Apr-19	8																		15-Apr-19, Confined	Space Training for
invironmenta		Di		00 D 45 A	07 5 4 40 4										- - - - - - - - - - - - - - - - - - -										
AS106020	Complete Environmental Management	Plan	L.	30-Dec-15 A	27-Feb-16 A																				
AS106040	Update Environmental Management Pla	an	471	29-Feb-16 A	19-Apr-19	4		ł					1		1		1		1	1	1			19 Apr-19, Update	Environmental N
AS106060	Provide Environmental Officer		471	29-Jan-16 A	15-Apr-19	8																		15-Apr-19, Provide E	Invironmental Of
AS108010	Use of mechanical dump truck covers		471	29-Feb-16 A	19-Apr-19	4																		19-Apr-19, Use of r	mechanical dump
AS111010	Update the EM&A Manual		471	28-Feb-16 A	15-Apr-19	8																		15-Apr-19, Update the second secon	he EM&A Manual
AS111020	Implement all necessary environmental	impact mitigation measures	471	28-Feb-16 A	15-Apr-19	8																		15-Apr-19, Implemer	nt all necessary e
	-	Impact mitigation measures																							nt all necessary e
AS111030	Employ Environmental Team		C) 30-Dec-15 A	27-Apr-16 A																				
AS111032	Provide Environmental Team Services		471	28-Apr-16 A	15-Apr-19	8							1											15-Apr-19, Provide E	Invironmental Te
.12 - Process	Commissioning																								
AS112000	Process Commissioning (Refer to Section	on III)	C)	05-Apr-19	0																	♦ 05	5-Apr-19, Process Com	missioning (Refe
	Procurement Programme																								
AS003000	Prepare & Submit Procurement Progra	ımme	C) 30-Dec-15 A	27-Feb-16 A																				
ection I of	Works																								
ctivity Sched																							(
- Design Ca AS201100	alculation of Plant and Materials Complete Design Calculation of Plant &	Material (Refer to P&M Submission Schedule	C) 30-Dec-15 A	23-Sep-16 A																				
	for details)				p																				
2 - CIVII Requ AS202100	uirment Drawings for the Plant Complete Civil Requirment Drawings fo	or Flowmeter Chamber, Pre-treatment Screen,	C	0 30-Dec-15 A	28-Mar-16 A																				
	MF Tan ks & MFB (B/L)	rings (Refer to Dwgs Submission Schedule for) 30-Dec-15 A																					
AS202200	details)	nings (neier to Dwgs Submission Schedule for		50-Dec-15 A	23-36b-10 M																				
3 - Detailed D AS203100	Design and Plant Layout Drawing	gs ayout Drawings (Refer to Dwgs Submission	0) 29-Mar-16 A	23-Sep-16 A																				
	Schedule for details)	your Drawings (meler to Dwgs Submission		23-WAI-10A	20-06p-10 A																				
ection II of																									
ctivity Sched 1 - Design Ca	alculation of Plant and Material																								
AS301100		Material (Refer to P&M Submission Schedule	C) 30-Dec-15 A	18-Mar-16 A																				
2 - Civil Requ	uirment Drawings for the Plant																						(
AS302100		Refer to Dwgs Submission Schedule for details)	C	30-Dec-15 A	18-Mar-16 A																				
3 - Detailed D	Design and Plant Layout Drawing	gs																					·		
AS303100	Complete Detailed Design and Plant La Schedule for details)	ayout Drawings (Refer to Dwgs Submission	C	30-Dec-15 A	18-Mar-16 A																				
ection III of	,																								
lant & Materi	ial Procurement																								
Tender and A AS400100	ward of Suppliers - Mechanical Procurement of BR Feedpumps & Asso		0) 28-May-16 A	23-Sep-16 4																				
AS400110	Procurement of MBR Pre-treatment Sc			29-Mar-16 A																					
AS400120	Procurement of Wash compactors, bag	iging system	C	28-May-16 A	25-Aug-16 A																				
AS400120a	Procurement of screenings skips		C	30-Sep-16 A	19-Oct-17 A																				
AS400130	Procurement of Associated ductworks, p	pipeworks and valves	C	0 30-Sep-16 A	20-Sep-17 A									1			1 1 1 1	- - -							
AS400140	Procurement of Mist system, FRP kiosk	and drain pumping system	0) 30-Sep-16 A	05-Sep-17 A																				
AS400150	Procurement of Ancillary areation system	m	C) 27-Jun-16 A	22-Sep-16 A																				
	File Name:	DE/2014/01G3		- Remair	ning Work								Cont	ract No	. DE/2	014/01						ate	Revision	Checked	Approv
	Layout: DE	1401 (Rev. G) - WBS		-Critical					Pr	ovisio	n of E&	M Fac						eatmer	t Wor	ks	08-Jan		Rev. 0	KH Lau	KM
	TASK filter:	All Activities	•	Milesto					• •							dvance	-				22-Jun 12-Jul-		Rev. D Rev. E	KH Lau KH Lau	KM KM
		^		Actual	Progress							-				Pumpir					17-Oct		Rev. E	KH Lau	KM
	Page 4 of 1	0													rogram	-	-0 stat				27-Mar		Rev. G	KH Lau	KM
			1										171												

Control Contro Control Control	rity ID	Activity Name	Remaining Start Duration	Finish	Total Float	Oct Nov -2 -1	Dec 1	Jan 2		Apr Ma			Aug	Sep 10	Oct	Nov	Dec	Jan	Feb		2019 Apr 17	May 18		Jul 20
MARCE Marcelescond 1 Note: Note: <	AS400160	Procurement of Other Associated Equip't for MBR Pre-treatment Screen Facilities	23 20-Nov-17 A	22-Jan-18	91								reen Facilities	10		12	13	14	13	10		10	13	20
Answer (see and see an																								
				-																				
normal matrix normal matrix<																								
same showed with showed and showed															1 1 1 1									
Amountamenant A <	AS400230	Procurement of Surplus Activated Sludge Pumps	0 28-May-16 A	22-Sep-16 A																				
Second Marcele Research of Parlam CF 10.0 North 2 C <td< td=""><td>AS400240</td><td>Procurement of Air Diffusion System</td><td>0 29-Mar-16 A</td><td>01-Jun-16 A</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	AS400240	Procurement of Air Diffusion System	0 29-Mar-16 A	01-Jun-16 A																				
60000 Notarie from the size from the siz	AS400250	Procurement of Associated pipework, ductwork & valves BR1	23 30-Sep-16 A	22-Jan-18	62				2-Jan-18, Procuremen	t of Associated pipework	, ductwork & valve	es BR1												
Name Note	AS400260	Procurement of Foam control system and wash water spraying system	0 27-Jun-16 A	22-Sep-16 A																				
Matter Autors (Marcol 198) (-) (AS400270	Procurement of Other associated equipment for BR1	23 30-Sep-16 A	22-Jan-18	64			2	2-Jan-18, Procuremen	t of Other associated ec	uipment for BR1													
short whether with the state with t			0 14 May 16 A	20 Apr 16 A																				
And and and and any of the second of the sec				-																				
Addite Amount of Longing Addite Ad																								
Martial Second Same Second <td></td>																								
image: 1 1<		-																						
44:00 Support of August Mirel August																								
mer																								
Amount of a constraint of the Ward		pumps																						
Adde: Add:	AS400370	Procurement of Wash Water Pumping System	0 03-Jul-17 A	05-Sep-17 A																				
	AS400380	Procurement of Associated Pipes, Valves & Fittings- MFS1	23 09-Jan-17 A	22-Jan-18	53			2	2-Jan-18, Procuremen	t of Associated Pipes, V	Ives & Fittings- M	FS1												
Autom 0 0.00000000000000000000000000000000000	AS400390	Procurement of Other Associated Equipment - MFS1	23 09-Jan-17 A	22-Jan-18	23			2	2-Jan-18, Procuremen	t of Other Associated Ed	uipment - MFS1													
Answerter Results 2 Margenes 2 Marg		· · · · · · · · · · · · · · · · · · ·	0.00 May 40 A	00.0 10.4																				
Total Subject: Period Control Subject:																								
Maximum di Sudgin Marineri 0, Sophi R,				20-Sep-17A																				
Added Programmer of Desprise Functional Hair & Source of Supplies - Electrical Hair & Sou		· · · · · · · · · · · · · · · · · · ·		15-Feb-17 A																				
Additional of Supplies - Electrical Main & Sub-main Sub-plane A Sub-	AS400510	Procurement of Penstocks	0 30-Sep-16 A	15-Feb-17 A																				
Additional of Supplies - Electrical Main & Sub-main Sub-plane A Sub-	AS400520	Procurement of Deodorisers System	0 24-Feb-17 A	26-Jul-17 A																				
Autom 0 <td>Tender and A</td> <td></td>	Tender and A																							
A50000 household and all and all and all all all all all all all all all al			0 28-Apr-16 A	21-Sep-16 A											- - - -									
A40000 Posterer of U. Statisticand Image: Statisticand Statistin Statisticand Statistic	AS400610	Procurement of 3.3kV HV Switchboard	0 28-Apr-16 A	21-Sep-16 A											- - - -									
Assesse Pearment of Variable Speed Drive 0 0.589-16.0 0.489-17.0 0.1 0.1 0.489-17.0 0.1 </td <td>AS400620</td> <td>Procurement of Transformer</td> <td>0 28-Apr-16 A</td> <td>21-Sep-16 A</td> <td></td>	AS400620	Procurement of Transformer	0 28-Apr-16 A	21-Sep-16 A																				
A640000 Posurement of Matter Muttor, Screent & Mater etc. 0 0 24.92-10. 2 560-10. 0	AS400630	Procurement of L.V. Switchboard	0 28-Apr-16 A	22-Sep-16 A																				
Assesses Assesses <th< td=""><td>AS400640</td><td>Procurement of Variable Speed Drive</td><td>0 30-Sep-16 A</td><td>02-Mar-17 A</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	AS400640	Procurement of Variable Speed Drive	0 30-Sep-16 A	02-Mar-17 A																				
Accord	AS400650	Procurement of Starter for Motor, Screen & Mixer etc.	0 22-Aug-16 A	22-Sep-16 A																				
Astonese Produrement of Cable Tray & Turking e.c. 0 26 Nov-16A 44 Nov-17A 0	AS400660	Procurement of Power Supply Cables	0 30-Sep-16 A	07-Dec-17 A																				
Ender and Award of Suppliers - Monitoring & Control System 0 26-Nov-16A 18-Jk-17A 0 Assu0700 Procurement of Montoring & Control System 0 26-Nov-16A 20-Mar-18 21 Assu0700 Procurement of Montoring & Control System 0 26-Nov-16A 20-Mar-18 21 Assu0700 Procurement of S.S. Plant & Materials 90 26-Nov-16A 20-Mar-18 21 Assu0700 Procurement of S.S. Plant & Materials 90 26-Nov-16A 20-Mar-18 21 Assu0710 Procurement of S.S. Plant & Materials 90 26-Nov-16A 20-Mar-18 21 Materials 90 26-Nov-16A 20-Mar-18 21 21 22-Fab-18 20-Mar-18 21 Materials 90 26-Nov-16A 26-Nov	AS400670	Procurement of Earthing & Lightning Materials	11 26-Nov-16 A	10-Jan-18	55			10-Jar	18, Procurement of E	arthing & Lightning Mat	rials													
Tender and Avard of Supplies - Monitoring and Control System 0 26-Nov-16A 18-Jk-17A Assent/2010 Procurement of Monitoring & Control System 0 26-Nov-16A 18-Jk-17A Tender and Avard of Supplies - Building Services	AS400680	Procurement of Cable Tray & Trunking etc.	0 26-Nov-16 A	24-Nov-17 A																				
AS40070 Procurement of Monitoring & Control System Produrement of S. Plant & Materials Producement of S. Plant & Materia																								
As 400720 Procurement of B.S. Plant & Materials 90 26-Nov-16A 30-Mar-18 21 Tender and Avard of Suppliers - Fire Services As 400740 Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant, & Materials 90 26-Nov-16A 28-Feb-18 36 Subcontracting Procurement of F.S. Plant,			0 26-Nov-16 A	18-Jul-17 A																				
Tender and Award of Suppliers - Fire Services Services Date Revision Checked Approve Subcontracting Process File Name: DE/2014/01G3 Expense	Tender and A																							
As400740 Procurement of F.S. Plant & Materials 60 26-Nov-16A 28-Feb-18 30 28-Feb-18 Procurement of F.S. Plant, & Materials 28-Feb-18, Procurement			90 26-Nov-16 A	30-Mar-18	21					30-Mar-18, Procur	ement of B.S. Pla	nt & Materials												
Subcontracting Process Subcontracting Process Date Revision Checked Approve File Name: DE/2014/01G3 Layout: DE1401 (Rev. G) - WBS TASK filter: All Activities Remaining Work Critical Activity Milestone 08-Jan-16 Rev. 0 KH Lau KM Provision of E&M Facilities for Shek Wu Hui Sewage Treatment Works TASK filter: All Activities Milestone 08-Jan-16 Rev. 0 KH Lau KM Provision of E&M Facilities for Shek Wu Hui Sewage Treatment Works TASK filter: All Activities Milestone 12-Jul-17 Rev. E KH Lau KM Provision of E&M Facilities for Shek Wu Hui Sewage Pumping Station 17-Oct-17 Rev. E KH Lau KM			60 26-Nov-16 A	28-Feb-18	36				28-Feb-	18, Procurement of F.S	Plant;& Materials	3												
File Name: DE/2014/01G3 Layout: DE1401 (Rev. G) - WBS TASK filter: All Activities Remaining Work Contract No. DE/2014/01 Date Revision Checked Approver Provision of E&M Facilities for Shek Wu Hui Sewage Treatment Works Milestone Wilestone 08-Jan-16 Rev. 0 KH Lau KM Page 5 of 16 Actual Progress Actual Progress KH Lau KM																								
Price Valle: DE/2014/01GS Contract No. DE/2014/01 Layout: DE1401 (Rev. G) - WBS TASK filter: All Activities Critical Activity Milestone Milestone Actual Progress Actual Progress Page 5 of 16 Contract No. DE/2014/01 Contract No. DE/2014/01 Contract No. DE/2014/01 Contract No. DE/2014/01 Contract No. DE/2014/01 Contract No. DE/2014/01 Contract No. DE/2014/01 Contract No. DE/2014/01 Contract No. DE/2014/01 Contract No. DE/2014/01 Contract No. DE/2014/01 Contract No. DE/2014/01 Contract No. DE/2014/01 Contract No. DE/2014/01 Contract No. DE/2014/01 Provision of E&M Facilities for Shek Wu Hui Sewage Treatment Works Further Expansion Phase 1A - Advance Works and 12-Jul-17 Rev. E KH Lau KM 17-Oct-17 Rev. F KH Lau KM	ouscontractil								!!!	1		:	!	!	!	:	:	!				<u> </u>	<u> </u>	
Layout, DE 1401 (Nev. 6) - WBS Image: Sintean name TASK filter: All Activities Milestone Actual Progress Further Expansion Phase 1A - Advance Works and Dage 5 of 16 Ng Chow South Road Sewage Pumping Station				•						Co	ntract N	o. DE/2	014/01											roved
Further Expansion Phase 1A - Advance Works and 12-Jul-17 Rev. E KH Lau KM Page 5 of 16 Ng Chow South Road Sewage Pumping Station 17-Oct-17 Rev. F KH Lau KM								Pr						-		nt Worl	ks						_	
Page 5 of 16 17-Oct-17 Rev. F KH Lau KM										-								12-Jul-	17	Rev. E	КН	Lau	KM	
Master Programme 27-Mar-18 Rev. G KH Lau KM		Page 5 of 16		U ·					N	g Chow Sou	th Road S	Sewage	Pumpiı	ng Stat	ion									
												-	-					27-Mar	r-18	Rev. G	KH	Lau	KM	

Activity ID	Activity Name	Remaining Start Duration	Finish	Total Float	Oct Nov Dec	Jan	Feb	Mar Apr	May	2 Jun	2018 Jul	Αυα	Sep Oct	Nov Dec	Jan Fe	b Mar	2019 Apr May	Jun	Jul
Cub contracti	Productive and Assertance	Duration		Tioar	-2 -1 1	2	3	4 5	6	7	8	9	10 11	12 13	14 15		17 18	19	20
AS400800	ng Prodedure and Acceptance Submit Details of the Tender, Tenderers & Procedures for Subcontractor Selection	60 30-Dec-15 A	28-Feb-18	10				28-Feb-18, Submit Det	tails of the Tend	er, Tenderei	s & Procedure	s for Subcont	tractor Selection						
40,000,00																			
AS400810	Comment on Details of the Tender, Tenderers & Procedures for Subcontractor Selection	0 31-Aug-16 A	31-Aug-16 A																
AS400820	Resubmit Details of the Tender, Tenderers & Procedures for Subcontractor Selection	0 31-Aug-16 A	31-Aug-16 A																
AS400830	Acceptance of Details of Tender, Tenderers & Procedures for Subcontractor Selection	83 20-Sep-16 A	23-Mar-18	7		• •		23-Mar-18, A	Acceptance of D	letails of Ten	der, Tenderers	& Procedure	s for Subcontractor Selecti	on for the S/C by PM					
Tender and A	for the S/C by PM ward of Subontractors																		
AS300850	Procurement for Subcontracting - Mechanical Installation (BR1)	25 14-Mar-17 A	24-Jan-18	64			24-Jan-18, F	Procurement for Subcontra	acting - Mechar	ical Installati	on (BR1)								
AS300860	Procurement for Subcontracting - Mechanical Installation (MFS1)	83 01-Aug-17 A	23-Mar-18	396				23-Mar-18, F	Procurement fo	Subcontrac	ting - Mechani	cal Installatior	n (MFS1)						
AS300870	Procurement for Subcontracting - Mechanical Installation (Penstocks / Stoplogs)	83 14-Mar-17A	22 Mar 19	64				22 Mar 19	Programont fo	Subcontrac	ting Mochani		n (Penstocks / Stoplogs)						
				04				20-101ai - 10, 1		Subcontrac	ling - Mechani	Carinstanation	(Fensiooks / Stoplogs)						
AS300880	Procurement for Subcontracting - Mechanical Installation (Flowmeter Chamber)	0 14-Mar-17 A	30-Nov-17 A																
AS300890	Procurement for Subcontracting - Mechanical Installation (DO System -Supply & Install)	0 28-Feb-17 A	26-Jul-17 A																
AS300900	Procurement for Subcontracting - Mechanical Installation (NCSRSPS)	0 25-May-16 A	12-Sep-16 A																
AS400840	Procurement for Subcontracting - Mechanical Installation (MBR Pre-treatment Screen	0 21-Mar-17 A	30-Nov-17 A																
	Chamber)																		
AS400910	Procurement for Subcontracting - FRP Cover (Supply & Install)	0 28-Feb-17 A	08-May-17 A																
AS400920	Procurement for Subcontracting - FRP Platform & Kiosk (Supply & Install)	91 02-Nov-17 A	31-Mar-18	11 :	-Nov-17 A			31-Mar-1	8, Procuremen	for Subcon	tracting - FRP	Platform & Ki	iosk (Supply & Install)						
AS400930	Procurement for Subcontracting - Lifting Appliances (Supply & Install)	0 25-Oct-16 A	19-Jan-17 A																
AS400940	Procurement for Subcontracting - Electrical (HV) Installation	0 20-Oct-16 A	01-Sep-17 A																
AS400950	Procurement for Subcontracting - Electrical (LV) Installation	41 19-Nov-16 A	09-Feb-18	117			09-F4	eb-18, Procurement for St	ubcontracting -	Electrical (1)) Installation								
						-			u		,								
AS400960	Procurement for Subcontracting - PQEM System (Supply & Install)	0 08-May-17 A	18-Jul-17 A																
AS400970	Procurement for Subcontracting - SCADA / PLC System (Supply & Install)	0 30-Sep-16 A	18-Jul-17 A																
AS400980	Procurement for Subcontracting - Building Services (Supply & Install)	11 10-Feb-17 A	10-Jan-18	36		10-Ja	an 18, Procur	ement for Subcontracting	- Building Servi	ces (Supply	& Install)								
AS400982	Procurement for Subcontracting - SS316 Air Duct (Supply & Install)	33 10-Feb-17 A	01-Feb-18	123			01-Feb-1	18, Procurement for Subc	ontracting - SS	16 Air Duct	Supply & Insta	all)							
AS400990	Procurement for Subcontracting - Fire Services (Supply & Install)	60 10-Feb-17A	28-Feb-18	36				28-Feb-18, Procureme	ant for Subcontr	acting - Fire	Services (Sun	nlv & Install)							
								<u> </u>											
AS400992	Procurement for Subcontracting - FS Water Tanks (Supply & Install)	60 10-Feb-17 A	28-Feb-18	36				28-Feb-18, Procureme	ent for Subcontr	acting - FS \	Vater Tanks (S	supply & Insta	all)						
Activity Sche																			
	or MBR Pre-treatment Screen Chamber																		
	Purchase Order for BR Feedpumps & Associated Equipment	0 06-Sep-16 A	23-Sep-16 A																
AS401012	Manufacturing, FAT & Delivery to Site - BR Feedpumps & Associated Equipment	0 14-Oct-16 A	18-Jul-17 A																
AS401030	Purchase Order for MBR Pre-treatment Screen	0 01-Jun-16 A	21-Jun-16 A																
AS401032	Manufacturing, FAT & Delivery to Site - MBR Pre-treatment Screen	53 06-Jul-16 A	21-Feb-18	16				21-Feb-18, Manufacturing	g, FAT & Deliver	y to Site - M	BR Pre-treatm	lent Screen							
AS401050	Purchase Order for Wash Compactors, bagging system	0 23-May-16 A	21-Jun-16 A																
AS401050a	Purchase Order for Screening skips & FRP Kiosk	0 16-Oct-17A	19-Oct-17 A																
AS401052	Manufacturing, FAT & Delivery to Site - Wash Compactors, bagging system	53 31-Aug-16 A	21-Feb-18	91				21-Feb-18, Manufacturing	, FAT & Deliver	y to Site - W	ash Compacto	rs, bagging s	system						
AS401052a	Manufacturing, FAT & Delivery to Site - Screening skips & FRP Kiosk	152 20-Oct-17 A		55	17A								lvery to Site - Screening sk	ins & FBP Kinsk					
										S. May-10									
AS401070	Purchase Order for Mist system and drain pumping system	0 14-Aug-17 A	05-Sep-17 A																
AS401072	Manufacturing, FAT & Delivery to Site - Mist system and drain pumping system	152 06-Sep-17 A	31-May-18	22						31-May-1	3, Manufacturii	ng, FAT & De	livery to Site - Mist system a	and drain pumping system					
AS401090	Purchase Order for Associated pipeworks and valves	0 18-Sep-17 A	20-Sep-17 A																
AS401092	Manufacturing, FAT & Delivery to Site - Associated pipeworks and valves	47 21-Sep-17A	15-Feb-18	7		-	15	-Feb-18, Manufacturing, F	AT & Delivery t	o Site - Asso	ciated pipewor	ks and valves	s						
AS401110	Purchase Order for Ancillary areation system	0 13-Sep-16 A	22-Sep-16 A																
											A								
AS401112	Manufacturing, FAT & Delivery to Site - Ancillary areation system	60 05-May-17 A	28-Feb-18	114				28-Feb-18, Manufactu											
AS401130	Purchase Order for Other associated equipment for MBR Pre-treatment Screen Facilities	14 09-Jan-18	22-Jan-18	91	09-Jan-	18 💻	22-Jan-18, P	urchase Order for Other a	associated equi	oment for M	R Pre-treatm	ent Screen F	acilities						
AS401132	Manufacturing & Delivery to Site / FAT - Other associated equipment for MBR Pre-treatment Screen Facilities	110 23-Jan-18	12-May-18	91	2	3-Jan-18 🗖			12-Ma	y-18, Manuf	acturing & Del	very to Site /	FAT - Other associated eq	uipment for MBR Pre-treat	tment Screen Facilitie	s			
Install, T&C f	or Pre-treatment Screen Chamber (incl. Provision for Health & Safety Requiremer	nts)																	
	File Name: DE/2014/01G3	Remai	•			1			Contr	act No	. DE/20	014/01			Date 08-Jan-16	Revision	N Checke KH Lau	ed Ap KM	proved
	Layout: DE1401 (Rev. G) - WBS	Critica				P	rovisio	n of E&M Fac			-	-	age Treatmen	t Works	08-Jan-16 22-Jun-17	Rev. 0 Rev. D	KH Lau KH Lau	KM	
	TASK filter: All Activities	♦ ♦ Milesto	one Progress			1							Works and		12-Jul-17	Rev. E	KH Lau	KM	
	Page 6 of 16	Aciual	11091622			1							ng Station		17-Oct-17	Rev. F	KH Lau	KM	
						1		č			rogram		-		27-Mar-18	Rev. G	KH Lau	KM	
											U								
						1													

ID .	Activity Name	Remaining Start Duration	Finish	Tota Float	t Oct	Nov	Dec	Jan	Feb	Mar	Apr	Мау	Jun	2018 Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			Jun Ju
AS401002	Mobilisation of Works - MBR Pre-Treatment Screen Chamber	14 04-Jan-18	17-Jan-18	36	-2 6	-1	1 04-Jan-18	2	-Jan-18, Mot	4 disation of Wo	5 rks - MBR Pi	6	7 Screen Cha	8 Imber	9	10	11	12	13	14	15	16	17	18	19 20
AS401020	Install BR Feedpumps, Control, Site Test	30 08-Apr-18	07-May-18	16	6					08-Apr-18		07-May	-18, Install B	R Feedpump	s, Control, S	ite Test									
AS401040	Install MBR Pre-treatment Screens, Control, Site Test	45 22-Feb-18	07-Apr-18	16	3			22-	-Feb-18 🗖		07-Apr-	18 Install M	B Pre-treatr	ment Screens	Control Sit	e Test									
				16													advetom								
	Install Wash Compactors & bagging system	30 08-May-18	06-Jun-18	10	2						08-1viay-18			I-18, Install W											
AS401060a	Install Screening skips & FRP Kiosk	30 07-Jun-18	06-Jul-18	49	9							07-Jun-18	3	06-Jul-	18, Install Sc	reening skips	& FRP Kiosk								
AS401080	Install Mist system and drain pumping system	30 07-Jun-18	06-Jul-18	16	6							07-Jun-18	3	06-Jul-	18, Install Mi	st system and	drain pumping	system							
AS401100	Install Associated pipeworks and valves	120 17-Feb-18*	16-Jun-18	6	6			17-Fe	b-18* 🗖				16	Jun-18, Insta	allAssociated	l pipeworks a	nd valves								
AS401120	Install Ancillary areation system	60 17-Jun-18	15-Aug-18	6	6							17-Ju	in-18 🗖		15	5-Aug-18, Inst	all Ancillary are	ation system							
AS401140	Install Other associated equipment for MBR Pre-treatment Screen Facilities	30 17-Jul-18	15-Aug-18	6	5								17	Jul-18	15	-Aug-18, Inst	all Other asso	ciated equipme	ant for MBR P	re-treatment Scr	reen Faciliti¢	es			
AS401800	Complete Power Cables Laying from Switchboard to Inlet Screen Chamber	0	02-Aug-18	22	2										🔶 02-Aug	18, Complete	Power Cable	s Laying from	\$witchboard to	o Inlet Screen Cl	hamber				
AS401900	Site test and commission for MBR pre-treatment System	30 24-Aug-18	22-Sep-18	1	1									24	4-Aug-18		22-Sep-18, S	ite test and co	mmission for I	MBR pre-treatme	ent System				
	<i>r Bioreactor No. 1 (BR1)</i> I, FAT and Delivery																								
AS402010	Purchase Order for Aeration Blowers & master control for aeration system	0 18-Aug-16 A	24-Aug-16 A																						
	Manufacturing, FAT & Delivery to Site - Aeration Blowers & master control for aeration system	30 04-Jul-16 A	29-Jan-18	147	7				29-Jan-18	, Manufacturin	g, FAT & Del	ivery to Site -	Aeration Blo	owers & maste	er control for	aeration syst	em								
	Purchase Order for Submersible Mixers	0 06-Sep-16 A	22-Sep-16 A		-																				
AS402032	Manufacturing, FAT & Delivery to Site - Submersible Mixers	0 14-Oct-16 A	22-Sep-17 A		-																				
AS402050	Purchase Order for Mixed Liquor Return pumps	0 06-Sep-16 A	22-Sep-16 A		_																				
AS402052	Manufacturing, FAT & Delivery to Site - Mixed Liquor Return pumps	0 14-Oct-16 A	06-Jul-17 A		_																				
	Purchase Order for Surplus Activated Sludge Pumps	0 06-Sep-16 A	23-Sen-16 A																						
					_																				
	Manufacturing, FAT & Delivery to Site - Surplus Activated Sludge Pumps	0 14-Oct-16 A																							
AS402090	Purchase Order for Air Diffusion System	0 02-May-16 A	01-Jun-16 A																						
AS402092	Manufacturing, FAT & Delivery to Site - Air Diffusion System	106 31-Mar-17 A	15-Apr-18	41							15-/	Apr-18, Manu	ifacturing, FA	AT & Delivery	to Site - Air I	Diffusion Syste	m								
AS402110	Purchase Order for Associated ductworks, pipeworks and valves	0 13-Nov-17A	17-Nov-17 A																						
AS402112	Manufacturing, FAT & Delivery to Site - Associated ductworks, pipeworks and valves	0 18-Nov-17 A	18-Dec-17 A				+ 																		
AS402130	Purchase Order for Foam control system & wash spraying system	0 13-Sep-16 A	22-Sep-16 A																						
AS402132	Manufacturing, FAT & Delivery to Site - Foam control system & wash spraying system	68 14-Oct-16 A	08-Mar-18	79						08-Mar	18, Manufac	turing, FAT &	Delivery to S	Site - Foam co	ontrol system	1 & wash spra	ying system								
AS402150	Purchase Order for Other associated equipment for Other associated equipment for	14 09-Jan-18	22-Jan-18	64	1		09-Jan-1	8 🗖 2	22-Jan-18, P	urchase Order	for Other as	sociated equ	ipment for O	ther associate	ed equipmen	t for BR1									
	BR1 Manufacturing, FAT & Delivery to Site - Other associated equipment for BR1	60 23-Jan-18	23-Mar-18	64	1		23	Jan-18 🗖		2	3-Mar-18. M	anufacturing.	FAT & Delive	ery to Site - O)ther associa	ted equipmer	t for BR1								
	r BR1 (incl. Provision for Health & Safety Requirements)																								
	Mobilisation of Works - BR1	0 07-Dec-17 A	21-Dec-17 A																						
AS402020	Install Aeration blowers & master control system	60 28-Apr-18	26-Jun-18	59	9					2	8-Apr-18			26-Jun-18,	Install Aerati	on blowers &	master control	system							
AS402040	Install Submersible Mixers	30 03-Apr-18	02-May-18	10)					03-Apr-18		02-May-1	8, Install Sub	omersible Mixe	ers										
AS402060	Install Mixed Liquor Return pumps	14 03-May-18	16-May-18	10)						03-Mav-18	16-	Mav-18. Insta	al Mixed Liqu	ior Return pu	ımbs									
	Install Surplus Activated Sludge Pumps	14 17-May-18	30-May-18	86]	8, Install Surp											
													, 00-iviay-10			-		n [010+							
	Install Air Diffusion Aeration System	90 03-May-18	31-Jul-18	24							03-May-18						iffusion Aeratio	nsystem							
AS402120	Install Associated ductworks, pipeworks and valves	111 22-Dec-17 A	20-Apr-18	36	6	22-De	əc-17A 🗖				20)-Apr-18, Ins	tall Associated	d ductworks, j	pipeworks ar	nd valves									
AS402140	Install Foam control system & wash spraying system	30 03-May-18	01-Jun-18	24	1						03-May-18		01-Jun-1	8, Install Foar	m control sys	stem & wash s	praying system	n							
AS402160	Install Other associated equipment for BR1	90 17-May-18	14-Aug-18	10	D						17-Ma	ay-18 🗖			14	-Aug-18, Inst	all Other assoc	iated equipme	ht for BR1						
AS402800	Complete Power Cable Laying from Switchboard to Plants for BR1	0	19-Aug-18	6	6										•	19-Aug-18, C	omplete Powe	r Cable Laying	from Switchb	oard to Plants fo	or BR1				
AS402900	Site Testing & Commissioning for BR1	60 24-Aug-18	22-Oct-18	1	-									24	4-Aug-18		:	22-Oct-18, Sit	e Testing & Co	dmmissioning for	r BR1				
4.3 Works for	Membrane Filtration System (MFS1)																								
Manufacturing,	, FAT and Delivery		00.4== 10.1																						
AS403010	Purchase Order for Membrane Modules	0 18-Apr-16 A	29-Apr-16 A																						
	File Name: DE/2014/01G3	Remain	ing Work									6 - ·		- DF /2		4				Dat	e	Revisior	n Cl	hecked	Approv
		Critical	•						ould'r	n ct co	NA F			0. DE/2	-			at 14/	ka	08-Jan-1	16 F	Rev. 0	KH L	au	КМ
	Layout: DE1401 (Rev. G) - WBS							1 Pi	UVISIO	II OT F&		11118S T	UT SNP	K VVU F	1ui 3eV	vage i	eatme	nt Wor	1.2		. – Ir		1.2		KM
	Layout: DE1401 (Rev. G) - WBS TASK filter: All Activities	 Milestor 	ne													-				22-Jun-1		Rev. D	KH L		
	TASK filter: All Activities		ne Progress							Furth	ner Exp	ansior	n Phase	e 1A - A	Advanc	e Wor	ks and			12-Jul-17	7 F	Rev. E	KH L	.au	КМ
JE	TASK filter: All Activities									Furth	ner Exp	ansior South	n Phase Road S		Advanc Pump	e Wor	ks and				7 F 7 F			.au .au	

i) NaOCI dosing pumps	12 Modules		10 Men	Aug 9 g, FAT & Delive ermeate Pump: ermeate Pump:	very to Site -	g, FAT & Del			4	Feb 3	Jan 2	Dec 1	56 9 9	lay-18 ep-16 A lar-18 ep-16 A	16A 2	ion 51 28-Mar-1 0 13-Sep-1		anufacturing, FAT & Delivery to Site - Membrane Modules urchase Order for Permeate Pumps	AS403012 AS403030
i) NaOCI dosing pumps			is Compressor	ermeate Punip	very to Site -	g, FAT & Del							9	ep-16A lar-18	16A 2				
ii) Citric Acid dosing pum	(i) NaOCI (∣System (i)	Compressor		Blowers	Air Scouring							9	lar-18		0 13-Sep-1		urchase Order for Permeate Pumps	AS403030
ii) Citric Acid dosing pum	(i) NaOCI (∣System (i)	Compressor		Blowers	Air Scouring							9		6A 2				710400000
ii) Citric Acid dosing pum	(i) NaOCI (∣System (i)		rery to Site - Air			ivery to Site -	ıg, FAT & De	-18, Manufacturin					ep-16A		88 07-Oct-16	8	anufacturing, FAT & Delivery to Site - Permeate Pumps	AS403032
ii) Citric Acid dosing pum	(i) NaOCI (₁ System (i)		ery to Site - Air			livery to Site -	ıg, FAT & De	-18, Manufacturin					001011	16 A 2	0 13-Sep-1		urchase Order for Return Activated Sludge Pumps	AS403050
ii) Citric Acid dosing pum	(i) NaOCI (ı System (i)		rery to Site - Air			livery to Site -	ig, FAT & De	-18, Manufacturin					ep-17 A	6A 0	0 07-Oct-16		anufacturing, FAT & Delivery to Site - Return Activated Sludge Pumps	AS403052
ii) Citric Acid dosing pum	(i) NaOCI (ı System (ï		tery to Site - Air			livery to Site -	ıg, FAT & De	-18, Manufacturin				 	ug-16 A	16 A 3	0 31-Aug-1		urchase Order for Backwash Pumps (Item Deleted)	AS403070
i) Citric Acid dosing pum	(i) NaOCI d	ı System (ij		tery to Site - Air			livery to Site -	ng, FAT & De	-18, Manufacturin					ug-16 A	16 A 3	0 31-Aug-1		anufacturing, FAT & Delivery to Site - Backwash Pumps (Item Deleted)	AS403072
i) Citric Acid dosing pum	(i) NaOCI d	ı System (i)		ery to Site - Air			livery to Site -	ng, FAT & De	-18, Manufacturin	1				ug-16 A	16 A 2	0 15-Aug-1		urchase Order for Air Scouring Blowers	AS403090
i) Citric Acid dosing pum	(i) NaOCI (ı System (i)		ery to Site - Air	g, FAT & Del					29-Jan-1			 102	an-18	6 A 2	30 11-Apr-16	3	anufacturing, FAT & Delivery to Site - Air Scouring Blowers	AS403092
i) Citric Acid dosing pum	(i) NaOCI (ı System (i)		ery to Site - Air	g, FAT & Del									ec-17 A	17A 2	0 18-Dec-1		urchase Order for Air Compressor	AS403110
i) Citric Acid dosing pum	(i) NaOCl (ı System (i)				Manufacturi	29-Apr-18				<mark>1</mark>	-Dec-17A	 57	pr-18	17A 2	20 22-Dec-1	12	anufacturing, FAT & Delivery to Site - Air Compressor	AS403112
i) Citric Acid dosing pum	(i) NaOCI	g System (ij	omical Doging											un-17 A	7A 2	0 05-Jun-17		urchase Order for Chemical Dosing System (i) NaOCI dosing pumps	AS403130
		:	lernical Doşing -	very to Site - Ch	g, FAT & De	, Manufactur	30-Apr-18						86	pr-18	7A 3	21 30-Jun-17	12	anufacturing, FAT & Delivery to Site - Chemical Dosing System (i) NaOCI dosing Imps	AS403132
		1												un-17 A	7A 2	0 05-Jun-17		urchase Order for Chemical Dosing System (ii) Citric Acid dosing pumps	AS403150
	(ii) Citric Ar	J System (ii	nemical Dosing	very to Site - Ch	g, FAT & De	, Manufactur	30-Apr-18						116	pr-18	7A 3	21 30-Jun-17	g 12	anufacturing, FAT & Delivery to Site - Chemical Dosing System (ii) Citric Acid dosing Imps	AS403152
i) Chomical starses to													 	eb-17 A	17A 2	0 06-Feb-1		urchase Order for Chemical Dosing System (iii) Chemical storage tank	AS403170
iii) Chemical storage tanl	(ili) Chemic	J System (il	nemical Dosing	very to Site - Ch	ig, FAT & De	, Manufactur	30-Apr-18						116	pr-18	17 A 3	21 01-Mar-1	ge 12	anufacturing, FAT & Delivery to Site - Chemical Dosing System (iii) Chemical storage nk	AS403172
														ep-17 A	17A 0	0 28-Aug-1		urchase Order for Permeate Drain Pumps, Drain Pumps for MFS1 and Cleaning rain Pumps	AS403190
Drain Pumps for MFS1 a	, Drain Pun	n Pumps, C	°ermeate Drain	livery to Site - F	ning, FAT & D	8, Manufactu	02-May-1						93	lay-18	17 A 0	23 06-Sep-1	12	anufacturing, FAT & Delivery to Site - Permeate Drain Pumps, Drain Pumps for FS1 and Cleaning Drain Pumps	AS403192
														ep-17 A	17A 0	0 28-Aug-1		urchase Order for Wash water pumping system	AS403210
a)m	tem	nping syste	ash water pump	very to Site - W	ig, FAT & De	, Manufactur	30-Apr-18						 125	pr-18	17A 3	21 06-Sep-1	12	anufacturing, FAT & Delivery to Site - Wash water pumping system	AS403212
					ks and valve	vorks, pipewo	ociated ductv	Order for Ass	eb-18, Purchase C	02-Feb	3-Jan-18 📘	2	53	eb-18	8 0	11 23-Jan-18	1	urchase Order for Associated ductworks, pipeworks and valves	AS403230
peworks and valves	pipeworks a	tworks, pig	Associated duct	livery to Site - A	ring, FAT & D	8, Manufact	03-May-			8	03-Feb-1		53	lay-18	18 0	90 03-Feb-1	9	anufacturing, FAT & Delivery to Site - Associated ductworks, pipeworks and valves	AS403232
					or MFS1	equipment	ner associate	Order for Otl	eb-18, Purchase C	02-Feb	3-Jan-18 🗖	2	23	eb-18	8 0	11 23-Jan-18	1	urchase Order for Other associated equipment for MFS1	AS403250
	1	for MFS1	ted equipment f	Other associat	elivery to Site	ring, FAT & D	8, Manufactu	03-Apr-1		8	03-Feb-1		23	pr-18	18 0	60 03-Feb-1	6	anufacturing, FAT & Delivery to Site - Other associated equipment for MFS1	AS403252
													 	17.4	17.4 0	0 07-Dec-1		IFS1 (incl. Provision for Health & Safety Requirements) obilisation of Works - MBR Facilities Building G/F	
												_						-	
				s Building B/F					31-Mar-18				0	pr-18		7 31-Mar-1		obilisation of Works - MBR Facilities Building B/F	AS403002a
					MFS1	tion of Works	r⊦18, Mobilisa	🗖 09-Ap	03-Apr-18				17	pr-18	8 0	7 03-Apr-18		obilisation of Works - MFS1	AS403004
stall Membrane Modules	nstall Mem				26-Jul-18 📕								0	ep-18	8 2	60 26-Jul-18	6	stall Membrane Modules, MFS Tank	AS403020
		gt	No.6, MBR Bldg	Pumps, No.1 - I	tall Permeate	1-May-18, In	2	3	07-Apr-18				0	lay-18	8 2	45 07-Apr-18	4	stall Permeate Pumps, No.1 - No.6, MBR Bldg	AS403040
e Pumps, No.1 - No.5, N	je Pumps,	ted Sludge	I Return Activate	25-Jul-18, Instal		6-Jun-18	2						0	ul-18	8 2	30 26-Jun-18	3	stall Return Activated Sludge Pumps, No.1 - No.5, MBR Bldg	AS403060
											1			ec-17 A	17A 3	0 30-Dec-1		stall Backwash Pumps -MBR Bldg (Not required)	AS403080
		J	vers, MBR Bildg	r Scouring Blow	n-18, Install A	11 -Ju		28-Apr-18	2				14	un-18	8 1	45 28-Apr-18	4	stall Air Scouring Blowers, MBR Bldg	AS403100
		3R Bldg.	omp re ssor, MB	18, Install Air C	11 -Ju	-18	12-Jun						14	ul-18	8 1	30 12-Jun-18	3	stall Air Compressor, MBR Bdg.	AS403120
				s - Chemical R				01-May-18	(72	lay-18	18 1	14 01-May-1	1	obilisation of Works - Chemical Rooms	AS403140
		ge Tank	Pumps & Storag	laOCI Dosing P	un-18, Install	13-	y-18 🗖	15-Ma					72	un-18	18 1	30 15-May-1	3	stall NaOCI Dosing Pumps & Storage Tank	AS403142
torage Tank	Storage Ta	Pumps & S	ic Acid Dosing P	l-18, Install Citri	13-Ji	1-18	14-Jur						72	ul-18	8 1	30 14-Jun-18	3	stall Citric Acid Dosing Pumps & Storage Tank	AS403160
sing Pumps & Storage T	osing Pump	tic Acid Dos	18, Install Acetic	12-Aug-	18	14-Jı							81	ug-18	B 1	30 14-Jul-18	3	stall Acetic Acid Dosing Pumps & Storage Tank	AS403180
					J-Jun-18, Insl	2	May-18 🗖	22-					 74	un-18	18 2	30 22-May-1	3	stall Permeate Drain Pumps, Drain Pumps for MFS1 and Cleaning Drain Pumps, FS1 Drain Chamber	AS403200
for MFS1 and Cleaning	n, MBR Bld	ng system,	h water pumpin	18, Install Wash	11-Ju	Jun-18 🗖	21-						74	ıl-18	8 1	21 21-Jun-18	2	stall Wash water pumping system, MBR Bldg.	AS403220
	ated ductwo	all Associate	5-Aug-18, Iristall	25		:		28-Apr-18	2				29	ug-18	8 2	20 28-Apr-18	12	stall Associated ductworks, pipeworks and valves	AS403240
udge g. 	g. ik 	dg ated Sh g BR Bld sge Tar Pumps tic Acid rain Pu	No.6, MBR Bldg II Return Activate vers, MBR Bldg compressor, MBI looms Pumps & Storag ic Acid Dosing P -18, Install Acetic ain Pumps, Dra h water pumpin	Pumps, No. 1 - 1 25-Jul-18, Instal r Scouring Bbw 18, Install Air C s - Chemical R 4aOCI Dosing P -18, Install Citri 12-Aug- 18, Install Wash	MFS1 26-Jul-18 Jall Permeate n-18, Install A 11-Ju sation of Wor un-18, Install 13-Ju -18	tion of Works 1-May-18, In 6-Jun-18 11-Jk 18 11-Jk 13-Jk 14-Jk 14-Jk	18, Mobilisa 2 2 12-Jun 14-N 14-Jun 14-Jun 14-Jun	09-Ap	03-Apr-18 07-Apr-18 2				0 0 14 14 72 72 81 74 74	pr-18 ep-18 lay-18 ul-18 ec-17 A ul-18 ul-18 lay-18 ul-18 ul-18 ul-18 ul-18	8 0 8 2 8 2 18 2 17 A 30 18 1 18 1 18 1 18 1 18 1 18 1 18 1 18 1 18 1 18 1 18 1 18 1 18 1 18 1 18 1	7 03-Apr-18 60 26-Jul-18 45 07-Apr-18 30 26-Jul-18 45 07-Apr-18 30 26-Jul-18 45 28-Apr-18 30 12-Jun-18 14 01-May-1 30 14-Jun-18 30 14-Jun-18 30 22-May-1 21 21-Jun-18	6 4 3 4 3 4 3 3 3 3 3 3 3 3 3 2	obilisation of Works - MFS1 stall Membrane Modules, MFS Tank stall Permeate Pumps, No.1 - No.6, MBR Bldg stall Return Activated Sludge Pumps, No.1 - No.5, MBR Bldg stall Backwash Pumps - MBR Bldg (Not required) stall Air Scouring Blowers, MBR Bldg stall Air Compressor, MBR Bldg. obilisation of Works - Chemical Rooms stall NaOCI Dosing Pumps & Storage Tank stall Citric Acid Dosing Pumps & Storage Tank stall Acetic Acid Dosing Pumps & Storage Tank stall Acetic Acid Dosing Pumps & Storage Tank stall Acetic Acid Dosing Pumps & Storage Tank stall Permeate Drain Pumps, Drain Pumps for MFS1 and Cleaning Drain Pumps, FS1 Drain Chamber stall Wash water pumping system, MBR Bdg.	AS403004 AS403020 AS403040 AS403060 AS403080 AS403100 AS403120 AS403140 AS403142 AS403140 AS403160 AS403200 AS403220

File Name: DE/2014/01G3 Layout: DE1401 (Rev. G) - WBS TASK filter: All Activities Remaining Work
Critical Activity
Milestone

Actual Progress

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

Page 8 of 16



				20	19					_
	Jan 14	Feb 15	Mar 16	Apr 17		May 18		Jun 19	Jul 20	ıg !1
-	14	10	10	17		10			23	
										-†-
					-					
1										
					[1
,										
S										
mps										
i.					l					
					ſ					
nk										ł
and	Cleaning Dra	in Pumpe								
1										
¦-					¦					-÷-
			[[T
			1							
1										
es, MF	S Tank									
										.1.
MBR	Blda									
	2.09									
										1.
					Ì					
Tank										
1001174										1
	ain Pumps, N	ES1 Drain (hambor							
iy Dia	un rumps, N	i oi prairi (IDEL							
····			Ļ							- -
ks aric	l valves									j.
					_					j
		ato	Denter	00		Checker	1	Λ.	prove d	
		ate	Revisi			Checked			proved	
	08-Jan-	-16	Rev. 0		KH	Lau		KM		
							_			
	22-Jun		Rev. D			Lau		KM		
	12-Jul-	17	Rev. E		KH	Lau		KM		
							_			
	17-Oct-	17	Rev. F		ΙKΗ	Lau		KM		
	27-Mar	-18	Rev. G		Ιкн	Lau		KM		
	L									

Activity ID	Activity Name	Remaining	Start	Finish	Total										2018										2
		Duratio			Float	Oct -2	Nov -1	Dec 1	Jan 2	Feb 3	Mar 4	Apr 5	May 6	Jun 7		lul 8	Aug 9	Sep 10	Oct 11	Nov 12	Dec 13	Jan I 14	eb 15	Mar 16	A 1
AS403260	Install Power Supply / Other associated equipment for MFS1	15	0 27-Apr-18	23-Sep-18	0						2	7-Apr-18							23-Sep-18, I	nstall Power S	upply / Other	associated equipm	ent for MFS	61	
AS403800	Complete Laying Power Cable from Switchboard to Plant for MFS1		D	23-Sep-18	0			1 1 1 1 1										٠	23-Sep-18, 0	Complete Layi	ng Power Ca	ble from Switchboai	d to Plant fo	or MFS1	
AS403900	Site test and commission for Membrane Filtration System (MFS1)	6	24-Sep-18	22-Nov-18	0			1 1 1 1 1									24-	Sep-18 🗖			22-Nov-18, S	ite test and commiss	ion for Mer	nbrane Filt	ration
4.4 Works fo	or Flowmeter Chamber																								
Manufacturin AS404010	ng, FAT and Delivery Purchase Order for Flowmeter		0 28-Aug-16 A	22-Sep-16 A																					
AS404012	Manufacturing, FAT & Delivery to Site - Flowmeter		0 04-Oct-16 A	21-Aug-17 A																					
AS404030	Purchase Order for Associated ductworks, pipeworks and valves		0 18-Sep-17A					1 1 1 1																	
AS404032	Manufacturing, FAT & Delivery to Site - Associated ductworks, pipeworks and valves		1 21-Sep-17 A		86			, , , ,				31-Mar-18	3 Manufactur	ring, FAI&	Delivery to	o Site - Asso	ciated du	ctworks, pip	eworks and	valves					
AS404050	Purchase Order for Flange Adaptor		0 18-Sep-17 A	18-Sep-17 A																					
AS404052	Manufacturing, FAT & Delivery to Site - Flange Adaptor	9	1 21-Sep-17 A	31-Mar-18	86			, 1 1				31-Mar-18	3, Manufactur	ring, FAT &	Delivery to	o Site - Flan	ge Adapt	or							
Install, T&C f	or Flowmeter Chamber (incl. Provision for Health & Safety Requirements) Install Flowmeter, Flange Adaptor, Associated Ductworks, pipeworks & Valves (MBR1)	4	5 17-Jul-18	30-Aug-18	24									1	7-Jul-18			30-Aug-18	Install Flow	meter. Flance	Adaptor, Ass	ociated Ductworks,	ipeworks 8	Valves (M	/IBR 1)
AS404040	Install Flowmeter, Flange Adaptor, Associated Ductworks, pipeworks & Valves (BR1)		5 02-Jun-18	16-Jul-18	24								02-Jun-18									peworks & Valves (
		4	5 02-5011-18	10-50-10	24			1 1 1 1 1					02-5011-10				, mstairr	iowineter, r	lange Adapt	Associated	Buciworks, p	peworks & valves ((int		
	or Penstocks, Actuators and Stoplogs ng, FAT and Delivery							1 1 1 1 1																	
AS405010	Purchase Order for (i) Wier Penstocks - Outlet of MBR Pre-treatment Screens S7 & S8		08-Feb-17A	15-Feb-17 A																					
AS405012	Manufacturing, FAT & Delivery to Site - (i) Wier Penstocks - Outlet of MBR Pre-treatment Screens S7 & S8		0 16-Feb-17A	28-Nov-17 A																					
AS405030	Purchase Order for (II) Inlet of influent channel of membrane tanks, S1 & S2		08-Feb-17A	15-Feb-17 A																					
AS405032	Manufacturing, FAT & Delivery to Site - (II) Inlet of influent channel of membrane tanks	i, (0 16-Feb-17A	28-Nov-17 A																					
AS405050	S1 & S2 Purchase Order for (III) Inlet of membrane tanks PS1 - PS6		0 09-Feb-17 A	15-Feb-17 A				1 1 1 1 1																	
AS405052	Customs Manufacturing, FAT & Delivery to Site - (III) Inlet of membrane tanks PS1 -		0 16-Feb-17A	28-Nov-17 A				1 1 1 1 1																	
AS405070	PS6 Purchase Order for (IV) Outlet of membrane tanks Gate Valves		0 26-Jun-17 A	07-Jul-17 A				1 1 1 1 1																	
AS405072	Manufacturing, FAT & Delivery to Site - (IV) Outlet of membrane tanks - 6 nos.		1 08-Jul-17 A	31-Mar-18	51			, , , ,				31-Mar-18	3, Manufactur	ring FAT &	Delivery tr	Site - (IV)	Outlet of	membrane	anks - 6 nos						
												i ST-IVIAI-TO	inariuraciur	ing, rAi a		5 Sile - (1v)		inempi ane	ans - 0 nos						
AS405090	Purchase Order for Other associated equipment for penstocks & stoplogs		0 09-Feb-17 A					1 1 1 1 1																	
AS405092	Manufacturing, FAT & Delivery to Site - Other associated equipment for penstocks & stoplogs		0 16-Feb-17 A	28-NOV-17 A																					
AS405020	or Penstocks, Actuators & Stoplogs (incl. Provision for Health & Safety Requirer Install (i) Wier Penstocks - Outlet of MBR Pre-treatment Screens S7 & S8	-	08-Apr-18	07-May-18	49			1 1 1 1 1			08-Apr-18	3	07-Ma	y-18, Install	I (i) Wier F	enstocks - C	Dutlet of N	/IBR Pre-tre	atment Scre	ens S7 & S8					
AS405040	Install Penstocks w/ Actuator for Inlet of Membrane Tanks - PS1 to PS6, MFS1	30	26-Jun-18	25-Jul-18	30			 					2	26-Jun-18		25-Ju	ıl-18, Inst	all Penstock	w/ Actuato	r for Inlet of N	embrane Tar	iks - PS1 to PS6, M	S1		
AS405060	Install (II) Inlet of influent channel of membrane tanks, S1 & S2	30	0 08-May-18	06-Jun-18	49							08-May-1	8	06-Ji	un-18, Inst	tall (II) Inlet	of influen	t channel of	membrane t	anks, S1 & S2					
AS405080	Install Gatevalve w/ Actuator for Outlet of membrane tanks	3	5 22-May-18	25-Jun-18	0							22-	May-18 💻		2 5-Jur	n-18, Install (Gatevalve	w/ Actuato	r for Outlet o	of membrane	anks				
AS405100	Install Other associated equipment for penstocks & stoplogs	6) 26-Jun-18	24-Aug-18	30									26-Jun-18			2	4-Aua-18, li	stall Other a	ssociated equ	ipment for pe	nstocks & stoplogs			
																		- 3 - 7							
Statutory Sul	or Building Services and Fire Services bmission / Inspection (FSD)			-				, , , ,																	
AS406500	Prepare & Submit F314 & F501	14	4 24-Jan-19	06-Feb-19	37			1 1 1 1 1													2	4-Jan-19)6-Feb-19,	Prepare &	1 Subr
AS406510	F.S. Inspection	14	4 23-Feb-19	08-Mar-19	21			1 1 1 1 1														23-Feb-	9	08-Mar-1	19, F.S
AS406520	Report of Completion on Ventilation System	-	7 24-Jan-19	30-Jan-19	44																2	4-Jan-19 🗖 30-	Jan-19, Re	port of Cor	npleti
AS406530	VAC Inspection	14	4 31-Jan-19	13-Feb-19	44																	31-Jan-19	13-Feb-	19, VAC In	spect
AS406540	Issuance of Acceptance Letter	-	7 09-Mar-19	15-Mar-19	21																	09	Mar-19	🗖 15-Ma	ar-19,
AS406550	Application of D.G. Licence		0 02-Apr-18*		138			1 1 1 1 1			02-Apr-18*	Applicatio	n of D.G. Lio	ence											
AS406560	Processing of D.G. Licence Application	18	0 02-Apr-18*	28-Sep-18	138						02-Apr-18*								28-Sep-18	, Processing o	f D.G. Licenc	e Application			
AS406570	D.G. Inspection & Issue D.G. Licence	30	0 24-Jan-19	22-Feb-19	21																2	4-Jan-19	22-F	eb-19, D.C	G. Ins
Statutory Sul	bmission / Inspection (WSD)																								
AS406600	Submit WWO46 Pt. I & II to WSD (FS)	30	0 30-May-18*	28-Jun-18	158							3	0-May-18*		2 8-Ji	un-18, \$ubm	it WWO	46 Pt. I & II 1	WSD (FS)						
AS406610	Approval of WWO46 Pt. I & II by WSD (FS)	30	29-Jun-18	28-Jul-18	158			1 1 1 1						29-Jun-18	3	28	Jul-18, Ap	proval of W	WO46 Pt. I 8	I by WSD (I	S)				
AS406620	Submit WWO46 Pt. IV to WSD (FS)		7 24-Jan-19	30-Jan-19	28																2	4-Jan-19 🗖 30-	Jan-19, Su	bmit WWO)46 Pt
	·							1	, : 				1	i					1	<u>i</u>		Date	i	Revisio	
	File Name: DE/2014/01G3 Layout: DE1401 (Rev. G) - WBS		- Remaii	-					_		•					E /201 4	-	_	-			08-Jan-16		ev. 0	
	TASK filter: All Activities	•	Milesto						Pr	ovisio								-		nt Wor	KS	22-Jun-17		ev. D	
			Actual	Progress								-	bansion									12-Jul-17 17-Oct-17		ev. E ev. F	
10	Page 9 of 16										Ng	CHOW	South			-	-	ig stat	100			17-Oct-17 27-Mar-18		ev. F ev. G	
J													IV	iaster	Prog	ramm	e								

Dec	Jan	Feb	Mar	201 Apr	9	May		Jun	Jul	ıg
13 oply / Other a	14 ssociated eq	15 uipment for 1	16 MFS1	17	-	18		19	20	!1
Power Cable	= 110111 SWI[Ch	iouaro to Pla	Intion MFS1							
-Nov-18, Site	test and con	mission for	Membrane Fi	tration S	ysten	n (MFS1)				
										Ť
										-
										÷
daptor, Assoc	iated Ductwo	rks, pipewor	ks & Valves (I	MBR 1)						
uctworks, pipe	eworks & Val	ves (BR 1)								+-
										-÷-
					}					
mbrane Tank	s - PS1 to PS	6, MFS1								
nks										
		0.00								
ment for pens	SLOCKS & Stop	ogs								
										4
24-	Jan-19 🗖	06-Feb	19, Prepare	& Submit	F31	4 & F501				
	23-	-ер-19 📘	08- Mar-	19, F.S.	inspe	ection				
24-	Jan-19 🗖	30-Jan-19	Report of Co	mpletion	on	entilation Sys	tem			
	31-Jan-19 [13-F	eb-19, VAC li	nspection	1					
			9 🗖 15-M			ce of Accenta	nce	etter		÷
		00-ividi=1	- 13-1V		Judi	oo oi nooepia		_01101		
D.G. Licence	Application									
24-	Jan-19 🗖		22-Feb-19, D.	G. Inspe	ction	& Issue D.G	Lice	nce		
										÷-
5)										
5)										
24-	Jan-19 🗖	30-Jan-19	Submit WW	D46 Pt. I	V to	WSD (FS)				
		ato	Dovici		;	Checked		۸-	proved	
	08-Jan-	ate -16	Revisi Rev. 0			Checked Lau		Ар КМ	proved	
S	22-Jun		Rev. D			Lau		KM		
	12-Jul-		Rev. E			Lau		KM		_
	17-Oct-		Rev. F			Lau		KM		
	27-Mar		Rev. G			Lau		KM		
										_

Activity ID	Activity Name	Remaining	Start	Finish	Total	Oct Nov	Dee	lan	Feb	Mar	× 1 Apr	May	- Lup	2018	Aug	L Con L	Oct	Nev	Dec	lan	L Esh	Mar	2019	May	hus	L.I.
AS406630	WSD Inspection (FS)	Duration	31-Jan-19	01-Mar-19	Float 28	Oct Nov -2 -1	Dec 1	2	3	4	r Apr 5	May 6	Jun 7	Jul 8	Aug 9	Sep 10	Oct 11	12	Dec 13		Feb 15	16	Apr 17 WSD Inspectio	18	Jun 19	Jul II 20
		50	51-0an-15	01-10121-13	20															broan 15			WOD Inspectio	11(1-3)		
AS406010	, FAT and Delivery Purchase Order for Indoor Lighting	14	17-Mar-18	30-Mar-18	72			-	17-N	Mar-18 🗖	30-Mar-18	Purchase O	rder for Indo	or Lighting												
AS406012	Manufacturing, FAT & Delivery to Site - Indoor Lighting	90	31-Mar-18	28-Jun-18	72					31-Mar-	18			28-Jun-18,	Manufacturir	ng, FAT & Delivery	to Site - Indo	oor Lightin	g							
AS406030	Purchase Order for Air-conditioning & ventilation System	14	17-Mar-18	30-Mar-18	34				17-N	Mar-18 🗖	30-Mar-18	, Purchase O	rder for Air-o	ohditioning &	ventilation Sy	stem										
AS406032	Manufacturing, FAT & Delivery to Site - Air-conditioning & ventilation System	120	31-Mar-18	28-Jul-18	34					31-Mar-	-18				28-Jul-18,	Manufacturing, FA	T & Delivery	to Site - A	ir-conditionir	ng & ventilation	System					
AS406050	Purchase Order for Outdoor lighting installation for relevant area	14	17-Mar-18	30-Mar-18	147				17-N	Mar-18	30-Mar-18	Purchase O	rder for Outo	door lighting in	stallation for	relevant area										
AS406052	Manufacturing, FAT & Delivery to Site - Outdoor Lighting installation for relevant area	90	31-Mar-18	28-Jun-18	147			-		31-Mar-						ng, FAT & Delivery	to Site - Out	door Light	ting installati	on for relevant	area					
AS406070	Purchase Order for Other B.S. installation for relevant area		17-Mar-18	30-Mar-18	21				17-N		30-Mar-18	Purchase O						5	5							
AS406072	Manufacturing, FAT & Delivery to Site - Other B.S. installation for relevant area		31-Mar-18	28-Jun-18	21					31-Mar-						ng, FAT & Delivery	to Site - Oth	or BS inc	tallation for	relevant area						
					21				01 Mar 10			order (s				ig, i Ai a Delivery		er D.O. ine	Stanation for							
AS406090	Purchase Order for F.S. Fittings & Equipment		01-Mar-18	14-Mar-18	30						14-Mar-18, Purch	ase Order to					50 F.W	0 E								
AS406092	Manufacturing, FAT & Delivery to Site - F.S. Fittings & Equipment	90	15-Mar-18	12-Jun-18	36				15-Ma	ar-18 🗖		 	12-J	un-18, Manut	acturing, FAI	& Delivery to Site	- F.S. Fitting	s & Equipr	ment							
AS406020	r Building Services (incl. Provision for Health & Safety Requirements) Install Indoor Lighting - Trunking / Conduits, MBR Building	60	29-Jun-18	27-Aug-18	72								29-Jun-18			27-Aug-18, Inst	all Indoor Lig	hting - Tru	inking / Con	duits, MBR Buik	lding					
AS406022	Install Indoor Lighting Fittings, MBR Building	60	28-Aug-18	26-Oct-18	72										28-Aug-18		26	-Oct-18, lı	ristall Indoor	Lighting Fitting	s, MBR Buik	ding				
AS406024	Install Indoor Lighting - Trunking / Conduits, Chemical Rooms	7	28-Aug-18	03-Sep-18	104										28-Aug-18	03-Sep-18,	nstall Indoor	Lighting -	Trunking / C	onduits, Chemi	ical Rooms					
AS406026	Install Indoor Lighting Fittings, Chemical Rooms	7	04-Sep-18	10-Sep-18	125										04-Sep-18	3 🗖 10-Sep-1	8, Install Indo	or Lighting	g Fittings, Cl	nemical Rooms	6					
AS406040	Ductwork for Ventilation System, MBR Building		02-May-18	30-Jul-18	34						02-May-18					Ductwork for Ver										
AS406041	Install Ventilation Fans & Control, MBR Building		31-Jul-18	20-Aug-18	57											20-Aug-18, Install				uldina						
AS406042	Complete Ventilation System	0		20-Aug-18	57											20-Aug-18, Comp				, i i i i i i i i i i i i i i i i i i i						
				-	07							1 1 1 1								ditioning MPD	Duilding					
AS406043	Install Split Type Air-conditioning, MBR Building		28-Aug-18	01-Oct-18	97										28-Aug-18				lype Air-con	alijoning, MBR	Building					
AS406044	MVAC Ready		02-Oct-18		97											02-Oct-18 🔶										
AS406045	Provision of Temp. A/C for H.V. Switchroom	21	31-Jul-18	20-Aug-18	34									31-Jul-18	2	20-Aug-18, Provis	on of Temp. /	VC for H.V	V. Switchroo	m						
AS406046	Temporary MVAC Ready	0	21-Aug-18		34									21-	Aug-18 🔶 1	Femporary MVAC	Ready									
AS406060	Install Outdoor Lighting for Pre-treatment Screen & Flowmeter Chamber	30	29-Jun-18	28-Jul-18	162								29-Jun-18		28-Jul-18,	Install Outdoor Liç	hting for Pre	-treatment	t Screen & F	lowmeter Char	mber					
AS406061	Install Outdoor Lighting for BR1 & its Vicinity Areas	45	29-Jun-18	12-Aug-18	147								29-Jun-18		12-A	ug-18, Install Out	door Lighting	for BR1 8	k its Vicinity A	Areas						
AS406062	Install Outdoor Lighting for MBR Building & its Vicinity Areas	45	29-Jun-18	12-Aug-18	147								29-Jun-18		12-A	ug-18, Install Out	door Lighting	for MBR	Building & it	s Vicinity Areas	1					
AS406063	Install Outdoor Lighting for MFS1 & its Vicinity area	30	29-Jun-18	28-Jul-18	162								29-Jun-18		28-Jul-18,	Install Outdoor Liç	hting for MFS	S1 & its Vi	oinity area							
AS406064	Install Outdoor Lighting for Chemical Rooms	14	11-Sep-18	24-Sep-18	125										11-Sep	-18 💶 24-	Sep-18, Insta	all Outdoor	r Lighting for	Chemical Roo	oms					
AS406080	Install Other B.S. (Switches for Power Supply to Equipment), Pre-treatment Screen & Flowmeter Chamber	30	29-Jun-18	28-Jul-18	21							1 1 1 1	29-Jun-18	-	28-Jul-18,	Install Other B.S.	Switches for	Power Su	pply to Equi	pment), Pre-tre	eatment Scre	en & Flowme	ter Chamber			
AS406081	Install Other B.S. (Switches for Power Supply to Equipment), BR1 & its Vicinity Areas	30	29-Jul-18	27-Aug-18	21									29-Jul-18		27-Aug-18, Inst	all Other B.S.	. (Switches	for Power	Supply to Equip	pment), BR1	& its Vicinity A	reas			
AS406082	Install Other B.S. (Switches for Power Supply to Equipment), MBR Facilities Building	45	28-Aug-18	11-Oct-18	21							1 1 1 1			28-Aug-18		11-Oct-1	8, Install C	ther B.S. (S	witches for Pov	wer Supply to	α Equipment),	MBR Facilities	Building		
AS406083	Install Other B.S. (Switches for Power Supply to Equipment), MFS1 & its Vicinity area	45	12-Oct-18	25-Nov-18	21											12-Oct-18			25-Nov-18,	Install Other B	3.S. (Switches	s for Power S	upply to Equipm	ent), MFS1 &	its Vicinity area	a
AS406084	Install Other B.S. (Switches for Power Supply to Equipment), Chemical Rooms	21	26-Nov-18	16-Dec-18	21												26-N	lov-18	16	S-Dec-18, Instal	Il Other B.S.	Switches for	Power Supply to	o Equipment).	Chemical Roc	oms
AS406800	Testing and Commission of B.S. Installation	21	17-Dec-18	06-Jan-19	21													17-De	ekc-18 💻	06-Jan-	19, Testing a	and Commissic	on of B.S. Install	ation		
Install, T&C fo	r Fire Services (incl. Provision for Health & Safety Requirements)																									
AS406101	Install Trunking & Conduits for AFA System - MBR Facilities Building	30	13-Jun-18	12-Jul-18	36							13-Jun	1-18	12-J	ul-18, Install T	runking & Condu	ts for AFA Sy	stem - MB	R Facilities I	Building						
AS406102	Install AFA Fittings & Accessories, Wiring - MBR Facilities Building	60	13-Jul-18	10-Sep-18	36								13-Ju	-18		10-Sep-1	8, Install AFA	Fittings &	Accessories	, Wiring - MBR	Faclities Bui	ilding				
AS406104	Install Trunking & Conduits for AFA System - Chemical Rooms/D.G. Store	7	14-Jul-18	20-Jul-18	81								14-Ju	il 18 🗖 2	0-Jul-18, Inst	all Trunking & Gor	duits for AFA	System -	Chemical R	ooms/D.G. Sto	re					
AS406106	Install AFA Fittings & Accessories, Wiring - Chemical Rooms/D.G. Store	7	21-Jul-18	27-Jul-18	81								21	I-Jul-18 🗖	27-Jul-18, I	nstall AFA Fittings	& Accessorie	s, Wiring -	Chemical F	Rooms/D.G. Sto	ore					
AS406108	Install F.S.Main Control System	7	11-Sep-18	17-Sep-18	36										11-Sep	-18 💻 17-Se	o-18, Install F	S.Main C	ontrol Syste	m						
AS406180	Pipework for Sprinkler, HR/HR - MBR Facilities Building	14	29-Jul-18	11-Aug-18	158									29-Jul-18	11-A	ug-18, Pipework f	or Sprinkler, I	HR/HR - N	BR Facilitie	sBuilding						
AS406182	Install Sprinkler Head, Hose Reel & Fire Hydrant - MBR Faclities Building	35	12-Aug-18	15-Sep-18	158			-						12-Aug	-18	15-Sep	18, Install Sp	orinkler He	ad, Hose R	eel & Fire Hydr	rant - MBR F	aclities Buildin	ģ			
												<u> </u>	<u> </u>		<u> </u>						<u> </u>	<u>:</u>	<u> </u>			
	File Name: DE/2014/01G3		Remair	•								Cont	ract No	5. DE/2	014/0	1					Date	Revis		Checked		oved
	Layout: DE1401 (Rev. G) - WBS TASK filter: All Activities		Critical Milesto					Pi	rovisio	on of	E&M Fac			•	-		tment	Worl	ks	08-Jan 22-Jun		Rev. 0 Rev. D	КН I КН I		KM KM	
	AST HILET. AIL ACUVILIES		-	ne Progress							irther Exp									12-Jul-		Rev. E	КНІ	Lau	KM	
	Page 10 of 16			-						Ν	Ng Chow			-	-	ing Static	n			17-Oct		Rev. F	KH I		KM	
JE												Μ	laster F	Program	nme					27-Ma	r-18	Rev. G	KH I	_au	KM	
																						1			1	

ty ID Activity Name	Remaining Start Duration	Finish	Total Float Oct	Nov De	c Jan	Eeb	Mar	Apr	May Jun	2018	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	2019 Apr	May	Jun Jul
AS406184 Install F.S. Pumps and Control - MBR Facilities Building	45 13-Jun-18	27-Jul-18	81	-1 1	2	Feb 3	4	5	6 7 13-Jun-18	8	9	10	11	12	13 clities Building		Feb 15	Mar 16	17		19 20
AS406240 F.S. Direct Link Connection	7 07-Jan-19	13-Jan-19	21													9 🗖 13-Jah-	10 ES D	rect Link Conn	ection		
AS406260 Install Fire Extinguisher for Relevant Areas	7 24-Jan-19	30-Jan-19	65													4-Jan-19 🗖 :			-	Relevant Areas	
AS406900 Testing of F.S. System	10 14-Jan-19	23-Jan-19	21												14-Jar	n 19 💻 23-	Jan-19, Te	sting of F.S. Sy	stem		
4.7 HV Switchgear, Transformer, LV Switchgear, LV Control Gear etc Manufacturing, FAT and Delivery																					
AS407010 Purchase Order for 11kV HV Switchboard	0 12-Sep-16 A	21-Sep-16 A																			
AS407012 Manufacturing, FAT & Delivery to Site - 11kV HV Switchboard	12 07-Oct-16 A	11-Jan-18	30		11-Ja	ın-18, Manufa	acturing, FAT	& Delivery to S	ite - 11kV HV Switchbo	ard											
AS407030 Purchase Order for 3.3kV HV Switchboard	0 12-Sep-16 A	21-Sep-16 A																			
AS407032 Manufacturing, FAT & Delivery to Site - 3.3kV HV Switchboard	89 07-Oct-16 A	29-Mar-18	85					29-Mar-18, M	/anufacturing, FAT & D	elivery to Site -	3.3kV HV Sw	itchboard									
AS407050 Purchase Order for Transformer	0 13-Sep-16 A	21-Sep-16 A																			
AS407052 Manufacturing, FAT & Delivery to Site - Transformer	75 07-Oct-16 A	15-Mar-18	53				15-N	Mar-18 Manufa	cturing, FAT & Delivery	to Site - Trans	former										
								inar ro, manut	lotaning, i i ti a Deliverj												
	0 13-Sep-16A																				
AS407072 Manufacturing, FAT & Delivery to Site - L.V. Switchboard No.1	106 30-Sep-16 A	15-Apr-18	1						pr-18, Manufacturing, F												
AS407074 Manufacturing, FAT & Delivery to Site - L.V. Switchboard No.2	106 30-Sep-16 A	15-Apr-18	31					15-Ar	or-18, Manufacturing, F												
AS407076 Manufacturing, FAT & Delivery to Site - L.V. Switchboard No.3	121 30-Sep-16 A	14-May-18	37						14-May-18, Ma	nufacturing, FA	T & Delivery to	Site - L.V. S	witchboard No	0.3							
AS407090 Purchase Order for (I) VSD for Permeate Pumps	0 03-Mar-17 A	16-Mar-17 A	·																		
AS407092 Manufacturing, FAT & Delivery to Site - (I) VSD for Permeate Pumps	75 17-Mar-17 A	15-Mar-18	32			-	15-N	Mar-18, Manufa	cturing, FAT & Delivery	to Site - (I) VS	of for Permea	te Pumps									
AS407110 Purchase Order for (II) VSD for RAS Pumps	0 03-Mar-17 A	16-Mar-17 A																			
AS407112 Manufacturing, FAT & Delivery to Site - (II) VSD for RAS Pumps	75 17-Mar-17 A	15-Mar-18	32				15-N	Mar-18, Manuta	cturing, FAT & Delivery	ta Site - (II) V	SD for RAS F	umps	+								
AS407130 Purchase Order for (III) VSD for SAS Pumps	0 03-Mar-17 A	16-Mar-17 A																			
AS407132 Manufacturing, FAT & Delivery to Site - (III) VSD for SAS Pumps	75 17-Mar-17 A	15-Mar-18	32				15-N	Mar-18, Manuta	cturing, FAT & Delivery	to Site - (III) V	SD for SAS P	umps									
AS407150 Purchase Order for (IV) VSD for BR Feedpumps	0 03-Mar-17A	16-Mar-17 A																			
AS407152 Manufacturing, FAT & Delivery to Site - (IV) VSD for BR Feedpumps	75 17-Mar-17 A	15-Mar-18	32				15-1	Mar-18 Manufa	cturing, FAT & Delivery	to Site - (IV) V	SD for BB F	ednumns									
AS407170 Purchase Order for (V) VSD for Drain Pumps for MFS1	0 03-Mar-17A																				
AS407172 Manufacturing, FAT & Delivery to Site - (V) VSD for Drain Pumps for MFS1	75 17-Mar-17 A						15.1	Max 10 Manufa	cturing, FAT & Delivery		CD for Droin I	umpo for ME	61								
			32					Marto, Marture	lotting, I And Delivery			umps for fwir									
	0 13-Sep-16A		·																		
AS407192 Manufacturing, FAT & Delivery to Site - Starter for Motor, Screen & Mixer etc.	75 30-Sep-16 A	15-Mar-18	32				15-N	Mar-18, Manuta	cturing, FAT & Delivery	td Site - Starte	er for Motor, S	creen & Mixe	r etc.								
Install, T&C for MBR Facilities Building (incl. Provision for Health & Safety Requirements) AS407001 Mobilisation & Preparation Works - MBR Facilities Building CLP Rm C & D	0 30-Sep-17 A	02-Nov-17 A																			
AS407002 Mobilisation of Works - MBR Facilities Building	0 03-Nov-17 A	02-Dec-17 A	· · · · · · · · · · · · · · · · · · ·																		
AS407020 Install 11kV HV Switchboard, SAT	65 12-Jan-18	17-Mar-18	30	12	-Jan-18		17-	Mar-18, Instal	11kV HV Switchboard,	SAT											
AS407022 Modify Existing 11kV HV Switchboard, SAT	21 18-Mar-18	07-Apr-18	30			18-M	lar-18	07-Apr-1	8, Modify Existing 11kV	HV Switchboa	rd, SAT										
AS407024 CLP Inspection / Install Meters	10 13-May-18	22-May-18	75						8 🛄 22-May-18,			Ś									
AS407026 11kV HV Switchboard Energization	0 23-May-18		75						ay-18 🔷 11kV HV Sw												
AS407040 Install 3.3kV HV Switchboard, SAT	30 14-May-18	12-Jun-18	40						18 12			tehboard 64									
			40					14-IVIAY						ord							
AS407042 Functional Test - 3.3kV HV Switchboard	14 27-Jun-18	10-Jul-18	40							10-Ju		av iest-3.3K\	U OV SWICHDO	nal U							
AS407060 Install Transformers (No. 3 & 4)	14 08-Apr-18	21-Apr-18	30						Apr-18, Install Transfo												
AS407062 Install Transformers (No. 1 & 2)	14 30-Apr-18	13-May-18	22				<u>.</u>		13-May-18, Inst												
AS407080 Install L.V. Switchboard No.1 & MCB Distribution Board, SAT	45 16-Apr-18	30-May-18	1				16-Ap	pr-18	30-May-					ard, SAT							
AS407081 Install VSD for BR Feedpumps, 2 nos.	3 31-May-18	02-Jun-18	48					3	1-May-18 🛿 02-Jun	18, Install VSD	for BR Feed	oumps, 2 nos.									
AS407082 Install L.V. Switchboard No.2 & MCB Distribution Board, SAT	45 16-May-18	29-Jun-18	1					16-May	18	29-Jun-18	nstall L.V. S	witchboard No	2 & MCB Dis	tribution Boa	ard, SAT						
AS407083 Mobilisation of Works - Chemical Rooms	7 29-Jun-18	05-Jul-18	1						29-Jun-18	05-Jul-1	8, Mobilisatior	of Works - C	hemical Roor	ns							
				<u>;</u>		:	•			:	·	•	•	•	•	Dat		Revisio	n l r	Checked	Annrous
File Name: DE/2014/01G3 Layout: DE1401 (Rev. G) - WBS	Remain	-					_		Contract N						_	08-Jan-1		Rev. 0	n (KH		Approve KM
TASK filter: All Activities	 ♦ Milesto 				Pi	rovisio			lities for She			-		nt Wor	ks	22-Jun-1	17	Rev. D	КН	Lau	KM
	Actual	Progress						-	ansion Phas							12-Jul-17		Rev. E	KH		KM
Page 11 of 16							Ng	Chow S	outh Road	-	-	ng Stat	ion			17-Oct-1 27-Mar-1		Rev. F Rev. G	KH KH		KM KM
JEC									Master	rogran	nme										
																					•

Activity ID	Activity Name	Remaining Start	Finish	Total	Ortho Maria	Dee		L Cab	Mari	0.77	Maria	20	18	A	L Car		L. New			Maria	2019	Maria	hur I	lat be
		Duration		Float	Oct Nov -2 -1	Dec 1	Jan 2	Feb 3	Mar 4	Apr 5	May 6	Jun 7	8	9	10	11	Nov 12	13 14	Feb 15	Mar 16	Apr 17	May 18	Jun 19	Jul ig 20 !1
AS407084	Install MCB Distribution Board, DB-P6 (Chemical Room 2)	14 06-Jul-18	19-Jul-18	1								06-Jul-18	19-	Jul-18, Instal	I:MCB Distrib	ution Board,	DB-P6 (Chem	ical Room 2)						
AS407085	Functional Test - L.V. Switchboard No. 1	30 20-Jul-18	18-Aug-18	1								20-j	ul-18	18-	Aug-18, Fur	ctional Test -	L.V. Switchbo	ard No. 1						
AS407086	L.V. Switchboard No. 1 Ready for Energisation	0 19-Aug-18		1									19-Au	ıg-18 🔶 L.\	. Switchboar	d No. 1 Read	ly for Energisa	tion						
AS407087	Functional Test - L.V. Switchboard No. 2	30 30-Jun-18	29-Jul-18	21							30)-Jun-18		29-Jul-18. F	unctional Te	st - L.V. Switc	hboard No. 2							
AS407088	L.V. Switchboard No. 2 Ready for Energisation	0 19-Aug-18		1									19-Au	Ig-18 ♥ L.V	/. Switchboar	d No. 2 Read	ly for Energisa	lion						
AS407500	Install, T&C of PQEMS	60 26-Aug-18	24-Oct-18	29									26	-Aug-18 🗖			24-Oct-18, In	stall , T&C of PQEMS						
AS407600	Earthing System for MFS1 Completed	0 19-Aug-18		29									19-Au	ig-18 🔶 Ea	rthing Syster	n for MFS1 C	ompleted							
AS407620	Submit WR1 to EMSD for Electrical System, MFS1	7 19-Aug-18	25-Aug-18	29									19-Au	ig-18 🗖	25-Aug-18, \$	Submit WR1 1	to EMSD for E	ectrical System, MFS1						
AS407640	Power On for MFS1 System	0 26-Aug-18		29									26	-Aua-18 🔶	Power On fo	MFS1 Syste	em							
AS407003	for BR1's Vicinity Area (incl. Provision for Health & Safety Requirements) Mobilisation of Works - BR1's Vicinity area	14 01-May-18	14-May-18	37						01-May-18	14-Ma	y-18, Mobilis	ation of Work	s - BR1's Vic	inty area									
AS407004	Construction of Canopy for housing the L.V. Switchboard No.3	0 15-May-18	15-May-18	37						15-May	-18 15-Ma	v-18 Constr	uction of Car	iony for hous	ing the LV.	witchboard N	16.3			+				
															-									
AS407089a	Install L.V. Switchboard No.3 (with Canopy)	30 15-May-18	13-Jun-18	37						15-May	y-18	13-J úr	n-18, Install L	.V. Switchboa	ard No.3 (wit	h Canopy)								
AS407089b	Functional Test - L.V. Switchboard No. 3	30 14-Jun-18	13-Jul-18	37							14-Jun+1	8	13-Ju	-18, Functior	nal Test - L.V	Switchboard	No. 3							
AS407089c	L.V. Switchboard No. 3 Ready for Energisation	0 14-Jul-18		37								14-Jul	18 🔶 L.V. S	witchboard N	lo. 3 Ready	or Energisatio	oh							
AS407089d	Install MCB Distribution Board, DB-P8 (Power supply from Switchboard No.3)	7 14-Jul-18	20-Jul-18	170								14-Jul	18 🗖 20	Jul-18, Instal	I MCB Distrit	ution Board,	DB-P8 (Powe	r supply from Switchboa	d No.3)					
AS407700		0	10 Aug 18	-											<u> </u>	ļ				÷				
	Complete Earthing & Lightning System for BR1	0	19-Aug-18	1														System for BR1						
AS407720	Submit WR1 to EMSD for Electrical System, BR1	5 19-Aug-18	23-Aug-18	1									19-Au	ig-18 🗖 2	23-Aug-18, S	ubmit WR1 to	EMSD for El	ectrical System, BR1						
AS407740	Power On for BR1 System	0 24-Aug-18		1									24-)	Aug-18 🔶 F	Power On fo	BR1 System								
4.8 Lifting A	Appliance																							
Manufacturin AS408010	ng, FAT and Delivery	0 08-Feb-17 A	14 Eab 17 A																	÷				
A3408010	Purchase Order for 1 no. 1,500 kgs Lifting Appliance - (I) For Pre-treatment Screen Chamber	0 00-Feb-17 A	14-Feb-17 A																					
AS408012	Manufacturing, FAT & Delivery to Site - 1 no. 1,500 kgs Lifting Appliance - (I) For Pre-treatment Screen Chamber	0 15-Feb-17 A	06-Dec-17 A																					
AS408030	Purchase Order for 1 no. 500 kgs Lifting Appliance - (II) For BR1	0 08-Feb-17 A	14-Feb-17 A																					
AS408032	Manufacturing, FAT & Delivery to Site - 1 no. 500 kgs Lifting Appliance - (II) For BR1	39 15-Feb-17 A	07-Feb-18	66			1 1 1	07-Feb	-18, Manufac	turing, FAT &	Delivery to Site	e - 1 no. 500	kgs Lifting A	opliance - (II)	For BR1									
AS408050	Purchase Order for 1 no. 3,000 kgs & 1 no. 4,000 kgs Lifting Appliance - (III) In G/F of	0 08-Feb-17A	14-Feb-17A																					
	Membrane Facilities Building																			÷				
AS408052	Manufacturing, FAT & Delivery to Site - 1 no. 3,000 kgs & 1 no. 4,000 kgs Lifting Appliance - (III) In G/F of MF Bldg.	0 15-Feb-17A	06-Dec-17 A																					
AS408070	Purchase Order for 2 nos. 8,500 kgs Lifting Appliance - (IV) In 1/F of Membrane Facilities Building	0 08-Feb-17 A	14-Feb-17 A																					
AS408072	Manufacturing, FAT & Delivery to Site - 2 nos. 8,500 kgs Lifting Appliance - (IV) In 1/F of Membrane Facilities Building	39 15-Feb-17A	07-Feb-18	30				07-Feb	-18, Manufac	turing, FAT &	Delivery to Site	ə - 2 nos. 8,5	i00 kgs Lifting	Appliance -	(IV) In 1/F of	Membrane F	acilities Buildi	g						
AS408090	Purchase Order for 2 nos. 5,000 kgs Lifting Appliance - (V) For MFS1	0 08-Feb-17 A	14-Feb-17 A																					
AS408092	Manufacturing, FAT & Delivery to Site - 2 nos. 5,000 kgs Lifting Appliance - (V) For	91 15-Feb-17A	31-Mar-18	58						31-Mar-18	, Manufacturing		verv to Site -	2 nos 5 000	kas Liftina A	bliance - (V)	For MES1							
	MFS1		51-Wai-10	50						51-Wai-10	, Manufacturing													
AS408020	for Pre-Treatment Screen Chamber (incl. Provision for Health & Safety Requiremer Mobilisation of Works - MBR Pre-Treatment Screen Chamber	14 04-Jan-18	17-Jan-18	37		04-Jan-18	17-	an-18, Mobi	ilisation of Wo	rks - MBR Pr	re-Treatment S	creen Chamit	ber											
AS408022	Install Monorail A-shape support column. 1,500kgs S.W.L. Electric Chain Hoist	45 08-Feb-18*	24-Mar-18	16			08-Feb-18	-		4-Mar-18 In	stall Monorail A	-shane sunn	ort column 1	500kas S W	Electric C	hain Hoist								
				10			00-160-10							,500kg3 0. W	L. Decile O	laminos								
AS408024	SAT of Lifting Appliance	14 25-Mar-18	07-Apr-18	16				25	Mar-18	07-Apr-	18, SAT of Liftir	ng Appliance												
Install, T&C AS408040	for Bioreactor No.1 (BR1) (incl. Provision for Health & Safety Requirements) Install Monorail 500kgs S.W.L. Manual Hoist c/w Trolley	14 02 Apr 10	16-Apr 19	12					03-Apr 19	10	Apr-18, Install N	Annoral Engl		anual Uciat -	Aw Trollor					+				
		14 03-Apr-18	16-Apr-18	12									-	anual müist C	aw ir uiey									
AS408042	SAT of Lifting Appliance	14 17-Apr-18	30-Apr-18	12					17-Ap	pr-18	30-Apr-18, S	AT of Lifting	Appliance											
	for MBR Facilities Building (incl. Provision for Health & Safety Requirements)	6E 07 D 47 1	05 May 10	-	07 0 17 4				05 14 4	Q Install C	trio Troug	rone for 4	lo 2 000 l	2W/1 0 4 M	4 000 0 11	05								
AS408060	Install Electric Travelling Crane for 1 No. 3,000 kg S.W.L & 1 No. 4,000 S.W.L G/F	65 07-Dec-17 A	U5-Mar-18	7	07-Dec-17 A						tric Travelling C		-	5.VV.L. & 1 N	o. 4,000 S.W	.L G/F								
AS408062	SAT of Lifting Appliance, G/F	25 06-Mar-18	30-Mar-18	7				06-Mar-18		30-Mar-18,	SAT of Lifting A	Appliance, G/	/F											
AS408080	Install 2 Nos. Electric Travelling Crane for 8,500 kg S.W.L - 1/F	35 24-Feb-18	30-Mar-18	14			24	Feb-18		30-Mar-18,	Install 2 Nos. E	lectric Trave	lling Crane fo	or 8,500 kg S	.W.L 1/F					++-				
AS408082	SAT of Lifting Appliance, 1/F	28 31-Mar-18	27-Apr-18	14					31-Mar-18		27-Apr-18, SA	T of Lifting A	ppliance, 1/F											
Install_T&C	for MFS1 (incl. Provision for Health & Safety Requirements)																							
AS408101	Install 2 Nos. Electric Travelling Crane for 5,000 kg S.W.L - MFS1 Tanks	30 01-Apr-18	30-Apr-18	58					01-Apr-18		30-Apr-18, Ir	nstall 2 Nos	Electric Trave	elling Crane fo	ar 5,000 kg S	W.L MFS	1 Tanks							
															<u>.</u>		1							
	File Name: DE/2014/01G3	Remain	ning Work								Contra	act No)14/01					Date	Revisio		Checked		proved
	Layout: DE1401 (Rev. G) - WBS	Critical	Activity				Dr	ovicio	n of EP	M Eaci	ilities fo		-	-		atmo	nt Worl	08-Ja		Rev. 0		l Lau	KM	
	TASK filter: All Activities	 Milestor 	ne				"	0412101							-			22 00		Rev. D		Lau	KM	
		Actual I	Progress							-	ansion							12-Ju		Rev. E		Lau Lau	KM KM	
	Page 12 of 16								ing	CHOM S	South R		-	-	ng Stai	ווטוו		17-0 27-M	ar-18	Rev. F Rev. G		I Lau I Lau	KM	
											ivia	ster Pr	rogram	me										
																				1			1	

Activity ID	Activity Name	Remaining Start	Finish	Total										018									2019			
40400400		Duration 00 01 May 10	00 May 10	Float	Oct -2	Nov -1	Dec 1	Jan 2	Feb 3	4	5	6	7	8	9	10	Oct N 11 1	2 L	13	Jan 14	Feb 15	Mar 16	Apr 17	May 18		Jul ig 20 !1
	SAT of Lifting Appliance (MFS1 Tanks)	28 01-May-18	28-May-18	58							01-May-18		28-May-18	SAT of Lifting	Appliance (Mi	-S1 Tanks)										
	Earthing and Lightning Protection System																									
	Purchase Order for Cables between HV Switchboard and TX	0 04-Dec-17 A	07-Dec-17 A																							
AS409012	Manufacturing & Delivery to Site - Cables between HV Switchboard and TX	97 08-Dec-17 A	06-Apr-18	107	C	8-Dec-17 A					06-Apr-	18, Manufact	uring & Delive	ry to Site - Cat	bles between	HV Switchbo	ard and TX									
AS409014	Purchase Order for Cables between TX/ 3.3kV SW. and Air Blower	0 04-Dec-17 A	07-Dec-17 A																							
AS409016	Manufacturing of Manufacturing & Delivery to Site - Cables between TX/ 3.3kV SW.	97 08-Dec-17 A	06-Apr-18	149	0	8-Dec-17 A					06-Apr-	18, Manufact	uring of Manu	facturing & Del	livery to Site	Cables betv	veen TX/ 3.3kV SW.	and Air Blow	er							
AS409030	and Air Blower Purchase Order for Cables between TX and LV Switchboard	0 04-Dec-17 A	07-Dec-17 A																							
AS409032		97 08-Dec-17 A		149		8-Dec-17A					06 Apr	10 Manufact	hina 8 Dolha	ry to Site - Cak		TV and LVC	witebboard									
	Manufacturing & Delivery to Site - Cables between TX and LV Switchboard			149		IO-DEC-17 A				1 1 1	06-Apr-	io, manulaci		i y lo Sile - Cal	Dies Detween	I A anu LV a	witchboard									
AS409050	Purchase Order for Cables between LV Switchboard and Plant	0 04-Dec-17 A	07-Dec-17 A																							
AS409052	Manufacturing & Delivery to Site - Cables between LV Switchboard and Plant	97 08-Dec-17 A	06-Apr-18	80	0	18-Dec-17 A				-	06-Apr-	18, Manufact	uring & Delive	ry to Site - Cat	bles between	LV Switchbo	ard and Plant									
AS409070	Purchase Order for Earthing Sys Inlet Screen Chamber, BR1 & MFS1	7 04-Jan-18	10-Jan-18	55			04-Jan-18	🗖 10-Jar	18, Purcha	e Order for I	arthing Sys.	Inlet Scree	n Chamber, E	R1 & MFS1			+ 									
AS409072	Manufacturing & Delivery to Site - Earthing Sys Inlet Screen Chamber, BR1 & MFS1	120 11-Jan-18	10-May-18	55			11-Jan-1	8		1		10-Ma	ay-18, Manufa	cturing & Delive	ery to Site - E	arthing Sys.	Inlet Screen Cham	ber, BR1 & M	//FS1							
AS409090	Purchase Order for Lightning Sys Inlet Screen Chamber, BR1 & MFS1	7 04-Jan-18	10-Jan-18	77			04-Jan-18	🗖 10-Jar	18, Purchas	se Order for I	ightning Sys	Inlet Scree	en Chamber, I	3R1 & MFS1												
AS409092	Manufacturing & Delivery to Site - Lightning Sys Inlet Screen Chamber, BR1 & MFS1	120 11-Jan-18	10-May-18	77			11-Jan-1	8				10-Ma	ay-18, Manufa	cturing & Delive	ery to Site - L	ightning Sys	- Inlet Screen Char	ber, BR1 &	MFS1							
AS409110	Purchase Order for Cables Tray	0 20-Nov-17 A	24-Nov-17 A																							
AS409112	Manufacturing & Delivery to Site - Cables Tray	83 25-Nov-17 A	23-Mar-18	59	25-No	v-17A					8-Mar-18 M	anufacturing	& Delivery to	Site - Cables Tr	rav											
	r MBR Facilities Building (incl. Provision for Health & Safety Requirements)				20110										, cy											
AS409001	Complete Cable Pits & Ducting between New/Existing 11kV Switch Room	0	30-Mar-18	38						•	30-Mar-18	, Complete C	able Pits & Di	cting between	New/Existing	11kV Switch	Room									
AS409002	Complete HV Switchboard and TX Installation	0	12-Jun-18	40									🔶 12-Ji	n-18, Complet	te HV Switcht	oard and T	Installation									
AS409003	Mobilisation of Works - MBR Facilities Building	14 31-Mar-18	13-Apr-18	38						31-Mar-18	13-A	pr-18, Mobilis	sation of Worl	s - MBR Facilit	ties Building											
AS409020	Laying Cables between HV Switchboard and TX	14 13-Jun-18	26-Jun-18	40								13-Jun	-18	26-Jun-18 La	aving Cables I	netween HV	Switchboard and TX									
				61								ie dan														
AS409022	Laying Cables between TX/ 3.3kV SW. and Air Blower	14 04-Jul-18	17-Jul-18	01									04-Jui-18	1 7-J			een TX/ 3.3kV SW.									
AS409039	Complete LV Switchboard and TX Installation	0	19-Aug-18	248											19-	Aug-18, Con	plete LV Switchboa	d and TX In	stallation							
AS409040	Laying Cables between TX and LV Switchboard	14 27-Jun-18	10-Jul-18	68								2	27-Jun-18	10-Jul-1	18, Laying Ca	bles betwee	TX and LV Switcht	oard								
AS409060	Laying Cables between LV Switchboard and Plant - MBR Facilities Building	60 04-Jun-18	02-Aug-18	22								04-Jun-18			02-Aug-18	, Laying Cab	les between LV Swit	chboard and	Plant - ME	BR Facilities E	Building					
AS409121	Install Cable Tray/Trunking between HV Switchboard and TX	7 30-Apr-18	06-May-18	22							30-Apr-18	06-May	-18, Install Ca	ble Tray/Trunki	ing between	HV Switchbo	ard and TX									
AS409122	Install Cable Tray/Trunking between T X/3.3kV SW. and Air Blower	7 27-Jun-18	03-Jul-18	61								2	27-Jun-18	03-Jul-18,	Install Cable	Tray/Trunkin	g between TX/3.3kV	SW. and Air	Blower							
AS409123	Install Cable Tray/Trunking between LV Switchboard and TX	7 07-May-18	13-May-18	22							07-May-18	3 🗖 13-N	/lay-18, Instal	Cable Tray/Tru	unking betwe	en LV Switch	board and TX									
AS409124	Install Cable Tray/Trunking between LV Switchboard and Plant - MBR Facilities	21 14-May-18	03-Jun-18	22							14-Ma	/-18	03-Jun-1	8, Install Cable	Tray/Trunkin	g between L	V Switchboard and I	Plant - MBR I	acilities B	uilding						
AS409900	Building Complete Earthing & Lightning System for MFS1	0	19-Aug-18	29													plete Earthing & Lic									
		U U U U U U U U U U U U U U U U U U U	10 Aug 10												• 10	nug 10, 001										
AS409006	r Plant's Vicinity Areas (incl. Provision for Health & Safety Requirements) Complete Cable Pits & Ducting between LV Switchboard and Plant - Relevant Areas	0	30-Mar-18	57						•	30-Mar-18	, Complete C	able Pits & Di	cting between	LV Switchboa	ard and Plan	- Relevant Areas									
AS409007	Complete Lightning Pits & Ducting	0	30-Mar-18	118							30-Mar-18	, Complete Li	ightning Pits 8	Ducting												
AS409080	Complete Earth Pits & Ducting	0	30-Mar-18	96							30-Mar-18	, Complete E	arth Pits & Du	icting												
AS409081	Install Earth Electrode & Earthing Conductor - Earthing System for HV & LV Equipment	t 14 11-May-18	24-May-18	55											ctrode & Fart	hing Conduc	tor - Earthing Syster	for HV & IV	/ Equipme	nt						
AS409082	Install Earth Electrode & Earthing Conductor - Lanting System for HV & LV	10 25-May-18	03-Jun-18	60												-	ductor - Lighthing Syster									
	Equipment			63							20		JJJJUII-1													
AS409083	Install Earthing Conductor for Inlet Screen Chamber	14 05-Aug-18	19-Aug-18	29													all Earthing Conduct			mber						
AS409084	Install Earthing Conductor for BR1, Testing	30 20-Jul-18	19-Aug-18	1									20-	Jul-18	19-	Aug-18, Inst	all Earthing Conduct	or for BR1, T	esting							
AS409085	Install Earthing Conductor - Lightning System for HV & LV Equipment	55 25-Jun-18	19-Aug-18	1	1							2	5-Jun-18 🗖		19-	Aug-18, Inst	I Earthing Conduct	or - Lightning	System fo	or HV & LV E	quipment					
AS409086	Install Earthing Conductor for MFS1, Testing	60 20-Jun-18	19-Aug-18	29								20-	Jun-18 🗖		19-	Aug-18, Inst	all Earthing Conduct	or for MFS1,	Testing							
AS409125	Install Cable Tray/Trunking for Plant - Relevant Areas	90 31-Mar-18	28-Jun-18	57						31-Mar-18				28-Jun-18, In	nstall Cable T	ray/Trunking	for Plant - Relevant	Areas								
4.10 Deodori	ising System																									
	g, FAT and Delivery											1														
																				Det		Povisi-	<u></u>	Checked	A	vod
	File Name: DE/2014/01G3	Remain	-											o. DE/20	-					Dat 08-Jan-1		Revisio Rev. 0		Checked I Lau	Approv KM	reu
	Layout: DE1401 (Rev. G) - WBS TASK filter: All Activities	 Critical Milesto 						Pr	ovisio							-	eatment W	/orks	ŀ	22-Jun-1		Rev. D		l Lau	KM	
			Progress								•			e 1A - Ac					ŀ	12-Jul-17		Rev. E		l Lau	KM	
	Page 13 of 16									Ng	Chow			ewage F	•	ng Stat	ion		ŀ	17-Oct-1 27-Mar-1		Rev. F Rev. G		I Lau I Lau	KM KM	
												Μ	laster P	rogram	me						10	nev. G		Lau		
																							-			

Activity ID	Activity Name		Remaining Duration	Start	Finish	Total Float	l t	Oct Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	2018 Jul	Aug	Sep	Oct	Nov	Dec	F
AS410010	Purchase Order for Deodorisers system w	vith dehumidifier	0	10-Jul-17 A	26-Jul-17 A			-2 -1	1	2	3	4	5	6	7	8	9	10	11	12	13	-
AS410012	Manufacturing, FAT & Delivery to Site - De	eodorisers system with dehumidifier	136	27-Jul-17 A	15-May-18	66	6		1 			1		15-1	May-18, Man	ufacturing, F/	AT & Delivery to	Site - Deod	ddrisers system	n with dehumi	idifier	
AS410030	Purchase Order for S.S. Ducting & Access	sories		24-Jul-17 A	26-Jul-17 A				- - 													
AS410032	-			27-Jul-17 A	15-May-18	06			1 1 1 1 1					15 1	Jay 19 Man	footuring 9	Joliwary ta Sita	C.C. Duati		ida		
	Manufacturing & Delivery to Site - S.S. Du		130	27-JUI-17 A	15-iviay-16	90			, , ,			1 1 1		15-1	way-10, wan		Delivery to Site	r 5.5. Ducu	ng a accessor	les		
AS410020	or MBR Facilities Building (incl. Provisio Install Deodorising Plant	on for Health & Safety Requirements)	45	16-May-18	29-Jun-18	66	6		- - - - -				16-Ma	y-18	1 1 1	29-Jun-18	, Install Deodo	rising Plant				
AS410040	Install S.S. Ducting, Accessories & Deodor	ising Control System	35	15-Jun-18	19-Jul-18	66	6							15-Ju	n-18 🗖	1:	9-Jul-18, Instal	S.S. Ductin	g, Accessories	& Deodorisin	d Control Sys	stem
4.11 Mainten	ance Platform & Covers																					
Manufacturing AS411010	g, FAT and Delivery Purchase Order for maintenance platform	s stairways hand railings and covers	7	01-Apr-18*	07-Apr-18	4	1		1 1 1 1 1			01-Apr-18*	07-Apr	18 Purchase	Order for m	aintenance n	latforms, stairw	avs hand r	ailings and cov	ers		
AS411012		nance platforms, stairways, hand railings and		08-Apr-18	06-Jun-18	1	1					08-Apr-1					turing & Delive				wave hand ra	ilina
	covers													10 Durahara							lays, nano ra	
AS411030	Purchase Order for Maintenance Platform			01-Apr-18	07-Apr-18	19	,										latform in Base					
AS411032	Building	nance Platform in Basement of MBR Facilities		08-Apr-18	22-May-18	19	9					08-Apr-1	3	2	2-May-18, M	anufacturing	& Delivery to S	ite - Maintei	hance Platforn	n¦in Basemen	of MBR Facil	lities
AS411050	Purchase Order for FRP covers for Memb	orane Facilities Tanks	0	02-May-17 A	08-May-17 A				- - - - - -													
AS411052	Manufacturing & Delivery to Site - FRP co	vers for Membrane Facilities Tanks	91	09-May-17 A	31-Mar-18	26	6						31-Mar-18	Manufacturi	ng & Delivery	/to Site - FR	P covers for Me	mbrane Fa	cilities Tanks			
AS411070	Purchase Order for Steel Cover for Air Blo required)	ower Opening on 1/F of MBR Bldg. (Not	0	30-Dec-17 A	30-Dec-17 A																	
AS411072	Manufacturing & Delivery to Site - Steel Co Bldg. (Not required)	over for Air Blower Opening on 1/F of MBR	0	30-Dec-17 A	30-Dec-17 A					ı												
Install, T&C fo AS411020	r Maintenance Platform & Covers (incl. Install maintenance platforms, stairways, h	Provision for Health & Safety Requirement		07-Jun-18	20-Aug-18	4	1							07-Jun-18	2		20	-Δυσ-18 In	stall maintena	te platforms	, stairways, ha	and i
AS411040	Install Hand Rail & Maintenance Platform i	-		23-May-18	06-Jul-18	10								May-18		06 101	18, Install Hand					
						13	7					10 4		iviay-10								40III
AS411060	Install FRP covers for Membrane Facilities			10-Apr-18	08-Jun-18	17	_					10-Apr-1	8		08-Jur	1918, Install F	RP covers for I	viembrane i	-acliities ranks			
AS411080	Install Steel Cover for Air Blower Opening	on 1/F of MBR Bidg. (Not required)	0	30-Dec-17 A	30-Dec-17 A																	
4.12 SCADA Manufacturing	g, FAT and Delivery								1 1 1 1 1					1 1 1 1								
AS412010	Purchase Order for Proposed SCADA		0	03-Jul-17 A	18-Jul-17 A																	
AS412012	Manufacturing & Delivery to Site - Propose	ed SCADA	90	19-Jul-17 A	30-Mar-18	48	3		1 1 1			1	30-Mar-18	, Manufacturii	ng & Delivery	to Site - Pro	odsed SCADA					
AS412030	Purchase Order for PLC System		0	10-Jul-17 A	18-Jul-17 A																	
AS412032	Manufacturing & Delivery to Site - PLC Sy	stem	90	19-Jul-17 A	30-Mar-18	48	3		;				30-Mar-18	Manufacturi	ng & Delivery	to Site - PLC	\$ystem		-			1
AS412050	Purchase Order for Instrumentation in Flo Chambers	wmeter and MBR Pre-treatment Screen	91	31-Dec-17	31-Mar-18	23	3		31-Dec-17				31-Mar-18	Purchase O	rder for Instr	umentation ir	Flowmeter an	d MBR Pre-	treatment Scr	een Chambe	r s	
AS412052	Manufacturing & Delivery to Site - Instrum Pre-treatment Screen Chambers	entation in Flowmeter and MBR	90	01-Apr-18	29-Jun-18	23	3					01-Apr-18			1	29-Jun-18	, Manufacturin	& Delivery	to Site - Instru	mentation in	Flowmeter an	ıd M
AS412070	Purchase Order for Instrumentation in BR	1	91	31-Dec-17	31-Mar-18	37	7		31-Dec-17	-		1	31-Mar-18	Purchase O	der for Instr	umentation ir	BR1					
AS412072	Manufacturing of Instrumentation in BR1		90	01-Apr-18	29-Jun-18	37	7					01-Apr-18				29-Jun-18	, Manufacturin	g of Instrum	entation in BR	1		
AS412090	Purchase Order for Instrumentation in MF	FS1 & MFB	91	31-Dec-17	31-Mar-18	51	-		31-Dec-17				31-Mar-18	, Purchase O	rder for Instr	umentation ir	MFS1 & MFB					
AS412092	Manufacturing & Delivery to Site - Instrum	entation in MFS1 & MFB	90	01-Apr-18	29-Jun-18	51	1					01-Apr-18				29-Jun-18	, Manufacturin	g & Delivery	to Site - Instru	mentation in	MFS1 & MFB	3
AS412110	Purchase Order UPS for PLC Systems A		0	03-Jul-17 A	18-Jul-17 A																	
AS412112	Manufacturing & Delivery to Site - UPS for	r PLC Systems A	90	19-Jul-17 A	30-Mar-18	177	7						30-Mar-18	, Manufacturii	ng & Delivery	to Site - UPS	or PLC Syste	ems A				
AS412130	Purchase Order UPS for PLC Systems B		0	03-Jul-17 A	18-Jul-17 A																	
AS412132	Manufacturing & Delivery to Site - UPS for	r PLC Systems B	90	19-Jul-17 A	30-Mar-18	177	7		 				30-Mar-18	Manufacturi	ng & Delivery	to Site - UPS	6 for PLC Syste	ams B				
Install, T&C fo	or SCADA (incl. Provision for Health & S																					
AS412001	Mobilisation of Works - Areas for laying wo		7	03-Apr-18	09-Apr-18	8	3					03-Apr-18	🗖 09-Ap	-18, Mobilisa	tion of Works	Areas for l	aying works of	ptical fibres	5			
AS412020	Laying Fibre Optical Ethernet Ring		30	10-Apr-18	09-May-18	8	3					10-Apr-1	8	09-Ma	y-18, Laying	Ribre Optical	Ethernet Ring					
AS412021	Set Up and Demonstrate all the Functiona	ality of the Proposed SCADA/PLC System A	45	10-May-18	23-Jun-18	8	3						10-May-	8	-	23-Jun-18, S	et Up and Den	onstrate all	the Functiona	lity of the Pro	osed SCADA	٧PL
AS412022	Modify Existing Master Station at Control F	Room	45	24-Jun-18	07-Aug-18	12	2		 - - -				¦	24	HJun-18 🗖	·}	07-Aug	18, Modify I	Existing Maste	r Station at Co	introl Room	
AS412023	Install SCADA Master Station		35	08-Aug-18	11-Sep-18	12	2									08-Aug-	18	11-S	ep-18, Install	SCADA Maste	r Station	
AS412024	Wiring for Control & Monitoring Circuits, Te	ermination - SCADA	30	12-Sep-18	11-Oct-18	12	2										12-Sep-	18	11-00	t-18, Wiring f	for Control & N	Mon
										i					1							-
	File Name: DI Layout: DE14	E/2014/01G3 01 (Rev. G) - WBS		Remain	•					Pr	ovisio	n of E8	M Fac				014/01 lui Sew		eatmer	nt Wor	ks	-

Layout: DE1401 (Rev. G) - WBS TASK filter: All Activities

 \diamond

Milestone

Actual Progress

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

Page 14 of 16

JEC

				20	19						
_	Jan 14	Feb 15	Mar 16	Apr 17		May 18		Jun 19	Jul 20		ıg !1
-	14	15	10	17	_	10		13	20	-	<u></u>
											r.
- 1											
- 1											
- 1											
- 1											
Syste	m										
											-
- 1											
- 1											
¦ I railii	ngs and cove	re									
1	igo ana cova	15									
											-
aciliti	es Building										
÷											
											1
han	d railings and	covers									
3 Fa	cilities Buildin	n									
114	Sinties Danain	9									
											-
											-
and	MBR Pre-tre	eatment Scre	en Chamber	s							
											-
- 1											
- 1											
FB											
											e.
- 1											
٨DA	PLC System	A									
m ¦											-
i											
i											
i											
e Ni	nitoring Circ	uits Termin	ation - SCAD	Å							
u 10/0	Sincorning Off		LION - OURDI								
i				-							_
		ato	Deniel	00		Cheeler	1	۸	Dro:	d	_
		ate	Revisi	ULI		Checked			prove	u	
	08-Jan-	16	Rev. 0		KH	Lau		KM			
											_
	22-Jun-		Rev. D			Lau		KM			
	12-Jul-	17	Rev. E		KH	Lau]	KM			
								KM			-
	17-Oct-		Rev. F			Lau					
	27-Mar	-18	Rev. G		KH	Lau		KM			
		-			<u> </u>						-

Bernard Barry (Stature Stature	2019 far Apr May Jun Jul ig
1 1	16 17 18 19 20 11
Normal Action Normal A	
Bit Provide Arroradian Provide Arrorado Pro	
Bit Internation (Section (m
 	
Note: Note: <th< td=""><td></td></th<>	
Marken Vilsen 12 Segit 2949.7 2949.7 3949.7 <t< td=""><td></td></t<>	
11111 111111 111111 111111 111111 111111 111111 111111 111111 111111 111111 111111 111111 111111 1111111 1111111 1111111 1	- An Mar. 10. Supply and Delivery of Telephone set had in
Art 200 Apr 200	22-Mar-19, Supply and Delivery of Telephone set, bel, lin
44:300 approximation of matching status approximation of matching	22-Mar-19, Supply and Delivery of Aluminum scaffolding
No. No. <td>22-Mar-19, Supply and Delivery of Maintenance trolley to</td>	22-Mar-19, Supply and Delivery of Maintenance trolley to
447000 Approx 104/114 and and approx 14/114 Approx 104/114	22-Mar-19, Supply and Delivery of Portable Gas detector
Activity Activity <td< td=""><td>22-Mar-19, Supply and Delivery of Portable ventilation far</td></td<>	22-Mar-19, Supply and Delivery of Portable ventilation far
Alt 1000 Alty well Altwary of Protein Altong party Alt 1000 Alty well Altwary of Protein Altong party Bit 1000 Alty well Altwary of Protein Altong party Bit 1000	22-Mar-19, Supply and Delivery of Forklift truck and batte
Addition Addition <td< td=""><td>22-Mar-19, Supply and Delivery of Access and working pl</td></td<>	22-Mar-19, Supply and Delivery of Access and working pl
Attribute Autority Autory Autory </td <td>22-Mar-19, Supply and Delivery of Portable drainage pun</td>	22-Mar-19, Supply and Delivery of Portable drainage pun
14 Segury A Delivery of Segure 8 Table 30, 15, 50, 10 30 17, 50, 10 30, 15, 50, 10 30 17, 50, 10 30, 15, 50, 10 30 17, 50, 10 30, 15, 50, 10 30, 16, 10 30, 16, 10 30, 16, 10 30, 16, 10 30, 16, 10 30, 16, 10 31, 16, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10	
644400 Cokey of Journal Lange (space 14 b); get Jause 14 VP 30 27.4-19 32.84-19 32 644400 Cokey of Journal Lange (space 14 b); get Jause 14 VP 32 27.4-19 32 644400 Cokey of Journal Lange (space 14 b); get Jause 14 VP 32 27.4-19 32 644400 Cokey of Journal Lange (space 14 b); get Jause 14 VP 32 27.4-19 32 644400 Cokey of Journal Lange (space 14 b); get Jause 14 VP 32 27.4-19 32 644400 Cokey of Journal Lange (space 14 b); get Jause 14 VP 32 27.4-19 32 644400 Cokey of Journal Lange (space 14 b); get Jause 14 VP 32 27.4-19 32 644400 Cokey of Journal Lange (space 14 b); get Jause 14 VP 32 27.4-19 32 644400 Cokey of Journal Lange (space 14 b); get Jause 14 VP 32 27.4-19 32 644400 Cokey of Journal Lange (space 14 b); get Jause 14 VP 32 27.4-19 32 644400 Cokey of Journal Lange (space 14 C); get Jause 14 VP 32 37.4-19 32.4-19 32 644410 Cokey of Journal Lange (space 16 C); get Jause 14 J) 32.4-19 32	
Addr 100 Index of games 5 tacks for Vances and in addresses 30 P. Feb. 9 20	
Add-100	22-Mar-19, Delivery of (a) Automatic samplers' spare part
Add-1000 Oldward Space 3 Tools to SOLK System, PLC sever and Intrammation 00 21 For 19 21 Au 21 Add-1004 Obtery of Space 3 Tools to SOLK System, PLC sever and Intrammation 00 21 For 19 21 <td>22-Mar-19, Delivery of Spares & Tools for LV Switchboard</td>	22-Mar-19, Delivery of Spares & Tools for LV Switchboard
Ministry Rights & Tech to Jr Hene 10 Piene 10 21 Feb 10 <td< td=""><td>22-Mar-19, Delivery of Spares & Tools for HV Switchboar</td></td<>	22-Mar-19, Delivery of Spares & Tools for HV Switchboar
AS44000 Delary of Sprea & Toos for Auditor Diffuer 50 71-Feb 10 20 AS44000 Delary of Sprea & Toos for Certifug Pump 50 21-Feb 10 20 AS44000 Delary of Sprea & Toos for Certifug Pump 50 21-Feb 10 20 AS44000 Delary of Sprea & Toos for Certifug Pump 50 21-Feb 10 20 AS44000 Delary of Sprea & Toos for Main reacting expertent 50 21-Feb 10 20 AS44000 Delary of Sprea & Toos for Main reacting expertent 50 21-Feb 10 20 AS44000 Delary of Sprea & Toos for Main reacting expertent 50 21-Feb 10 20 AS44100 Delary of Sprea & Toos for Main reacting expertent 50 21-Feb 10 20 AS44100 Delary of Sprea & Toos for Main reacting expertent 50 21-Feb 10 20 AS44100 Delary of Sprea & Toos for Main Pump 50 21-Feb 10 20 AS44100 Delary of Sprea & Toos for Main Pump 50 21-Feb 10 20 AS44100 Delary of Sprea & Toos for Main Pump 50 21-Feb 10 20 AS441400 Delary of Sprea & Toos for Main Pump	22-Mar-19, Delivery of Spares & Tools for SC AD A System
Addition Delevy of Spares & Tools for Certifugal Pump 30 21-Feb-19 24-War-19 30 Addition Delevy of Spares & Tools for Certifugal Pump 30 21-Feb-19 24-War-19 30 Addition Delevy of Spares & Tools for Certifugal Pump 30 21-Feb-19 24-War-19 30 Addition Delevy of Spares & Tools for Ling Acquines 30 21-Feb-19 24-War-19 30 Addition Delevy of Spares & Tools for Ling Acquines 30 21-Feb-19 24-War-19 30 Addition Delevy of Spares & Tools for Certifugal Pump 30 21-Feb-19 24-War-19 30 Addition Delevy of Spares & Tools for Ling Acquines 30 21-Feb-19 24-War-19 30 Addition Delevy of Spares & Tools for Subfor Deodstrazion Unit 30 21-Feb-19 24-War-19 30 Addition Delevy of Spares & Tools for Subfor Shore MRB Pre tradement Spares 30 21-Feb-19 24-War-19 30 Addition Delevy of Spares & Tools for Shore MRB Pre tradement Spares 30 21-Feb-19 24-War-19 30 Addition Delevy of Spares & Tools for Shore MR-Rodureg	22-Mar-19, Delivery of Spares & Tools for Air Blower
A814080 Delvery of Spares & Tools for Pensools, Aduator and Value 30 21-Feb-19 24-Feb-19 21-Feb-19 2	22-Mar-19, Delivery of Spares & Tools for Aeration Diffus
Additedop Deferry of Spares & Tools for L Bing Applannes a) 21-Feb-19 24 Additedop Deferry of Spares & Tools for Special Tool and measuring explament a) 21-Feb-19 24 Additedop Deferry of Spares & Tools for Special Tool and measuring explament a) 21-Feb-19 24 Additedop Deferry of Spares & Tools for Man Compader a) 21-Feb-19 24 Additedop Deferry of Spares & Tools for Man Process Commissioning Pan a) 21-Feb-19 24 Additedop Deferry of Spares & Tools for M Process Commissioning Pan a) 21-Feb-19 24 a) Additedop Deferry of Spares & Tools for Man Process Commissioning Pan a) 21-Feb-19 24 a) Additedop Deferry of Spares & Tools for Man Process Commissioning Pan a) 21-Feb-19 24 a) Additedop Deferry of Spares & Tools for Man Process Commissioning Pan a) 21-Feb-19 24 a)	22-Mar-19, Delivery of Spares & Tools for Centrifugal Ru
Astitution Delevery of Spaces & Tools for Special Tool and measuring equipment 30 21-Feb-19 22 22-Feb-19 22 22-Feb-19 22 22-Feb-19 22 22-Feb-19	22-Mar-19, Delivery of Spares & Tools for Penstocks, Act
A 341410 Delery of Spares & Tools for Declorization Unit A 3414120 Delery of Spares & Tools for Wash Congustor A 3414120 Delery of Spares & Tools for Wash Pre-treatment Spreens A 3414130 Delery of Spares & Tools for Wash Pre-treatment Spreens A 3414130 Delery of Spares & Tools for MBR Pre-treatment Spreens A 3414130 Delery of Spares & Tools for MBR Pre-treatment Spreens A 3414130 Delery of Spares & Tools for MBR Pre-treatment Spreens A 3414130 Delery of Spares & Tools for MBR Pre-treatment Spreens A 3414130 Delery of Spares & Tools for MBR Pre-treatment Spreens A 3414130 Delery of Spares & Tools for MBR Pre-treatment Spreens A 3414130 Delery of Spares & Tools for MBR Pre-treatment Spreens A 3414130 Delery of Spares & Tools for MBR Pre-treatment Spreens A 3414130 Delery of Spares & Tools for MBR Pre-treatment Spreens A 3414130 Delery of Spares & Tools for MBR Pre-treatment Spreens A 3414130 Delery of Spares & Tools for MBR Pre-treatment Spreens A 3414130 Delery of Spares & Tools for MBR Pre-treatment Spreens A 3414130 Delery of Spares & Tools for MBR Pre-treatment Market A 3414130 Delery of Spares & Tools for MBR Pre-treatment Market A 3414130 Delery of Spares & Tools for MBR Pre-treatment Market A 3414130 Delery of Spares & Tools for MBR Pre-treatment Market A 3414130 Delery of Spares & Tools for MBR Pre-treatment Market A 3414130 Delery of Spares & Tools for MBR Pre-treatment Market A 3414130 Delery of Spares & Tools for MBR Pre-treatment Market A 3414130 Delery of Spares & Tools for MBR Pre-treatment Market A 3414130 Delery of Spares & Tools for MBR Pre-treatment Market A 3414130 Delery of Spares & Tools for MBR Pre-treatment Market A 3414130 Delery of Spares & Tools for MBR Pre-treatment Market A 3414130 Delery of Spares & Tools for MBR Pre-treatment Market A 3414130 Delery of Spares & Tools for MBR Pre-treatment Market A 3414130 Delery of Spares & Tools for MBR Pre-treatment Market A 3414130 Delery of Spares & Tools for MBR Pre-treatment Market A 3414130 Delery of Spares & Too	22-Mar-19, Delivery of Spares & Tools for Lifting Appliance
ASt14120 Delvery of Spares & Tools for Wash Compador 30 21-Feb-19 22-Mar-19 32 ASt14130 Delvery of Spares & Tools for MIR Pre treatment Spreens 30 21-Feb-19 22-Mar-19 32 ASt14140 Delvery of Spares & Tools for MIR process Commission Plan 30 21-Feb-19 22-Mar-19 32 ASt14140 Delvery of Spares & Tools for MIR pump 30 21-Feb-19 22-Mar-19 32 ASt14150 Delvery of Spares & Tools for MIR pump 30 21-Feb-19 22-Mar-19 32 ASt14170 Lubrantis for 1 year use of all equipment 30 21-Feb-19 22-Mar-19 32 ASt14170 Lubrantis for 1 year use of all equipment 30 21-Feb-19 22-Mar-19 32 Process Commissioning Plan 4Process Commission	22-Mar-19, Delivery of Spares & Tools for Special Tool ar
Astitiso belvery of Spares & Tools for MBR Pre-treatment Screens 30 21-Feb-19 22-Mar-19 32 Astitiso belvery of Spares & Tools for Submarshole mixer 30 21-Feb-19 22-Mar-19 32 Astitiso belvery of Spares & Tools for Submarshole mixer 30 21-Feb-19 22-Mar-19 32 Astitiso belvery of Spares & Tools for Submarshole mixer 30 21-Feb-19 22-Mar-19 32 Astitiso belvery of Spares & Tools for BR Predpump 30 21-Feb-19 22-Mar-19 32 Astitiso belvery of Spares & Tools for BR Predpump 30 21-Feb-19 22-Mar-19 32 Astitiso belvery of Spares & Tools for BR Predpump 30 21-Feb-19 22-Mar-19 32 Process Commissioning 30 21-Feb-19 22-Mar-19 32 21-Feb-19 22-Mar-19 32 Process Commissioning Plan 30 21-Feb-19 22-Mar-19 32 21-Feb-19 22-Mar-19 32 Commissioning Plan 90 26-Mar-18 21 26-Mar-18 21-Feb-19 22-Mar-19 32 Astitato Propores Commissioning Pl	22-Mar-19, Delivery of Spares & Tools for Deodorization
Astitation Delivery of Spares & Tools for Submersible mixer 30 21-Feb-19 22-Mar-19 32 Astitation Delivery of Spares & Tools for MLR pump 30 21-Feb-19 22-Mar-19 32 Astitation Delivery of Spares & Tools for Submersible mixer 30 21-Feb-19 22-Mar-19 32 Astitation Delivery of Spares & Tools for Submersible mixer 30 21-Feb-19 22-Mar-19 32 Astitation Delivery of Spares & Tools for Submersible mixer 30 21-Feb-19 22-Mar-19 32 Astitation Delivery of Spares & Tools for Submersible mixer 30 21-Feb-19 22-Mar-19 32 Astitation Delivery of Spares & Tools for Submersible mixer 30 21-Feb-19 22-Mar-19 32 Delivery of Spares & Tools for Submersible mixer 30 21-Feb-19 22-Mar-19 32 Delivery of Spares & Tools for Submersible mixer 30 21-Feb-19 22-Mar-19 32 Delivers / ICE Certified / Submit a Process Commissioning Plan Astitation Prepare / ICE Certified / Submit a Process Commissioning Plan Astitation Prepare / ICE Certified / Submit a Process Commissioning Plan Astitation Prepare / ICE Certified / Submit a Process Commissioning Plan Astitation Delivery of Spares & Local Adviviant a Process Commissioning Plan Astitation Delivery of Submersible mixer 30 26-May-18 24-Aug-18 20-Sep-18 21 Deliver Advise Delivery of Submersible mixer 30 26-Feb View Advise 30 26-Fe	22-Mar-19, Delivery of Spares & Tools for Wash Compac
AS414150 Delivery of Spares & Tools for MLR pump 30 21-Feb-19 22-Mar-19 32 AS414150 Delivery of Spares & Tools for MLR pump 30 21-Feb-19 22-Mar-19 32 AS414170 Lubricants for 1 year use of all equipment 30 21-Feb-19 22-Mar-19 32 Process Commissioning Plan & Procedure AS112010 Prepare / ICE Certified / Submit & Process Commissioning Plan 90 26-May-18 24-Aug-18 21 AS112012 Comments on Process Commissioning Plan 28 24-Aug-18 20-Sep-18 21 File Name: DE/2014/01G3 Layout: DE1/401 (Rev. G) - WBS File Name: DE/2014/01G3 Layout: DE1/401 (Rev. G) - WBS File Name: DE/2014/01G3 Layout: DE1/401 (Rev. G) - WBS File Name: DE/2014/01G3 Layout: DE1/401 (Rev. G) - WBS AS112010 Propared (Rev. G) - WBS File Name: DE/2014/01G3 Layout: DE1/401 (Rev. G) - WBS AS112010 Propared (Rev. G) - WBS File Name: DE/2014/01G3 Layout: DE1/401 (Rev. G) - WBS File Name: DE/2014/01G3	22-Mar-19, Delivery of Spares & Tools for MBR Pre-treat
AS414160 Delivery of Spares & Tools for BR Feedpump 30 21-Feb-19 22-Mar-19 32 AS414170 Lubricants for 1 year use of all equipment 30 21-Feb-19 22-Mar-19 32 Process Commissioning Plan & Procedure AS112010 Prepare / ICE Certified / Submit a Process Commissioning Plan 90 26-May-18 24-Aug-18 21 AS112010 Comments on Process Commissioning Plan 28 24-Aug-18 21 20 20 Sep-18 21 20 20 Sep-18, Contract No. DE/2014/01G3 Layout: DE1401 (Rev. G) - WBS File Name: DE/2014/01G3 Layout: DE1401 (Rev. G) - WBS File Name: DE/2014/01G3 Layout: DE1401 (Rev. G) - WBS File Name: DE/2014/01G3 Layout: DE1401 (Rev. G) - WBS AS1	22-Mar-19, Delivery of Spares & Tools for Submersible m
AS414170 Lubricants for 1 year use of all equipment 30 21-Feb-19 22-Mar-19 32 Process Commissioning Process Commissioning 24-Aug-18 24-Aug-18, Prepare / ICE Certified / Submit a Process Commissioning Plan 21-Feb-19	22-Mar-19, Delivery of Spares & Tools for MLR pump
Process Commissioning Process Commissioning Plan & Procedure A S112010 Prepare / ICE Certified / Submit a Process Commissioning Plan 90 26-May-18 24 24-Aug-18, Prepare / ICE Certified / Submit a Process Commissioning Plan A S112010 Ormments on Process Commissioning Plan 90 26-May-18 24-Aug-18 24 24-Aug-18, Prepare / ICE Certified / Submit a Process Commissioning Plan A S112012 Comments on Process Commissioning Plan 28 24-Aug-18 20-Sep-18 21 24 20-Sep-18, Comments on Process Commissioning Plan File Name: DE/2014/01G3 Layout: DE1401 (Rev. G) - WBS Remaining Work Remaining Work 03-Jan-16	22-Mar-19, Delivery of Spares & Tools for BR Feedpump
Commissioning Plan & Procedure 26-May-18 24-Aug-18, Propare / ICE Certified / Submit a Process Commissioning Plan AS112010 Prepare / ICE Certified / Submit a Process Commissioning Plan 90 26-May-18	22-Mar-19, Lubricants for 1 year use of all equipment
Commissioning Plan & Procedure 26-May-18 24-Aug-18, Prepare / ICE Certified / Submit a Process Commissioning Plan 90 26-May-18 26-May-18 <td></td>	
AS112012 Comments on Process Commissioning Plan 28 24-Aug-18 20-Sep-18 21 24-Aug-18 20-Sep-18, Comments on Process Commissioning Plan 20-Sep-18, Comments on Process Commissioning Plan	
File Name: DE/2014/01G3 Layout: DE1401 (Rev. G) - WBS Remaining Work Contract No. DE/2014/01 Provision of F&M Facilities for Shek Wu Hui Sewage Treatment Works Date Revision	
Layout: DE1401 (Rev. G) - WBS Contract No. DE/2014/01 Critical Activity Provision of F&M Facilities for Shek Wu Hui Sewage Treatment Works	
TASK filter: All Activities Milestone Actual Progress Further Expansion Phase 1A - Advance Works and 12-Jul-17 Rev. E Ng Chow South Road Sewage Pumping Station	λ D KH Lau KM λ E KH Lau KM λ F KH Lau KM

ID	Activity Name	Remaining St Duration	tart	Finish	Total Float Oct	Nov	Dec		Feb		Apr	May	2 Jun	2018 Jul	Aug 9	Sep	Oct		Dec	Jan	Feb	Mar	2019 Apr	May Ju	
AS112014	ICE Certified / Re-submit Process Commissioning Plan	28 21	1-Sep-18	18-Oct-18	21	-1	1	2	3	4	5	6	7	8	9 21-5	10 Sep-18	11	12 -Oct-18, ICE	13 Certified / Re	14 -submit Proce	15 ess Commissi	ioning Plan	17	18 19	19 20
AS112016	Acceptance of Process Commissioning Plan	14 19	9-Oct-18	01-Nov-18	21											19-1	Dict-18	01-Nov-1	8, Acceptance	of Process C	Commissioning	ığ Plan			
Commission	g Process Period																								
		0 23	3-Nov-18		0												23	-Nov-18 🔶	commencing	of Process C	ommissioning	J			
AS112022	Preparation for the Process Commissioning	30 23	3-Nov-18	22-Dec-18	0			-									23	-Nov-18 💻	2	2-Dec-18, Pr	eparation for	r the Process C	ommissioning		
AS112024	Process Commissioning	90 23	3-Dec-18	22-Mar-19	0													23	-Dec-18 💻			22	2-Mar-19, Proce	ss Commissioning	g
AS112030	Sample analysis of the testing conducted for process commissioning by an Independent Lab. (HOKLAS)	70 26	6-Jan-19	05-Apr-19	0														2	6-Jan-19			05-Apr-19,	Sample analysis (of the testing conc
		0		05-Apr-19	0																			Completion of Pro	
		, , , , , , , , , , , , , , , , , , ,		007.p. 10	0																		• • • • • • • • • • • • •		
ection IV o	or works ectric Actuators							-														+			
Manufacturin	ng, FAT and Delivery																								
AS501100	Procument of Valves with electric actuators	0 13	3-Feb-16 A	28-Apr-16 A																					
AS501120	Manufacturing & Delivery / FAT of Valve with electric actuators	0 29	9-Mar-16 A	09-Sep-16 A																					
	for Valve with Electric Actuators (incl. Provision for Health & Safety			,							ļ														
AS502100	Mobilisation and Enabling Works for NCSRSPS	0 31	1-Aug-16 A	09-Sep-16 A																					
AS502120	Install Valves with Electric Actuators	0 10	0-Sep-16 A	23-Sep-16 A																					
	of Control System			,																					
Manufacturin AS503100	ng, FAT and Delivery Procument of Control System	0 19	9-Mar-16 A	01-Jun-16 A																					
AS503120	Manufacturing, FAT & Delivery of Control System			22-Sep-16 A				-														÷			
			2-0011-10 A	22-06p-10 A																					
AS504100	for Control System (incl. Provision for Health & Safety Requiremen Modification of Existing Pump Control System		7-Mar-17 A	11-May-17 A																					
esociated Pi	ipework and Fittings																								
	ng, FAT and Delivery																								
AS505100	Procument of Associated Pipework and Fittings	0 28	8-Feb-16 A	01-Jun-16 A									1 1 1 1												
AS505120	Manufacturing, FAT & Delivery of Associated Pipework and Fittings	0 29	9-Mar-16 A	09-Sep-16 A																					
Install, T&C f	for Associated Pipework & Fittings (incl. Provision for Health & Sa	nfety Requiremen	nts)																						
AS506100	Install Associated Pipework and Fittings	0 10	0-Sep-16 A	23-Sep-16 A																					
AS506200a	Available of New Rising Main to Hung Leng SPS (By Others)	0		11-Apr-17 A																					
AS506220a	Pipe connection to New Rising Main to Hung Leng SPS	0 01	1-Mar-17 A	27-Mar-17 A				-																	
ommissionii	ing of the Pumping System																								
AS513100	Site Tests / Function al Test for level control and sensing equipment	0 12	2-Apr-17 A	11-May-17 A																					
AS513110a	Further Coordination with DSD for Carrying Out Commisioning Test	0 12	2-May-17 A	05-Jun-17 A																					
AS513120	Commission of the Pumping System	0 06	6-Jun-17 A	09-Jun-17 A																					
AS513120a	Upload PLC Programme for Modified Pump Control System	0 28	8-Jul-17 A	28-Jul-17 A				-														++			
																						<u> </u>			
	File Name: DE/2014/01G3		Remaini												014/01					08-Jar	Date n-16	Revisio Rev. 0	KH L		Approve KM
	Layout: DE1401 (Rev. G) - WBS TASK filter: All Activities		 Critical A Mileston Actual P 	e					rovisio	Furt	her Exj	pansion	Phase	e 1A - A	dvance	Work	s and	nt Wor	ks	22-Jur 12-Jul 17-Oct	-17	Rev. D Rev. E Rev. F	KH L KH L KH L	.au K .au K	KM KM KM
10			Mileston	e					rovisio	Furt	her Exj	pansion South I	Phase Road S	e 1A - A	dvance Pumpi	Work	s and	nt Wor	ks	12-Jul	-17 t-17	Rev. E	KH L	.au K .au K	KM

