



Our Ref.: CJO-3113

13 January 2022

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

CONTRACT NO. 1/WSD/19 & 6/WSD/21

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) – WATER TREATMENT WORKS AND **ANCILLARY FACILITIES Environmental Permit EP-494/2015**

We are enclosing the following information for your kind considerations of our application:

- (a) Three hard copies,
- (b) Two copies of the 82nd monthly Environmental Monitoring and Audit (EM&A) Report (Rev.0). (Register No.: AEIAR-187/2015)

Please feel free to contact us should you need further information.

Yours sincerely,

Acumen Environmental Engineering and Technologies Co. Ltd.

Mr. Vega Wong 2698 8032

c.c. Water Supplies Department

c.c. AECOM





Your ref:

Our ref: CJO-3113

By hand

Chief Engineer / Project Management Water Supplies Department 46/F., Immigration Tower 7 Gloucester Road, Wanchai (Attn: Mr. H C Wong, Heinz)

13 January 2022

Dear Sir,

In-Situ Reprovisioning of Sha Tin Water Treatment Works (South Works) – Water **Treatment Works and Ancillary Facilities Environmental Permit EP-494/2015** Submission of 81st monthly EM&A Report

In accordance with the Condition 3.4 of the Environmental Permit (No. EP-494/2015), we submit herewith 3 hard copies and 2 electronic copies of the 82nd monthly Environmental Monitoring and Audit (EM&A) Report (Rev.0) for your processing. I certified and confirmed the submission of this monthly EM&A Report had complied with the requirements as set out in the approved Environmental Monitoring and Audit (EM&A) Manual of the EIA Report (Register No.: AEIAR-187/2015).

Yours faithfully,

Mr. Wong, Vega, T. L.

Environmental Team Leader

c.c. Independent Environmental Checker



AECOM

12/F, Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road, Shatin, Hong Kong 香港新界沙田鄉事會路 138 號 +852 3922 9000 tel

+852 3922 9797 fax

香港新界沙田鄉事會路 138 號 新城市中央廣場第 2 座 12 樓

www.aecom.com

Your Ref:

Our Ref: 60479142/C/fyw2301121

By Email

Chief Engineer/Project Management Water Supplies Department 46/F., Immigration Tower 7 Gloucester Road, Wanchai

Attn: Mr. Edmund Huen

12 January 2023

Dear Sir,

Contract No.1/WSD/19

In-situ reprovisioning of Sha Tin Water Treatment Works (South Works) – Water Treatment Works and Ancillary Facilities

Contract No.6/WSD/21

In-situ reprovisioning of Sha Tin Water Treatment Works (South Works) – Administration Building

Submission of 82nd Monthly EM&A Report for December 2022

Reference is made to Environmental Team (ET)'s 82nd Monthly EM&A Report for December 2022 (Rev. 0) submitted on 10 and 12 January 2023.

In accordance with the Condition 3.4 of the Environmental Permit (No.EP-494/2015), I verified and confirmed the submission of this Monthly EM&A Monitoring Report as compiled with the requirements as set in the approved Environmental Monitoring and Audit (EM&A) Manual of the EIA Report (Register No.: AEIAR-187/2015).

Should you have any queries, please feel free to contact the undersigned at 3922 9366.

Yours faithfully, AECOM Asia Co. Ltd.

Y W Fung

Independent Environmental Checker

c.c. Environmental Team Leader (via email)



MONTHLY ENVIRONMENTAL MONITORING AND AUDIT (EM&A) REPORT (NO. 82)

FOR

CONTRACT NO. 1/WSD/19 & 6/WSD/21 IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) – Water Treatment Works and Ancillary Facilities

(Rev. 0)

MONTHLY ENVIRONMENTAL MONITORING AND AUDIT (EM&A) REPORT (NO. 82)

FOR CONTRACT NO. 1/WSD/19 & 6/WSD/21 IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) – WATER TREATMENT WORKS AND ANCILLARY FACILITIES

	Name	Signature
Prepared by	Mr. Chiu, Oliver, O. C.	. Ollins
Reviewed by	Ms. Choy, Yiting, Y. T.	giting
Approved & Certified by	Mr. Wong, Vega, T. L. Environmental Team Leader (ETL)	19
Verified & Confirmed by	Mr. Fung, Y. W. Independent Environmental Checker (IEC)	y

TABLE OF CONTENTS

EXECUTIVE SUMMARY

- 1. Introduction
 - 1.1 PROJECT BACKGROUND
 - 1.2 ORGANIZATION STRUCTURE
 - 1.3 SCOPE OF REPORT
 - 1.4 SUMMARY OF CONSTRUCTION WORKS
- 2. EM&A RESULTS
 - 2.1 EM&A BACKGROUND
 - 2.2 AIR QUALITY MONITORING
 - 2.3 Noise Monitoring
 - 2.4 WATER QUALITY MONITORING
 - 2.5 ECOLOGY
 - 2.6 WASTE MANAGEMENT STATUS
 - 2.7 DELIVERY, STORAGE AND HANDLING OF CHLORINE
 - 2.8 EM&A SITE INSPECTIONS
 - 2.9 ENVIRONMENTAL LICENSES AND PERMITS
 - 2.10 IMPLEMENTATION OF ENVIRONMENTAL MITIGATION MEASURES
 - 2.11 SUMMARY IF EXCEEDANCES OF ENVIRONMENTAL QUALITY PERFORMANCE LIMIT
 - 2.12 SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

- 2.13 DATA MANAGEMENT AND DATA QA/QC CONTROL
- 3. FUTURE KEY ISSUES
 - 3.1 CONSTRUCTION PROGRAMME FOR COMING MONTHS
 - 3.2 KEY ISSUES FOR THE COMING MONTH
- 4. CONCLUSIONS AND RECOMMENDATIONS
 - 4.1 SUMMARY

LIST OF APPENDICES

Appendix C Late Appendix D Loca	est Construction Programme ation of Construction Activities				
Appendix D Loca					
	ation of Construction Activities				
Appendix E Envi	ironmental Sensitive Receivers in the Vicinity of the Project				
Appendix F Sum	nmary of Action and Limit Levels				
Appendix G Even	nt Action Plan				
Appendix H Impa	act Monitoring Schedules				
Appendix I Loca	ation Plan of Air Quality Monitoring Stations				
Appendix J Cali	Calibration Certificates (Air monitoring)				
Appendix K Impa	Impact Air Quality Monitoring Results and Graphical Presentation				
Appendix L Loca	Location Plan of Noise Monitoring Station				
Appendix M Cali	Calibration Certificates (Noise)				
Appendix N Impa	act Noise Monitoring Results and Graphical Presentation				
Appendix O Loca	ation Plan of Water Quality Monitoring Station				
Appendix P Cali	bration Certificate (Water Quality)				
Appendix Q The	Certification of Laboratory with HOKLAS accredited Analytical Tests				
Appendix R Impa	act Water Quality Monitoring Results				
Appendix S Impa	Impact Monitoring report for Ecology				
Appendix T Mon	Monthly Summary of Waste Flow Table				
Appendix U Impl	lementation Schedule of Environmental Mitigation Measures (EMIS)				
	nulative Statistics on Exceedances, Complaints, Notifications of Summons Successful Prosecutions				
Appendix W Tent	tative schedule for environmental monitoring				

EXECUTIVE SUMMARY

- A.1 Pursuant to the Environmental Impact Assessment (EIA) Ordinance, the Director of Environmental Protection (DEP) granted the Environmental Permit (No. EP- 494/2015) to the Water Supplies Department (WSD) to construct and operate the designated project for "In-situ Reprovisioning of Sha Tin Water Treatment Works South Works" ("The Project").
- A.2 Under Contract No. 1/WSD/19 and 6/WSD/21, ATAL CW MH JV (ACMJV) is commissioned by WSD to undertake the construction of the main works while AECOM Asia Company Limited was appointed by WSD as the Engineer. For implementation of the environmental monitoring and audit (EM&A) programme under the Contract, Acumen Environmental Engineering & Technologies Company Limited was appointed by ACMJV as the Environmental Team (ET). AECOM Asia Company Limited was also employed by the WSD as the Independent Environmental Checker (IEC).
- A.3 The construction phase of Contract No. 3/WSD/15 commenced on 30 October 2015 for completion by 31 December 2020. The construction phase of Contract No. 1/WSD/19 commenced on 01 January 2021. The construction phase of Contract No. 6/WSD/21 commenced on 16 March 2022. The impact monitoring of the EM&A programme, including air quality, noise, water quality monitoring as well as environmental site inspections, commenced on 17 February 2016.
- A.4 This is the 82nd monthly Environmental Monitoring and Audit Report for the Project which covers the period from 1 to 31 December 2022 (the reporting period) for Contract No. 1/WSD/19 and 6/WSD/21.
- A.5 For Contract No. 1/WSD/19, as informed by the Contractor, major activities in the reporting period included:
 - Wall construction for Washwater Equalization Tank (WET)
 - Demolition works for TWRT.
 - Road reinstatement works.
 - Excavation for Major ELS Work.
 - Soil Nail Installation for Major ELS Work.
 - Lagging wall construction for Major ELS work.
 - Struct and waling installation for Major ELS work.
 - Pumping test for S2F Pipe Pile.
 - Trail Pit at the future main building road
 - Rebar works for S1F, S2F, SWPS, RMF, FST, and Ozone building
 - Formwork and concrete works for S1F, S2F, SWPS, RMF, FST and Ozone Building
- A.6 For Contract No. 6/WSD/21, as informed by the Contractor, major activities in the reporting period included:
 - Waterproofing Works
 - Carry Out Excavation Down to +23.3mPD
 - Concreting for Raft Slab (LG/F Level)
 - Steel Plate Welding to Sheetpile for Waterproofing Works
 - Carry Out Excavation to Final Excavation Level +21.0mPD

A.7 Environmental monitoring activities under the EM&A program in this reporting period are summarized below

Issues	Environmental Monitoring Parameters / Inspection	Occasions
Air	1-Hour TSP	15
Noise	$L_{eq(30 mins)}$ Daytime	5
Water	Water Compline	12
Quality	Water Sampling	12
Inspection /	ET Regular Environmental Site Inspection	4
Audit	IEC Monthly Environmental Site Audit	1

- A.8 No exceedance of air quality and noise monitoring were recorded in this reporting period. There were no exceedance in action level and 4 exceedances in limit level for water quality monitoring were recorded in this reporting period, which were found non-project related.
- A.9 No environmental complaint was received via EPD in this reporting period.
- A.10 No notification of any summons and successful prosecutions was received in this reporting period.
- A.11 No reporting change was made in this reporting period.
- A.12 No EPD site inspections were conducted in the reporting period.
- A.13 As informed by the Contractor, the major works for Contract No. 1/WSD/19 between January 2023 to March 2023 will be:
 - Demolition works for TWRT.
 - Road reinstatement works.
 - Excavation for Major ELS Work.
 - Soil Nail Installation for Major ELS Work.
 - Lagging wall construction for Major ELS work.
 - Struct and waling installation for Major ELS work.
 - Pumping test for S2F Pipe Pile.
 - Trail Pit at the future main building road
 - Rebar works for S1F, S2F, SWPS, RMF, FST, and Ozone building
 - Formwork and concrete works for S1F, S2F, SWPS, RMF, FST and Ozone Building
 - WET finishing works.
 - WET steel and metal works
 - Dispersion modelling for discharge from VPSA Nitrogen waste gas vents and pressure/Vacuum Relief Valves vents for Ozone off-gas.
 - PV Panel at Ozone Building, S1F and S2F.
 - Centrifugal pumps in LC and Sump Pumps for BS.
 - Supply and delivery of CPVC pipe and Valve.
- A.14 As informed by the Contractor, the major works for Contract No. 6/WSD/21 between January 2023 to March 2023 will be:
 - Waterproofing Works
 - Carry Out Excavation Down to +23.3mPD
 - Concreting for Raft Slab (LG/F Level)
 - Steel Plate Welding to Sheetpile for Waterproofing Works
 - Carry Out Excavation to Final Excavation Level +21.0mPD
 - MIC Installation
 - Excavation to Bottlm Rockfill Level & Rockfill Replacement Work

A.15 EM&A monitoring for the 82nd reporting period for Contract No. 1/WSD/19 and 6/WSD/21 has been completed. The 83rd monthly EM&A report will cover the period from 1 to 31 January 2023.

1. INTRODUCTION

1.1. PROJECT BACKGROUND

- 1.1.1 Pursuant to the Environmental Impact Assessment (EIA) Ordinance, the Director of Environmental Protection (DEP) granted the Environmental Permit (No. EP- 494/2015) on 28 January 2015, subsequent to approval of the EIA Report (Register No. AEIAR-187/2015), to the Water Supplies Department (WSD) to construct and operate the designated project for "In-situ Reprovisioning of Sha Tin Water Treatment Works South Works" ("The Project").
- 1.1.2 Under Contract No. 1/WSD/19 and 6/WSD/21, ATAL CW MH JV (ACMJV) and CW–FWS–JV are commissioned by WSD to undertake the construction of the main works while AECOM Asia Company Limited was appointed by WSD as the Engineer. For implementation of the environmental monitoring and audit (EM&A) programme under the Contract, Acumen Environmental Engineering & Technologies Company Limited was appointed by ACMJV as the Environmental Team (ET). AECOM Asia Company Limited was also employed by the WSD as the Independent Environmental Checker (IEC).
- 1.1.3 The construction phase of Contract No. 3/WSD/15 commenced on 30 October 2015 for completion by 31 December 2020. The construction phase of Contract No. 1/WSD/19 commenced on 01 January 2021. The construction phase of Contract No. 6/WSD/21 commenced on 16 March 2022. The general layout plan of the Contract components is presented in **Appendix A**.
- 1.1.4 ET conducted below baseline monitoring at designated locations according to the EM&A Manual.
 - Air quality and noise: from 21 December 2015 to 3 January 2016.
 - Water quality: from 15 December 2015 to 8 January 2016.
- 1.1.5 Baseline Monitoring Report was issued by the ET and verified by the IEC on 27 January 2016 and submitted to the EPD on 2 February 2016.
- 1.1.6 The impact monitoring of the EM&A programme, including air quality, noise, water quality monitoring as well as environmental site inspections, commenced on 17 February 2016.

1.2. ORGANIZATION STRUCTURE

1.2.1 The organization structure of the Contract is shown in **Appendix B**. Contact details of key personnel are summarized in below table:

Table 1-1: Key Personnel Contact for Environmental Works

Party	Position	Name	Telephone
Water Supplies	Senior Engineer	Mr. Ng, Horace, C. K.	2829 5693
Department			
AECOM	Chief Resident Engineer	Mr. Ng, Derek, K. H.	9717 1420
	Independent	Mr. Fung, Y. W.	3922 9366
	Environmental Checker		
	Deputy Independent	Ms. Lam, Lemon, M.	3922 9381
	Environmental Checker	C.	
ATAL-CW-MH Joint	Project Manager	Mr. Tam, Wilson, Y. C.	9031 5600
Venture	Site Agent	Ms. Cheung, S. Y.	6323 4716
CW-FWS JV	Construction Manager	Mr. Jacky Lo, J. L.	9400 3717
	Site Agent	Mr. Lo, H. B.	6498 8580
Acumen Env. Eng. &	Project Director	Ir Dr. Lam, Gabriel, C.	2333 6823
Tech. Co. Ltd.		K.	
	Environmental Team	Mr. Wong, Vega, T. L.	6113 2368
	Leader		
	Ecologist	Mr. Wan, Jay, P. H.	2333 6823

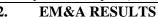
1.3. SCOPE OF REPORT

- 1.3.1 This is the 82nd monthly EM&A Report under the Contract No. 1/WSD/19 and 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Water Treatment Works and Ancillary Facilities covering the period from 1 to 31 December 2022 (the reporting period).
- 1.3.2 The EM&A requirements for impact monitoring are set out in the approved EM&A Manual. Environmental aspects such as the construction air quality, noise, water quality and ecology were identified as the key issues during the construction phase of the Project.

1.4. SUMMARY OF CONSTRUCTION WORKS

- 1.4.1 The construction phase of the Contract commenced on 30 October 2015. Latest construction programmes are shown in **Appendix C**.
- 1.4.2 As informed by the Contractor, no major works for Contract No.3/WSD/15 will be conducted. The major works for Contract No. 1/WSD/19 in December 2022 are:
 - Wall construction for Washwater Equalization Tank (WET)
 - Demolition works for TWRT.
 - Road reinstatement works.
 - Excavation for Major ELS Work.
 - Soil Nail Installation for Major ELS Work.
 - Lagging wall construction for Major ELS work.
 - Struct and waling installation for Major ELS work.
 - Pumping test for S2F Pipe Pile.
 - Trail Pit at the future main building road
 - Rebar works for S1F, S2F, SWPS, RMF, FST, and Ozone building
 - Formwork and concrete works for S1F, S2F, SWPS, RMF, FST and Ozone Building

- 1.4.3 As informed by the Contractor, no major works for Contract No.3/WSD/15 will be conducted. The major works for Contract No. 6/WSD/21 in December 2022 are:
 - Waterproofing Works
 - Carry Out Excavation Down to +23.3mPD
 - Concreting for Raft Slab (LG/F Level)
 - Steel Plate Welding to Sheetpile for Waterproofing Works
 - Carry Out Excavation to Final Excavation Level +21.0mPD
- 1.4.4 The locations of the construction activities are shown in **Appendix D**. The Environmental Sensitive Receivers in the vicinity of the Project are shown in **Appendix E**.



2.1. EM&A BACKGROUND

2.1.1 The EM&A programme required environmental monitoring for air quality, noise, water quality and ecology as well as environmental site inspections for air quality, noise, water quality, waste management and ecology impacts. The EM&A requirements and related findings for each component are summarized in the following sections. A summary of impact monitoring programme is presented in Table 2-1.

Table 2-1: Summary of Impact Monitoring Programme

Impact Monitoring	Sampling Parameter	Frequency
Air Quality	1-hour TSP	3 times in every 6 days when documented and valid complaint was received
Noise	$L_{\rm eq~30~min},L_{\rm eq~5~min},L_{\rm 10}$ and $L_{\rm 90}$ as reference.	1 time per week: ◆ L _{eq 30 min} for normal weekdays from 0700 - 1900;
Water Quality	Duplicate in-situ measurements: Dissolved Oxygen (DO), Turbidity and pH; HOKLAS-accredited laboratory analysis: Suspended Solids (SS).	3 days per week. The interval between 2 monitoring days will be more than 36 hours.
Ecology	-	A detailed at least 6 years post-planting monitoring and maintenance programme

Remark: Sampling Depth for Water Quality:

- (i) 3 depths: 1m below water surface, 1m above bottom and at mid-depth when the water depth exceeds 6m.
- (ii) If the water depth is between 3m and 6m, 2 depths: 1m below water surface and 1m above bottom.
- (iii) If the water depth is less than 3m, 1 sample at mid-depth is taken
- 2.1.2 A summary of the monitoring parameters is presented in Table 2-2.

Table 2-2: Summary of the monitoring parameters of EM&A Requirements

Environmental Issue	Parameter			
Air Quality	1-hour TSP Monitoring by Real-Time Portable Dust Meter			
Noise	L _{eq (30min)} during normal working hours			
	In-situ measurement			
	 Dissolved Oxygen (mg/L); 			
	 Dissolved Oxygen Saturation (%); 			
	• Turbidity (NTU);			
Water Quality	• pH value;			
	• Water depth (m); and			
	• Temperature (°C)			
	Laboratory analysis			
	• Suspended Solids (mg/L)			

- 2.1.3 Summary of determination of Action/Limit (A/L) Levels for air quality, noise and water quality are presented in **Appendix F**.
- 2.1.4 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan enclosed in **Appendix G**.
- 2.1.5 The impact monitoring schedules are presented in **Appendix H** and the monitoring results are detailed in the following sub-sections.

2.2. AIR QUALITY MONITORING

- 2.2.1 Impact monitoring for air quality had been carried out in accordance with Sections 2.29 of the approved EM&A Manual to determine the ambient 1-hour total suspended particulates (TSP) levels at the monitoring locations. 1-hour TSP sampling should be undertaken at least 3 times in every six-days at each monitoring station when the highest dust impacts are expected. General meteorological conditions (wind speed, direction and precipitation) and notes regarding any significant adjacent dust producing sources had also been recorded throughout the impact monitoring period.
- 2.2.2 Two (2) designated monitoring stations, AM1 located at the L Louey and AM2 located at Hin Keng Estate Hin Wan House, were recommended in Section 2.18 of the approved EM&A Manual. In order to identify and seek for the access of the air monitoring locations designated in the EM&A Manual, site visit was conducted among ET, IEC and EPD.
- 2.2.3 During the site visit, all designated air monitoring locations were identified. Details of air monitoring stations are described in Table 2-3. The location plan of air quality monitoring stations is shown in **Appendix I**.

Table 2-3: Location of the Air Quality Monitoring Stations

Air Quality Monitoring Station	Air Sensitive Receiver (ASR) ID in the approved EIA Report	Dust Monitoring Station
AM1	ASR2	The L Louey (at a platform level of about 5m above road level nearby)
AM2	ASR4	Hin Keng Estate - Hin Wan House (at the roof top)

2.2.4 The monitoring equipment using for the air quality impact monitoring was proposed by ET and verified by IEC. 1-hour TSP levels had been measured with direct reading dust meter. It has been demonstrated its capability in achieving comparable results with high volume sampling method as set out in the Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50). The details of equipment using for impact monitoring are listed in Table 2-4 as below.

Table 2-4: Air Quality Impact Monitoring Equipment

Equipment	Model
Portable dust meter – 1-hour TSP	Qingdao Jingcheng Model PC-3A (E)
Portable Wind Speed Indicator	The Kestrel Pocket Weather Meter

- 2.2.5 The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 90° light scattering. The 1-hour TSP monitor consists of the following:
 - A pump to draw sample aerosol through the optic chamber where TSP is measured;
 - A sheath air system to isolate the aerosol in the chamber to keep the optics clean for maximum

- reliability; and
- A built-in data logger compatible with based program to facilitate data collection, analysis and reporting.
- 2.2.6 The 1-hour TSP meter was calibrated by the manufacturer prior to purchasing. Zero response of the instrument was checked before and after each monitoring event. Operation of the 1-hour TSP meter followed manufacturer's Operation and Service Manual. A valid calibration certificate is attached in **Appendix J**.
- 2.2.7 In this Reporting Period, a total of five (5) sampling days perform air quality monitoring at the two designated locations. The results for 1-hour TSP are summarized in Table 2-5 and Table 2-6.

Table 2-5: Summary of 1-hour TSP Monitoring Results – AM1

		1-hour TSP (μg/m³)				
Date	Weather	Start Time	End Time	1 st Measurement	2 nd Measurement	3 rd Measurement
6/12/2022	Fine	16:00	19:00	50	56	47
12/12/2022	Fine	09:15	12:15	70	67	71
17/12/2022	Fine	16:00	19:00	50	41	42
23/12/2022	Fine	09:26	12:26	44	42	47
29/12/2022	Fine	16:00	19:00	45	46	43
Average			50.7			
	Range				41 - 71	

Table 2-6: Summary of 1-hour TSP Monitoring Results – AM2

		1-hour TSP (μg/m³)				
Date	Weather	Start Time	End Time	1 st Measurement	2 nd Measurement	3 rd Measurement
6/12/2022	Fine	15:30	18:30	51	52	45
12/12/2022	Fine	09:19	12:19	72	66	74
17/12/2022	Fine	15:30	18:30	35	39	41
23/12/2022	Fine	09:30	12:30	46	47	38
29/12/2022	Fine	15:30	18:30	48	44	45
	Average				49.5	
Range				35 - 74		

2.2.8 In this Reporting Month, all monitoring result were below the action level. Hence, no Action or Limit Level exceedance was triggered during this month. The impact air quality monitoring results and graphical presentation are shown in **Appendix K**.

2.3. NOISE MONITORING

- 2.3.1 Impact monitoring for noise levels had been measured in accordance with Sections 3.13 of approved EM&A Manual on normal weekdays at a frequency of once a week at logging interval of 30 minutes for daytime (between 0700 and 1900 hours of normal weekdays). The L_{eq} had been recorded at the specified intervals.
- 2.3.2 According to Section 3.7 of the approved EM&A Manual, 3 noise sensitive receivers designated for the construction noise monitoring. The designated monitoring stations are identified and successfully granted by the premises. The details of noise monitoring stations are described in Table 2-7 and the location plan of noise monitoring stations is shown in **Appendix L**.

Table 2-7: Details of Noise Monitoring Stations

Noise Monitoring Station	Noise Sensitive Receiver (NSR) ID in the approved EIA Report	Identified Noise Monitoring Station
		The L Louey (South)
NM1	HK2	(at a platform level of
		about 5m above road level nearby
		- free field measurement)
		Hin Keng Estate –
NM2	HK5	Hin Wan House
		(at the roof level - facade measurement)
		C.U.H.K.F.A.A.
NM3	HK7	Thomas Cheung School
		(at the roof level - free field measurement)

2.3.3 The monitoring equipment using for the noise impact monitoring was proposed by ET and verified by IEC. Sound level meter in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications has been used for carrying out the noise monitoring. The sound level meter has been checked using an acoustic calibrator. The wind speed has been checked with a portable wind speed meter capable of measuring the wind speed in m/s. The details of equipment using for impact monitoring are listed in Table 2-8 as below.

Table 2-8: Noise Impact Monitoring Equipment

Noise	
Sound Level Meter	NTi Audio XL2
Acoustic Calibrator	Rion NC-75
Portable Wind Speed Indicator	The Kestrel Pocket Weather Meter

- 2.3.4 All noise measurements were the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (L_{eq}) .
- 2.3.5 Prior to the impact noise measurement, the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Regular checking

- was conducted in impact monitoring period. The calibration level before and after the noise measurement is agreed to within 1.0 dB.
- 2.3.6 An acoustic calibrator and sound level meter using impact monitoring is within the valid period and were calibrated per year. A set of valid calibration certificates is attached in **Appendix M**.
- 2.3.7 Noise measurements should not be made in presence of fog, rain, wind with a steady speed exceeding 5 ms⁻¹ or wind with gusts exceeding 10 ms⁻¹. The wind speed was checked with a portable wind speed meter capable of measuring with speeds in ms⁻¹.
- 2.3.8 In this Reporting Period, a total five (5) occasions noise monitoring was undertaken in Reporting period. The noise monitoring results at the designated locations are summarized in Tables 2-9 to 2-11.

Table 2-9: Summary of Noise Monitoring Results – NM1

Data	Time	Weather	1 st	2 nd	3 rd	4 th	5 th	6 th	Lag
Date	Time	Weather	Leq _{5min}	Leq _{30min}					
6/12/2022	17:20 - 17:50	Fine	52.2	49.1	50.2	49.4	52.1	50.4	50.7
12/12/2022	10:02 - 10:32	Fine	53.6	55.1	57.9	56.9	52.4	50.0	55.1
17/12/2022	17:35 - 18:05	Fine	52.5	53.3	54.0	55.1	53.8	50.1	53.4
23/12/2022	10:15 - 10:45	Fine	55.3	53.8	55.7	57.6	59.6	54.7	56.6
29/12/2022	16:45 - 17:15	Fine	50.1	53.3	45.8	46.6	46.8	48.2	49.3
								Average	53.8
Limit Level	>75dB(A)							Range	49.3 –
									56.6

Table 2-10: Summary of Noise Monitoring Results – NM2

Date	Time	Weather	1 st	2 nd	3 rd	4 th	5 th	6 th	Logas
Date	Time	weather	Leq _{5min}	Leq _{30min}					
6/12/2022	17:56 - 18:26	Fine	52.8	47.4	46.6	45.4	48.1	47.0	48.7
12/12/2022	10:38 - 11:08	Fine	52.5	51.3	49.0	54.8	53.9	52.1	52.6
17/12/2022	18:09 - 18:39	Fine	51.8	50.1	50.8	49.7	48.6	47.5	50.0
23/12/2022	10:50 - 11:20	Fine	49.8	52.0	49.1	51.2	47.7	48.8	50.0
29/12/2022	17:21 - 17:51	Fine	49.9	50.1	51.3	47.9	45.5	44.3	48.8
								Average	50.3
Limit Level	>75dB(A)							Range	48.7 –
									52.6

1st 2nd 3rd Date Weather Time Leq_{5min} Leq_{5min}

Table 2-11: Summary of Noise Monitoring Results – NM3

 $\overline{6^{th}}$ 4th 5th Leq_{30min} Leq_{5min} Leq_{5min} Leq_{5min} Leq_{5min} 6/12/2022 18:30 19:00 46.2 47.0 45.3 44.8 47.3 Fine 48.5 46.7 47.4 12/12/2022 11:12 11:42 Fine 46.7 48.1 48.4 50.4 45.5 48.0 17/12/2022 18:43 19:13 Fine 50.2 49.4 50.7 48.4 49.9 49.1 49.7 23/12/2022 11:24 Fine 47.6 49.5 50.5 48.9 11:54 48.7 46.9 48.8 29/12/2022 17:21 17:51 Fine 45.7 46.2 48.6 48.4 43.0 44.9 46.6 Average 48.1 Limit Level Range 70dB(A) during normal teaching periods 46.6 or 65dB(A) during examination periods 49.7

2.3.9 As shown in the results were well below the limit level, also no complaint was received by the RE, WSD, EPD and contractor. Hence, no Action or Limit Level exceedance was triggered during this month. The impact noise quality monitoring results and graphical presentation are shown in **Appendix** N.

2.4. WATER QUALITY MONITORING

- 2.4.1 Water Impact monitoring had been taken three days per week with sampling or measurement in accordance with Sections 4.12 of the approved EM&A Manual at all designated monitoring stations in the 2 water courses. The interval between 2 sets of monitoring had been more than 36 hours. Replicate in-situ measures had been carried out in each sampling event.
- 2.4.2 Three (3) control and two (2) impact stations were recommended in the Section 4.7 of the approved EM&A Manual to carry out water quality monitoring. In order to identify and seek for the access of the water monitoring locations designated in the approved EM&A Manual, site visit was conducted among ET, IEC and Environmental Protection Department (EPD).
- During the site visit, all designated monitoring locations were identified however one more impact 2.4.3 stations (M3) along the same water course was introduced due to the concern on multiple site effect, in particular to address the potential impact to M2 from a source at upstream of the water course. Details and coordinates of the monitoring stations are described in Table 2-12 and the location plan of water quality monitoring stations is shown in **Appendix O**.

Table 2-12: Details of Water Quality Monitoring Station

Water Quality	Description	Co-ordinates Easting Northin		
Monitoring Station	Description			
C1		835110	824716	
C2	Control Stations	835403	824470	
C3		835642	824386	
M1	Turneral	835215	824827	
M2	Impact Manitoring Stations	835536	824775	
M3	Monitoring Stations	835501	824648	

2.4.4 The water monitoring equipment and analysis using for the water quality monitoring were proposed by ET and verified by IEC. The details of equipment using for impact monitoring are listed in the Table 2-13 below:

Table 2-13: Monitoring Equipment Used in Impact Monitoring Program

Water quality	
Horiba Multi Water Quality C	Checker U-53
Thermometer & DO meter	The instrument is a portable and weatherproof dissolved oxygen (DO) measuring instrument complete with cable and sensor, and use a DC power source. The equipment is capable of measuring as included a DO level in the range of 0 - 20mg/L and 0 - 200% saturation; and a temperature of 0 - 45°C.
pH meter	The instrument consists of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It is readable to 0.1 pH in range of 0 to 14.
Turbidmeter	The instrument is a portable and weatherproof turbidity measuring instrument using a DC power source. It has a photoelectric sensor capable of measuring turbidity between 0 - 1000 NTU.
Laboratory Analysis	
Suspended Solids	HOKLAS-accredited laboratory (Acumen Laboratory and Testing Limited)

Remark:

- (i) Water samples for suspended solids (SS) have been stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4° C without being frozen).
- 2.4.5 Before the commencement of the sampling, general information such as the date and time of sampling as well as the personnel responsible for monitoring were recorded on the monitoring field data sheet.
- 2.4.6 Water temperature, turbidity, DO, pH and water depth were measured in-situ. Since water depths at C1, C2, M1, M2 and M3 were less than 3 m, all in-situ measurements and sampling conducted at one water depth such as mid-depth are performed. Moreover, C3 was recorded dry throughout the sampling period. Therefore, in-situ measurements and sampling could not be conducted at C3 in accordance with the water monitoring requirements in the approved EM&A Manual.
- 2.4.7 At each sampling point, (two) 2 consecutive measurements of temperature, DO, turbidity and pH were measured. The Multi-Parameter Water Quality Monitoring Probe were retrieved out of the water after the first measurement and then re-deployed for the second measurement. Where the difference in the value between the first and second readings of each set was more than 25% of the value of the first reading, the reading was discarded and further readings were taken. The certification of the Multi-parameter Water Quality Monitoring System is showed in **Appendix P**.
- 2.4.8 All water samples were delivered to the Acumen Laboratory and Testing Limited (HOKLAS registration no.: 241). SS testing was used HOKLAS accredited Analytical method APHA 2540 D. The certification of laboratory with HOKLAS accredited analytical tests are provided in **Appendix Q**.
- 2.4.9 In this reporting period, a total of twelve (12) sampling days perform water monitoring at the six designated locations. Monitoring results of 4 key parameters: dissolved oxygen (DO), turbidity, suspended solids and pH in this Reporting Months, are summarized in Table 2-14.

Table 2-14: Summary	y of Water Quality	y Monitoring Results

Dissolved Oxygen – Mid Depth (mg/L)	C1	C2	С3	M1	M2	М3
Average	10.96	10.99	N/A	11.72	12.28	11.86
Min.	8.04	8.48	N/A	9.09	10.08	9.75
Max.	14.25	14.31	N/A	14.77	14.72	14.01
Turbidity – Mid Depth (NTU)	C1	C2	C3	M1	M2	M3
Average	1.78	0.79	N/A	2.33	1.17	0.01
Min.	0.00	0.00	N/A	0.00	0.00	0.00
Max.	3.73	1.73	N/A	4.27	6.86	0.17
Suspended Solid – Mid depth (mg/L)	C 1	C2	С3	M1	M2	М3
Average	1.80	1.00	N/A	1.98	1.14	1.66
Min.	<1	<1	N/A	<1	<1	<1
Max.	3.90	1.00	N/A	3.60	2.10	4.30
pH value (unit)	C1	C2	C3	M1	M2	M3
Average	7.58	7.96	N/A	7.89	8.17	7.99
Min.	6.94	7.09	N/A	7.70	7.00	7.31
Max	7.85	8.31	N/A	8.12	8.81	8.33

Remark 1: Bolded values indicated exceedance of action level.

Remark 2: Underlined values indicated exceedance of limit level.

Remark 3: Details of exceedance of action level and or limit level, please refer to appendix R.

- 2.4.10 In this Reporting Month, most of the monitoring results were below or within the action level. Exceedances in action and or limit level of suspended solids for water quality monitoring were recorded in this reporting period. There were no exceedance of action level and 4 exceedances of limit level in the reporting period, all were found non-project related. Detailed monitoring results including in-situ measurements, laboratory analysis data are shown in Appendix R.
- 2.4.11 Investigation reports for the exceedance of water quality in December 2022 are supplemented in Appendix V.

2.5. ECOLOGY

- 2.5.1 The condition of TA572 was observed in fair health despite in poor form. TA327 was also in poor condition; while already dead TA326 collapsed under Signal No. 10 typhoon Mangkhut in September 2018. Tree guying cables have been installed to provide external support to the two remaining transplanted trees.
- 2.5.2 Compensatory planting of TA326 has been completed on 25 March 2020 by planting two *Syzygium levinei* and one *Schefflera heptaphylla*. However, the two native *Syzygium levinei* were mis-planted by two exotic *Syzygium jambos*, which has been replaced by another native tree species *Celtis sinensis* on 31 May 2021.
- 2.5.3 *Desmos chinensis* has been finalized as the candidate to compensate the loss of *Artabotrys hongkongensis*. Two individuals were planted at Wall C in STWTW on 1 April 2021.
- 2.5.4 New small sprouts were found merging from the two Desmos chinensis that have been reported dead previously. Construction materials were also found too close to the planter. Replanting with an eye-catching protective fence shall be carried out.
- 2.5.5 In order to enhance a sustainable survival during the post-transplantation stage, a shelter (such as shading net) has been installed to reduce intensity of direct sunlight received and avoid direct hit of rainstorm/typhoon to the 27 nos. *Cibotium barometz* at Portion E of STSFWSR.
- 2.5.6 Regular irrigation, set up of protection zone and weeding by hand held tools within protection zone, shall also be provided to the transplanted/ compensated plants in order to sustain their survival during the post-transplantation (establishment) stage.
- 2.5.7 Root ball of TA572 and TA327 tree should be kept moisture especially during dry and non-raining day.
- 2.5.8 Signs of ploughed soil by wild boar(s) were found at the two groups of transplanted *Cibotium barometz*, making them exposed under sunlight or even uprooted. Installation of robust fencing, such as mesh wire, is recommended to protect the group of *Cibotium barometz* from damage caused by wild boars.
- 2.5.9 Given that leftover was observed nearby, illegal feeding of wild pigs or other wild animals was also suspected to occur. Warning signs of illegal feeding and plant protection zone may be put along the receptor site to remind the hikers. Reporting the case to the relevant government department, i.e. AFCD, is suggested to prevent further aggregation of wild boars in the area.

2.6. WASTE MANAGEMENT STATUS

- 2.6.1 The Contractor has submitted application form for registration as chemical waste producer under the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting. The Waste Producer Number to the Contractor is assigned in respect of the project site.
- 2.6.2 Wastes generated during this reporting period include mainly construction wastes (inert and non-inert). Waste flow table was prepared by the Contractor to record amount of waste generated and disposed (**Appendix T**).
- 2.6.3 The Contractor was advised to properly maintain on site C&D materials and waste collection, sorting and recording system, dispose of C&D materials and wastes at designated ground and maximize reuse/recycle of C&D materials and wastes.
- 2.6.4 The Contractor was also reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly. For chemical waste containers, the Contractor was reminded to treat properly and store temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.

2.7. DELIVERY, STORAGE AND HANDLING OF CHLORINE

2.7.1 Chlorine is delivered to Sha Tin WTW in batches of up to 6×1-tonne drums. The transport route from Sham Shui Kok dock on North Lantau is shown in **Figure 1**. The route passes along the North Lantau Expressway, around the northern edge of Tsing Yi, through Tsuen Wan and along Tai Po Road (Piper's Hill) to Sha Tin (Table 2-15).

Figure 1: Chlorine Transport Route to Sha Tin Water Treatment Works

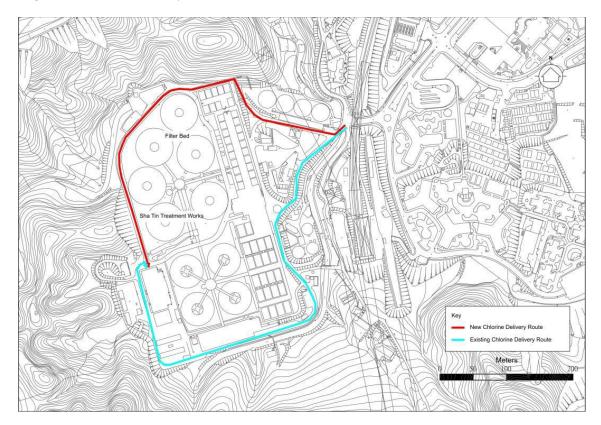
| Charles | Charl

Table 2-15: Chlorine Truck Transport Route

Destination	Route
From SSK Dock to Sha	Sham Shui Kok Dock > Cheung Tung Road > Sunny Bay Road > N Lantau Highway > Lantau Link > NW Tsing Yi Interchange > Tsing Yi North Costal road > Tsing
Tin WTW	Tsuen Road > Tsuen Wan Road > Kwai Chung Road > Ching Cheung Road > Tai Po Road > Tai Po Road (Piper's Hill) > Tai Po Road (Sha Tin Heights) > Tai Po Road > Tsing Sha Highway (Sha Tin) > Tai Po Rd (Sha Tin) > Sha Tin Rural Committee Rd > Tai Chung Kiu Rd > Che Kung Miu Road > Sha Tin WTW

- 2.7.2 Unloading takes place inside the Chlorination House, with the doors closed, in a designated truck unloading bay. The movement of drums within the storage area and 'drive-through' unloading bay is carried out using a hoist/monorail system with a purpose-built lifting beam. Prior to usage, the drums are stored on cradles within the chlorine storage area.
- 2.7.3 The on-site chlorine delivery route is shown in **Figure 2**.

Figure 2: Chlorine Delivery Route at Sha Tin WTW



- 2.7.4 An emergency chlorine scrubbing system is installed to remove any leaked chlorine in the chlorine handling and storage areas. The system is a packed tower utilising sodium hydroxide as the neutralising agent. The plant and equipment are installed in a separate scrubber room.
- 2.7.5 On detection of chlorine at a concentration of 3 ppm or above in the chlorine handling or storage areas, the scrubbing system will activate automatically. The air/chlorine mixture in the affected areas is drawn into the scrubber by the scrubber fan via ducting connected to the normal ventilation system. An electrically-operated isolating damper is provided in the scrubber intake which opens automatically when the scrubber fan starts up.
- 2.7.6 The scrubber system is normally set at auto standby mode and is activated if the chlorine concentration rises above 3 ppm. A continuous chlorine monitor is installed at a point downstream of the packed tower

- and upstream of the vent/recycle changeover dampers to monitor the scrubber performance; a "Chlorine concentration high" alarm will be initiated if the concentration of chlorine in the tower exhaust exceeds the preset value.
- 2.7.7 According to the Fire Services Department's fire safety requirements, an emergency repair/stoppage kit for chlorine spillage/leakage is provided and maintained in good working condition at all times for use by the trained persons and stowed adjacent to but outside the store/plant room. Regular drills are conducted to train personnel on the proper use of the breathing apparatus and protective clothing.
- 2.7.8 A Hazard Assessment of the risks associated with the storage, handling and transport of chlorine at Sha Tin WTW and the off-site transport of chlorine for the Construction and Operational Phases of the reprovisioning project has been conducted in the approved EIA Report (Register No. AEIAR-187/2015).
- 2.7.9 This In-situ Reprovisioning of Sha Tin WTW is an improvement project, following its completion the chlorine-related risks levels to the general public will be lowered due to the anticipated reduction of the chlorine storage and usage levels.
- 2.7.10 Implementation of the recommended mitigation measures would be regularly audited. No specific Environmental Monitoring would be required.

2.8. EM&A SITE INSPECTION

- 2.8.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures under the Contract. In the reporting period, contract No. 1/WSD/19 were four (4) site inspections carried out on 7, 12, 22 and 29 December 2022. Contract No. 6/WSD/21 were four (4) site inspections carried out on 7, 12, 22 and 28 December 2022.
- 2.8.2 One joint site inspection with IEC also undertaken on 22 December 2022. Minor deficiencies were observed during weekly site inspection or joint site inspection. Key observations during the site inspections are summarized in Table 2-16 (a) and Table 2-16 (b).

Table 2-16 (a): Site Observations (1/WSD/19)

Date	Environmental Observations	Follow-up Status
7 December 2022	No environmental issue was observed during	N/A
/ December 2022	the site inspection.	N/A
12 December 2022	No environmental issue was observed during	N/A
	the site inspection.	IV/A
22 December 2022	1.No drip tray was provided for the chemical	1.Chemicals have been
	containers	removed
	2. Fugitive dust generated during breaking	2. Water spraying was provided
	works was observed	
29 December 2022 No environmental issue was observed duri		N/A
	the site inspection.	

Table 2-16 (b): Site Observations (6/WSD/21)

Date	Environmental Observations	Follow-up Status
7 December 2022	No environmental issue was observed during the site inspection.	N/A
12 December 2022	No environmental issue was observed during the site inspection.	N/A
22 December 2022	No environmental issue was observed during the site inspection.	N/A
28 December 2022	No environmental issue was observed during the site inspection.	N/A

2.8.3 The Contractor has rectified all the observations identified during environmental site inspections in the reporting period.

2.9. ENVIRONMENTAL LICENSES AND PERMITS

2.9.1 The status of environmental license and permit is summarized in Table 2-17 (a) and Table 2-17 (b) below:

Table 2-17(a): Summary of Environmental License and Permit (1/WSD/19)

License / Permit	License / Permit No.	Date of Issue	Date of Expiry	License / Permit Holder	Remark
Environmental Permit	EP- 494/2015	28/01/2015	N/A	WSD	
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation (Form NA)	Reference No: 458807	10/8/2020	N/A	ACMJV	
Registration of Chemical Waste Producer	WPN5296-759- A3012-01	28/09/2020	N/A	ACMJV	
Trip Ticket (Chit) Account	7038091	26/8/2020	N/A	ACMJV	
Waste Water Discharge Licence	WT00037213- 2020	19/1/2021	31/1/2026	ACMJV	
Notification of Commencement of Asbestos Abatement Work	AX210503	30/8/2021	N/A	ACMJV	
Construction Noise Permit	GW-RN0461-22	08/06/2022	07/12/2022	ACMJV	
Construction Noise Permit	GW-RN1154-22	08/12/2022	7/3/2023	ACMJV	
Special Wastes Permit	16912	22/06/2022	21/12/2022	ACMJV	
Special Wastes Permit	16982	17/08/2022	16/02/2023	ACMJV	

Table 2-17(b): Summary of Environmental License and Permit (6/WSD/21)

License / Permit	License / Permit No.	Date of Issue	Date of Expiry	License / Permit Holder	Remark
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation (Form NA)	Reference No: 474147	24/11/2021	N/A	ACMJV	
Registration of Chemical Waste Producer	WPN5218-759- C4678-01	5/1/2022	N/A	ACMJV	
Trip Ticket (Chit) Account	7042460	8/12/2021	N/A	ACMJV	
Waste Water Discharge Licence	WT00040939- 2022	11/5/2022	31/5/2027	ACMJV	
Construction Noise Permit	GW-RN0789-22	4/9/2022	3/12/2022	ACMJV	
Construction Noise Permit	GW-RN1084-22	4/12/2022	3/3/2023	ACMJV	

2.10. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

- 2.10.1 In response to the site audit findings, the Contractors carried out corrective actions. A summary of the environmental mitigation measures implemented by the Contractor in this Reporting Period are summarized in Table 2-18.
- 2.10.2 The environmental mitigation measures that recommended in the Implementation Schedule for Environmental Mitigation Measures (EMIS) in the approved EM&A Manual covered the issues of dust, noise, water and waste and they are showed **Appendix U**.

Table 2-18: Environmental Mitigation Measures

Issues	Environmental Mitigation Measures
	- Tarpaulin covering of any dusty materials on a vehicle leaving the site;
	- Imposition of speed controls for vehicles on site haul roads;
	- Use of regular watering to reduce dust emissions from exposed site
Air Quality	surfaces and roads;
All Quality	- Side enclosure and covering of any aggregate or stockpiling of dusty
	materials to reduce emissions;
	- Where possible, routing of vehicles and positioning of construction plant
	should be at the maximum possible distance from ASRs.
	- Good site practices to limit noise emissions at the sources;
	- Use of quite plant and working methods;
Noise	- Use of site hoarding or other mass materials as noise barrier to screen
TVOISC	noise at ground level of NSRs;
	- Scheduling of construction works outside school examination period in
	critical area.
	- Drainage systems were regularly and adequately maintained;
Water	- Effluent discharged from the construction site should comply with
Water	standards stipulated in the TM-DSS;
	- Open stockpiles of construction materials on sites should be covered.
General	- The site was generally kept tidy and clean.

2.10.3 The necessary mitigation measures were implemented properly for this Contract.

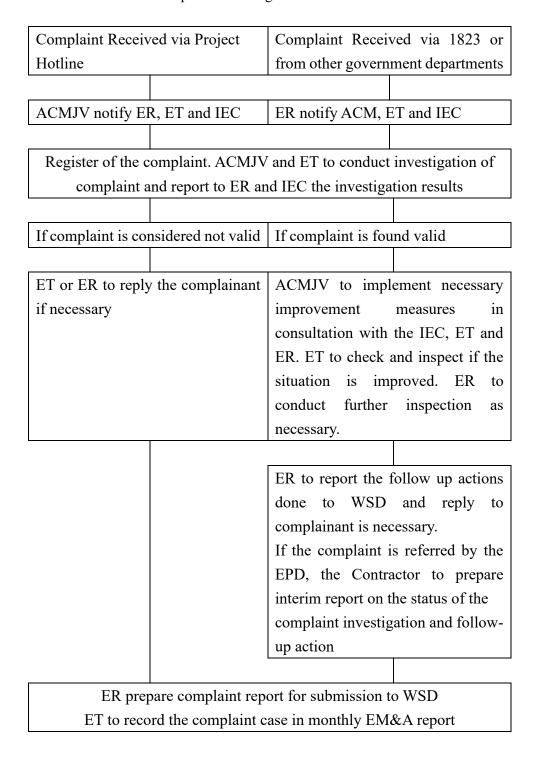
2.11. SUMMARY OF EXCEEDANCES OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMIT

- 2.11.1 Results for 1-hour TSP and noise monitoring complied with the Action/ Limit levels in the reporting period. Results for water quality monitoring mostly complied with the Action/ Limit levels in the reporting period.
- 2.11.2 Cumulative statistics on exceedances is provided in **Appendix V**.

2.12. SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTIONS

2.12.1 The Environmental Complaint Handling Procedure is shown in below table:

Table 2-19: Environmental Complaint Handling Procedure



- 2.12.2 No environmental complaint was received in the reporting period.
- 2.12.3 No notification of summons and prosecution was received in the reporting period.
- 2.12.4 No EPD site inspections were conducted in the reporting period.
- 2.12.5 Statistics on complaints, notifications of summons and successful prosecutions are summarized in **Appendix V**.

2.13. DATA MANAGEMENT AND DATA QA/QC CONTROL

- 2.13.1 The impact monitoring data were handled by ET's in-house data recording and management system.
- 2.13.2 The monitoring data recorded in the equipment were downloaded directly from the equipment at the end of each monitoring day. The downloaded monitoring data were input into computerized database properly. The laboratory results were input directly into the computerized database and checked by personnel other than those who had input the data.
- 2.13.3 For monitoring parameters that require laboratory analysis, the local laboratory had followed the QA/QC requirements as set out under the HOKLAS scheme for the relevant laboratory testing.

3. FUTURE KEY ISSUES

3.1. CONSTRUCTION PROGRAMME FOR THE COMING MONTHS

- 3.1.1 As informed by the Contractor, the major works for Contract No. 1/WSD/19 between January 2023 to March 2023 will be:
 - Demolition works for TWRT.
 - Road reinstatement works.
 - Excavation for Major ELS Work.
 - Soil Nail Installation for Major ELS Work.
 - Lagging wall construction for Major ELS work.
 - Struct and waling installation for Major ELS work.
 - Pumping test for S2F Pipe Pile.
 - Trail Pit at the future main building road
 - Rebar works for S1F, S2F, SWPS, RMF, FST, and Ozone building
 - Formwork and concrete works for S1F, S2F, SWPS, RMF, FST and Ozone Building
 - WET finishing works.
 - WET steel and metal works
 - Dispersion modelling for discharge from VPSA Nitrogen waste gas vents and pressure/Vacuum Relief Valves vents for Ozone off-gas.
 - PV Panel at Ozone Building, S1F and S2F.
 - Centrifugal pumps in LC and Sump Pumps for BS.
 - Supply and delivery of CPVC pipe and Valve.
- 3.1.2 As informed by the Contractor, the major works for Contract No. 6/WSD/21 between January 2023 to March 2023 will be:
 - Waterproofing Works
 - Carry Out Excavation Down to +23.3mPD
 - Concreting for Raft Slab (LG/F Level)
 - Steel Plate Welding to Sheetpile for Waterproofing Works
 - Carry Out Excavation to Final Excavation Level +21.0mPD
 - MIC Installation
 - Excavation to Bottlm Rockfill Level & Rockfill Replacement Work

3.2. KEY ISSUES FOR COMING MONTH

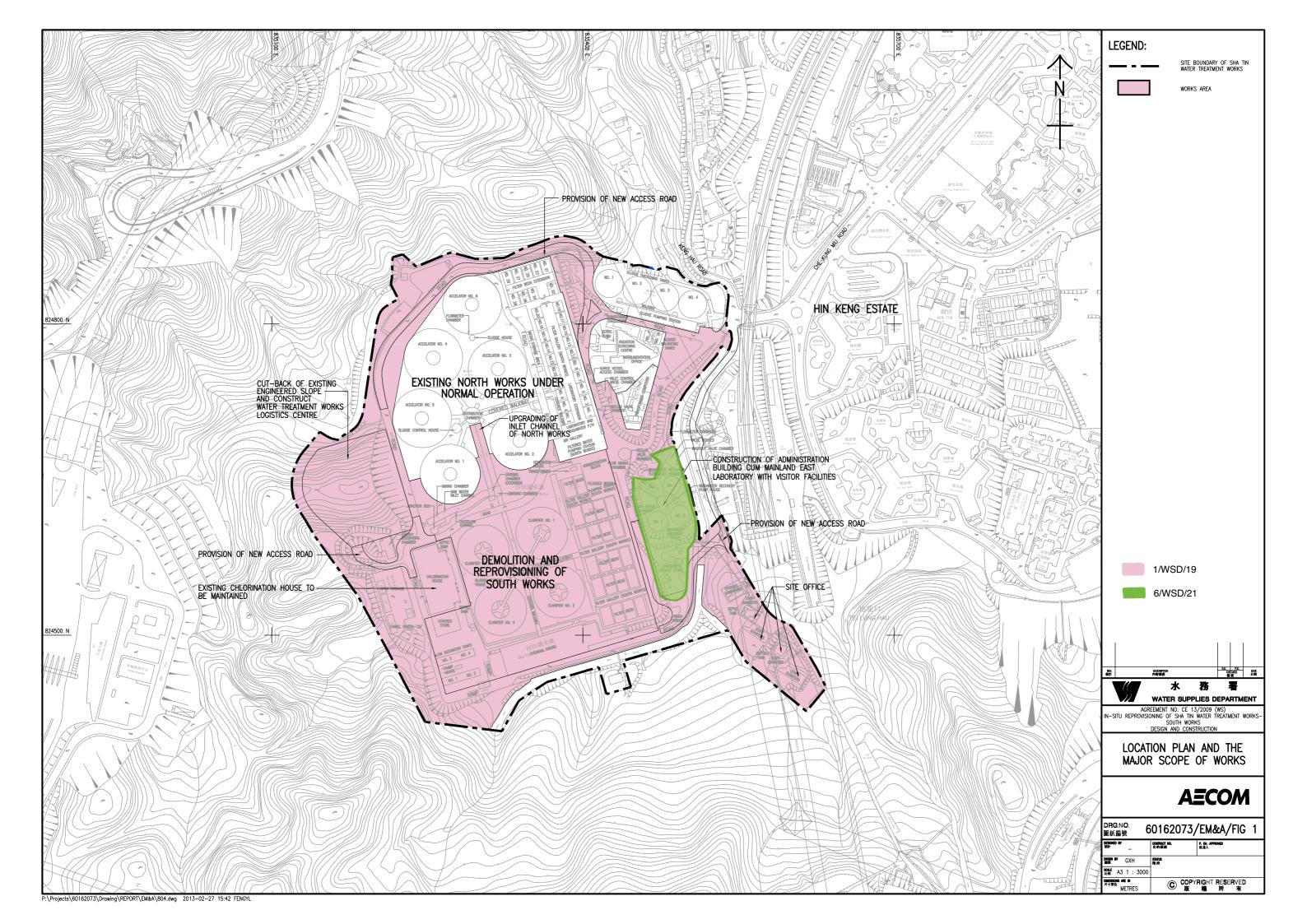
- 3.2.1 Potential environmental impacts arising from the above upcoming construction activities in December 2022 are mainly associated with dust, noise, water quality issues and waste management issues.
- 3.2.2 The tentative monitoring schedule for January 2023 to March 2023 can be found in **Appendix W**.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1. SUMMARY

- 4.1.1 Air quality (1-hour TSP), noise, water quality and ecology impact monitoring were carried out in the reporting period. Most of the monitoring results are satisfactory, there were no exceedance of action level and 4 exceedances of limit level for water monitoring results in the reporting month were found and NOEs and Investigation Reports were therefore issued.
- 4.1.2 Four (4 nos.) environmental site inspections were conducted during the reporting period. Joint site inspection with IEC were carried out on 22 December 2022. Minor deficiencies were observed during site inspection and were rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.
- 4.1.3 To control the site performance on waste management, the contractor shall ensure that all solid and liquid waste management works are fully in compliance with the relevant license/permit requirements, such as the effluent discharge licence and the chemical waste producer registration. Contractor is also reminded to implement the recommended environmental mitigation measures according to the Environmental Monitoring and Audit Manual.
- 4.1.4 No Environmental complaint were received in reporting period.
- 4.1.5 No notification of summons or prosecution was received since commencement of the Contract.
- 4.1.6 The ET will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

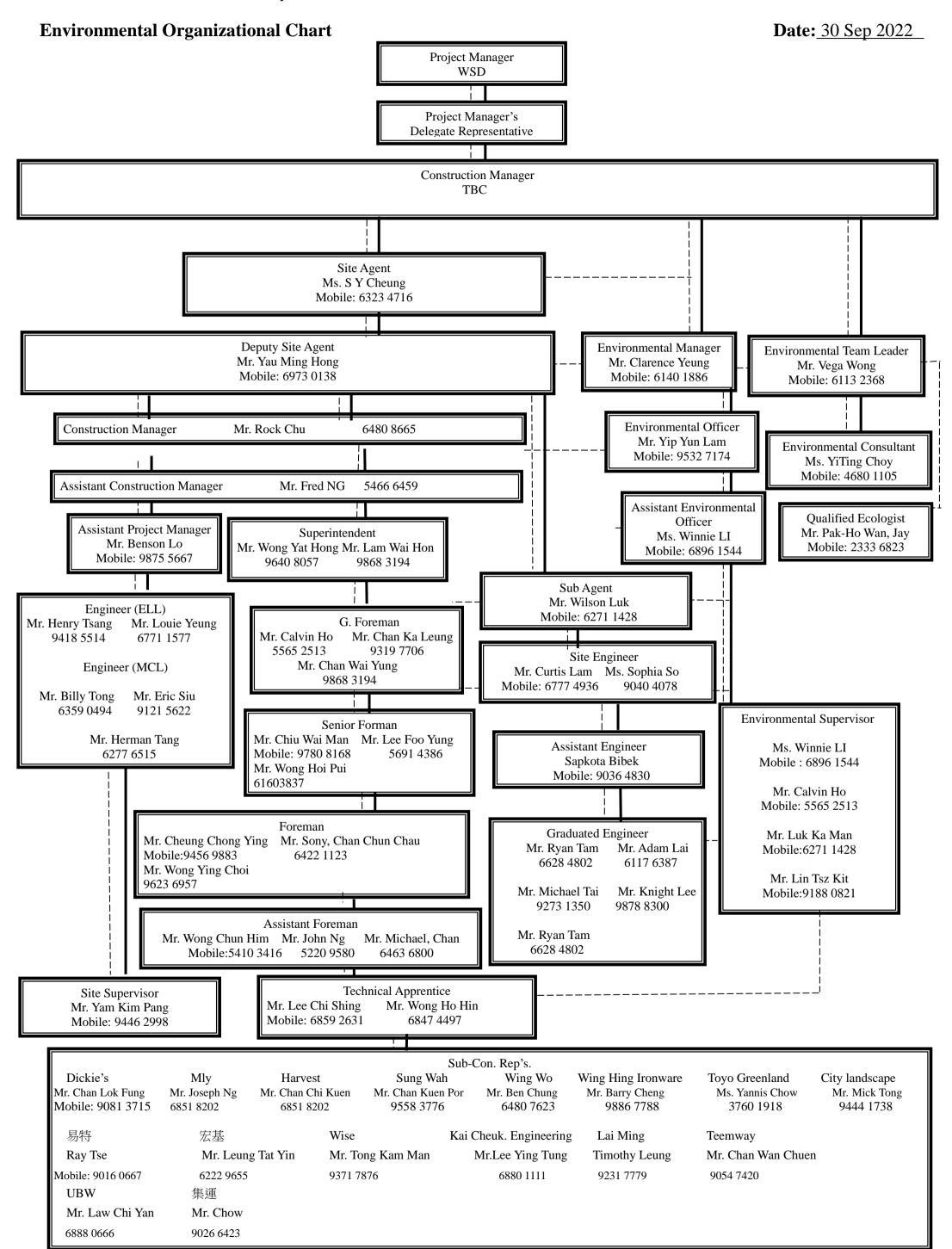
Appendix A General Layout Plan



Appendix B Project Organization

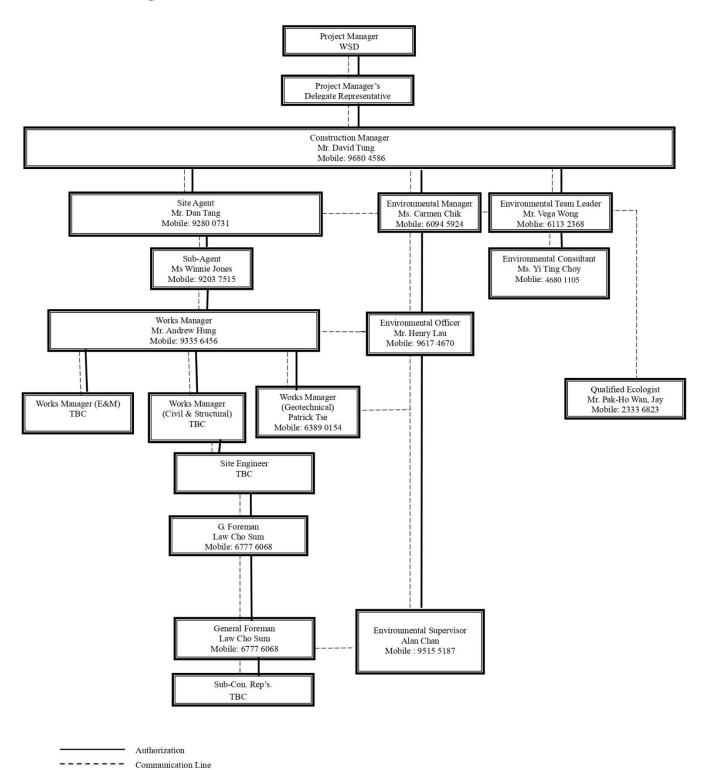
In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works)

Water Treatment Works and Ancillary Facilities

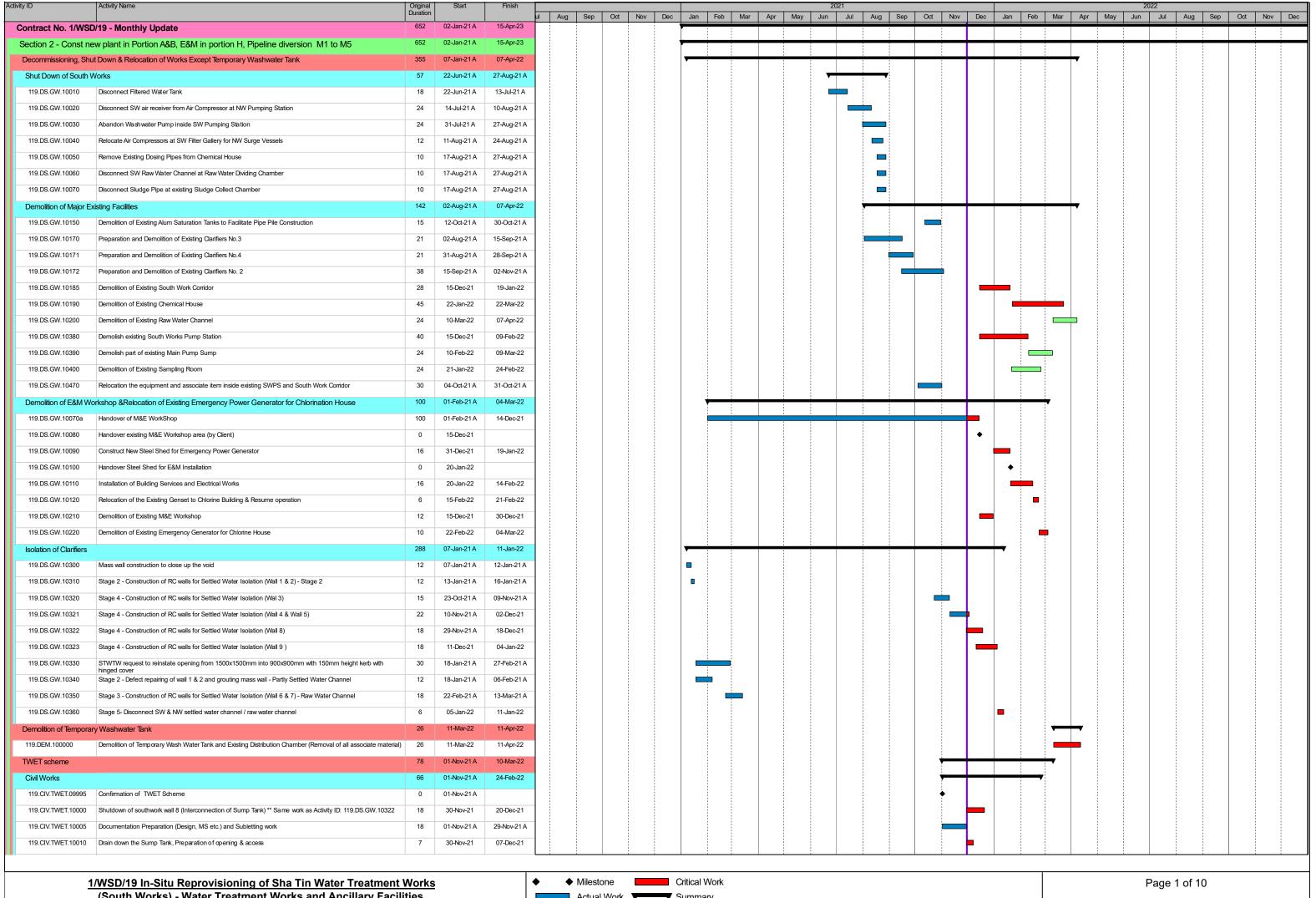


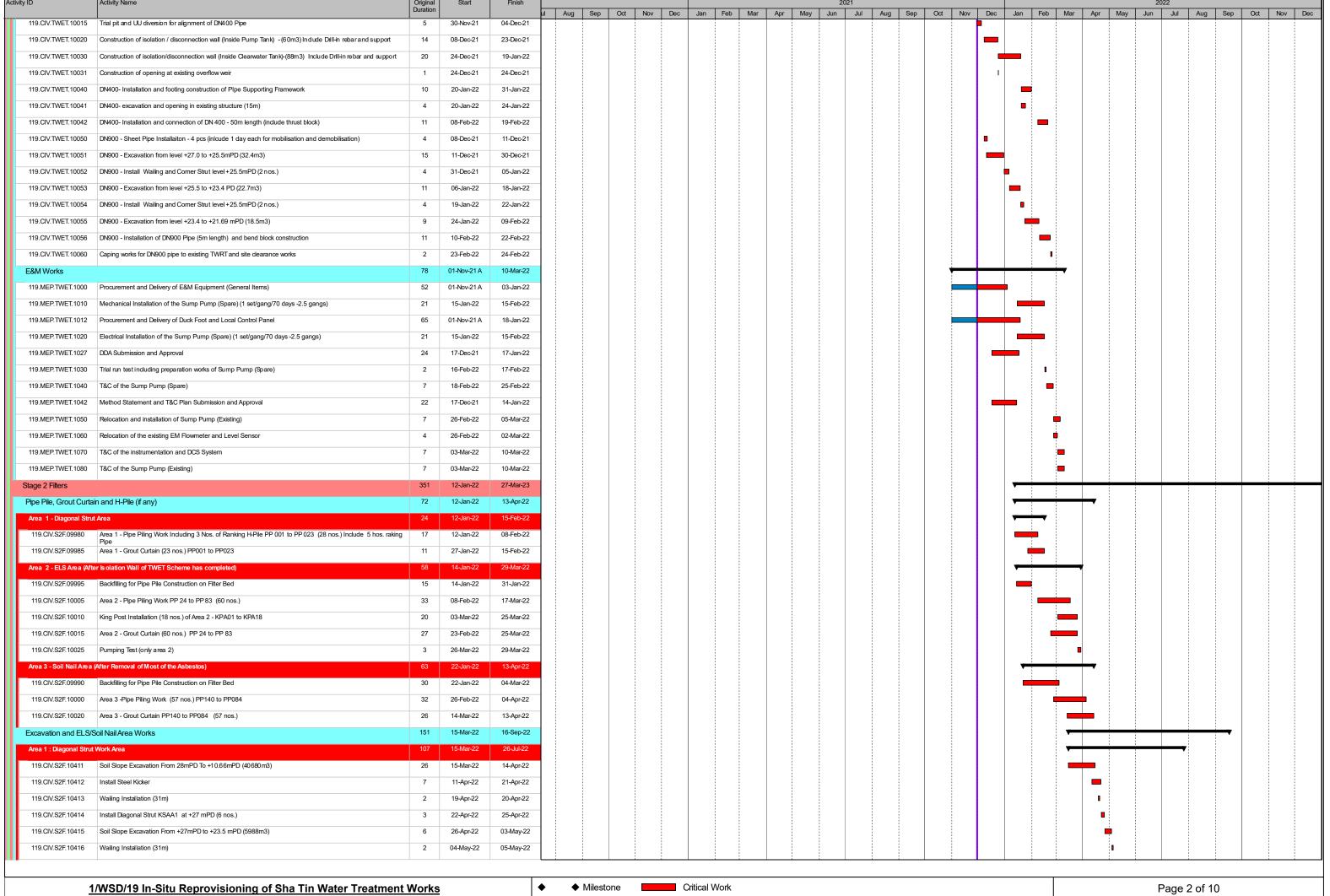
- Administration Building

Environmental Organizational Chart



Appendix C Latest Construction Programme



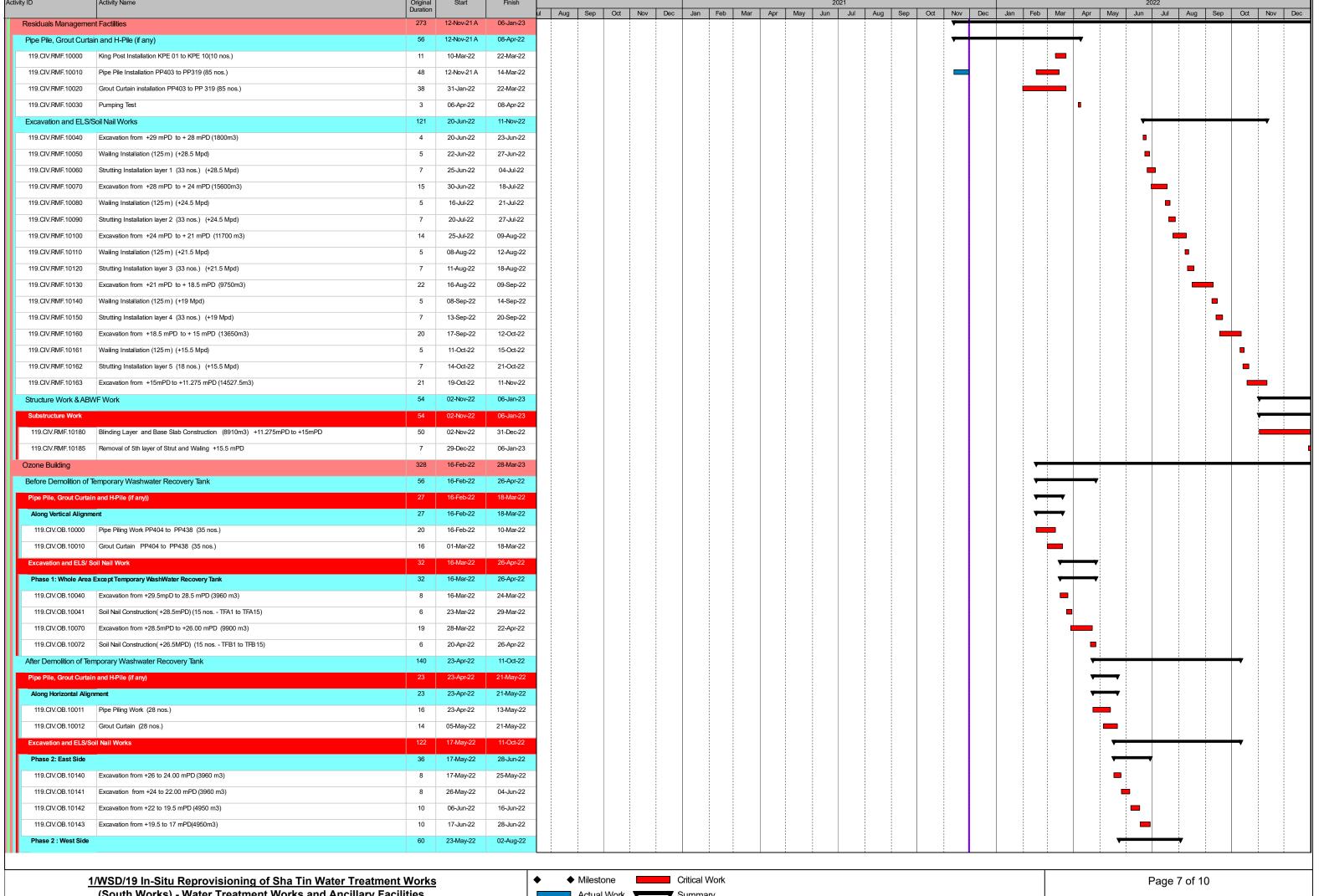


Activity ID	Activity Name	Original	Start	Finish					202	21						2022			
440 004005 40447		Duration		40.14	ul Aug Sep Oct Nov Dec Jan	Feb Mar	Apr	May	Jun	Jul Aug Sep	Oct Nov	Dec Jan	Feb Mar	Apr	May	Jun Jul	Aug Sep	Oct Nov	Dec
119.CIV.S2F.10417	Install Diagonal Strut KSAA2 at +23.5 mPD (6 nos.)	3	06-May-22	10-May-22															.
119.CIV.S2F.10418	Soil Slope Excavation From +23.5mPD to +20 mPD (5988m3)	6	11-May-22	17-May-22											-				,
119.CIV.S2F.10419	Wailing Installation (31m)	2	18-May-22	19-May-22											1				.
119.CIV.S2F.10420	Install Diagonal Strut KSAA3 at +20 mPD (6 nos.)	3	20-May-22	23-May-22											•				
119.CIV.S2F.10421	Soil Slope Excavation From +20mPD to +16.5 mPD (5988m3)	6	24-May-22	30-May-22															
119.CIV.S2F.10422	Construction of Kicker	7	28-May-22	06-Jun-22											<u> </u>	•			
119.CIV.S2F.10423	Waiing Installation (31m)	2	31-May-22	01-Jun-22	-										•				
119.CIV.S2F.10424	Install Diagonal Strut KSAA4 at +16.5 mPD (6 nos.)	3	07-Jun-22	09-Jun-22															
119.CIV.S2F.10425	Rock Slope Excavation From +16.5 mPD to +13 mPD (5988m3)	17	10-Jun-22	29-Jun-22	1														.
119.CIV.S2F.10426	Construction of Kicker	7	25-Jun-22	04-Jul-22	-														,
119.CIV.S2F.10427	Wailing Installation (31m)	2	30-Jun-22	02-Jul-22												Ţ			
119.CIV.S2F.10428	Install Diagonal Strut KSAA5 at +13 mPD (6 nos.)	3		07-Jul-22												Ī. !			
			05-Jul-22													"_			.
119.CIV.S2F.10429	Rock Slope Excavation From +13 mPD to +10.66mPD (4004m3)	16	08-Jul-22	26-Jul-22															.
Area 2 : Excavation an		100	30-Mar-22	02-Aug-22															.
119.CIV.S2F.10290	Excavation from +29.5 mPD to +27 mPD (1687.5m3)	4	30-Mar-22	02-Apr-22										•					.
119.CIV.S2F.10291	Wailing Installation (100m)	4	02-Apr-22	07-Apr-22															
119.CIV.S2F.10292	Strutting Installation layer 1 (35 nos.)	7	07-Apr-22	14-Apr-22										-					.
119.CIV.S2F.10293	Excavation from +27 mPD to +23.5 mPD (5906 m3)	11	13-Apr-22	28-Apr-22	1									_	ı				,
119.CIV.S2F.10294	Wailing Installation (100m)	4	28-Apr-22	03-May-22										•	•				,
119.CIV.S2F.10295	Strutting Installation layer 2 (35 nos.)	7	03-May-22	11-May-22															,
119.CIV.S2F.10320	Excavation from +23.5 mPD to +20 mPD (5906 m3)	11	10-May-22	21-May-22	-														,
119.CIV.S2F.10321	Wailing Installation (100m)	4	21-May-22	25-May-22	-														
119.CIV.S2F.10322	Strutting Installation layer 3 (35 nos.)	7	25-May-22	01-Jun-22															
119.CIV.S2F.10350	Excavation from +20 mPD to +16.5 mPD (5906 m3)	14	31-May-22	16-Jun-22											1 7	_			.
																_			.
119.CIV.S2F.10351	Wailing Installation (100m)	4	16-Jun-22	20-Jun-22															,
119.CIV.S2F.10352	Strutting Installation layer 4 (35 nos.)	7	20-Jun-22	27-Jun-22												-			,
119.CIV.S2F.10353	Excavation from +16.5 mPD to +13 mPD (5906 m3)	14	25-Jun-22	12-Jul-22												-			,
119.CIV.S2F.10354	Waiing Installation (100m)	4	12-Jul-22	15-Jul-22												•			,
119.CIV.S2F.10355	Strutting Installation layer 5 (35 nos.)	7	15-Jul-22	22-Jul-22												-			.
119.CIV.S2F.10410	Excavation from +13 mPD to +10.66mPD (3949 m3)	11	21-Jul-22	02-Aug-22												-			.
Area 3 : Soil Nail Cons	truction Area	134	04-Apr-22	16-Sep-22										•					, I
119.CIV.S2F.10040	Excavation from Existing Ground Profile +29.5 mPD to +24.5 mPD (15000m3)	28	04-Apr-22	12-May-22											-				
119.CIV.S2F.10045	Soil Nail Construction : Layer 1 (+25Mpd) (46 nos.)	9	05-May-22	16-May-22											_				.
119.CIV.S2F.10060	Excavation from +24.5 mPD to + 22.5 mPD (6000m3)	11	13-May-22	25-May-22	-														
119.CIV.S2F.10065	Soil Nail Construction : Layer 2 (+23 Mpd) (46 nos.)	9	23-May-22	01-Jun-22															.
119.CIV.S2F.10080	Excavation from +22.5 mPD to +20.5 mPD (6000m3)	11	30-May-22	11-Jun-22															
119.CIV.S2F.10080	Soil Nail Construction: Layer 3 (+21 Mpd) (46 nos.)	9														_			
			09-Jun-22	18-Jun-22															.
119.CIV.S2F.10100	Excavation from +20.5 mPD to + 19 mPD (4500m3)	9	16-Jun-22	25-Jun-22															.
119.CIV.S2F.10101	Soil Nail Construction: Layer 4 (+19.5 Mpd) (46 nos.)	9	23-Jun-22	04-Jul-22												_			
119.CIV.S2F.10102	Excavation from +19 mPD to + 17.5mPD (4500m3)	9	30-Jun-22	11-Jul-22															.
119.CIV.S2F.10103	Soil Nail Construction : Layer 5 (+18 Mpd) (46 nos.)	9	08-Jul-22	18-Jul-22												_			,
119.CIV.S2F.10104	Excavation from +17.5 mPD to + 16 mPD (4500m3)	9	15-Jul-22	25-Jul-22												_			.
119.CIV.S2F.10105	Soil Nail Construction : Layer 6 (+16.5 Mpd)(46 nos.)	9	22-Jul-22	01-Aug-22															.
119.CIV.S2F.10120	Excavation from + 16 mPD to + 14.5 mPD (4500m3)	9	29-Jul-22	08-Aug-22	1											•			.
119.CIV.S2F.10121	Soil Nail Construction : Layer 7 (+15 Mpd)(46 nos.)	9	05-Aug-22	15-Aug-22													-		.
119.CIV.S2F.10122	Excavation from + 14.5 mPD to + 13 mPD (4500m3)	9	12-Aug-22	22-Aug-22	1														
119.CIV.S2F.10123	Soil Nail Construction : Layer 8 (+13.5 Mpd)(46 nos.)	9	19-Aug-22	29-Aug-22	1														.
119.CIV.S2F.10140	Excavation from + 13 mPD to + 9.91 mPD (9270m3)	18	26-Aug-22	16-Sep-22															.
Structure Works & AB		161	28-Jul-22	14-Feb-23															
East South and North S				14-Feb-23															
II		161	28-Jul-22																
Structure Work (East	South Section)	111	06-Sep-22	19-Jan-23													V		
4	/WSD/19 In-Situ Reprovisioning of Sha Tin Water Treatment	Works			♦ Milestone Critical W	/ork										Page 3	of 10		
<u>1</u>	(South Works) - Water Treatment Works and Ancillary Facil				Actual Work Summan											rage 3	UI IU		

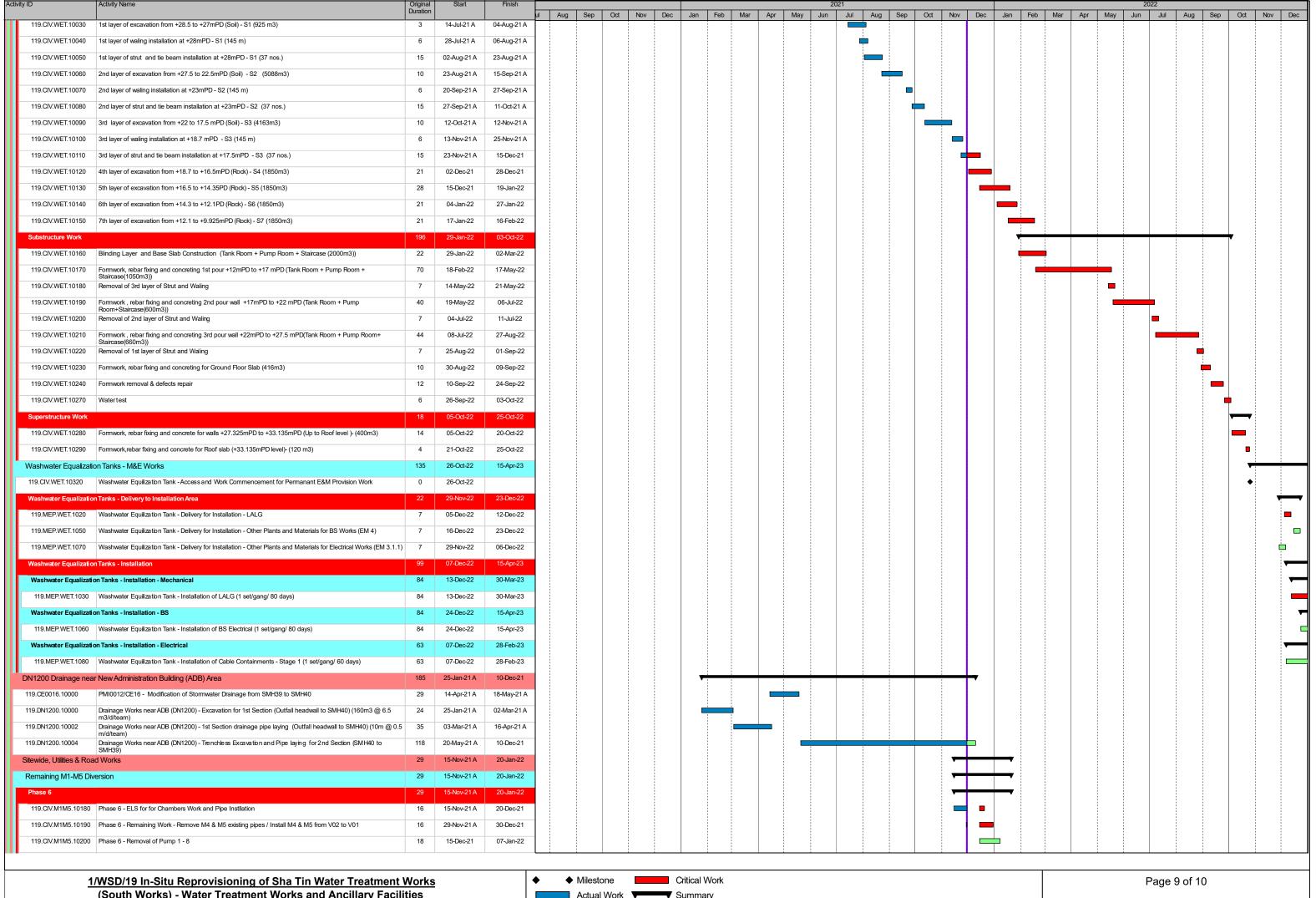
	Activity Name	Original Duration	Start	Finish
ostructure		75	06-Sep-22	05-Dec-22
19.CIV.S2F.10160	Blinding Layer and Base Slab Construction +9.91 mPD to +12.74 mPD (Include Pipe Gallary) (3058m3)	35	06-Sep-22	19-Oct-22
19.CIV.S2F.10170	Formwork, Rebar Fixing and Concreting of External Wall Construction +12.74mPD to +30.5mPD (1050m3)	36	28-Sep-22	10-Nov-22
19.CIV.S2F.10180	Formwork, Rebar Fixing and Concreting of Internal Wall and Column +12.74mPD to +19mPD (Include Pipe	26	28-Sep-22	29-Oct-22
19.CIV.S2F.10181	Gallary) (741.5m3) Formwork, Rebar Fixing and Concreting of Internal Slab and Beam +19 mPD (1143m3)	26	15-Oct-22	14-Nov-22
	Formwork, Rebar Fixing and Concreting of Internal and Column Wall+19 mPDto +30.5mPD (Include Pipe	24	31-Oct-22	26-Nov-22
119.CIV.S2F.10201	Gallary) (1362m3)	7	28-Nov-22	05-Dec-22
	Table 166	45	25-Nov-22	19-Jan-23
Superstructure	Family de Deba China and Consulting of Internal Clab and Deany (20.5 mDD (200m2))			
	Formwork, Rebar Fixing and Concreting of Internal Slab and Beam +30.5 mPD (286m3)	7	25-Nov-22	02-Dec-22
119.CIV.S2F.10230	Formwork, Rebar Fixing and Concreting of Internal and External Wall and Column Construction+30.5 mPD to+38.65mPD(1222m3)	41	30-Nov-22	19-Jan-23
tructure Work (North	Section)	161	28-Jul-22	14-Feb-23
Substructure		91	28-Jul-22	14-Nov-22
119.CIV.S2F.10430	Blinding Layer and Base Slab Construction +9.91 mPD to +12.74 mPD (Include Pipe Gallary) (5097m3)	19	28-Jul-22	18-Aug-22
119.CIV.S2F.10430a	Strutting and Wailing Removal +13mPD	7	17-Aug-22	24-Aug-22
119.CIV.S2F.10440	Formwork, Rebar Fixing and Concreting of External Wall Construction+10.74 mPD to +16.5 mPD (352m3)	7	23-Aug-22	30-Aug-22
119.CIV.S2F.10440a	Strutting and Wailing Removal +16.5mPD	7	29-Aug-22	05-Sep-22
119.CIV.S2F.10440b	Formwork, Rebar Fixing and Concreting of Internal Wall and Column +10.74 mPD to +19mPD (Include Pipe	20	02-Sep-22	26-Sep-22
	Gallary)(2921.5m3) Formwork, Rebar Fixing and Concreting of External Wall Construction +16.5 mPD to +20mPD(345m3)	7	24-Sep-22	03-Oct-22
	Strutting and Wailing Removal +20mPD	7	30-Sep-22	10-Oct-22
	Formwork, Rebar Fixing and Concreting of External Wall Construction+20 mPD to +23.5mPD((327m3)	6	10-Oct-22	15-Oct-22
	Formwork, Rebar Fixing and Concreting of Internal Slab and Beam +19mPD (1904.5m3)	15	13-Oct-22	29-Oct-22
	Formwork, Rebar Fixing and Concreting of Internal Wall and Column Construction +19mpd to +27mPD (1461m3)	13	22-Oct-22	05-Nov-22
119.CIV.S2F.10470c	Strutting and Wailing Removal +23.5mPD	7	15-Oct-22	22-Oct-22
19.CIV.S2F.10480	Formwork, Rebar Fixing and Concreting of External Wall Construction +23.5 mpd to +27mPD (327m3)	6	22-Oct-22	28-Oct-22
19.CIV.S2F.10480a	Strutting and Wailing Removal +27mPD	7	27-Oct-22	03-Nov-22
119.CIV.S2F.10510	WaterTest	7	07-Nov-22	14-Nov-22
stage 2 Filters (2nd I	Half - Eastern Section) - ABWF Works	70	15-Nov-22	14-Feb-23
19.S2.ABWF.10006	Stage 2 Filter (2nd Half - Eastern) - Wall tiling	70	15-Nov-22	14-Feb-23
t South Section (W	(est Section)	49	28-Nov-22	02-Feb-23
ucture Work (West	South Section)	49	28-Nov-22	02-Feb-23
ubstructure		49	28-Nov-22	02-Feb-23
119.CIV.S2F.10620	Blinding Layer and Base Slab Construction+9.91 mPD to +12.74 mPD (Include Pipe Gallary) (2039m3)	35	28-Nov-22	10-Jan-23
	Formwork, Rebar Fixing and Concreting of External Wall Construction +12.74mPD to +30.5mPD(700m3)	31	19-Dec-22	02-Feb-23
	<u> </u>			
ge 2 Filters - M&E		87	06-Dec-22	27-Mar-23
.CIV.S2F.10940	Stage 2 Filters - M&E Access and Work Commencement for Eastern of Stage 2 Filter (Include Pipe Gallery)	0	06-Dec-22	
	ry to Installation Area	13		20-Dec-22
9.MEP.S2F.1000	Stage 2 Filters - Delivery for Installation - LALG PS 0.14.5(6)	3	06-Dec-22	08-Dec-22
9.MEP.S2F.1030	Stage 2 Filters - Delivery for Installation - Chemical dosing facilities PS 0.14.5(3)	3	17-Dec-22	20-Dec-22
ge 2 Filter - Installa	tion	87	06-Dec-22	27-Mar-23
9.MEP.S2F.1010	Stage 2 Filters - Installation of Temporary Backwash Water Treatment Facilities - Stage 1 (1 set/gang/60 days)	63	06-Dec-22	27-Feb-23
wer Floor		84	09-Dec-22	27-Mar-23
19.MEP.S2F.1020	Stage 2 Filters - LG - Installation of LALG (1 set/gang/80 days)	84	09-Dec-22	27-Mar-23
h Works Pumping	Station	316	09-Dec-21	07-Jan-23
	in and H-Pile (if any)	59	09-Dec-21	25-Feb-22
	Backfilling for Pipe Pile Construction on Filter Bed	6	09-Dec-21	15-Dec-21
		27		
	King Post Installation KPC 01 to KPC 24(24 nos.)		15-Jan-22	22-Feb-22
	Pipe Pile Installation PP 203 to PP 141 (63 nos.)	36	24-Dec-21	14-Feb-22
9.CIV.SWPS.10020	Grout Curtain installation PP 203 to PP 141 (63 nos.)	29	13-Jan-22	22-Feb-22
9 CIV SWPS 10030	Pumping Test	3	23-Feb-22	25-Feb-22
3.011.0111 0.10000	Soil Nail Works	175	17-Feb-22	19-Sep-22
cavation and ELS/S				

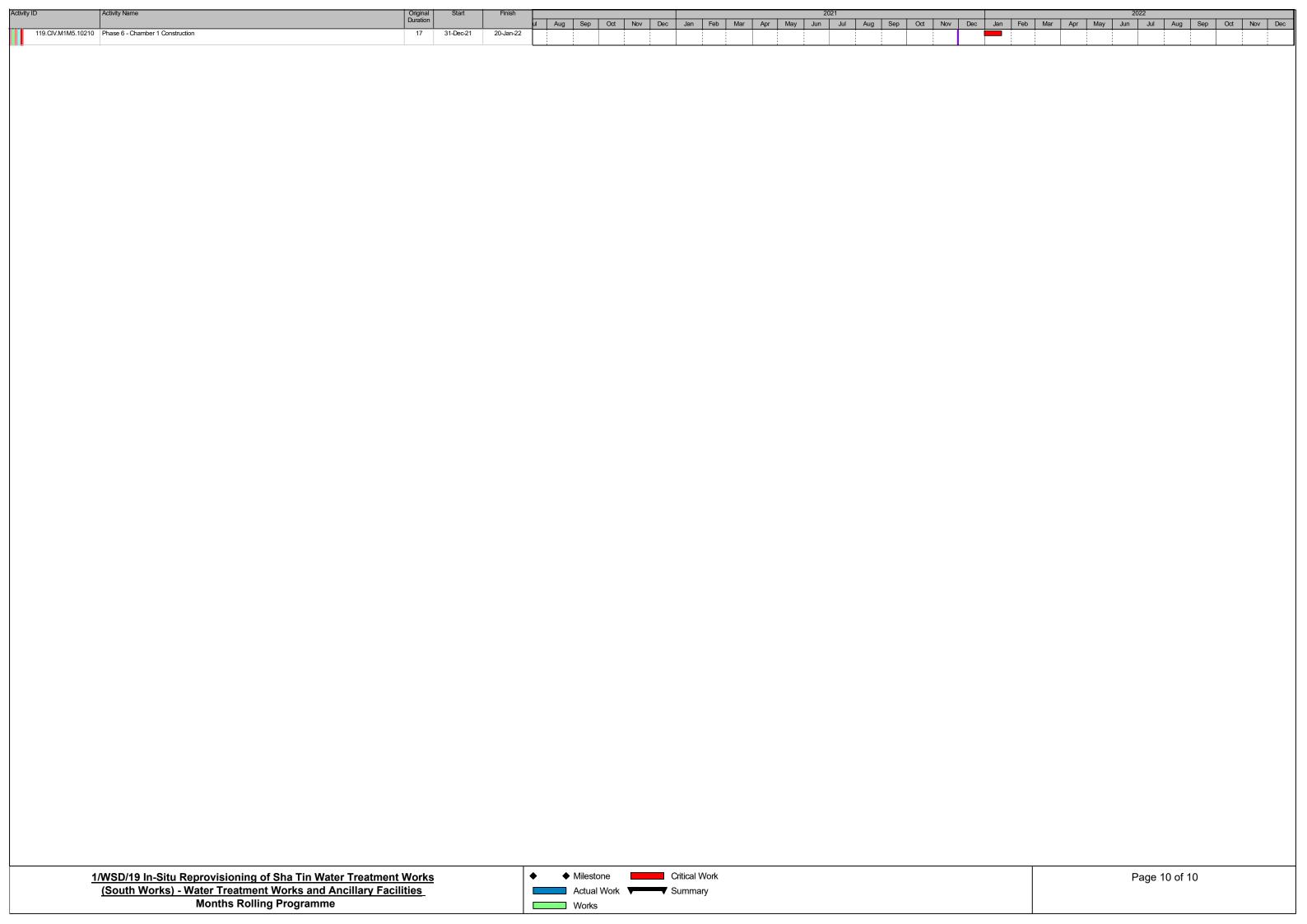
Activity ID	Activity Name	Original	Start	Finish									2021	1									2022				
119 CIV SWPS 100/10	Soil Excavation from +30 mPD to + 26.5 mPD (13650m3)	Duration 14	26-Feb-22	14-Mar-22	ul Aug	Sep	Oct Nov	Dec J	an Fe	eb Mar	Apr	May	Jun	Jul Au	ug S	Sep Oct	Nov D	ec Jai	n Feb	Mar	Apr	May	Jun Jul	Aug	Sep	Oct Nov	Dec
		4																	•	_							
	Waiing Installation (107 m) (+27 Mpd)		14-Mar-22	17-Mar-22																							
	Strutting Installation layer 1 (35 nos.) (+27 Mpd)	14	17-Mar-22	01-Apr-22	1																_						
	Soil Excavation from +26.5 mPD to + 24 mPD (9750m3)	10	29-Mar-22	09-Apr-22																	- :						
119.CIV.SWPS.10080	Wailing Installation (107 m) (+24.5 Mpd)	4	09-Apr-22	13-Apr-22																	•						
119.CIV.SWPS.10090	Strutting Installation layer 2 (35 nos.) (+24.5 Mpd)	14	13-Apr-22	03-May-22																							
119.CIV.SWPS.10100	Soil Excavation from +24 mPD to +20.5 mPD (13650m3)	14	28-Apr-22	16-May-22																	<u> </u>	-					
119.CIV.SWPS.10110	Wailing Installation (107 m) (+21 Mpd)	4	16-May-22	19-May-22																		•					
119.CIV.SWPS.10120	Strutting Installation layer 3 (35 nos.) (+21 Mpd)	14	19-May-22	04-Jun-22	1																	-					
119.CIV.SWPS.10130	Soil Excavation from +20.5 mPD to + 17.5 mPD (11700m3)	14	31-May-22	16-Jun-22																		Ė	_				
119.CIV.SWPS.10140	Waiing Installation (107 m) +18 mPD	4	16-Jun-22	20-Jun-22	1																		•				
119.CIV.SWPS.10150	Strutting Installation layer 4 (35 nos.) (+18 Mpd)	14	20-Jun-22	06-Jul-22																1	1		—				
119.CIV.SWPS.10160	Soil Excavation from +17.5 mPD to + 15.5 mPD (7800m3)	9	02-Jul-22	12-Jul-22	1																						
119.CIV.SWPS.10170	Wailing Installation (107 m) +16mPD	4	12-Jul-22	15-Jul-22																							
119.CIV.SWPS.10180	Strutting Installation layer 5 (35 nos.) +16 mPD	14	15-Jul-22	30-Jul-22																			_				
119.CIV.SWPS.10190	Soil Excavation from +15.5 mPD to + 13.5 mPD (7800m3)	9	27-Jul-22	05-Aug-22	1																			-			
119.CIV.SWPS.10191	Soil Nail Construction (31 nos.) +14mPD	7	03-Aug-22	10-Aug-22	1																			-			
119.CIV.SWPS.10192	Soil Excavation from +13.5 mPD to 11.5MPD (7800m3)	11	09-Aug-22	20-Aug-22	1																			_			
119.CIV.SWPS.10193	Soil Nail Construction (+12Mpd) - 31nos.	13	18-Aug-22	01-Sep-22	1																						
	Soil Excavation from +11.5 mPD to +10.5mPD (3900m3)	6	30-Aug-22	05-Sep-22	1																				.		
	Soil Nail Construction (+10.5Mpd) - 31nos.	7	03-Sep-22	10-Sep-22	1															1							
	Soil Excavation from +10.5 mPD to +9.175mPD (5167.5m3)	8	09-Sep-22	19-Sep-22																1							
Structure Work & ABV		93	16-Sep-22	07-Jan-23																							
Substructure Work	W Works	93	16-Sep-22	07-Jan-23																							
	Tower Crane Erection	10	20-Sep-22	30-Sep-22																							
	Blinding Layer and Base Slab Construction +9.175mPD to +12.8mPD (including Slump Pit) (7868m3)	44	16-Sep-22	08-Nov-22																							
	Formwork, Rebar Fixing and Concreting For External Wall and Column +12.8mPD to +16mPD(291m3)	6	08-Nov-22	14-Nov-22																						_	
		26	08-Nov-22	07-Dec-22	1																						<u> </u>
	Formwork, Rebar Fixing and Concreting For Internal Wall and Column +12.8mPD to +21 mPD (745m3)	7																								_	T
	Removal of 5th layer of Strut and Waling +16 mPD		12-Nov-22	19-Nov-22	1																						
	Formwork, Rebar Fixing and Concreting For External Wall and Column +16mPD to +18 mPD (182m3)	7	18-Nov-22	25-Nov-22																1 1 1 1	1					_	
	Removal of 4th layer of Strut and Waling +18 mPD	/	24-Nov-22	01-Dec-22																						-	
	Formwork, Rebar Fixing and Concreting For External Wall and Column +18mPD to 21mPD (273m3)	6	01-Dec-22	07-Dec-22																							_
	Removal of 3th layer of Strut and Waling +21 mPD	7	06-Dec-22	13-Dec-22																							-
	Formwork, Rebar Fixing and Concreting For External Wall and Column +21mPD to +24.5MPD (318m3)	11	23-Dec-22	07-Jan-23																							7
	Formwork, Rebar Fixing and Concreting For Internal wall and Column +21mPD to 23.84mPD (258m3)	9	24-Dec-22	06-Jan-23																							-
	Formwork, Rebar Fixing and Concreting For Slab and Beam +21 mPD (1244m3)	15	12-Dec-22	30-Dec-22																							
Stage 1 Filters		277	05-Mar-22	14-Feb-23																							
Pipe Pile, Grout Curta		39	05-Mar-22	23-Apr-22																							
119.CIV.S1F.10000	Pipe Pile Installation (114 nos.) PP 204 to PP318	32	05-Mar-22	12-Apr-22																	_						
119.CIV.S1F.10010	Grout Curtain installation (114 nos.) PP 204 to PP318	26	21-Mar-22	23-Apr-22			1													-							
Excavation and ELS/S		134	26-Apr-22	06-Oct-22																!					1	7	
Phase 1 - All Area (No	rth and South Section)	41	26-Apr-22	15-Jun-22																	•		~				
119.CIV.S1F.10040	Major Excavation from +30mPD to +29.5mPD (All Area) (3083m3)	4	26-Apr-22	29-Apr-22																	•						
119.CIV.S1F.10041	Soil Nail Construction : Layer 1 (+30Mpd) (58 nos.)	8	29-Apr-22	10-May-22																	<u>+</u>	•					
119.CIV.S1F.10042	Major Excavation from +29.5mPD to +26 mPD (16835m3)	17	07-May-22	27-May-22																	ı	_					
119.CIV.S1F.10043	Soil Nail Construction : Layer 2 (+27.5Mpd)(58 nos.)	8	23-May-22	31-May-22																		=					
119.CIV.S1F.10044	Major Excavation from +26mPD to +24 mPD (6413 m3)	7	30-May-22	07-Jun-22																		<u></u>					
119.CIV.S1F.10045	Soil Nail Construction : Layer 3 (+24.5 Mpd)(86 nos.)	9	06-Jun-22	15-Jun-22			1															•	-				
Phase 2 -Area 1 of Sta	age 1 Filter	36	13-Jun-22	25-Jul-22																			+				
119.CIV.S1F.10046	Major Excavation from +24mPD to +22 mPD - Area 1 (6413 m3)	7	13-Jun-22	20-Jun-22																							
119.CIV.S1F.10047	Soil Nail Construction : Layer 4 (+22.5 Mpd) (86 nos.)	9	18-Jun-22	28-Jun-22																			_				
	+	1	,	,							<u>, ;</u>	. i				ı.					<u> </u>	· · ·	1			ı	
4	//WSD/19 In-Situ Reprovisioning of Sha Tin Water Treatment	Works			• •	Mileston	ne 🔽	Critic	cal Wor	 k													Dage	5 of 10	<u> </u>		
<u> </u>	(South Works) Water Treatment Works and Ancillary Eacil		!		•				VVOI														raye	5 01 10	,		

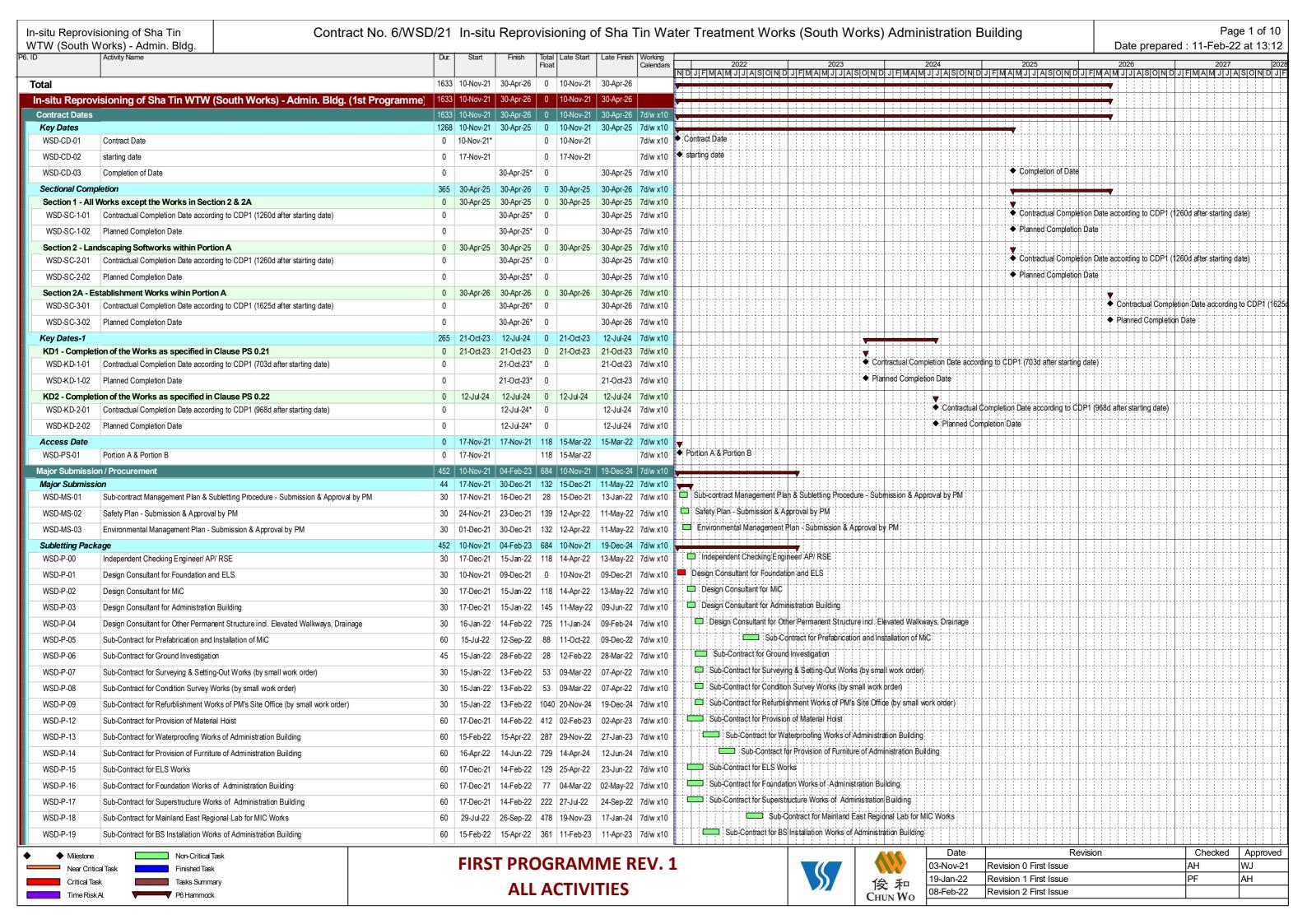
ity ID	Activity Name	Original	Start	Finish				2021								2022		
119.CIV.S1F.10048	Major Excavation from +22mPD to +19.5 mPD-Area 1 (8017 m3)	Duration 8	25-Jun-22	05-Jul-22	I Aug Sep Oct Nov Dec Jan	Feb Mar	Apr May	Jun Jul	Aug	Sep Oct	Nov Dec	Jan Feb	Mar	Apr	May Ju	Jun Jul	Aug Sep	Oct No
119.CIV.S1F.10049	Soil Nail Construction : Layer 5 (+20 Mpd) (86 nos.)	9	04-Jul-22	13-Jul-22												T_		
		9		16-Jul-22														
119.CIV.S1F.10051	Major Excavation from +19.5mPD to +17.75 mPD - Area 1 (5611 m3)	0	11-Jul-22															
119.CIV.S1F.10052	Soil Nail Construction : Layer 6 (+18.25 Mpd) (86 nos.)	9	15-Jul-22	25-Jul-22											_			
Phase 2 -Area 2 of St		25	13-Jun-22	12-Jul-22											\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			
119.CIV.S1F.10230	Major Excavation from +26mPD to +24.5 mPD (2405 m3)	6	13-Jun-22	18-Jun-22											•			
119.CIV.S1F.10260	Major Excavation from +24.5mPD to +23 mPD(2405 m3)	6	17-Jun-22	23-Jun-22														
119.CIV.S1F.10290	Major Excavation from +23mPD to +21.5 mPD (2405 m3)	6	22-Jun-22	28-Jun-22												-		
119.CIV.S1F.10320	Major Excavation from +21.5mPD to +20 mPD (2405 m3)	6	27-Jun-22	04-Jul-22												7		
119.CIV.S1F.10350	Major Excavation from +20 mPD to +18.5 mPD (2405 m3)	6	02-Jul-22	08-Jul-22												-		
119.CIV.S1F.10351	Major Excavation from +18.5 mPD to +17.75mPD (1203 m3)	4	08-Jul-22	12-Jul-22												•		
Phase 3 - North Secti	ion	19	22-Jul-22	12-Aug-22												-	~	
119.CIV.S1F.10352	Major Excavation from +17.75 mPD to +15.5 mPD (7215 m3)	8	22-Jul-22	30-Jul-22												_		
119.CIV.S1F.10353	Major Excavation from +15.5 mPD to +14 mPD (4810 m3)	6	29-Jul-22	04-Aug-22												•		
119.CIV.S1F.10354	Major Excavation from +14 mPD to +12.5 mPD (4810 m3)	6	03-Aug-22	09-Aug-22												r	-	
119.CIV.S1F.10355	Major Excavation from +12.5 mPD to +11.875 mPD(2005 m3)	3	10-Aug-22	12-Aug-22													1	
Phase 4 - South Section	ion	61	25-Jul-22	06-Oct-22												→		+
119.CIV.S1F.10356	Excavation from +17.75 mPD to +16 mPD (1684 m3)	4	25-Jul-22	28-Jul-22														
119.CIV.S1F.10357	Soil Nail Construction : Layer 7 (+16 Mpd)- (93 nos.)	18	28-Jul-22	17-Aug-22												į į	_	
119.CIV.S1F.10358	Excavation from +16 mPD to +14 mPD (1924 m3)	5	16-Aug-22	20-Aug-22													•	
119.CIV.S1F.10359	Soil Nail Construction : Layer 8 (+14 Mpd) -including layer 9 (+13 mPD) (106 nos.)	20	20-Aug-22	13-Sep-22													-	
119.CIV.S1F.10361	Excavation from +14 mPD to +11.875 mPD (Including Sump Pit to 11.5MPD) (1704 m3)	4	13-Sep-22	16-Sep-22													•	
119.CIV.S1F.10362	Soil Nail Construction : Layer 10 (+11.5 Mpd) on Sump Pit Area (10 nos.)	5	16-Sep-22	21-Sep-22														
119.CIV.S1F.10363	Excavation from +11.875 mPD to +10 mPD (258 m3)	2	23-Sep-22	24-Sep-22													1	
119.CIV.S1F.10364	Soil Nail Construction : Layer 11 (+10 Mpd) on Sump Pit Area (10 nos.)	5	26-Sep-22	30-Sep-22													ſ	
119.CIV.S1F.10365	Excavation from +10 mPD to +8.725 mPD (175m3)	2	05-Oct-22	06-Oct-22														1
Structure Work & AB'	WF Work (North Section)	148	12-Aug-22	14-Feb-23														
Substructure		84	12-Aug-22	21-Nov-22														
119.CIV.S1F.10050	Tower Crane Erection	10	13-Aug-22	24-Aug-22													_	
119.CIV.S1F.10060	Blinding Layer and Base Slab Construction (including Slump Pit) (7205m3) +8.725mPD to +14.15mPD	28	12-Aug-22	14-Sep-22														
119.CIV.S1F.10070	Formwork , rebar fixing and concreting wall and Column construction (1388m3) +14.15mPD to +22.12mPD	16	01-Sep-22	20-Sep-22														
119.CIV.S1F.10080	Formwork, rebar fixing and concreting for slab and beam construction (3377m3) +22.12mPD	26	10-Sep-22	13-Oct-22														<u> </u>
119.CIV.S1F.10090	Formwork , rebar fixing and concreting wall and Column construction (640m3) +22.12 mPD to 25.8mPD	11	07-Oct-22	19-Oct-22														
119.CIV.S1F.10100	Formwork, rebar fixing and concreting for slab and beam construction (2026m3) +25.8mPD	16	14-Oct-22	01-Nov-22														
119.CIV.S1F.10110	Formwork, rebar fixing and concreting wall and Column construction (610m3) +25.8 mPD to 29.3 mPD			07-Nov-22														
		11	26-Oct-22															T_
119.CIV.S1F.10120	Formwork, rebar fixing and concreting for slab and beam construction (678m3) +29.3 mPD	8	04-Nov-22	12-Nov-22														_
119.CIV.S1F.10130	WaterTest	7	14-Nov-22	21-Nov-22														_ '
Superstructure		32	09-Nov-22	15-Dec-22														
119.CIV.S1F.10170	Formwork , rebar fixing and concreting wall and Column construction (Inlouding Roof Level) (1600m3) +29.3 mPD to +38.5	27	09-Nov-22	09-Dec-22														_
119.CIV.S1F.10180	Formwork, rebar fixing and concreting for slab and beam construction (Inlcuding Roof Level) (675m3) +38.5 mPD	16	28-Nov-22	15-Dec-22														
ABWF Works		64		14-Feb-23														
	Stage 1 Filter (1st Half - Northern) - Wall tiling	60	22-Nov-22	09-Feb-23														
119.S1.ABWF.10004	Stage 1 Filter (1st Half - Northern) - Steel roofing & Skylight installation	48	10-Dec-22	14-Feb-23														
Structure Work & AB	WF Work (South Section)	62	14-Nov-22	03-Feb-23														'
Substructure		62	14-Nov-22	03-Feb-23														,
119.CIV.S1F.10360	Blinding Layer and Base Slab Construction (including Slump Pit) (4803m3) +8.725mPD to +14.15mPD	41	14-Nov-22	03-Jan-23														
119.CIV.S1F.10370	Formwork , rebar fixing and concreting wall and Column construction (925m3) +14.15mPD to +22.12mPD	41	08-Dec-22	03-Feb-23														
Stage 1 Filters - M&E	Works	63	22-Nov-22	13-Feb-23														
119.CIV.S1F.10640	Stage 1 Filters - M&E Access and Work Commencement for North of Stage 1 Filter (Include Pipe Gallary)	0	22-Nov-22															
Stage 1 Filters - Instal	llation	63	22-Nov-22	13-Feb-23														
119.MEP.S1F.1000	Stage 1 Filters - Installation of Temporary Backwash Water Treatment Facilities - Stage 1 (1 set/gang/60 days)	63	22-Nov-22	13-Feb-23														
						<u> </u>	1	i					1			1 1		



Activ	ity ID	Activity Name	Original	Start	Finish							2021							2022				
	119 CIV OR 10080	Wailing Installation (30 m) +26.00mPD	Duration 2	23-May-22	24-May-22	ul Aug	Sep	Oct Nov	Dec Jan	Feb Mar	Apr May	Jun Jul	Aug	Sep Oct	Nov Dec	Jan Feb	Mar	Apr May	Jun Ju	ul Aug	Sep	Oct Nov	Dec
Ш		Strutting Installation layer 1 (3 nos.)+26.00mPD	2	25-May-22	26-May-22							1											
ш			2									1							<u> </u>				
ш		Excavation from +26mPD to 24.5mPD (2970 m3)	6	24-May-22	30-May-22																		.
Ш		Soil Nail Construction +25mPD (15 nos TFC1 to TFC15)	6	28-May-22	04-Jun-22							1											
Ш		Excavation from +24.5mPD to 23mPD (2970 m3)	6	02-Jun-22	09-Jun-22																		
Ш	119.CIV.OB.10147	Soil Nail Construction(+22mPD) (15 nos TFD1 toTFD15)	6	08-Jun-22	14-Jun-22														-				
Ш	119.CIV.OB.10147a	Excavation from +23 mPD to 21.5 mPD (2970 m3)	6	11-Jun-22	17-Jun-22														-				
Ш	119.CIV.OB.10147b	Soil Nail Construction +22mPD (15 nos TFE1 toTFE15)	6	16-Jun-22	22-Jun-22														-				.
Ш	119.CIV.OB.10148	Excavation from +21.5mPD to 20 mPD (2970 m3)	6	20-Jun-22	25-Jun-22							1							-				i
Ш	119.CIV.OB.10149	Soil Nail Construction +20.5mPD (15 nos TFF1 toTFF15)	6	24-Jun-22	30-Jun-22														•				
Ш	119.CIV.OB.10151	Wailing Installation layer 2 +20 MpD (30 m)	2	02-Jul-22	04-Jul-22														•				.
Ш	119.CIV.OB.10152	Strutting Installation layer 2 +20 MpD (3 nos.)	2	05-Jul-22	06-Jul-22							1							1				:
Ш	119.CIV.OB.10153	Excavation from +20mPD to 18.5mPD (2970 m3)	6	04-Jul-22	09-Jul-22														•				.
Ш	119.CIV.OB.10154	Soil Nail Construction +20mpD to 18.5mPD (45 nos T1A1 to T1A13, T1B1 to T1B17, TFG1 to TFG15)	9	08-Jul-22	18-Jul-22							1					1		_	•			
Ш	119.CIV.OB.10155	Excavation from +19mPD to 17 mPD (4455 m3)	9	15-Jul-22	25-Jul-22							1							1	_			
	119.CIV.OB.10156	Soil Nail Construction +17.5 MpD (15 nos TFH1 to TFH14)	6	22-Jul-22	28-Jul-22															_			.
	119.CIV.OB.10157	Wailing Installation layer 3 +17.5 mPD (30 m)	2	29-Jul-22	30-Jul-22															0			:
	119.CIV.OB.10158	Strutting Installation layer 3 +17.5 mPD (3 nos.)	2	01-Aug-22	02-Aug-22															•			.
	Phase 3 : East and We		57	03-Aug-22	11-Oct-22																	-	.
	119.CIV.OB.10159	Excavation from +17 mPD to 15.5mPD (5940 m3)	11	03-Aug-22	15-Aug-22																		.
Ш	119.CIV.OB.10161	Soil Nail Construction +16.5 to 16 MpD (34 nos T1C1 to T1C19 and TFI1 to TFI15)	14	12-Aug-22	27-Aug-22							1								_	•		
Ш	119.CIV.OB.10162	Excavation from +15.5mPD to 14mPD (5940 m3)	11	18-Aug-22	30-Aug-22																		.
Ш	119.CIV.OB.10163	Soil Nail Construction +14.5 MpD (34 nos T1D1 to T1D19 and TFJ1 to TFJ15)	14	27-Aug-22	13-Sep-22							1								_	<u> </u>		
Ш			2	14-Sep-22	15-Sep-22							1											
Ш		Wailing Installation layer 4 (30 m) +14.5 mPD			·																		.
Ш	119.CIV.OB.10165	Strutting Installation layer 4 (3 nos.) +14.5 mPD	2	16-Sep-22	17-Sep-22																<u> </u>	_	
Ш	119.CIV.OB.10166	Excavation from +14 to 12.5mPD - Including Slope Excavation for East Side to +8.3 mPD (7325 m3)	15	19-Sep-22	07-Oct-22																		
Ш		Soil Nail Construction +13 mPD(15 nos TFK1 to TFK14)	6	05-Oct-22	11-Oct-22																	-	i
Ш.	Structure Work & ABV	VF Work	135	12-Oct-22	28-Mar-23							1											
Ш	Substructure		135		28-Mar-23							1											
Ш	119.CIV.OB.10160	Blinding Layer and Base Slab Construction(Services Gallary, Inlet Chamber,Contact,and etc.)(1424.5m3)	17	12-Oct-22	31-Oct-22							1											
Ш	119.CIV.OB.10170	Formwork, Rebar Fixing and Concreting For Wall (Services Gallary, Inlet Chamber and etc.)(782 m3)	27	22-Oct-22	22-Nov-22							1											
Ш	119.CIV.OB.10171	Blinding Layer and Base Slab Construction (All Area) (3323 m3) +18.25mPD to +19.95 mPD	38	08-Nov-22	21-Dec-22							1					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
Ш	119.CIV.OB.10240	Formwork, Rebar Fixing and Concreting For All Structure (2770 m3) (+19.95mPD to +30.45mPD)	93	30-Nov-22	28-Mar-23																		
	Flocculation and Sedim	nentation Tanks (FST)	58	11-Mar-22	24-May-22												•		7				
	Pipe Pile, Grout Curtai	in and H-Pile (if any)	29	11-Mar-22	14-Apr-22													-					
	119.CIV.FST.10000a	Pipe Piling Work PP439 to PP 478 (40 nos.)	22	11-Mar-22	06-Apr-22													•					i
	119.CIV.FST.10000b	Grout Curtain PP439 to PP 478 (40nos.)	18	24-Mar-22	14-Apr-22												-	_					:
Ш	Phase 1- Whole Area	Except Temporary WashWater Recovery Tank (Afrer Excavate to 26MPD)	8	12-Apr-22	23-Apr-22													-					.
Ш	119.CIV.FST.10010	Excavation from +29.5 to +26.00 mPD (3960 m3)	8	12-Apr-22	23-Apr-22							1						_					
	Excavation and ELS/S	Soil Nail Works	26	22-Apr-22	24-May-22							1						•	7				.
Ш	Phase 2-Whole Area in	nclude Temporary WashWater Recovery Tank	26	22-Apr-22	24-May-22							1					1	+	7				
Ш	119.CIV.FST.10110	Slope Excavation For Haul Road +29.5 to 22.00 mPD to facilitate the tranportation (East) (13406 m3)	26	22-Apr-22	24-May-22							1						-					
	Washwater Equalizatio	on Tanks	640	02-Jan-21 A	15-Apr-23				-				1				1						
	Washwater Equalization	ion Tanks - Civil Works	505	02-Jan-21 A	25-Oct-22				-													—	:
	Pipe Pile, Grout Curtair	n and H-Pile (if any)	264	02-Jan-21 A	24-Aug-21 A								-										.
		Uncharted Cable Diversion	118	02-Jan-21 A	02-Jun-21 A							.											:
	119.CIV.WET.10000	Pipe Pile Installation (105 nos.)	59	12-May-21 A	29-Jun-21 A																		.
	119.CIV.WET.10010	Grout Curtain installation (105 nos.)	47	08-Jun-21 A	03-Jul-21 A																		.
	119.CIV.WET.10020	King Post Installation (7 nos.)	8	29-Jun-21 A	08-Jul-21 A												1						:
	119.PMI.10000	PMI Item : UU detection and Utility Relocation	41	08-Jul-21 A	24-Aug-21 A							Τ											.
	Excavation and ELS W	· ·		14-Jul-21 A	16-Feb-22												1						:
		ok (ii dily) —	218	- 14-Jul-21 A	10-Peb-22		1			i		<u> </u>					1	į Į			1		
	<u>1</u>	/WSD/19 In-Situ Reprovisioning of Sha Tin Water Treatment		į	•	• •	Mileston	е	Critical V	Vork									Pag	je 8 of	10		
		(South Works) - Water Treatment Works and Ancillary Faci	lities				Actual W	Vork	Summai	v							1						







Page 2 of 10 Contract No. 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Administration Building In-situ Reprovisioning of Sha Tin WTW (South Works) - Admin. Bldg Date prepared: 11-Feb-22 at 13:13 NIDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJI WSD-P-20 Sub-Contract for FS Installation Works of Administration Building 15-Apr-22 361 11-Feb-23 11-Apr-23 Sub-Contract for ABWF & Fit-out Works of Administration Building WSD-P-21 Sub-Contract for ABWF & Fit-out Works of Administration Building 60 15-Apr-22 112 07-Jun-22 05-Aug-22 7d/w x10 15-Feb-22 Sub-Contract for Cladding Installation Works of Administration Building WSD-P-22 15-Apr-22 | 112 | 07-Jun-22 Sub-Contract for Cladding Installation Works of Administration Building 60 05-Aug-22 7d/w x10 15-Feb-22 Sub-Contract for Green Roof & Landscaping Works WSD-P-23 Sub-Contract for Green Roof & Landscaping Works 60 14-Jun-22 112 06-Aug-22 04-Oct-22 7d/w x10 Sub-Contract for Irrigation System WSD-P-24 Sub-Contract for Irrigation System 60 16-Apr-22 14-Jun-22 748 03-May-24 01-Jul-24 7d/w x10 Sub-Contract for Lift Installation WSD-P-25 Sub-Contract for Lift Installation 60 15-Apr-22 557 26-Aug-23 24-Oct-23 7d/w x10 15-Feb-22 Sub-Contract for Structure Works of Elevated Walkway WSD-P-26 Sub-Contract for Structure Works of Flevated Walkway 60 06-Jun-22 63 10-Jun-22 08-Aug-22 7d/w x10 Sub-Contract for ABWF, Fitting Out, E&M Works of Elevated Walkway WSD-P-27 Sub-Contract for ABWF, Fitting Out, E&M Works of Elevated Walkway 60 03-Dec-22 63 07-Dec-22 7d/w x10 **Material Procurement** 04-Feb-23 557 11-Mar-22 29-Dec-22 271 12-Jan-23 7d/w x10 Curtain Wall/ Glazing Submission & Approval for Curtain Wall Material Sample & Shop Drawing 14-Jul-22 | 271 | 12-Jan-23 Submission & Approval for Curtain Wall Material Sample & Shop Drawing WSD-P-M-03 90 11-Apr-23 7d/w x10 Glass Fabrication & Delivery for Prototype Demo WSD-P-M-04 Glass Fabrication & Delivery for Prototype Demo 90 12-Oct-22 271 12-Apr-23 10-Jul-23 7d/w x10 Visual Prototype Installation WSD-P-M-05 Visual Prototype Installation 50 01-Dec-22 271 11-Jul-23 29-Aug-23 7d/w x10 Performance Test of Prototy 29-Dec-22 271 30-Aug-23 26-Sep-23 7d/w x10 WSD-P-M-06 Performance Test of Prototype 28 02-Dec-22 Lift E1, E2 & E3 04-Feb-23 557 25-Oct-23 Drawing Submission & Approval for Lift (E1, E2 & E3) WSD-P-M-07 Drawing Submission & Approval for Lift (E1, E2 & E3) 14-Jul-22 557 25-Oct-23 Material Submission & Approval for Lift (E1, E2 & E3) WSD-P-M-08 Material Submission & Approval for Lift (E1, E2 & E3) 45 15-Jul-22 28-Aug-22 557 23-Jan-24 07-Mar-24 7d/w x10 Material Procurement & Delivery (E1, E2 & E3 Material Procurement & Delivery (E1, E2 & E3) 04-Feb-23 557 08-Mar-24 WSD-P-M-09 160 14-Aug-24 7d/w x10 29-Aug-22 Sheetpile 12-May-22 25 11-Mar-22 7d/w x10 WSD-P-M-10 Material Submission & Approval 13-Mar-22 25 11-Mar-22 Material Procurement & Delivery WSD-P-M-11 Material Procurement & Delivery 12-May-22 25 08-Apr-22 06-Jun-22 12-May-22 71 26-Apr-22 7d/w x10 ELS Steel Member Material Submission & Approval 13-Mar-22 71 26-Apr-22 WSD-P-M-12 Material Submission & Approva 28 23-May-22 7d/w x10 Material Procurement & Delivery WSD-P-M-13 Material Procurement & Delivery 60 12-May-22 71 24-May-22 22-Jul-22 7d/w x10 Concrete 12-May-22 209 11-Sep-22 Material Submission & Approval WSD-P-M-14 Material Submission & Approva 28 13-Mar-22 209 11-Sep-22 08-Oct-22 14-Feb-22 Material Procurement & Delivery 60 12-May-22 209 09-Oct-22 07-Dec-22 7d/w x10 WSD-P-M-15 Material Procurement & Delivery 14-Mar-22 Rebar 12-May-22 209 11-Sep-22 07-Dec-22 7d/w x10 Material Submission & Approval WSD-P-M-16 Material Submission & Approval 13-Mar-22 209 11-Sep-22 Material Procurement & Delivery WSD-P-M-17 Material Procurement & Delivery 60 12-May-22 209 09-Oct-22 07-Dec-22 7d/w x10 14-Mar-22 Submission & Approval for Project Design Plan WSD-S-01 Submission & Approval for Project Design Plan 60 08-Dec-21 05-Feb-22 97 15-Mar-22 13-May-22 7d/w x10 Design for MiC 12-Sep-22 88 14-May-22 09-Dec-22 Submission & Approval for MiC Layouts Proposal (AIP) WSD-D-M01 Submission & Approval for MiC Layouts Proposal (AIP) 15-Feb-22* 15-Apr-22 88 14-May-22 12-Jul-22 7d/w x10 Submission & Approval for MiC Layouts Proposal (DDA WSD-D-M02 Submission & Approval for MiC Layouts Proposal (DDA) 90 14-Jul-22 88 13-Jul-22 10-Oct-22 7d/w x10 16-Apr-22 Submission & Approval for MiC Details (AIP WSD-D-M03 Submission & Approval for MiC Details (AIP) 90 16-Apr-22 14-Jul-22 88 13-Jul-22 10-Oct-22 7d/w x10 Submission & Approval for MiC Details (DDA) WSD-D-M04 Submission & Approval for MiC Details (DDA) 12-Sep-22 88 11-Oct-22 ninistration Building 07-Feb-22 19-Sep-23 954 07-Feb-22 7d/w x10 Design for Adr Submission & Approval for ELS Works Delson (All Submission & Approval for ELS Works Deisgn (AIP) WSD-D-AB00A 60 07-Apr-22 0 07-Feb-22 07-Apr-22 7d/w x10 07-Feb-22 Submission & Approval for ELS Works Desgn (DDA) WSD-D-AB00B Submission & Approval for ELS Works Deisgn (DDA) 60 08-Apr-22 06-Jun-22 0 08-Apr-22 06-Jun-22 7d/w x10 Submission & Approval for Foundation Desgn (AIP) Submission & Approval for Foundation Deisgn (AIP) 07-Apr-22 25 04-Mar-22 WSD-D-AB01A 02-May-22 Submission & Approval for Foundation Delson (DDA) WSD-D-AB01B Submission & Approval for Foundation Deisgn (DDA) 60 08-Apr-22 06-Jun-22 25 03-May-22 01-Jul-22 Submission & Approval for Permanent Work Structure Deisgn of Administration Building (AIP) WSD-D-AB02A Submission & Approval for Permanent Work Structure Deisgn of Administration Building (AIP) 60 06-Jun-22 63 10-Jun-22 08-Aug-22 7d/w x10 08-Apr-22 Submission & Approval for Permanent Work Structure Deisgn of Administration Building (DDA) WSD-D-AB02B Submission & Approval for Permanent Work Structure Deisgn of Administration Building (DDA) 04-Sep-22 | 110 | 25-Sep-22 | 23-Dec-22 | 7d/w x10 Submission & Approval for BS/ FS/ Security Design of Administration Building (AIP) WSD-D-AB03A Submission & Approval for BS/ FS/ Security' Design of Administration Building (AIP) 05-Aug-22 249 11-Feb-23 07-Jun-22 11-Apr-23 Submission & Approval for BS/ FS/ Security Design of Administration Building (DDA WSD-D-AB03B Submission & Approval for BS/ FS/ Security' Design of Administration Building (DDA) 90 06-Aug-22 03-Nov-22 249 12-Apr-23 10-Jul-23 7d/w x10 Submission & Approval for Dangerous Goods Stores (AIP) WSD-D-AB04A Submission & Approval for Dangerous Goods Stores (AIP) 03-Nov-22 583 10-Apr-24 08-Jun-24 7d/w x10 Submission & Approval for Dangerous Goods Stores (DDA) WSD-D-AB04B Submission & Approval for Dangerous Goods Stores (DDA) 01-Feb-23 583 09-Jun-24 7d/w x10 Submission & Approval for Mainland East Regional Laboratory (AIP) WSD-D-AB05A Submission & Approval for Mainland East Regional Laboratory (AIP) 60 07-Jun-22 05-Aug-22 470 20-Sep-23 18-Nov-23 7d/w x10 Date Revision Checked Approved Non-Critical Task



Critical Task

Time Risk Al

Tasks Summary

P6 Hammock





Contract No. 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Administration Building Page 3 of 10 In-situ Reprovisioning of Sha Tin WTW (South Works) - Admin. Bldg Date prepared: 11-Feb-22 at 13:13 UDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJIFIMAMJIJASIONIDJ WSD-D-AB05B Submission & Approval for Mainland East Regional Laboratory (DDA) 06-Aug-22 03-Nov-22 470 19-Nov-23 16-Feb-24 Submission & Approval for Visitor Reception Facilities (AIP) WSD-D-AB06A Submission & Approval for Visitor Reception Facilities (AIP) 60 02-Jan-23 267 29-Jul-23 26-Sep-23 7d/w x10 04-Nov-22 Submission & Approval for Visitor Reception Facilities (DDA) WSD-D-AB06B Submission & Approval for Visitor Reception Facilities (DDA) 100 12-Apr-23 267 27-Sep-23 7d/w x10 03-Jan-23 04-Jan-24 Submission & Approval for Water Treatment Training Venue (AIP WSD-D-AB07A Submission & Approval for Water Treatment Training Venue (AIP) 60 11-Jun-23 267 05-Jan-24 04-Mar-24 7d/w x10 Submission & Approval for Water Treatment Training Venue (DDA) WSD-D-AB07B Submission & Approval for Water Treatment Training Venue (DDA) 12-Jun-23 19-Sep-23 267 05-Mar-24 Submission & Approval for Main Control Room, Security Control Room, Server Rooms (AIP) WSD-D-AB08A Submission & Approval for Main Control Room, Security Control Room, Server Rooms (AIP) 60 02-Jan-23 249 11-Jul-23 08-Sep-23 7d/w x10 04-Nov-22 Submission & Approval for Main Control Room, Security Control Room, Server Rooms (DDA) WSD-D-AR08R Submission & Approval for Main Control Room, Security Control Room, Server Rooms (DDA) 02-Apr-23 249 09-Sep-23 07-Dec-23 7d/w x10 Submission & Approval for Car Parking & Electric Vehicle Charging Facilities (AIP) WSD-D-AB09A Submission & Approval for Car Parking & Electric Vehicle Charging Facilities (AIP) 01-Jun-23 974 02-Dec-25 30-Jan-26 7d/w x10 Submission & Approval for Car Parking & Electric Vehicle Charging Facilities (DDA Submission & Approval for Car Parking & Electric Vehicle Charging Facilities (DDA) WSD-D-AB09B 30-Aug-23 974 31-Jan-26 Submission & Approval for Landscape Works for the Green Roof and Coultyard incl. Irrigation System (AIP) Submission & Approval for Landscape Works for the Green Roof and Courtyard incl. Irrigation System (Alf WSD-D-AB10A 60 05-Aug-22 685 22-Apr-24 20-Jun-24 7d/w x10 Submission & Approval for Landscape Works for the Green Roof and Courtyard incl. Irrigation System (DDA) Submission & Approval for Landscape Works for the Green Roof and Courtyard incl. Irrigation System (DE WSD-D-AB10B 90 06-Aug-22 03-Nov-22 685 21-Jun-24 18-Sep-24 7d/w x10 02-Apr-23 63 10-Jun-22 7d/w x10 Submission & Approval for Permanent Works Structure Design of Elevated Walkway No.2 (AIP) WSD-D-SB02A Submission & Approval for Permanent Works Structure Design of Elevated Walkway No.2 (AIP) 08-Apr-22 06-Jun-22 63 10-Jun-22 08-Aug-22 7d/w x10 Submission & Approval for Permanent Works Structure Design of Elevated Walkway No.2 (DDA) Submission & Approval for Permanent Works Structure Design of Elevated Walkway No.2 (DDA) 04-Oct-22 63 09-Aug-22 WSD-D-SB02B 120 07-Jun-22 06-Dec-22 7d/w x10 Submission & Approval for ABWF, Fitout, E&M Design of Elevated Walkway No.2 (AIP) Submission & Approval for ABWF, Fitout, E&M Design of Elevated Walkway No.2 (AIP) WSD-D-SB03A 05-Oct-22 03-Dec-22 63 07-Dec-22 04-Feb-23 7d/w x10 Submission & Approval for ABWF. Fitout, E&M Design of Elevated Walkway No.2 (DDA WSD-D-SB03B Submission & Approval for ABWF, Fitout, E&M Design of Elevated Walkway No.2 (DDA) 02-Apr-23 63 05-Feb-23 04-Jun-23 7d/w x10 Other Major Design Packages 29-Sep-23 244 05-Jun-23 Submission & Approval for Permanent Works Structure Design of Elevated Walkway No.1 (AIP) WSD-D-OT02A Submission & Approval for Permanent Works Structure Design of Elevated Walkway No.1 (AIP) 60 01-Jun-23 63 05-Jun-23 03-Aug-23 Submission & Approval for Permanent Works Structure Design of Elevated Walkway No.1 (DDA) Submission & Approval for Permanent Works Structure Design of Elevated Walkway No.1 (DDA) 120 WSD-D-OT02B 02-Jun-23 29-Sep-23 63 04-Aug-23 01-Dec-23 7d/w x10 Submission & Approval for Overall Drainage System (AIP) WSD-D-OT03A Submission & Approval for Overall Drainage System (AIP) 21 07-Mar-22 725 10-Feb-24 7d/w x10 Submission & Approval for Overall Drainage System (DDA) WSD-D-OT03B Submission & Approval for Overall Drainage System (DDA) 90 08-Mar-22 05-Jun-22 725 02-Mar-24 Interface Management Liaison with 1/WSD/19 02-Apr-23 677 07-Mar-23 Agree the Design Requirements for Main Control Room/ Security Control Room/ Server Rooms WSD-IM-01 Agree the Design Requirements for Main Control Room/ Security Control Room/ Server Rooms Agree the Design Requirements for Elevated Walkway No.1 Agree the Design Requirements for Elevated Walkway No.1 WSD-IM-02 63 07-Mar-23 Agree the Design Requirements for Elevated Walkway No.2 WSD-IM-03 Agree the Design Requirements for Elevated Walkway No.2 04-Oct-22 857 12-Aug-24 07-Feb-25 08-Apr-22 Liaison with 3/WSD/15 120 16-Mar-22 545 16-May-23 Agree the Design Requirements of Integrated Security Management System with 3/W\$D/15 & 1/W\$D/1 WSD-IM-04 Agree the Design Requirements of Integrated Security Management System with 3/WSD/15 & 1/WSD/19 120 16-Mar-22 545 16-May-23 12-Sep-23 7d/w x10 Section 1 of the Work 12-Sep-23 961 12-May-22 Preliminary Works Refurbishment of PM's Site Office & Associated Works at Portion B WSD-W-PW01 Refurbishment of PM's Site Office & Associated Works at Portion B 26-Feb-22 25-Jun-22 | 1040 | 01-Jan-25 30-Apr-25 7d/w x10 ☐ Site Set up WSD-W-PW02 Site Set up 28-Feb-22 68 12-May-22 25-May-22 6d/w x10 Temporary Drainage Installation WSD-W-PW03 Temporary Drainage Installation 68 26-May-22 23-Jun-22 Relocation of 6/W SD/21 Site Office to High Block WSD-W-PW04 Relocation of 6/WSD/21 Site Office to High Block 12 20-Jun-22 1159 17-Apr-26 07-Jun-22 30-Apr-26 6d/w x10 12-Sep-23 542 10-Dec-22 Prefabrication Yard Setub of Prefabrication Yard WSD-W-PY-01 Setup of Prefabrication Yard 12-Oct-22 88 10-Dec-22 7d/w x10 Fabrication for Mock-up. Inspection & Approval by PM Fabrication for Mock-up, Inspection & Approval by PM WSD-W-PY-02 11-Dec-22 88 09-Jan-23 09-Mar-23 7d/w x10 Fabrication of MiC Unit for Basement Level (40nos, PR= 24no/wk WSD-W-PY-03 Fabrication of MiC Unit for Basement Level (40nos, PR= 24no/wk) 35 15-Jan-23 88 10-Mar-23 13-Apr-23 7d/w x10 12-Dec-22 Delivery of MiC Unit to Site - Batch 1 (for Basement only WSD-W-PY-04 Delivery of MiC Unit to Site - Batch 1 (for Basement only) 09-Jan-23 16-Jan-23 133 23-Jun-23 30-Jun-23 6d/w x10 Fabrication of MiC Unit for Ground Level (46nos, PR= 24no/wk WSD-W-PY-05 Fabrication of MiC Unit for Ground Level (46nos, PR= 24no/wk) 35 19-Feb-23 88 14-Apr-23 18-May-23 7d/w x10 Delivery of MiC Unit to Site - Batch 2 (for G/F only) WSD-W-PY-06 Delivery of MiC Unit to Site - Batch 2 (for G/F only) 11-Feb-23 20-Feb-23 116 05-Jul-23 13-Jul-23 Fabrication of MiC Unit for First Floor Level (46nos, PR= 24no/wk) WSD-W-PY-07 Fabrication of MiC Unit for First Floor Level (46nos, PR= 24no/wk) 35 26-Mar-23 88 22-Jun-23 20-Feb-23 19-May-23 7d/w x10 Delivery of MiC Unit to Site - Batch 3 (for 1/F only) Delivery of MiC Unit to Site - Batch 3 (for 1/F only) 27-Mar-23 94 22-Jul-23 6d/w x10 WSD-W-PY-08 18-Mar-23 14-Jul-23 Fabrication of MiC Unit for Second Floor Level & Car Park (41nos. PR= 24no/wk WSD-W-PY-09 Fabrication of MiC Unit for Second Floor Level & Car Park (41nos, PR= 24no/wk) 35 30-Apr-23 88 23-Jun-23 27-Jul-23 7d/w x10 Delivery of MiC Unit to Site - Batch 4 (for 2/F only Delivery of MiC Unit to Site - Batch 4 (for 2/F only) WSD-W-PY-10 22-Apr-23 02-May-23 73 21-Jul-23 Delivery of MiC Unit to Site - Batch 5 (for Car Park only) Delivery of MiC Unit to Site - Batch 5 (for Car Park only) WSD-W-PY-11 26-Apr-23 77 29-Jul-23 29-Jul-23 6d/w x10 26-Apr-23 Fabrication of MIC for Elevated Walkway No. 2 Incl. ABWF, fit-out, drainage system & conceal ducts Fabrication of MIC for Elevated Walkway No.2 Incl. ABWF, fit-out, drainage system & conceal ducts WSD-W-PY-13 75 14-Jul-23 542 24-Oct-24 06-Jan-25 7d/w x10 Delivery of MiC Unit to Site - Batch 6 (MiC Bridge Delivery of MiC Unit to Site - Batch 6 (MiC Bridge 12-Sep-23 542 07-Jan-25 WSD-W-PY-14 Construction of Administration Building 1072 17-Nov-21 23-Oct-24 554 15-Mar-22 30-Apr-26 Date Checked Approved Non-Critical Tas FIRST PROGRAMME REV. 1 03-Nov-21 Revision 0 First Issue 19-Jan-22 Revision 1 First Issue АН

ALL ACTIVITIES

俊 和

08-Feb-22

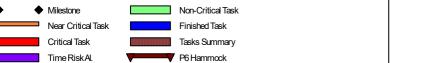
Revision 2 First Issue

Tasks Summar

P6 Hammock

Time Risk Al

Contract No. 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Administration Building Page 4 of 10 In-situ Reprovisioning of Sha Tin WTW (South Works) - Admin. Bldg Date prepared: 11-Feb-22 at 13:13 I GINIORALIL MIAMILI GINIORALIL MINAMILI GINIORALI LUMAMILI GINIORALI CONTRA LUMAMILI CONTRA L Foundation 26-May-23 1070 15-Mar-22 556 **Preparation Works** 06-May-22 48 15-Mar-22 Fdn. - Surveying, Trial Pit, UU Detection, Installation of Monitoring Strumentation, Site Haul Road Fdn. - Surveying, Trial Pit, UU Detection, Installation of Monitoring Strumentation, Site Haul Road WSD-W-F01 03-May-22 42 15-Mar-22 23-Jun-22 6d/w x10 Edn. - G.I. & Instrumentation 16-Mar-22 24 31-Mar-22 14-Apr-22 6d/w x10 WSD-W-F02 12 Fdn. - Conduct Laboratory Test & Issue Preliminary Report WSD-W-F03 Fdn. - Conduct Laboratory Test & Issue Preliminary Report 15-Apr-22 31 17-Apr-22 16-May-22 7d/w x10 Fdn. - Design Review WSD-W-F04 Fdn. - Design Review 21 06-May-22 31 17-May-22 06-Jun-22 30-Sep-22 84 07-Jun-22 Phase 1 (Grid J-Q/1-7) Temporary Retaining Structure (Grid J-Q/1-7), 120m long, to be constructed by Contract 1/WSD/19 Temporary Retaining Structure (Grid J-Q/1-7), 120m long, to be constructed by Contract 1/WSD/19 WSD-W-F-101 17-Nov-21 202 07-Jun-22 7d/w x10 Install Strut and Excavation at Portion 1 from 23.3mPD to 21.5mPD (2400m3, PR=100m3/d) 22-Jul-22 0 24-Jun-22 Install Strut and Excavation at Portion 1 from 23.3mPD to 21.5mPD (2400m³, PR=100m³/d) 22-Jul-22 6d/w x10 24-Jun-22 Carry Out Plate Load Test at Portion 1 WSD-W-F-103 | Carry Out Plate Load Test at Portion 05-Aug-22 86 17-Oct-22 30-Oct-22 7d/w x10 23-Jul-22 Footing - 1m thk Footing @ +21.5mPD incl. blinding layer (7 batches @ 6d/batch) WSD-W-F-104 Footing - 1m thk Footing @ +21.5mPD incl. blinding layer (7 batches @ 6d/batch) 6d/w x10 42 24-Sep-22 70 31-Oct-22 17-Dec-22 06-Aug-22 Time Risk Allowance for Phase 1 Foundation 30-Sep-22 84 18-Dec-22 WSD-W-F-105 Time Risk Allowance for Phase 1 Foundation 25-Sep-22 23-Dec-22 7d/w x10 Phase 2 (Grid A'-J/1-9) 26-May-23 1070 07-Jun-22 ◆ Temporary Retaining Structure (Grid A'-C/1), 48m long, to be constructed by Contract 1/WSD/19 WSD-W-F-201 Temporary Retaining Structure (Grid A'-C/1), 48m long, to be constructed by Contract 1/WSD/19 17-Nov-21 1626 30-Apr-26 ◆ Temporary Retaining Structure (Grid F-J/7-9), 30m long, to be constructed by Contract 1/WSD/19 WSD-W-F-201.5 Temporary Retaining Structure (Grid F-J/7-9), 30m long, to be constructed by Contract 1/WSD/19 7d/w x10 1626 30-Apr-26 0 17-Nov-21 ■ B.Footing - Sheet Piling (GL C-J/ 1), 50m on plan/ 12m deep, PR = 12sheet/d WSD-W-F-202 B.Footing - Sheet Piling (GL C-J/1), 50m on plan/ 12m deep, PR = 12sheet/d 12 07-Jun-22 20-Jun-22 0 07-Jun-22 20-Jun-22 6d/w x10 B.Footing - Sheet Piling (GL A1-F/9), 60m on plan/ 16m deep, PR ±10sheet/o WSD-W-F-202.5 B.Footing - Sheet Piling (GL A1-F/9), 60m on plan/ 16m deep, PR =10sheet/d 0 07-Jun-22 Forming of Slope and Carry Out Excavation to + 20 mPD (11500m³, PR=100m³/d WSD-W-F-203 Forming of Slope and Carry Out Excavation to + 20 mPD (11500m³, PR=100m³/d) 115 23-Jul-22 07-Dec-22 0 23-Jul-22 07-Dec-22 Construct Partial Raft (10 batches @ 6d/batch 60 22-Feb-23 6d/w x10 WSD-W-F-204 | Construct Partial Raft (10 batches @ 6d/batch) 22-Feb-23 0 08-Dec-22 08-Dec-22 Install Raking Struts for Further Excavation WSD-W-F-205 Install Raking Struts for Further Excavation 28-Feb-23 0 23-Feb-23 28-Feb-23 6d/w x10 Excavate Slope in front of Sheetpile to +20 mPD (500m³, PR=100m³/d WSD-W-F-206 Excavate Slope in front of Sheetpile to +20 mPD (500m³, PR=100m³/d) 01-Mar-23 Construct Remaining Raft (10 batches @ 6d/batc WSD-W-F-207 Construct Remaining Raft (10 batches @ 6d/batch) 60 19-May-23 0 07-Mar-23 19-May-23 6d/w x10 07-Mar-23 ■ Time Risk Allowance for Phase 2 Foundation WSD-W-F-208 Time Risk Allowance for Phase 2 Foundation 20-May-23 26-May-23 0 20-May-23 26-May-23 7d/w x10 Structure 23-Jan-24 Phase 1 (Grid J-Q/1-7) 31-May-23 104 24-Dec-22 17-Oct-22 70 24-Dec-22 U/GR.C. - Beam / Column Construction WSD-W-UG1(U/G R.C. - Beam / Column Construction 17-Oct-22 70 24-Dec-22 Basement Level 02-Dec-22 89 11-Jan-23 03-Oct-22 WSD-W-SB101 B/F R.C. - Suspended Slab 12 18-Oct-22 31-Oct-22 70 11-Jan-23 27-Jan-23 6d/w x10 B/F R.C. - Formwork and Rebar to RC Column WSD-W-SB102 B/F R.C. - Formwork and Rebar to RC Column 6d/w x10 12 01-Nov-22 14-Nov-22 70 28-Jan-23 10-Feb-23 □ B/F R.C. - Formwork and Rebar RC Wall WSD-W-SB103 B/F R.C. - Formwork and Rebar RC Wall 6d/w x10 01-Nov-22 14-Nov-22 70 28-Jan-23 10-Feb-23 B/F.R.C.:- Formwork and Rebar RC Concrete Beam/Slab (Ground Slab) incl. Erect Scaffold WSD-W-SB104 B/F R.C. - Formwork and Rebar RC Concrete Beam/Slab (Ground Slab) incl. Erect Scaffold 25-Nov-22 70 09-Feb-23 B/F R.C. - Concreting WSD-W-SB105 B/F R.C. - Concreting 26-Nov-22 26-Nov-22 70 23-Feb-23 23-Feb-23 B/F R.C. - Haul Road Preparation for Mobilization Mobile Crane WSD-W-SB106 B/F R.C. - Haul Road Preparation for Mobilization Mobile Crane 14-Oct-22 107 13-Feh-23 23-Feh-23 6d/w x10 03-Oct-22 B/F, MiC:- Installation of MiC Module (16 units) by Mobile Crane @ Basement level << PR=6no/d WSD-W-SB107 B/F MiC - Installation of MiC Module (16 units) by Mobile Crane @ Basement level << PR=6no/d>> 30-Nov-22 70 24-Feb-23 27-Feb-23 6d/w x10 Time Risk Allowance for Structural Works @ Basement Level Phase 1 WSD-W-SB108 Time Risk Allowance for Structural Works @ Basement Level Phase 1 02-Dec-22 89 28-Feb-23 01-Mar-23 7d/w x10 07-Jan-23 85 02-Mar-23 G/F R.C. - Formwork and Rebar to RC Column WSD-W-SG101 G/F R.C. - Formwork and Rebar to RC Column 70 02-Mar-23 ☐ G/F R.C. - Formwork and Rebar to RC Wall WSD-W-SG102 G/F R.C. - Formwork and Rebar to RC Wall 16-Dec-22 70 02-Mar-23 15-Mar-23 6d/w x10 03-Dec-22 G/F R.C. - Formwork and Rebar to RC Concrete Slab (First Floor Slab) Incl. Erect Scaffold WSD-W-SG103 G/F R.C. - Formwork and Rebar to RC Concrete Slab (First Floor Slab) incl. Erect Scaffold 12 15-Dec-22 30-Dec-22 70 14-Mar-23 27-Mar-23 6d/w x10 G/F R.C. - Concreting WSD-W-SG104 G/F R.C. - Concreting 31-Dec-22 70 28-Mar-23 28-Mar-23 6d/w x10 G/F MiG - Installation of MiC Module (18 units) by Mobile Crane @ Ground Floor level <<PR=6no/d>> WSD-W-SG105 G/F MiC - Installation of MiC Module (18 units) by Mobile Crane @ Ground Floor level << PR=6no/d>> 05-Jan-23 70 29-Mar-23 I Time Risk Allowance for Structural Works @ Ground Level Phase WSD-W-SG106 Time Risk Allowance for Structural Works @ Ground Level Phase 1 2 07-Jan-23 85 01-Apr-23 06-Jan-23 02-Apr-23 7d/w x10 13-Feb-23 86 03-Apr-23 1/F R.C. + Formwork and Rebar to RC Column WSD-W-S1101 1/F R.C. - Formwork and Rebar to RC Column 21-Jan-23 69 03-Apr-23 19-Apr-23 6d/w x10 1/F R.C. - Formwork and Rebar to RC Wall WSD-W-S1102 1/F R.C. - Formwork and Rebar to RC Wall 09-Jan-23 21-Jan-23 69 03-Apr-23 19-Apr-23 6d/w x10 1/F R.C. - Formwork and Rebar to RC Concrete Slab (Secound Floor Slab) incl. Erect WSD-W-S1103 1/F R.C. - Formwork and Rebar to RC Concrete Slab (Secound Floor Slab) incl. Erect Scaffold 06-Feb-23 69 18-Apr-23 1 :1/F R.C. - Concreting WSD-W-S1104 1/F R.C. - Concreting 07-Feb-23 07-Feb-23 69 03-May-23 03-May-23 6d/w x10 :I:1/F MiC - Installation of MiC:Module (24 units) by:Mobile Crane @ First Floor level <<PR=6no/d>> WSD-W-S1105 1/F MiC - Installation of MiC Module (24 units) by Mobile Crane @ First Floor level << PR=6no/d>> 4 08-Feb-23 11-Feb-23 69 04-May-23 08-May-23 6d/w x10



FIRST PROGRAMME REV. 1 ALL ACTIVITIES





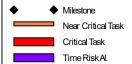
Date	Revision	Checked	Approved
03-Nov-21	Revision 0 First Issue	AH	WJ
19-Jan-22	Revision 1 First Issue	PF	AH
)8-Feb-22	Revision 2 First Issue		

In-situ Reprovisioning of Sha Tin WTW (South Works) - Admin. Bldg. Contract No. 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Administration Building

Page 5 of 10

Date prepared : 11-Feb-22 at 13:13

ADD Column Table Process P	. ID Activity Name	Dur.	Start			ate Start	Late Finish					
Control Cont				F	-loat			Calendars		2022 N D J F M A M J J A S O N D J I	2023 2024 2025 2026 2027 F M A M J J A S O N D J A S O N D J A S	20 S O N D J
March Marc	WSD-W-S1106 Time Risk Allowance for Structural Works @ First Floor Level Phase 1	2	12-Feb-23	13-Feb-23	86 09	9-May-23	10-May-23	7d/w x10			I Time Risk Allowance for Structural Works @ First Floor Level Phase 1:	
Math	Second Floor Level					_						
March Marc	WSD-W-S2101 2/F R.C Formwork and Rebar to RC Column					,						
March Marc	WSD-W-S2102 2/F R.C Formwork and Rebar to RC Wall	12	14-Feb-23	27-Feb-23	70 1	1-May-23	24-May-23	6d/w x10)			
Column C	WSD-W-S2103 2/F R.C Formwork and Rebar to RC Concrete Slab (Third Floor Slab) incl. Erect Scaffold	12	25-Feb-23	10-Mar-23	70 23	3-May-23	06-Jun-23	6d/w x10)		2/F.R.C Formwork and Rebar to RC Concrete Stab (Third Floor Stab) incl. Erect Scaffold	
March March Anneane March Ma	WSD-W-S2104 2/F R.C Concreting	1	11-Mar-23	11-Mar-23	70 07	7-Jun-23	07-Jun-23	6d/w x10)		2/FR.CConcreting	
No. Process Communication Communicatio	WSD-W-S2105 2/F MiC - Installation of MiC Module (16 units) by Mobile Crane @ Second Floor level < <pr=6no d="">></pr=6no>	3	13-Mar-23	15-Mar-23	70 08	8-Jun-23	10-Jun-23	6d/w x10)		I 2/F MiC -Installation of MiC Module (16 units) by Mobile Crane @ Second Floor level < <pr=6nd d="">></pr=6nd>	
March Name	WSD-W-S2106 Time Risk Allowance for Structural Works @ Second Floor Level Phase 1	1	16-Mar-23	16-Mar-23	88 12	2-Jun-23	12-Jun-23	7d/w x10			Tîme Risk Allowance for Structural Works @ Second Floor Level Phase 1	
Mode		76	17-Mar-23	31-May-23	104 13	3-Jun-23	12-Sep-23					
Control Cont	WSD-W-S3101 3/F R.C Formwork and Rebar to RC Column)		II 3/F.R.C.:- Formwork and Rebarto RC Column	
March Marc	WSD-W-S3102 3/F R.C Formwork and Rebar to RC Wall	12	17-Mar-23	30-Mar-23	70 13	3-Jun-23	27-Jun-23	6d/w x10)		II 3/F.R.C.:- Formwork and Rebar to RC Wall	
Math No. 1909 Mark No.	WSD-W-S3103 3/F R.C Formwork and Rebar to RC Concrete Slab (Third Floor Slab) incl. Erect Scaffold	12	29-Mar-23	14-Apr-23	70 26	6-Jun-23	10-Jul-23	6d/w x10)		📮 3/F R.C Formwork and Rebar to RC Concrete Slab (Third:Floor Stab) incl. Erect Scaffold	
March 1970 Text State and Marchan for micros from gift the Fear Level State 1	WSD-W-S3104 3/F R.C Concreting	1	15-Apr-23	15-Apr-23	70 1	1-Jul-23	11-Jul-23	6d/w x10)		1/3/FR.C Concreting	
March Marches Marche	WSD-W-S3105 3/F R.C Roof Construction	24	17-Apr-23	15-May-23	70 12	2-Jul-23	08-Aug-23	6d/w x10	-		□ 3/F R.C Roof Construction	
March Marc											II. Time Risk Allowance for Structural Works @ Third Floor Level Phase 1	
Process Color Cut-4-4						-						
Month Mont			,	,				ru/w XIU	'			
Manufaction of Commonwealth C			•	-		-		6d/w v10				
March Marc	<u> </u>										U/G R.C Beam / Column Construction	
Work Work Control						-						
Michael Process Michael Read M	WSD-W-SB201 B/F R.C Suspended Slab						-	6d/w x10)		IB/F R.C Suspended Slab	
Control Floor Level Control Mode Control Mode Control	WSD-W-SB203 B/F MiC - Installation of MiC Module (34 units) by Mobile Crane @ Basement level << PR=6no/d>>	6	26-Jun-23	03-Jul-23	0 26	6-Jun-23	03-Jul-23	6d/w x10)		■ B/F MiC - Installation of MiC Module (34 units) by Mobile Crane @ Basement level << PR =6no/d>>	
Control Floor Level Control Mode Control Mode Control	WSD-W-SB204 Time Risk Allowance for MiC Installation @Basement Level	2	04-Jul-23	05-Jul-23	0 04	4-Jul-23	05-Jul-23	7d/w x10)		J Time: Risk Allowance for MiC Installation @Basement Level	
MSD-WSGGS Time RM Institution of MC Model (#0 units) by Mobile Came @ Ground level < < PRE-institution 1 MJ May 2 MJ May 2 MJ MSG 1												
First Floor Level 1	WSD-W-SG05 G/F MiC - Installation of MiC Module (40 units) by Mobile Crane @ Ground level << PR=6no/d>>							6d/w x10)		G/F MiC - Installation of MiC Module (40 units) by Mobile Crane @ Ground level << PR=6no/d>>	
WSD-WS-1202 Time Risk Allowance for MC Installation of Michical (sums) by Mobile Crane @ First Foor level 4-PR-front/ex-	WSD-W-SG06 Time Risk Allowance for MiC Installation @ Ground Level	1	14-Jul-23	14-Jul-23	0 14	4-Jul-23	14-Jul-23	7d/w x10) -	***	I Time Risk Allowance for MiC Installation @ Ground Level	
Second Floor Level 1 25-Jul 2 25-Jul	First Floor Level	11	15-Jul-23	25-Jul-23	0 15	5-Jul-23	25-Jul-23					
Second Floor Level 4	WSD-W-S1201 1/F MiC - Installation of MiC Module (46 units) by Mobile Crane @ First Floor level < <pr=6no d="">></pr=6no>	8	15-Jul-23	24-Jul-23	0 15	5-Jul-23	24-Jul-23	6d/w x10)			
WSD W-S2202 Time Risk Allowance for Mic Module (19 units) by Mobile Crane @ Second Floor level < PR-Enoids> 2 July 23 22 July 23 23 July 23 24 July 23 25 July 2	WSD-W-S1202 Time Risk Allowance for MiC Installation @ First Floor Level	1	25-Jul-23	25-Jul-23	0 25	5-Jul-23	25-Jul-23	7d/w x10)		I Time Risk Allowance for MiC Installation @ First Floor Level	
WSD-W-S2202 Time Risk Allowance for MC Installation @ Second Floor Level	Second Floor Level	4	26-Jul-23	29-Jul-23	0 26	6-Jul-23	29-Jul-23					
WSD-W-S2203 2/F MC - Demobilization of Mobile Clame	WSD-W-S2201 2/F MiC - Installation of MiC Module (18 units) by Mobile Crane @ Second Floor level < <pr=6no d="">></pr=6no>	3	26-Jul-23	28-Jul-23	0 26	6-Jul-23	28-Jul-23	6d/w x10)		I. 2/F;M(C - Installation of MiC Module (18 units) by Mobile Crane @ Second Floor level < <pr=6no d="">></pr=6no>	
Third Floor Level WSD-W-S3201 3FR C Formwork and Rebart or RC Column 12 31-Ju2-3 12-Ju2-2 0 31-Ju2-3 12-Ju2-3 2 6dw x10 WSD-W-S3202 3FR C Formwork and Rebart or RC Column 12 31-Ju2-3 12-Ju2-2 0 31-Ju2-3 12-Ju2-3 12-Ju2	WSD-W-S2202 Time Risk Allowance for MiC Installation @ Second Floor Level	1	29-Jul-23	29-Jul-23	0 29	9-Jul-23	29-Jul-23	7d/w x10)		F Time Risk Allowance for MiC Installation @ Second Floor Level	
WSD-W-S3201 3FR C Formwork and Reber to RC Column	WSD-W-S2203 2/F MiC - Demobilization of Mobile Crane	0		29-Jul-23	0		29-Jul-23	6d/w x10)		◆ 2/F,MiC:- Demobilization of Mobile Crane	
WSD-W-S3202 3F.R.C Formwork and Rebar to RC Concrete Slab (Third Floor Slab) incl. Erect Scaffold 12 31-Ju-23 24-Jug-23 24-Jug-23 6dlw x10 18 3F.R.C Formwork and Rebar to RC Concrete Slab (Third Floor Slab) incl. Erect Scaffold 12 11-Jug-23 24-Jug-23 6dlw x10 18 3F.R.C Formwork and Rebar to RC Concrete Slab (Third Floor Slab) incl. Erect Scaffold 12 11-Jug-23 24-Jug-23 6dlw x10 18 3F.R.C Formwork and Rebar to RC Concrete Slab (Third Floor Slab) incl. Erect Scaffold 12 11-Jug-23 24-Jug-23 24-Jug-23 6dlw x10 18 3F.R.C Formwork and Rebar to RC Concrete Slab (Third Floor Slab) incl. Erect Scaffold 12 11-Jug-23 24-Jug-23 25-Jug-23 2	Third Floor Level	60	31-Jul-23	28-Sep-23 2	264 3	1-Jul-23	18-Jun-24					
WSD-W-S3203 3F R.C Formwork and Rebar to RC Concrete Slab (Third Floor Slab) incl. Erect Scaffold 12 11-Aug-23 24-Aug-23 6dlw x10 3FR.C Concreting 13 FR.C Concreting 12 5-Aug-23 6dlw x10 3FR.C Concreting 13 5-Aug-23 25-Aug-23 6dlw x10 3FR.C Concreting 14 5-Aug-23 25-Aug-23 6dlw x10 3FR.C Concreting 14 5-Aug-23 25-Aug-23	WSD-W-S3201 3/F R.C Formwork and Rebar to RC Column						12-Aug-23	6d/w x10)			
WSD-W-S304 3F.R.C Concreting	WSD-W-S3202 3/F R.C Formwork and Rebar to RC Wall	12	31-Jul-23	12-Aug-23	0 3	1-Jul-23	12-Aug-23	6d/w x10)		■ 3/F R.C Formwork and Rebar to RC Wall	
WSD-W-S300 3F MiC - Installation of MiC Module (14 units) by Mobile Crane @ Second Floor level ≪PR=6nold>> 3	WSD-W-S3203 3/F R.C Formwork and Rebar to RC Concrete Slab (Third Floor Slab) incl. Erect Scaffold	12	11-Aug-23	24-Aug-23	0 1	1-Aug-23	24-Aug-23	6d/w x10)		■ 3/F.R.C. Formwork and Rebar to RC Concrete Slab (Third Floor Slab) incl. Erect Scaffold	
WSD-W-S3206 Time Risk Allowance for Structural Works @ Third Floor Level Phase 2 2 30-Aug-23 31-Aug-23 31-Aug-23 7 30-Aug-23 31-Aug-23 7 7 4 18 1 1 1 1 1 1 1 1	WSD-W-S3204 3/F R.C Concreting	1	25-Aug-23	25-Aug-23	0 25	5-Aug-23	25-Aug-23	6d/w x10)		I 3/F.R.C Concreting	
WSD-W-S3207 3/F.R.C Roof Construction 24 01-Sep-23 28-Sep-23 210 21-May-24 18-Jun-24 6d/w x10 Phase 3 (Grid A'-C/1-4) Basement Floor Level 45 06-Ju-23 19-Dec-23 273 07-Ju-23 20-Aug-23 WSD-W-SB301 B/F.R.C Suspended Slab 12 06-Ju-23 19-Ju-23 1 07-Ju-23 20-Ju-23 6d/w x10 WSD-W-SB302 B/F.R.C Formwork and Rebar to RC Column 12 20-Ju-23 02-Aug-23 1 21-Ju-23 03-Aug-23 6d/w x10 WSD-W-SB303 B/F.R.C Formwork and Rebar RC Wall WSD-W-SB308 B/F.R.C Formwork and Rebar RC Concrete Beam/Slab (Ground Slab) incl. Erect Scaffold 12 01-Aug-23 11-Aug-23 15-Aug-23 1 16-Aug-23 16-Aug-23 11-Aug-23 16-Aug-23 11-Aug-23 18-Aug-23 6d/w x10 WSD-W-SB306 B/F.R.C Formwork and Rebar RC Concrete Basement Floor level < PR=6nold> 1 15-Aug-23 17-Aug-23 17-Aug-23 18-Aug-23 6d/w x10 WSD-W-SB306 B/F.R.C Formwork and RC Module (8 units) by Mobile Crane @ Basement Floor level < PR=6nold> 24 01-Sep-22 28-Sep-22 210 21-May-24 18-Jun-24 6d/w x10 1 07-Ju-23 07-	WSD-W-S3205 3/F MiC - Installation of MiC Module (14 units) by Mobile Crane @ Second Floor level < <pr=6no d="">></pr=6no>	3	26-Aug-23	29-Aug-23	0 26	6-Aug-23	29-Aug-23	6d/w x10)		I 3/FMIC - Installation of MiC Module (14 units) by Mobile Crane @ Second Floor level < <pr≐6no d="">></pr≐6no>	
WSD-W-S3207 3/F.R.C Roof Construction 24 01-Sep-23 28-Sep-23 210 21-May-24 18-Jun-24 6d/w x10 3.F.R.C Roof Construction 2.F.R.C Roof Construction 2.F.R.C.	WSD-W-S3206 Time Risk Allowance for Structural Works @ Third Floor Level Phase 2			-							Time Risk Allowance for Structural Works @ Third Floor Level Phase 2	
Phase 3 (Grid A'-C/1-4) 167 06-Jul-23 19-Dec-23 273 07-Jul-23 17-Sep-24 17-Sep-24 18-Sep-24 19-Dec-23 17-Sep-24 19-Dec-23 17-Sep-24 19-Dec-23 17-Sep-24 19-Dec-23 17-Sep-24 19-Dec-23 17-Sep-24 19-Dec-23 17-Sep-24 19-Dec-23 20-Jul-23	WSD-W-S3207 3/F R.C Roof Construction			-							□ 3/F.R.C.:- Roof Construction	
Basement Floor Level				· ·		,						
WSD-W-SB301 B/F R.C Suspended Slab 12 06-Jul-23 19-Jul-23 1 07-Jul-23 20-Jul-23 6d/w x10 B/F R.C Formwork and Rebar to RC Column 12 20-Jul-23 02-Aug-23 1 21-Jul-23 03-Aug-23 6d/w x10 B/F R.C Formwork and Rebar RC Wall 20-Jul-23 02-Aug-23 1 21-Jul-23 03-Aug-23 6d/w x10 B/F R.C Formwork and Rebar RC Wall 20-Jul-23 02-Aug-23 1 21-Jul-23 03-Aug-23 6d/w x10 B/F R.C Formwork and Rebar RC Concrete Beam/Slab (Ground Slab) incl. Erect Scaffold 12 01-Aug-23 14-Aug-23 15-Aug-23 15-Aug-23 16-Aug-23 16												
WSD-W-SB303 B/F R.C Formwork and Rebar RC Wall WSD-W-SB304 B/F R.C Formwork and Rebar RC Concrete Beam/Slab (Ground Slab) incl. Erect Scaffold 12 20-Jul-23 02-Aug-23 1 21-Jul-23 03-Aug-23 6d/w x10 13 20-Jul-23 02-Aug-23 1 02-Aug-23 15-Aug-23 1 02-Aug-23 15-Aug-23 15-Aug-23 6d/w x10 WSD-W-SB304 B/F R.C Formwork and Rebar RC Concrete Beam/Slab (Ground Slab) incl. Erect Scaffold 13 15-Aug-23 15-Aug-23 1 16-Aug-23 17-Aug-23 17-Aug-2	WSD-W-SB301 B/F R.C Suspended Slab	12	06-Jul-23	19-Jul-23	1 07	7-Jul-23	20-Jul-23	6d/w x10)			
WSD-W-SB304 B/F R.C Formwork and Rebar RC Concrete Beam/Slab (Ground Slab) incl. Erect Scaffold 12 01-Aug-23 1 02-Aug-23 1 5-Aug-23 1 02-Aug-23 1 5-Aug-23 6d/w x10 WSD-W-SB305 B/F R.C Concreting 1 15-Aug-23 1 16-Aug-23 1 17-Aug-23 1 17-A	WSD-W-SB302 B/F R.C Formwork and Rebar to RC Column	12	20-Jul-23	02-Aug-23	1 2	1-Jul-23	03-Aug-23	6d/w x10)		B/F, R,C; - Formwork and Rebar to RC Column	
WSD-W-SB305 B/F R.C Concreting 1 15-Aug-23 15-Aug-23 1 16-Aug-23 16-Aug-	WSD-W-SB303 B/F R.C Formwork and Rebar RC Wall	12	20-Jul-23	02-Aug-23	1 2	1-Jul-23	03-Aug-23	6d/w x10)		B/F R.C Formwork and Rebar RC Wall	
WSD-W-SB305 B/F R.C Concreting 1 15-Aug-23 15-Aug-23 1 16-Aug-23 16-Aug-23 16-Aug-23 6d/w x10 WSD-W-SB306 B/F MiC - Installation of MiC Module (8 units) by Mobile Crane @ Basement Floor level < <pr=6no d=""> 2 16-Aug-23 17-Aug-23 1 17-Aug-23 18-Aug-23 6d/w x10 1 17-Aug-23 18-Aug-23 16-Aug-23 17-Aug-23 1 17-Aug-23 18-Aug-23 17-Aug-23 18-Aug-23 18-Aug-23</pr=6no>	WSD-W-SB304 B/F R.C Formwork and Rebar RC Concrete Beam/Slab (Ground Slab) incl. Erect Scaffold	12	01-Aug-23	14-Aug-23	1 02	2-Aug-23	15-Aug-23	6d/w x10)		B/F R.C Formwork and Rebar RC Concrete Beam/Stab (Ground Stab) incl. Erect Scaffold	
WSD-W-SB306 B/F MiC - Installation of MiC Module (8 units) by Mobile Crane @ Basement Floor level < <pr=6no d="">> 2 16-Aug-23 17-Aug-23 1 17-Aug-23 18-Aug-23 6d/w x10</pr=6no>	WSD-W-SB305 B/F R.C Concreting	1	15-Aug-23	15-Aug-23	1 16	6-Aug-23	16-Aug-23	6d/w x10)		I BiF R.C Conicréting	
	WSD-W-SB306 B/F MiC - Installation of MiC Module (8 units) by Mobile Crane @ Basement Floor level < <pr=6no d="">></pr=6no>			-	1 17	7-Aug-23	18-Aug-23	6d/w x10			B}F MiC -Installation of MiC Module (8 units) by Mobile Crane @ Basement Floor level ≪PR=6no/d>>	
	· · · · · · · · · · · · · · · · · · ·			-								
Aurus Date Revision Checked Ann	300000000000000000000000000000000000000									<u> </u>		











Date	Revision	Checked	Approved
03-Nov-21	Revision 0 First Issue	AH	WJ
19-Jan-22	Revision 1 First Issue	PF	AH
08-Feb-22	Revision 2 First Issue		

Contract No. 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Administration Building Page 6 of 10 In-situ Reprovisioning of Sha Tin WTW (South Works) - Admin. Bldg Date prepared: 11-Feb-22 at 13:13 NDJIFIMAM JIJASIONID JIFIMAM JIJASIONID JIFIMAM JIJASIONID JIFIMAM JIJASIONID JIFIMAM JIJASIONID JIFIMAM JIJASIONID J Ground Floor Level 28 21-Aug-23 17-Sep-23 0 21-Aug-23 G/F R.C. - Formwork and Rebar to RC Column WSD-W-SG301 G/F R C - Formwork and Rebar to RC Column 12 21-Aug-23 02-Sep-23 0 21-Aug-23 02-Sep-23 6d/w x10 ■ G/F R.C. - Formwork and Rebar to RC Wall WSD-W-SG302 G/F R.C. - Formwork and Rebar to RC Wall 02-Sep-23 0 21-Aug-23 02-Sep-23 21-Aug-23 G/F R.C. - Formwork and Rebar to RC|Concrete Slab (First Floor Slab) incl. Erect Scaffold WSD-W-SG303 G/F R.C. - Formwork and Rebar to RC Concrete Slab (First Floor Slab) incl. Erect Scaffold 12 01-Sep-23 14-Sep-23 0 01-Sep-23 14-Sep-23 6d/w x10 WSD-W-SG304 G/F R.C. - Concreting 15-Sep-23 6d/w x10 15-Sen-23 15-Sen-23 0 15-Sen-23 I: G/F:MiC - Installation of MiC Module (3 units) by Mobile Crane @ Ground Floor level <<PR=6no/d> WSD-W-SG305 G/F MiC - Installation of MiC Module (3 units) by Mobile Crane @ Ground Floor level <<PR=6no/d>> 16-Sep-23 16-Sep-23 16-Sep-23 6d/w x10 Time Risk Allowance for Structural Works @ Ground Level Phase 3 WSD-W-SG306 Time Risk Allowance for Structural Works @ Ground Level Phase 3 1 17-Sep-23 17-Sep-23 0 17-Sep-23 17-Sep-23 7d/w x10 18-Sen-23 19-Dec-23 273 18-Sep-23 1/F R.C. - Formwork and Rebar to RC Column WSD-W-S1301 1/F R.C. - Formwork and Rebar to RC Column 03-Oct-23 0 18-Sep-23 03-Oct-23 6d/w x10 18-Sep-23 ■ 1/F R.C. - Formwork and Rebar to RC Wall WSD-W-S1302 1/F R.C. - Formwork and Rebar to RC Wall 12 18-Sep-23 03-Oct-23 0 18-Sep-23 03-Oct-23 6d/w x10 ■ 1/F R.C. - Formwork and Rebar to RC Concrete Slab (Secound Floor Slab) incl. Erect Scaffold WSD-W-S1303 1/F R.C. - Formwork and Rebar to RC Concrete Slab (Secound Floor Slab) incl. Erect Scaffold 12 29-Sep-23 14-Oct-23 0 29-Sep-23 14-Oct-23 6d/w x10 I 1/F R.C. - Concreting WSD-W-S1304 1/F R.C. - Concreting 16-Oct-23 16-Oct-23 6d/w x10 16-Oct-23 0 16-Oct-23 1 1/F MiC - Installation of MiC Module (3 units) by Mobile Crane @ First Floor level < PR = 6no/d> WSD-W-S1305 1/F MiC - Installation of MiC Module (3 units) by Mobile Crane @ First Floor level <<PR=6no/d>> 17-Oct-23 17-Oct-23 0 17-Oct-23 17-Oct-23 6d/w x10 I Time Risk Allowance for Structural Works @ First Floor Level Phase 3 WSD-W-S1306 Time Risk Allowance for Structural Works @ First Floor Level Phase 3 18-Oct-23 18-Oct-23 18-Oct-23 7d/w x10 18-Oct-23 0 1. 1/F R.C. + RC Roof Construction (Lower Roof, GL A'-E/1-4) 2 WSD-W-S1307 1/F R.C. - RC Roof Construction (Lower Roof, GL A'-E/1-4) 19-Oct-23 20-Oct-23 37 02-Dec-23 04-Dec-23 6d/w x10 1/F R.C. - Architectural Facade/ Concrete Plinth/Drainage System/Balustrade on Roof Terrage @ Second Level WSD-W-S1308 1/F R.C. - Architectural Facade/ Concrete Plinth/ Drainage System/ Balustrade on Roof Terrace @ Second 50 21-Oct-23 19-Dec-23 220 22-Jul-24 171 31-Jul-23 Phase 4 (Car Park and Ramp) 15-Dec-23 Carpark/Ramp -: Installation of MiC; Module (5; units) by Mobile Crane @ Car Park <<PR=6no/d>> Carpark/Ramp - Installation of MiC Module (5 units) by Mobile Crane @ Car Park <<PR=6no/d>> 31-Jul-23 31-Jul-23 WSD-W-CP01 31-Jul-23 0 31-Jul-23 6d/w x10 Carpark/Ramp - RC Column 5.7m x 19nos @ Basement Level (GL A-J/ 5-7) < PR = 7d/ column 7 mould> Carpark/Ramp - RC Column 5.7m x 19nos @ Basement Level (GL A'-J/ 5-7)<<PR= 7d/ column, 7 mould>> 21 01-Aug-23 24-Aug-23 0 01-Aug-23 24-Aug-23 6d/w x10 Carpark/Ramp:- RC:Concrete Slab (Ground Slab) incl. Erect Scaffold Carpark/Ramp - RC Concrete Slab (Ground Slab) incl. Erect Scaffold 16-Sep-23 0 25-Aug-23 Carpark/Ramp - RC Column fr.4.7m to 9.4m x 9nos @ Ground Level (GL A'-J/ 5-7)<<PR=14d/column, 5 moulds Carpark/Ramp - RC Column fr 4.7m to 9.4m x 9nos @ Ground Level (GL A'-J/ 5-7)<<PR= 14d/ column. 5 28 WSD-W-CP04 18-Sep-23 21-Oct-23 0 18-Sen-23 21-Oct-23 Carpark/Ramp - Concrete Structure for Ramp between G/F & 1/F including landing Carpark/Ramp - Concrete Structure for Ramp between G/F & 1/F including landing WSD-W-CP05 18 24-Oct-23 13-Nov-23 0 24-Oct-23 13-Nov-23 6d/w x10 Carpark/Ramp - Concrete Structure for Ramp between 1/F & 2/F including WSD-W-CP06 Carpark/Ramp - Concrete Structure for Ramp between 1/F & 2/F including 08-Dec-23 0 14-Nov-23 08-Dec-23 6d/w x10 Carpark/Ramp - Construction of Roadworks for Emergency Vehicle Access heading to Administration Building WSD-W-CP07 Carpark/Ramp - Construction of Roadworks for Emergency Vehicle Access heading to Administration Build 11-Nov-23 163 10-Apr-24 03-Jun-24 ◆ Carpark/Ramp - Completion of Structure for Car Park WSD-W-CP08 Camark/Ramp - Completion of Structure for Car Park 0 11-Nov-23 163 03-Jun-24 6d/w x10 ■ Time Risk Allowance for Activities WSD-D-CP01 to WSD+D-CP-06 WSD-W-CP09 Time Risk Allowance for Activities WSD-D-CP01 to WSD-D-CP-06 09-Dec-23 15-Dec-23 0 09-Dec-23 15-Dec-23 7d/w x10 Glazing/ Curtain Wall Glazing/Curtain Wall - Bracket Installation for Building <<PR=4d/storey>> WSD-W-GL01 Glazing/Curtain Wall - Bracket Installation for Building <<PR=4d/storey>> 28-Sep-23 22 27-Sep-23 Glazing/Curtain Wall - Curtain Wall Panel Installation for Building <<PR=5d/storey>> Glazing/Curtain Wall - Curtain Wall Panel Installation for Building << PR=5d/storey>> 48 27-Nov-23 22 28-Oct-23 WSD-W-GL02 29-Sep-23 22-Dec-23 6d/w x10 ■ Glazing/Curtain Wall - Bracket Installation for Ramp << PR=4d/storey>> Glazing/Curtain Wall - Bracket Installation for Ramp <<PR=4d/storey>> WSD-W-GI 03 16-Dec-23 22-Dec-23 0 16-Dec-23 22-Dec-23 6d/w x10 Glazing/Curtain Wall -: Curtain Wall Panel Installation for Ramp << PR=5d/storey>> WSD-W-GL04 Glazing/Curtain Wall - Curtain Wall Panel Installation for Ramp << PR=5d/storey>> 23-Dec-23 23-Jan-24 0 23-Dec-23 6d/w x10 Glazing/Curtain Wall + Steel Frame Installation @ Ground Floor Entrance Lobby Glazing/Curtain Wall - Steel Frame Installation @ Ground Floor Entrance Lobby WSD-W-GL05 30-Nov-23 37 10-Jan-24 I Glazing/Curtain Wall - Glazing Panel Installation Glazing/Curtain Wall - Glazing Panel Installation WSD-W-GL06 07-Dec-23 37 17-Jan-24 23-Jan-24 6d/w x10 01-Dec-23 ◆ Glazing/Curtain Wall - Completion of Building Envelope Glazing/Curtain Wall - Completion of Building Envelope WSD-W-GL07 23-Jan-24 23-Jan-24 ABWF/ MEP/ FS/ Fitout Works 110 14-Aug-23 Basement - Transformer Room/ LV Switch Room/ Utility Riser Room/ Service Tunnel & Yard 30-May-24 28 14-Aug-23 Tx & LV\$B Rooms - MiC Connection Works/ Falsework Removal/ Preparation for ABWF & MEP Works WSD-B-TR01 Tx & LVSB Rooms - MiC Connection Works/ Falsework Removal/ Preparation for ABWF & MEP Works 28-Aug-23 11 14-Aug-23 09-Sep-23 6d/w x10 Tx & LVSB Rooms - ABWF Dea1 - Dea3 WSD-B-TR02 Tx & LVSB Rooms - ABWF Deg1 - Deg3 26-Oct-23 11 11-Sep-23 08-Nov-23 6d/w x10 Tx & LVSB Rooms - BS 1st Fix - 3rd Fix WSD-B-TR03 Tx & LVSB Rooms - BS 1st Fix - 3rd Fix 22-Jan-24 11 09-Nov-23 03-Feb-24 6d/w x10 27-Oct-23 Tx & LVSB Rooms - CLP Inspection & Defect Rectificati WSD-R-TR05 Tx & LVSB Rooms - CLP Inspection & Defect Rectification 23-Jan-24 05-Feb-24 28 28-Feb-24 Tx & LVSB Rooms - Installation of Tx & Testing by CLP Tx & LVSB Rooms - Installation of Tx & Testing by CLP WSD-B-TR06 90 30-May-24 28 13-Mar-24 04-Jul-24 6d/w x10 Construction of Riser/Shaft/Tunnel for Cable Containmer WSD-B-TR06.5 | Construction of Riser/Shaft/Tunnel for Cable Containment 46 23-Jan-24 19-Mar-24 79 03-May-24 27-Jun-24 6d/w x10 Tx & LVSB Rooms - Completion of CLP Cable Laying Leading to Administration Building (to be constructed by Othe

6d/w x10

04-Jul-24

24-Aug-24



WSD-B-TR08

WSD-B-EG01



EGM - Floor Screeding, Wall Plastering & Doors & Wall Lining

Tx & LVSB Rooms - CLP Power-on Date

EGM - Concrete Plinth, Waterproofing & Test

Basement - Emergency Generator Room

Tx & LVSB Rooms - Completion of CLP Cable Laying Leading to Administration Building (to be constructe

EGM - MiC Connection Works/ Falsework Removal/ Preparation for ABWF & MEP Works

FIRST PROGRAMME REV. 1 **ALL ACTIVITIES**

25-May-24 28 27-Jun-24 27-Jun-24

42 05-Feb-24

28 | 20-Feb-24 | 22-Mar-24 | 11 | 04-Mar-24 | 09-Apr-24 | 6d/w x10

05-Feb-24

30-May-24 28

06-Jul-24

02-Feb-24





◆ Tx & LVSB Rooms - CLP Power-on Date

EGM - Floor Screeding, Wall Plastering & Doors & Wall Lining

EGM - Concrete Plinth, Waterproofing & Test

EGM:- MiC Connection Works/ Falsework Removal/ Preparation for ABWF & MEP Works

Date	Revision	Checked	Approved
3-Nov-21	Revision 0 First Issue	AH	WJ
9-Jan-22	Revision 1 First Issue	PF	AH
8-Feb-22	Revision 2 First Issue		

Contract No. 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Administration Building Page 7 of 10 In-situ Reprovisioning of Sha Tin WTW (South Works) - Admin. Bldg Date prepared: 11-Feb-22 at 13:13 WSD-B-EG04 EGM - MEP Works 18-May-24 29-Apr-24 42 20-Jun-24 6d/w x10 B EGM - Move In Generator Equipments WSD-B-EG05 EGM - Move-In Generator Equipments 30-Apr-24 07-May-24 42 21-Jun-24 27-Jun-24 6d/w x10 EGM - Final Coat to Wall & Sealer to Floor WSD-B-EG06 EGM - Final Coat to Wall & Sealer to Floor 29-May-24 42 28-Jun-24 19-Jul-24 6d/w x10 08-May-24 EGM - Install Generator Equipments & Testino WSD-B-FG07 EGM - Install Generator Equipments & Testing 28 03-Jul-24 42 20-Jul-24 21-Aug-24 6d/w x10 I EGM - Install Doors & Ironmogery WSD-B-EG08 EGM - Install Doors & Ironmogery 06-Jul-24 42 22-Aug-24 24-Aug-24 6d/w x10 Basement - Sprinkler/FS Water Tank 12-Aug-24 10-Apr-24 24-Aug-24 6d/w x10 Sprinkler Tank/ FS Tank Room - Waterproofing & Testing 10-Apr-24 11 10-Apr-24 23-Apr-24 6d/w x10 WSD-B-FS01 Sprinkler Tank/ FS Tank Room - Waterproofing & Testing 12 23-Mar-24 Sprinkler: Tank/ FS Tank Room - Plastering: Works Inside Tank WSD-B-FS02 Sprinkler Tank/ FS Tank Room - Plastering Works Inside Tank 24-Apr-24 11 24-Apr-24 08-May-24 6d/w x10 Sprinkler: Tank/ FS Tank Room - Wall & Floor Tiling Works WSD-B-FS03 Sprinkler Tank/ FS Tank Room - Wall & Floor Tiling Works 25-Apr-24 24-May-24 11 09-May-24 06-Jun-24 6d/w x10 Sprinkler Tank/ FS Tank Room - Install Equipment WSD-R-FS04 Sprinkler Tank/ FS Tank Room - Install Equipment 60 17-Aug-24 6d/w x10 05-Aug-24 11 07-Jun-24 25-May-24 Sprinkler Tank/ FS Tank Room - Install Cat Ladder & Hatch Cover WSD-B-FS05 Sprinkler Tank/ FS Tank Room - Install Cat Ladder & Hatch Cover 12-Aug-24 11 19-Aug-24 24-Aug-24 6d/w x10 Basement - Office Fitting-Out 17-Feb-24 62 6d/w x10 B/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works WSD-B-BA-01 B/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works 02-Nov-23 62 11-Jan-24 B/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door WSD-R-BA-02 B/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door 48 03-Nov-23 30-Dec-23 62 18-Jan-24 16-Mar-24 6d/w x10 B/F Interior Decoration: MEP Works incl. 1st fix, 2nd fix & final fix installation WSD-B-BA-03 B/F Interior Decoration - MEP Works incl. 1st fix. 2nd fix & final fix installation 17-Jan-24 62 03-Feb-24 06-Apr-24 6d/w x10 B/F Interior Decoration - Inspection/ Testing/ Defect Rectification WSD-B-BA-04 B/F Interior Decoration - Inspection/ Testing/ Defect Rectification 18-Jan-24 17-Feb-24 62 08-Apr-24 06-May-24 6d/w x10 Basement - Dangerous Goods Store Fitting Out Basement Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works WSD-R-DG01 Basement Interior Decoration - Site Clearance/ Preparation for ABWE & MEP Works 02-Nov-23 257 07-Sep-24 13-Sep-24 6d/w x10 6 27-Oct-23 Basement Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, doo WSD-B-DG02 Basement Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, 48 03-Nov-23 30-Dec-23 257 14-Sep-24 12-Nov-24 6d/w x10 Basement Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation WSD-B-DG03 Basement Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation 17-Jan-24 257 03-Oct-24 28-Nov-24 6d/w x10 Basement Interior Decoration - Inspection/ Testing/ Defect Rectification WSD-B-DG04 Basement Interior Decoration - Inspection/ Testing/ Defect Rectification 18-Jan-24 17-Feb-24 257 29-Nov-24 Time Risk Allowance for Activities from WSD-B-L1-01 to WSD-B-L1-04 Time Risk Allowance for Activities from WSD-B-L1-01 to WSD-B-L1-04 WSD-R-DG05 24-Feb-24 316 30-Dec-24 05-Jan-25 7d/w x10 18-Feb-24 Ground Floor Laboratory/ Vistory Reception Facility/ Water Treatment Training Venue 14-Feh-24 181 05-Jun-24 G/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works G/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works 181 05-Jun-24 G/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door G/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door 48 31-Oct-23 27-Dec-23 181 13-Jun-24 08-Aug-24 6d/w x10 G/F Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation WSD-B-LG-03 G/F Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation 13-Jan-24 181 29-Jun-24 24-Aug-24 6d/w x10 16-Nov-23 G/F Interior Decoration - Inspection/ Testing/ Defect Rectification WSD-B-LG-04 G/F Interior Decoration - Inspection/ Testing/ Defect Rectification 24 15-Jan-24 14-Feb-24 181 26-Aug-24 23-Sep-24 6d/w x10 1/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works WSD-B-L1-01 1/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works 6 24-Nov-23 30-Nov-23 0 24-Nov-23 30-Nov-23 6d/w x10 1/F Interior Decoration - ABWF Works ind ; block wall; plastering & paint, ceiling panel, raised floor, door 1/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door WSD-B-L1-02 29-Jan-24 61 17-Feb-24 17-Apr-24 6d/w x10 48 01-Dec-23 1/F Interior Decoration - MEP Works incl. 1st fix. 2nd fix & final fix installation 1/F Interior Decoration - MEP Works incl. 1st fix. 2nd fix & final fix installation WSD-B-I 1-03 48 6d/w x10 18-Dec-23 17-Feb-24 61 05-Mar-24 04-May-24 1/F Interior Decoration - Inspection/ Testing/ Defect Rectification WSD-B-L1-04 1/F Interior Decoration - Inspection/ Testing/ Defect Rectification 16-Mar-24 61 06-May-24 Time Risk Allowance for Activities from WSD-B-L1-01 to WSD-B-L1-04 Time Risk Allowance for Activities from WSD-B-L1-01 to WSD-B-L1-04 WSD1 23-Mar-24 79 04-Jun-24 Second Floor Office Fitting-Out 23-Mar-24 148 01-Dec-23 2/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works 2/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works WSD-B-L2-01 07-Dec-23 0 01-Dec-23 07-Dec-23 6d/w x10 2/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door 2/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door 48 05-Feb-24 0 08-Dec-23 2/F Interior Decoration - MEP Works incl. 1st fix 2nd fix & final fix installation 2/F Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation WSD-B-L2-03 24-Feb-24 56 06-Mar-24 06-May-24 6d/w x10 27-Dec-23 2/F Interior Decoration - Inspection/ Testing/ Defect Rectification 23-Mar-24 148 26-Aug-24 WSD-B-I 2-04 2/F Interior Decoration - Inspection/ Testing/ Defect Rectification 23-Sep-24 6d/w x10 26-Feb-24 Third Floor Office Fitting-Out 30-Jan-24 13/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works 3/F Interior Decoration - Site Clearance/ Preparation for ABWF & MEP Works 42 30-Jan-24 3/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel raised floor, door WSD-B-L3-02 3/F Interior Decoration - ABWF Works incl. block wall, plastering & paint, ceiling panel, raised floor, door 48 09-Apr-24 0 06-Feb-24 09-Apr-24 6d/w x10 06-Feb-24 3/F Interior Decoration - MEP Works incl. 1st fix, 2nd fix & final fix installation WSD-B-I 3-03 3/F Interior Decoration - MEP Works incl. 1st fix. 2nd fix & final fix installation 48 0 26-Feb-24 25-Apr-24 6d/w x10 26-Feb-24 25-Apr-24 3/F Interior Decoration - Inspection/ Testing/ Defect Rectification 3/F Interior Decoration - Inspection/ Testing/ Defect Rectification 05-Jun-24 6d/w x10 WSD-B-L3-04 33 05-Jun-24 0 26-Apr-24 ■ Time Risk Allowance for Third Floor Office Fitting Out WSD-B-L3-05 Time Risk Allowance for Third Floor Office Fitting Out 10-Jun-24 0 06-Jun-24 10-Jun-24 7d/w x10 MEP Lift Installation (E1) 181 25-Jul-24 Lift E1: - Erect Falsework & Builders Works inside Lift Shaft WSD-B-LT1-01 Lift E1 - Erect Falsework & Builders Works inside Lift Shaft 22-Mar-24 146 25-Jul-24 19-Sep-24 6d/w x10 Lift E1 - Install Lift including Fitting-Out WSD-B-LT1-02 Lift E1 - Install Lift including Fitting-Out 60 23-Mar-24 21-May-24 181 20-Sep-24 7d/w x10 Lift E1 - Testing after Power Energization WSD-B-LT1-03 Lift E1 - Testing after Power Energization 02-Jun-24 181 19-Nov-24 ☐ Lift E1 - Submit Form LE5 & Wait for EMSD Inspection WSD-B-LT1-04 Lift E1 - Submit Form LE5 & Wait for EMSD Inspection 16-Jun-24 181 01-Dec-24 14-Dec-24 7d/w x10 Date Checked Approved Non-Critical Tas FIRST PROGRAMME REV. 1 03-Nov-21 Revision 0 First Issue Near Critical Task 19-Jan-22 Revision 1 First Issue АН Critical Task Tasks Summary 俊 和 **ALL ACTIVITIES**

Time Risk Al

P6 Hammock

Revision 2 First Issue

08-Feb-22

Contract No. 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Administration Building Page 8 of 10 In-situ Reprovisioning of Sha Tin WTW (South Works) - Admin. Bldg Date prepared: 11-Feb-22 at 13:13 2022 2023 2024 2025 2026 2027 20 NDJFMAMJJASONDJFMAMJJASONDJFMAMJJASONDJFMAMJJASONDJFMAMJJASONDJFMAMJJASONDJ WSD-B-LT1-05 Lift E1 - Inspection for Lift Fitout & Issue Lift Certification LE6 17-Jun-24 14-Jul-24 181 15-Dec-24 MEP Lift Installation (F2 & F3) 28-Aug-24 136 19-Jun-24 Lift E2 & E3 (FS) - Erect Falsework & Builders Works inside Lift Shaft WSD-B-LT2-01 Lift E2 & E3 (FS) - Erect Falsework & Builders Works inside Lift Shaft 14-Aug-24 6d/w x10 22-Mar-24 | 116 | 19-Jun-24 Lift E2 & E3 (FS) - Install Lift including Fitting-Out WSD-B-LT2-02 Lift E2 & E3 (FS) - Install Lift including Fitting-Out 60 23-Mar-24 21-May-24 145 15-Aug-24 13-Oct-24 7d/w x10 Lift E2 & E3 (F\$) - Testing after Power Energization WSD-B-LT2-03 Lift E2 & E3 (FS) - Testing after Power Energization 11-Jun-24 | 136 | 14-Oct-24 Lift E2 & E3 (FS) - Submit Form LE5 & Wait for EMSD Inspection WSD-B-LT2-04 Lift E2 & E3 (FS) - Submit Form LE5 & Wait for EMSD Inspection 08-Nov-24 7d/w x10 12-Jun-24 25-Jun-24 136 26-Oct-24 Lift E2 & E3 (FS) - Inspection for Lift Fitout & Issue Lift Certification LE6 WSD-B-LT2-05 Lift E2 & E3 (FS) - Inspection for Lift Fitout & Issue Lift Certification LE6 28 23-Jul-24 136 09-Nov-24 06-Dec-24 7d/w x10 26-Jun-24 Dismantle Material Hoist 18-Dec-24 WSD-B-LT2-06 Dismantle Material Hoist 04-Aug-24 136 07-Dec-24 7d/w x10 Remaining Works at Hosit Area WSD-B-LT2-07 Remaining Works at Hosit Area 136 19-Dec-24 Other Facilities 23-Sen-24 11-Jun-24 Fit-out & Plumber Works - Water Closet Rooms WSD-B-OF-01 Fit-out & Plumber Works - Water Closet Rooms 88 23-Sep-24 11-Jun-24 0 11-Jun-24 23-Sep-24 6d/w x10 FS Sprinkler Pump Room - E&M Installation of pumping system & BS Work WSD-B-OF-02 FS Sprinkler Pump Room - E&M Installation of pumping system & BS Works 64 24-Aug-24 0 11-Jun-24 24-Aug-24 6d/w x10 Hot Water Plant/ Lab Waste Tank/ Water Sump Tank & Pump/ Foul Water Sump Pump WSD-B-OF-03 Hot Water Plant/ Lab Waste Tank/ Water Sump Tank & Pump/ Foul Water Sump Pump 23-Sep-24 0 11-Jun-24 Car Park - MEP Works 06-Jun-24 90 04-Jun-24 Car Park - Erect Falseworks for Builders & MEP Works WSD-B-CP-01 | Car Park - Erect Falseworks for Builders & MEP Works 12 13-Nov-23 25-Nov-23 163 04-Jun-24 18-Jun-24 6d/w x10 Car Park - ABWF/ MEP/ FS Works WSD-B-CP-02 | Car Park - ABWF/ MEP/ FS Works 27-Nov-23 20-Jan-24 163 19-Jun-24 10-Aug-24 6d/w x10 Car Park - Electric Vehicle Charging Facilities WSD-B-CP-03 Car Park - Electric Vehicle Charging Facilities 22-Jan-24 28-Feb-24 163 12-Aug-24 14-Sep-24 6d/w x10 Car Park - Testing & Commissioning for Electric Vehicle Charging Facilities WSD-B-CP-04 Car Park - Testing & Commissioning for Electric Vehicle Charging Facilities 6 31-May-24 06-Jun-24 90 23-Sep-24 6d/w x10 16-Sen-24 Works for KD-21-Oct-23 0 13-Sep-23 ABWF & FS Works for Server Rooms/ Security Control Room WSD-KD1-01 ABWF & FS Works for Server Rooms/ Security Control Room 05-Sep-23 38 13-Sep-23 ◆ Complete the Civil. Structure Works, ABWF & FS for Server Rooms/ Security Control Room WSD-KD1-02 Complete the Civil, Structure Works, ABWF & FS for Server Rooms/ Security Control Room 05-Sep-23 21-Oct-23 ABWF & FS Works for Main Control Room WSD-KD1-03 ABWF & FS Works for Main Control Room 32 21-Oct-23 0 13-Sep-23 21-Oct-23 6d/w x10 13-Sep-23 ◆ Complete the Civil, Structure Works, ABWF & F\$ for Main Control Room Complete the Civil, Structure Works, ABWF & FS for Main Control Room WSD-KD1-04 21-Oct-23 21-Oct-23 6d/w x10 26-Apr-24 Electrical Power System incl. testing for Basemen WSD-KD2-01 Electrical Power System incl. testing for Basement 19-Feb-24 18-Apr-24 62 07-May-24 04-Jul-24 Electrical Power System incl. testing for Second Floo WSD-KD2-02 Electrical Power System incl. testing for Second Floor 48 26-Feb-24 25-Apr-24 56 07-May-24 04-Jul-24 6d/w x10 Electrical Power System incl. testing for Third Floor WSD-KD2-03 Electrical Power System incl. testing for Third Floor 56 04-Jul-24 0 26-Apr-24 04-Jul-24 6d/w x10 ◆ Termination of Cable to Tx after Cable Laying by 1/WSD/19 WSD-KD2-04 Termination of Cable to Tx after Cable Laying by 1/WSD/19 30-May-24 28 04-Jul-24 6d/w x10 ■ Time Risk Allowance for Activities WSD-KD2-01 to WSD-KD2-04 Time Risk Allowance for Activities WSD-KD2-01 to WSD-KD2-04 05-Jul-24 12-Jul-24 0 05-Jul-24 12-Jul-24 ◆ Completion of CLP Power Supply to Main Control Room, Main Security Room and Server Rooms incl. testing WSD-KD2-06 Completion of CLP Power Supply to Main Control Room, Main Security Room and Server Rooms incl. tes 12-Jul-24 12-Jul-24 6d/w x10 0 31-Aug-24 133 31-May-24 11-Jan-25 External Works Ext. Works - Underground Utilities Works, Drainage Works & Testing WSD-W-X-01 Ext. Works - Underground Utilities Works, Drainage Works & Testing 24-Apr-24 101 31-May-24 Ext. Works - Backfilling to Ground Level WSD-W-X-02 Ext. Works - Backfilling to Ground Level 24-May-24 108 03-Sep-24 Ext. Works - Construction of Remaining Concrete Pavemen Ext. Works - Construction of Remaining Concrete Pavement WSD-W-X-03 48 22-Jul-24 108 03-Oct-24 28-Nov-24 6d/w x10 25-May-24 Ext. Works - Construction of Staircase, ABWF Ext. Works - Construction of Staircase ARWE WSD-W-X-04 48 6d/w x10 28-Jun-24 23-Aug-24 | 108 | 06-Nov-24 03-Jan-25 I Time Risk Allowance for External Works WSD-W-X-05 Time Risk Allowance for External Works 31-Aug-24 133 04-Jan-25 7d/w x10 26-Aug-24 23-Oct-24 0 26-Aug-24 Testing & Commissioning Testing & Commissioning & fixing defects (FS - Related) Testing & Commissioning & fixing defects (FS - Related) WSD-B-TC-01 23-Sen-24 0 26-Aug-24 23-Sen-24 Testing & Commissioning & fixing defects (Non-FS - Related) Testing & Commissioning & fixing defects (Non- FS - Related) 24 WSD-B-TC-02 24-Sep-24 23-Oct-24 0 24-Sep-24 23-Oct-24 6d/w x10 Elevated Walkway No.2 317 05-Oct-22 27-Oct-23 439 08-Feb-25 6d/w x10 ► EW No.2 - Completion of Structural Support at South Works Pumping Station (to be constructed by Other under 1/WSD/19) WSD-W-W2-01 EW No.2 - Completion of Structural Support at South Works Pumping Station (to be constructed by Other 05-Oct-22 696 08-Feb-25 6d/w x10 ☐ EW No.2 - Preparation Works on Structural Support at SWPS for Mic Bridge Erection EW No.2 - Preparation Works on Structural Support at SWPS for Mic Bridge Erection 18-Oct-22 696 08-Feb-25 21-Feb-25 6d/w x10 WSD-W-W2-02 05-Oct-22 ♦ EW No.2 - Completion of Structural Support at Administration Building (integrated in MiC unit) WSD-W-W2-03 EW No.2 - Completion of Structural Support at Administration Building (integrated in MiC unit) 6d/w x10 31-Jul-23 465 22-Feb-25 ■ EW No.2 - Preparation Works on Structural Support at Administration Building for Mic Bridge Erection WSD-W-W2-04 EW No.2 - Preparation Works on Structural Support at Administration Building for Mic Bridge Erection 12 12-Aug-23 465 22-Feb-25 07-Mar-25 6d/w x10 31-Jul-23 EW No.2 - MiC Bridge Installation & Associated Connection Works EW No.2 - MiC Bridge Installation & Associated Connection Works 13-Sep-23 WSD-W-W2-11 19-Sen-23 439 08-Mar-25 EW No.2 - Remaining ABWF, Fitout, BS, Works along Mic Bridge EW No.2 - Remaining ABWF, Fitout, BS Works along Mic Bridge WSD-W-W2-12 30 27-Oct-23 439 15-Mar-25 23-Apr-25 6d/w x10 20-Sep-23 Elevated Walkway No.1 (Structural Support only) 21-Oct-23 444 24-Apr-25 6d/w x10 24-Anr-25 • Completion of Structural Support at Administration Building (integrated in Structural Element, RC Slab on Second Level) Completion of Structural Support at Administration Building (integrated in Structural Element, RC Slab on S 444 24-Apr-25 6d/w x10 592 17-Sep-23 30-Apr-25 0 23-Apr-24 30-Apr-25 7d/w x10 Inspection & Approval by Government Authorities Date Checked Non-Critical Tas



Critical Task

Time Risk Al

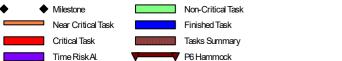
Tasks Summar

P6 Hammock





Page 9 of 10 In-situ Reprovisioning of Sha Tin Contract No. 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Administration Building WTW (South Works) - Admin. Bldg Date prepared: 11-Feb-22 at 13:13 2022 2023 2024 2025 2026 2027 20 NDJFMAMJJJASONDJFMAMJJJASONDJFMAMJJJASONDJ FSD - DG Licence 06-Jun-24 219 23-Apr-24 264 11-Jan-25 FSD - DG Drawings First Submission WSD-IA-F01 FSD - DG Drawings First Submission 15-Nov-23 219 23-Apr-24 21-Jun-24 7d/w x10 17-Sep-23 FSD - DG Drawings Second Amendmen 14-Jan-24 219 22-Jun-24 WSD-IA-F02 FSD - DG Drawings Second Amendmen 60 20-Aug-24 7d/w x10 FSD - DG Drawings Third Amendment WSD-IA-F03 FSD - DG Drawings Third Amendment 60 15-Jan-24 14-Mar-24 219 21-Aug-24 19-Oct-24 7d/w x10 FSD - DG Inspection & Rectification FSD - DG Inspection & Rectification 13-Apr-24 219 20-Oct-24 WSD-IA-F04 FSD - VD Review & Inspection/ Rectification Work WSD-IA-F05 FSD - VD Review & Inspection/ Rectification Works 42 25-May-24 219 19-Nov-24 7d/w x10 FSD - VD issue letter of compliance WSD-IA-F06 FSD - VD issue letter of compliance 31-May-24 219 31-Dec-24 05-Jan-25 7d/w x10 26-May-24 FSD - Issue of DG License WSD-IA-F07 FSD - Issue of DG License 06-Jun-24 219 06-Jan-25 11-Jan-25 7d/w x10 **EPD - Emergency Generator** 11-Aug-24 153 08-Oct-24 EPD - EPD Drawing Submission & Approv EPD - EPD Drawing Submission & Approval 06-Jul-24 153 08-Oct-24 WSD-IA-E01 60 06-Dec-24 7d/w x10 EPD - Site Inspection & Rectification Work WSD-IA-E02 05-Jan-25 7d/w x10 FPD - Site Inspection & Rectification Works 30 05-Aug-24 153 07-Dec-24 07-Jul-24 ■ EPD - Approval Issue 11-Jan-25 7d/w x10 WSD-IA-E03 EPD - Approval Issue 11-Aug-24 | 153 | 06-Jan-25 WSD - WWO 046 (FS)/(PD) 11-Jan-25 0 24-Oct-24 WSD - Submit WWO 46 Part IV (PD) & Arrange Inspection by WSD WSD - Submit WWO 46 Part IV (PD) & Arrange Inspection by WSD WSD-IA-W01 0 24-Oct-24 13-Nov-24 7d/w x10 21 13-Nov-24 WSD - Site Inspection & Rectification Works by WSD (PD) 28-Dec-24 7d/w x10 WSD - Site Inspection & Rectification Works by WSD (PD) 45 WSD-IA-W02 14-Nov-24 28-Dec-24 0 14-Nov-24 WSD - Issue WWO 46 Part V (PD) WSD-IA-W03 WSD - Issue WWO 46 Part V (PD) 14 29-Dec-24 11-Jan-25 0 29-Dec-24 11-Jan-25 7d/w x10 WSD - Submit WWO 46 Part IV (FS) & Arrange Inspection by WSD WSD-IA-W04 WSD - Submit WWO 46 Part IV (FS) & Arrange Inspection by WSD 21 14-Oct-24 30 24-Oct-24 13-Nov-24 7d/w x10 24-Sep-24 WSD - Site Inspection & Rectification Works by WSD (FS) WSD-IA-W05 WSD - Site Inspection & Rectification Works by WSD (FS) 45 28-Nov-24 30 28-Dec-24 7d/w x10 15-Oct-24 14-Nov-24 ■ WSD - Issue WWO 46 Part V (FS) WSD-IA-W06 WSD - Issue WWO 46 Part V (FS) 12-Dec-24 30 29-Dec-24 11-Jan-25 7d/w x10 FSD / OP Inspection 109 30-Apr-25 0 30-Apr-25 7d/w x10 ◆ FSD - Submit Form FS251/314/501 WSD-IA-OP01 FSD - Submit Form FS251/314/501 11-Jan-25 FSD - FSD processes Form 215/314/501 & arranging for Ir WSD-IA-OP01a FSD - FSD processes Form 215/314/501 & arranging for Inspection 14 25-Jan-25 0 12-Jan-25 25-Jan-25 7d/w x10 12-Jan-25 FSD - FS Inspection, Rectification and Reinspection WSD-IA-OP01b FSD - FS Inspection, Rectification and Reinspection 28 22-Feb-25 0 26-Jan-25 22-Feb-25 7d/w x10 FSD - FSD processes FS Certificate Form 172 WSD-IA-OP01c FSD - FSD processes FS Certificate Form 172 23-Feb-25 08-Mar-25 0 23-Feb-25 08-Mar-25 7d/w x10 ◆ FSD - Issued Form 172 Issued by FSD (Fire Certificate WSD-IA-OP01d FSD - Issued Form 172 Issued by FSD (Fire Certificate) 08-Mar-25 0 08-Mar-25 7d/w x10 ◆ BD - Submit Form BA13 WSD-IA-OP02 BD - Submit Form BA13 0 27-Feb-25 0 27-Feb-25 7d/w x10 BD - BD processes Form BA13 & Arranging for Inspection 12-Mar-25 7d/w x10 BD - BD processes Form BA13 & Arranging for Inspection WSD-IA-OP03 14 27-Feb-25 12-Mar-25 0 27-Feb-25 BD - Inspection & Rectification Works WSD-IA-OP04 BD - Inspection & Rectification Works 7d/w x10 ■ BD - Issue OP Certificate BD - Issue OP Certificate WSD-IA-OP05 10-Apr-25 23-Apr-25 0 10-Apr-25 23-Apr-25 7d/w x10 Final Inspection & Handover to Client Final Inspection & Handover to Client WSD-IA-OP06 30-Apr-25 0 24-Apr-25 30-Apr-25 7d/w x10 24-Apr-25 Green Roof at Roof Terrace (Second Level) 27-Jun-24 300 19-Sep-24 G.Roof 2/F Level - Construction of Planter Separation WSD-W2-RT01 G.Roof 2/F Level - Construction of Planter Separation 12 24-Jan-24 06-Feb-24 193 19-Sep-24 GRoof 2/F Level - Installation of Irrigation Pipeworks & Irrigation Point WSD-W2-RT02 G.Roof 2/F Level - Installation of Irrigation Pipeworks & Irrigation Point 30 15-Mar-24 213 29-Oct-24 02-Dec-24 6d/w x10 07-Feb-24 GRoof 2/F Level - Laying of Waterproof Membrane with Protection Screeding & Root Barrier G.Roof 2/F Level - Laying of Waterproof Membrane with Protection Screeding & Root Barrier WSD-W2-RT03 20 16-Mar-24 12-Apr-24 219 10-Dec-24 04-Jan-25 6d/w x10 GRoof 2/F Level - Laying of Drainage, Filter; Moisture Retention Membrane. Erosion Protection Mat WSD-W2-RT04 G.Roof 2/F Level - Laying of Drainage, Filter, Moisture Retention Membrane, Erosion Protection Mat 20 07-May-24 219 06-Jan-25 G.Roof 2/F Level - Filling of Soil Laye WSD-W2-RT05 G.Roof 2/F Level - Filling of Soil Layer 18 29-May-24 219 01-Feb-25 21-Feb-25 08-May-24 G.Roof 2/F Level - Vegetation/ Planting WSD-W2-RT06 G.Roof 2/F Level - Vegetation/ Planting 24 27-Jun-24 219 22-Feb-25 21-Mar-25 6d/w x10 GRoof 2/F Level - Installation of Paying Stones on Walkway G.Roof 2/F Level - Installation of Paving Stones on Walkway WSD-W2-RT07 60 09-May-24 193 19-Oct-24 6d/w x10 GRoof 2/F Level - Installation Lighting G.Roof 2/F Level - Installation Lighting 08-Jun-24 319 25-Mar-25 23-Apr-25 7d/w x10 WSD-W2-RT08 Green Roof at Roof Level 26-Aug-24 193 04-Oct-24 ☐ G.Roof R/F Level - Construction of Planter Separation WSD-W2-RI 01 G.Roof R/F Level - Construction of Planter Separation 12 23-Feb-24 193 04-Oct-24 18-Oct-24 6d/w x10 G.Roof R/F Level - Installation of Irrigation Pipeworks & Irrigation Poin G.Roof R/F Level - Installation of Irrigation Pipeworks & Irrigation Point 24-Apr-24 213 03-Dec-24 09-Jan-25 6d/w x10 WSD-W2-RL02 30 G.Roof R/F Level - Laying of Waterproof, Membrane with Protection Screeding & Root Barrier WSD-W2-RL03 G.Roof R/F Level - Laying of Waterproof Membrane with Protection Screeding & Root Barrier 20-May-24 213 10-Jan-25 05-Feb-25 6d/w x10 25-Apr-24 GRoof R/F Level - Laying of Drainage, Filter, Mosture Retention Membrane, Erosion Protection Mat WSD-W2-RL04 G.Roof R/F Level - Laying of Drainage, Filter, Moisture Retention Membrane, Erosion Protection Mat 20 13-Jun-24 213 06-Feb-25 28-Feb-25 G.Roof R/F Level - Filling of Soil Lave WSD-W2-RI 05 G.Roof R/F Level - Filling of Soil Layer 05-Jul-24 213 01-Mar-25 GRoof R/F Level - Turf Laying on Roof WSD-W2-RL06 G.Roof R/F Level - Turf Laying on Roof 24 06-Jul-24 02-Aug-24 213 22-Mar-25 23-Apr-25 6d/w x10 G.Roof R/F Level - Installation of Paving Stones on Walkway WSD-W2-RL07 G.Roof R/F Level - Installation of Paving Stones on Walkway 22-Jul-24 193 31-Dec-24 14-Mar-25 6d/w x10 Milestone Non-Critical Tas



FIRST PROGRAMME REV. 1 ALL ACTIVITIES





Date	Revision	Checked	Approved
03-Nov-21	Revision 0 First Issue	AH	WJ
19-Jan-22	Revision 1 First Issue	PF	AH
08-Feb-22	Revision 2 First Issue		

Page 10 of 10 Contract No. 6/WSD/21 In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works) Administration Building In-situ Reprovisioning of Sha Tin WTW (South Works) - Admin. Bldg. Date prepared: 11-Feb-22 at 13:13 Activity Name NDJFMAMJJASONDJFMAMJJASONDJFMAMJJJASONDDJFMAMJJASONDJFMAMJJASONDJFMAMJJJASONDJJFMAMJJJASONDJFMAMJJJASONDJ G.Roof R/F Level - Installation Lighting WSD-W2-RL08 G.Roof R/F Level - Installation Lighting 23-Jul-24 26-Aug-24 30-Apr-25 0 24-Jan-24 Courtvard at Ground Level 24-Jan-24 G.Roof G/F Level - Formation of Slope profile (Grid H-M/ 5-9) 22-Mar-24 0 24-Jan-24 WSD-W2-CY01 G.Roof G/F Level - Formaiton of Slope profile (Grid H-M/ 5-9) GRoof G/F Level - Hydroseeding on Slope WSD-W2-CY02 G.Roof G/F Level - Hydroseeding on Slope 30 23-Mar-24 02-May-24 0 23-Mar-24 02-May-24 6d/w x10 G.Roof G/F Level - Concrete Structure incl. Planter/ Bearing Wall/ Bench G.Roof G/F Level - Concrete Structure incl. Planter/ Bearing Wall/ Bench WSD-W2-CY03 29-Jun-24 0 03-May-24 29-Jun-24 6d/w x10 G.Roof G/F Level - Installation of Drainage System at Courtyard G.Roof G/F Level - Installation of Drainage System at Courtyard 48 26-Aug-24 6d/w x10 WSD-W2-CY04 02-Jul-24 26-Aug-24 0 02-Jul-24 G.Roof G/F Level - Installation of Irrigation Pipeworks & Irrigation Poin 48 G.Roof G/F Level - Installation of Irrigation Pipeworks & Irrigation Point 26-Aug-24 0 02-Jul-24 26-Aug-24 6d/w x10 WSD-W2-CY05 02-Jul-24 G.Roof G/F Level - Laving of Watergroof Membrane with Protection Screeding WSD-W2-CY06 G.Roof G/F Level - Laying of Waterproof Membrane with Protection Screeding 09-Oct-24 0 27-Aug-24 09-Oct-24 6d/w x10 G.Roof G/F Level - Soil Placement in Planter (2m depth) WSD-W2-CY07 G.Roof G/F Level - Soil Placement in Planter (2m depth) 36 10-Oct-24 21-Nov-24 0 10-Oct-24 21-Nov-24 GRoof G/F Level - Tree Transplant (39nos) 40 22-Nov-24 10-Jan-25 6d/w x10 WSD-W2-CY08 G.Roof G/F Level - Tree Transplant (39nos) 10-Jan-25 0 22-Nov-24 G.Roof G/F Level - G.Roof G/F Level - Shrub Planting G.Roof G/F Level - G.Roof G/F Level - Shrub Planting 11-Mar-25 0 11-Jan-25 11-Mar-25 6d/w x10 WSD-W2-CY09 48 11-Jan-25 GRoof G/F Level - Hydroseeding on Lawn WSD-W2-CY10 G.Roof G/F Level - Hydroseeding on Lawn 17-Apr-25 0 12-Mar-25 17-Apr-25 6d/w x10 ■ Time Risk Allowance for Activities from WSD-W2-CY01 to WSD-WC-CY-10 WSD-W2-CY10.5 Time Risk Allowance for Activities from WSD-W2-CY01 to WSD-WC-CY-10 18-Apr-25 23-Apr-25 0 18-Apr-25 23-Apr-25 7d/w x10 GRoof G/F Level - Architechural Works/ Balustrade Installation G.Roof G/F Level - Architechural Works/ Balustrade Installation 65 WSD-W2-CY11 02-Jul-24 14-Sep-24 56 05-Sep-24 22-Nov-24 6d/w x10 G Roof G/F Level - Installation of Lighting WSD-W2-CY12 G.Roof G/F Level - Installation of Lighting 30 23-Oct-24 56 23-Nov-24 30-Dec-24 6d/w x10 GRoof G/F Level - Installation of Paving Stones on Walkwa G.Roof G/F Level - Installation of Paving Stones on Walkway 56 31-Dec-24 WSD-W2-CY13 24-Oct-24 I G.Roof G/F Level - Waterproof, External Plaster applied to Retaining Wall WSD-W2-CY14 G.Roof G/F Level - Waterproof, External Plaster applied to Retaining Wall 12 02-Jul-24 15-Jul-24 205 08-Mar-25 21-Mar-25 6d/w x10

* *	Milestone	Non-Critical Task
	Near Critical Task	Finished Task
	Critical Task	Tasks Summary
	Time Risk Al.	P6 Hammock

G.Roof G/F Level - Installation of Green Climber System on Retaining Wall

G.Roof G/F Level - Soil Placement around Retaining Wall

G.Roof G/F Level - Vertical Planting on Climber System

G.Roof G/F Level - Final Inspection & Handover to Client

Planned Project Completion

Final Inspection & Handover to Client

Establishment Works

WSD-W2-CY15

WSD-W2-CY16

WSD-W2-CY17

WSD-W2-CY18

WSD-W2-CY19

WSD-W2A-01

WSD-W2A-02





Date	Revision	Checked	Approved
03-Nov-21	Revision 0 First Issue	AH	WJ
19-Jan-22	Revision 1 First Issue	PF	AH
08-Feb-22	Revision 2 First Issue		

GRoof G/F Level - Installation of Green Climber System on Retaining Wall

Planned Project Completion

GRoof G/F Level - Final Inspection & Handover to Client

Establishment Works

Final Inspection & Handover to Client

I G.Roof G/F Level - Soil Placement around Retaining Wall

GRoof G/F Level - Vertical Planting on Climber System

12

0

16-Jul-24

30-Jul-24

06-Aug-24

24-Apr-25

29-Jul-24

30-Apr-25 0

05-Aug-24 | 205 | 07-Apr-25

12-Aug-24 205 17-Apr-25

30-Apr-25 0 24-Apr-25

365 01-May-25 30-Apr-26 0 01-May-25 30-Apr-26 7d/w x10

6 25-Apr-26 30-Apr-26 0 25-Apr-26 30-Apr-26 7d/w x10

205 | 22-Mar-25 | 05-Apr-25 | 6d/w x10

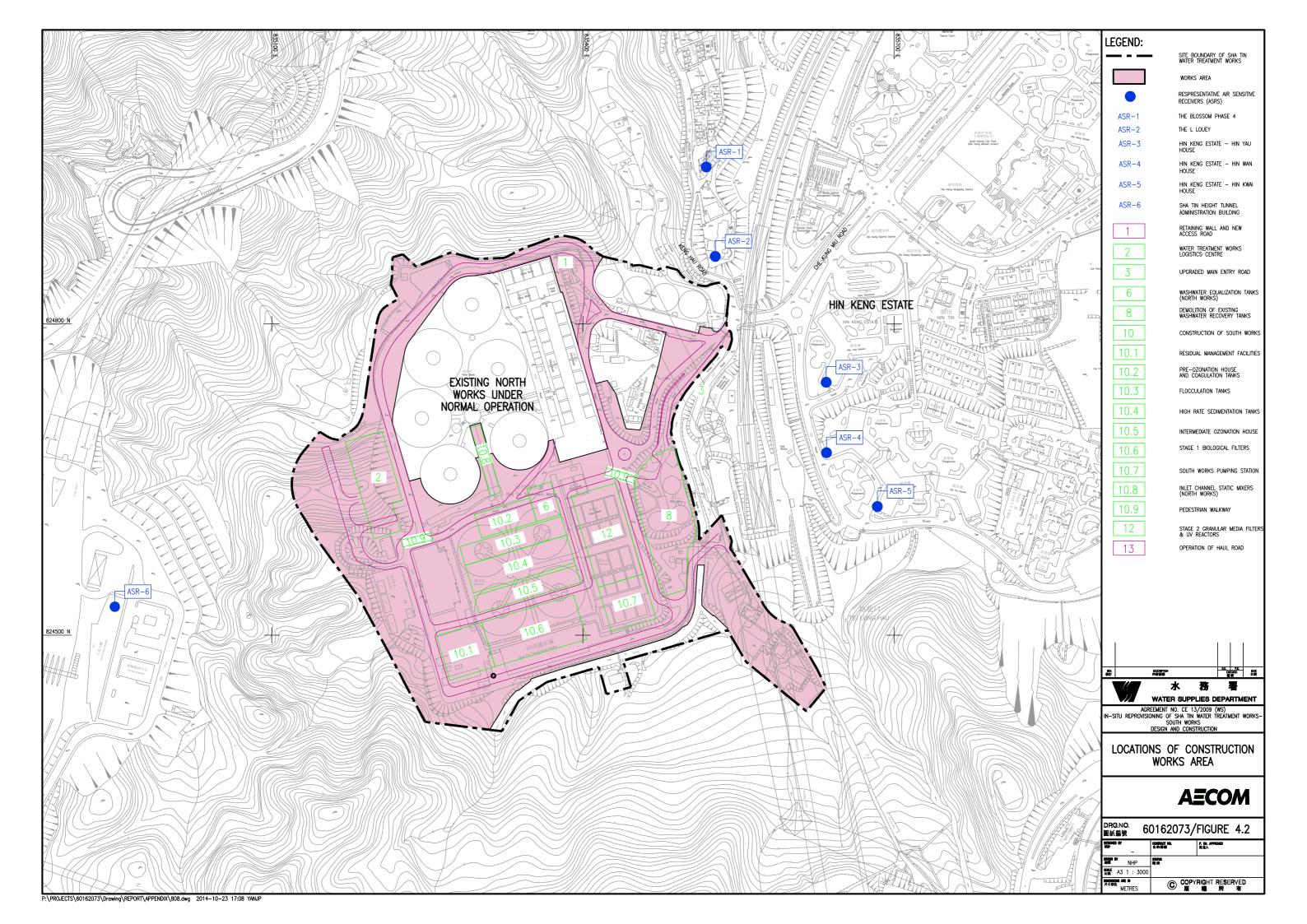
16-Apr-25 6d/w x10

23-Apr-25 6d/w x10

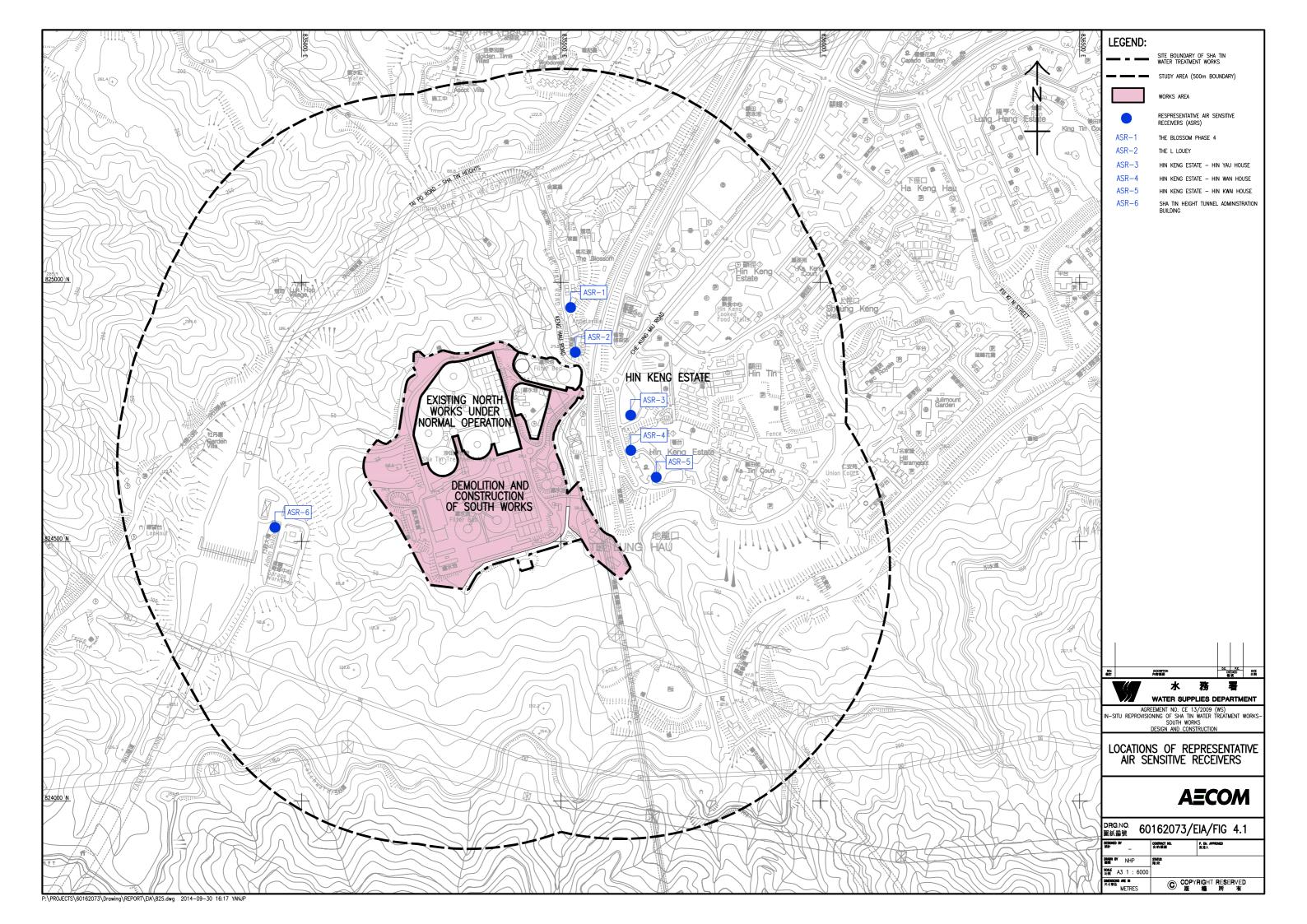
30-Apr-25 7d/w x10

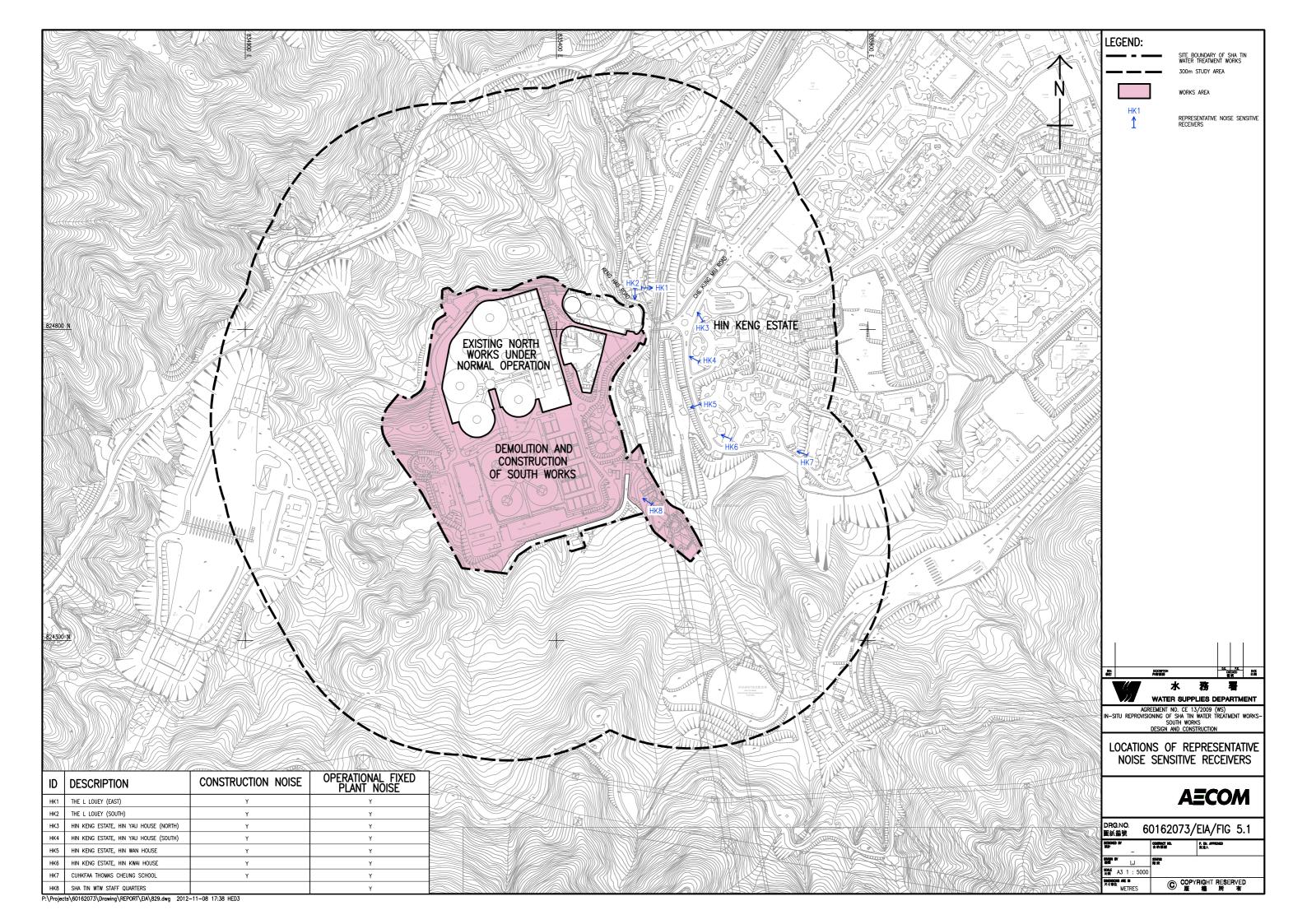
30-Apr-25 7d/w x10

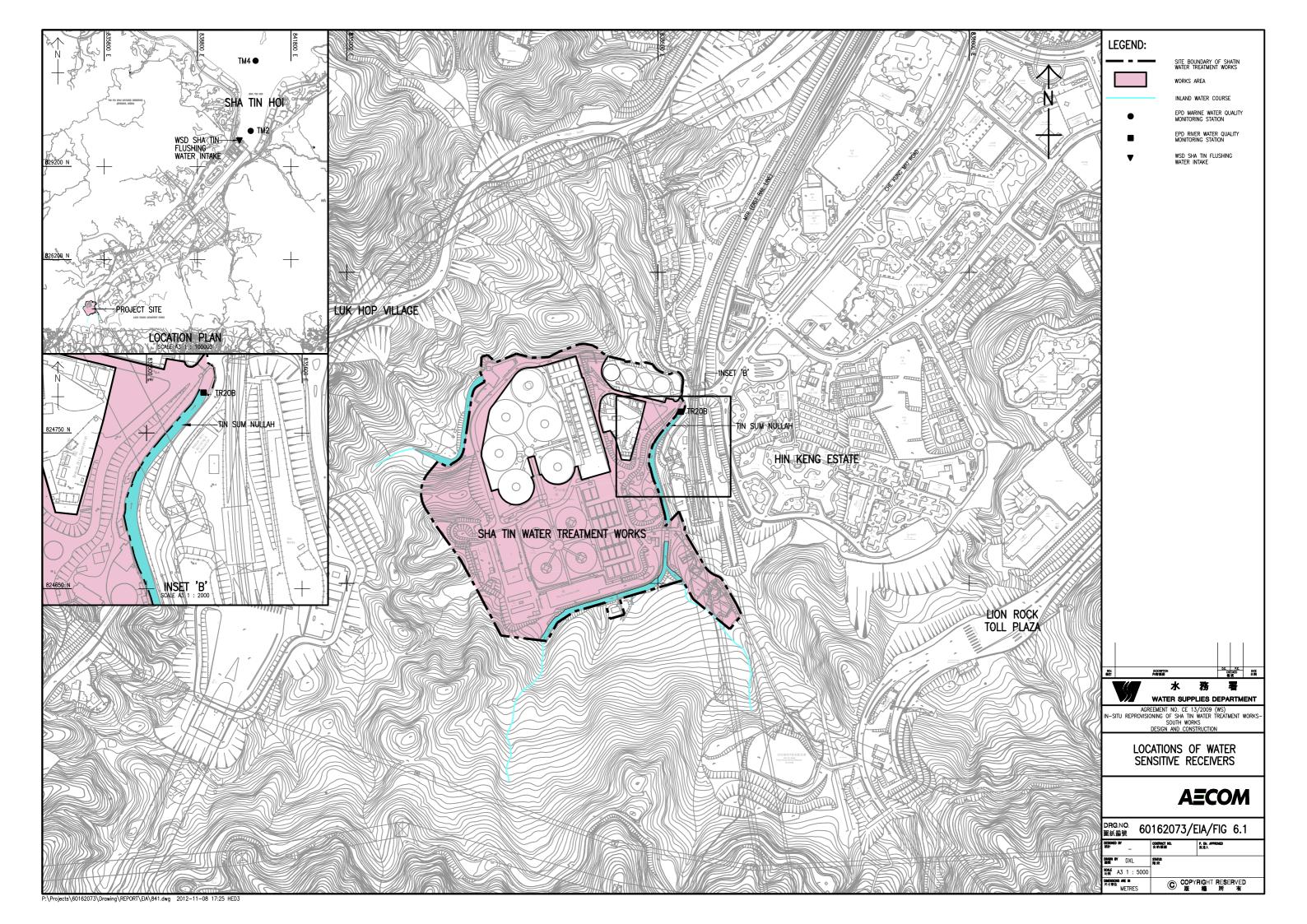
Appendix D Location of Construction Activities



Appendix E Environmental Sensitive Receivers in the Vicinity of the Projects







Appendix F Summary of Action and Limit Levels

Determination of Action and Limit Levels for Air Quality

Monitoring Locations	Action Level 1-hour TSP, (μg/m³)	Limit Level 1-hour TSP, (μg/m³)
AM1	357	500
AM2	334	500

Determination of Action and Limit Levels for Noise

Monitoring	Action Level	Limit Level in dB(A)			
Location	0700-1900 hours on normal weekdays				
NM1		For domestic premises: 75 dB(A) for			
NM2	When one documented complaint is received	NM1 & NM2			
NM3		For schools: 70dB(A) during normal teaching periods and 65 dB(A) during examination periods for NM3			

Determination of Action and Limit Levels for Water Quality

Water	Dissolved Oxygen (mg/L)		Suspended Solids (mg/L)		Turbidity (NTU)		pН	
monitoring	Action	Limit	Action	Limit	Action	Limit	Action	Limit
stations	Level	Level	Level	Level	Level	Level	Level	Level
C1	7.51	7.44	4.19	6.73	3.99	4.00	Beyond the range 6.6 to 7.9	Beyond the range 6.5 to 8.0
C2	8.10	7.98	4.33	8.16	3.13	3.28	Beyond the range 6.6 to 8.8	Beyond the range 6.5 to 8.9
C3*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M1	8.90	8.89	3.30	3.56	4.36	4.48	Beyond the range 6.6 to 8.2	Beyond the range 6.6 to 8.3
M2	8.92	8.91	18.84	26.80	12.64	13.72	Beyond the range 6.6 to 11.0	Beyond the range 6.6 to 11.0
М3	9.16	9.15	1.00	1.00	1.10	1.18	Beyond the range 6.6 to 8.6	Beyond the range 6.6 to 8.7

Remark: For DO, action should be taken when monitoring result of either one of the surface, middle or bottom DO is lower than the proposed Action/Limit Levels.

Appendix G Event/Action Plan

Air Quality

FV/FNT	ACTION					
EVENT	ET	IEC	ER	CONTRACTOR		
ACTION LEVEL						
1. Exceedance for one	1. Inform the Contractor, IEC	Check monitoring data	1. Confirm receipt of	1. Identify source(s),		
sample	and ER;	submitted by the ET;	notification of exceedance	investigate the causes of		
	2. Discuss with the	2. Check Contractor's	in writing.	exceedance and propose		
	Contractor on the remedial	working method; and		remedial measures;		
	measures required;	3. Review and advise the ET		2. Implement remedial		
	3. Repeat measurement to	and ER on the effectiveness		measures; and		
	confirm findings; and	of the proposed remedial		3. Amend working methods		
	4. Increase monitoring	measures.		agreed with the ER as		
	frequency.			appropriate.		
2. Exceedance for two or	1. Inform the Contractor, IEC	Check monitoring data	1. Confirm receipt of	1. Identify source and		
more consecutive samples	and ER;	submitted by the ET;	notification of exceedance	investigate the causes		
	2. Discuss with the ER and	2. Check Contractor's	in writing;	of exceedance;		
	Contractor on the remedial	working method; and	2. Review and agree on the	2. Submit proposals for		
	measures required;	3. Review and advise the ET	remedial measures proposed	remedial measures to		
	3. Repeat measurements to	and ER on the effectiveness	by the Contractor; and	the ER with a copy to		
	confirm findings;	of the proposed remedial	3. Supervise implementation	ET and IEC within three		
	4. Increase monitoring	measures.	of remedial measures.	working days of notification;		
	frequency to daily;			3. Implement the agreed		
	5. If exceedance continues,			proposals; and		

	arrange meeting with the			4. Amend proposal as
	IEC, ER and Contractor; and			appropriate.
	6. If exceedance stops,			
	cease additional monitoring.			
LIMIT LEVEL				
Event	ET	IEC	ER	CONTRACTOR
1. Exceedance for one	1. Inform the Contractor,	Check monitoring data	1. Confirm receipt of	1. Identify source(s) and
sample	IEC, EPD and ER;	submitted by the ET;	notification of exceedance	investigate the causes
	2. Repeat measurement to	2. Check the Contractor's	in writing;	of exceedance;
	confirm findings;	working method;	2. Review and agree on the	2. Take immediate action to
	3. Increase monitoring	3. Discuss with the ET, ER	remedial measures proposed	avoid further exceedance;
	frequency to daily; and	and Contractor on possible	by the Contractor; and	3. Submit proposals for
	4. Discuss with the ER, IEC	remedial measures; and	3. Supervise implementation	remedial measures to ER
	and contractor on the	4. Review and advise the ER	of remedial measures.	with a copy to ET and IEC
	remedial measures and	and ET on the effectiveness		within three working days of
	assess the effectiveness.	of Contractor's remedial		notification;
		measures.		4. Implement the agreed
				proposals; and
				5. Amend proposal if
				appropriate.

	ET	IEC	ER	CONTRACTOR
2. Exceedance for two or	1. Notify Contractor, IEC, EPD	1. Check monitoring data	1. Confirm receipt of	1. Identify source(s) and
more consecutive samples	and ER;	submitted by the ET;	notification of exceedance	investigate the causes of
	2. Repeat measurement to	2. Check the Contractor's	in writing;	exceedance;
	confirm findings;	working method;	2. In consultation with the ET	2. Take immediate action
	3. Increase monitoring	3. Discuss with ET, ER, and	and IEC, agree with the	to avoid further exceedance;
	frequency to daily;	Contractor on the potential	Contractor on the remedial	3. Submit proposals for
	4. Carry out analysis of the	remedial measures; and	measures to be	remedial measures to the ER
	Contractor's working procedures	4. Review and advise the ER	implemented;	with a copy to the IEC and
	with the ER to determine	and ET on the effectiveness	3. Supervise the	ET within three working days
	possible mitigation to be	of Contractor's remedial	implementation of remedial	of notification;
	implemented;	measures.	measures; and	4. Implement the agreed
	5. Arrange meeting with the IEC		4. If exceedance continues,	proposals;
	and ER to discuss the remedial		consider what portion of the	5. Revise and resubmit
	measures to be taken;		work is responsible and	proposals if problem still not
	6. Review the effectiveness of		instruct the Contractor to	under control; and
	the Contractor's remedial		stop that portion of work	6. Stop the relevant portion
	measures and keep IEC, EPD		until the exceedance is	of works as determined by
	and ER informed of the results;		abated.	the ER until the exceedance
	and			is abated.
	7. If exceedance stops, cease			
	additional monitoring.			

Noise

EVENT		ACT	TION	
EVENI	ET	IEC	ER	CONTRACTOR
ACTION LEVEL	1. Notify the Contractor, IEC	Review the investigation	1. Confirm receipt of	Investigate the complaint
	and ER;	results submitted by the	notification of complaint in	and propose remedial
	2. Discuss with the ER and	Contractor; and	writing;	measures;
	Contractor on the remedial	2. Review and advise the ET	2. Review and agree on the	2. Report the results of
	measures required; and	and ER on the effectiveness	remedial measures proposed	investigation to the IEC, ET
	3. Increase monitoring	of the remedial measures	by the Contractor; and	and ER;
	frequency to check mitigation	proposed by the Contractor.	3. Supervise implementation	3. Submit noise mitigation
	effectiveness.		of remedial measures.	proposals to the ER with
				copy to the IEC and ET
				within three working days of
				notification; and
				4. Implement noise mitigation
				proposals.
LIMIT LEVEL	1. Notify the Contractor, IEC,	Check monitoring data	1. Confirm receipt of	Identify source and
	EPD and ER;	submitted by the ET;	notification of failure in	investigate the causes of
	2. Repeat measurement to	2. Check the Contractor's	writing;	exceedance;
	confirm findings;	working method;	2. In consultation with the ET	2. Take immediate action to
	3. Increase monitoring	3. Discuss with the ER, ET	and IEC, agree with the	avoid further exceedance;
	frequency;	and Contractor on the	Contractor on the remedial	3. Submit proposals for
	4. Carry out analysis of	potential remedial measures;	measures to be	remedial measures to the ER

Contractor's working	and	implemented;	with copy to the IEC and ET
procedures to determine	4. Review and advise the ET	3. Supervise the	within three working days of
possible mitigation to be	and ER on the effectiveness	implementation of remedial	notification;
implemented;	of the remedial measures	measures; and	4. Implement the agreed
5. Arrange meeting with the	proposed by the Contractor.	4. If exceedance continues,	proposals;
IEC and ER to discuss the		consider what portion of the	5. Revise and resubmit
remedial measures to be		work is responsible and	proposals if problem still not
taken;		instruct the Contractor to	under control; and
6. Review the effectiveness		stop that portion of work until	6. Stop the relevant portion
of Contractor's remedial		the exceedance is abated.	of works as determined by
measures and keep IEC,			the ER until the exceedance
EPD and ER informed of the			is abated.
results; and			
7. If exceedance stops,			
cease			

Water Quality

FVENT									
EVENT		ET Leader		IEC		ER		CONTRACTOR	
Action level being exceeded	•	Repeat in situ	•	Discuss with ET and	•	Discuss with IEC on the	•	Inform the ER and	
by one sampling day		measurement to		Contractor on the		proposed mitigation		confirm notification of	
		confirm findings;		mitigation measures;		measures;		the non-compliance in	
	•	Identify reasons for	•	Review proposals on	•	Make agreement on the		writing;	
		non-compliance and		mitigation measures		mitigation measures to	•	Rectify unacceptable	
		source(s) of impact;		submitted by		be implemented.		practice;	
	•	Inform IEC and		Contractor and advise	•	Assess the	•	Check all plant and	
		Contractor;		the ER accordingly;		effectiveness of the		equipment;	
	•	Check monitoring data,	•	Assess the		implemented mitigation	•	Consider changes of	
		all plant, equipment		effectiveness of the		measures.		working methods;	
		and Contractor's		Implemented mitigation			•	Discuss with ET and	
		working methods;		measures.				IEC and propose	
	•	Discuss mitigation						mitigation measures to	
		measures with IEC and						IEC and ER;	
		Contractor;					•	Implement the agreed	
	•	Repeat measurement						mitigation measures.	
		on next day of							
		exceedance.							

		ET Leader		IEC		ER		CONTRACTOR
Action level being exceeded	•	Repeat in situ	•	Discuss with ET and	•	Discuss with IEC on the	•	Inform the ER and
by more than one		measurement to		Contractor on the		proposed mitigation		confirm notification of
consecutive sampling day		confirm findings;		mitigation measures;		measures;		the non-compliance in
	•	Identify reasons for	•	Review proposals on	•	Make agreement on the		writing;
		non-compliance and		mitigation measures		mitigation measures to	•	Rectify unacceptable
		source(s) of impact;		submitted by		be implemented;		practice;
	•	Inform IEC and		Contractor and advise	•	Assess the	•	Check all plant and
		Contractor;		the ER accordingly;		effectiveness of the		equipment;
	•	Check monitoring data,	•	Assess the		implemented mitigation	•	Consider changes of
		all plant, equipment		effectiveness of the		measures.		working methods;
		and Contractor's		implemented mitigation			•	Discuss with ET and
		working methods;		measures.				IEC and propose
	•	Discuss mitigation						mitigation measures to
		measures with IEC and						IEC and ER within
		Contractor;						three working days;
	•	Ensure mitigation					•	Implement the agreed
		measures are						mitigation measures.
		implemented;						
	•	Prepare to increase the						
		monitoring frequency to						
		daily;						

	Repeat measurement			
	on next day of			
	exceedance.			
	ET Leader	IEC	ER	CONTRACTOR
Limit level being	Repeat in situ	Discuss with ET and	Discuss with IEC, ET	Inform the ER and
exceeded by one	measurement to	Contractor on the	and Contractor on the	confirm notification of
sampling day	confirm findings;	mitigation measures;	proposed mitigation	the non-compliance in
	 Identify reasons for 	Review proposals on	measures;	writing;
	non-compliance and	mitigation measures	Request Contractor to	Rectify unacceptable
	source(s) of impact;	submitted by	critically review the	practice;
	Inform IEC Contractor	Contractor and advise	working methods;	Check all plant and
	and EPD;	the ER accordingly;	Make agreement on the	equipment;
	Check monitoring data,	Assess the	mitigation measures to	Consider changes of
	all plant, equipment	effectiveness of the	be implemented;	working methods;
	and Contractor's	implemented mitigation	Assess the	Discuss with ET, IEC
	working methods;	measures.	effectiveness of the	and ER and propose
	Discuss mitigation		implemented mitigation	mitigation measures to
	measures with IEC, ER		measures.	IEC and ER within
	and Contractor;			three working days;
	Ensure mitigation			Implement the agreed
	measures are			mitigation measures.
	implemented;			

	Increase the monitoring frequency to daily until no exceedance of Limit level.			
	ET Leader	IEC	ER	CONTRACTOR
Limit level being	Repeat in situ	Discuss with ET and	 Discuss with IEC, ET 	 Inform the ER and
exceeded by more	measurement to	Contractor on the	and Contractor on the	confirm notification of
than one	confirm findings;	mitigation measures;	proposed mitigation	the non-compliance in
consecutive	 Identify reasons for 	Review proposals on	measures;	writing;
sampling day	non-compliance and	mitigation measures	Request Contractor to	Rectify unacceptable
	source(s) of impact;	submitted by	critically review the	practice;
	Inform IEC Contractor	Contractor and advise	working methods;	Check all plant and
	and EPD;	the ER accordingly;	Make agreement on the	equipment;
	 Check monitoring data, 	Assess the	mitigation measures to	Consider changes of
	all plant, equipment	effectiveness of the	be implemented;	working methods;
	and Contractor's	implemented mitigation	Assess the	Discuss with ET, IEC
	working methods;	measures.	effectiveness of the	and ER and propose
	Discuss mitigation		implemented mitigation	mitigation measures to
	measures with IEC, ER		measures;	IEC and ER within
	and Contractor;		Consider and instruct, if	three working days;
	Ensure mitigation		necessary, the	Implement the agreed
	measures are		Contractor to slow	mitigation measures;

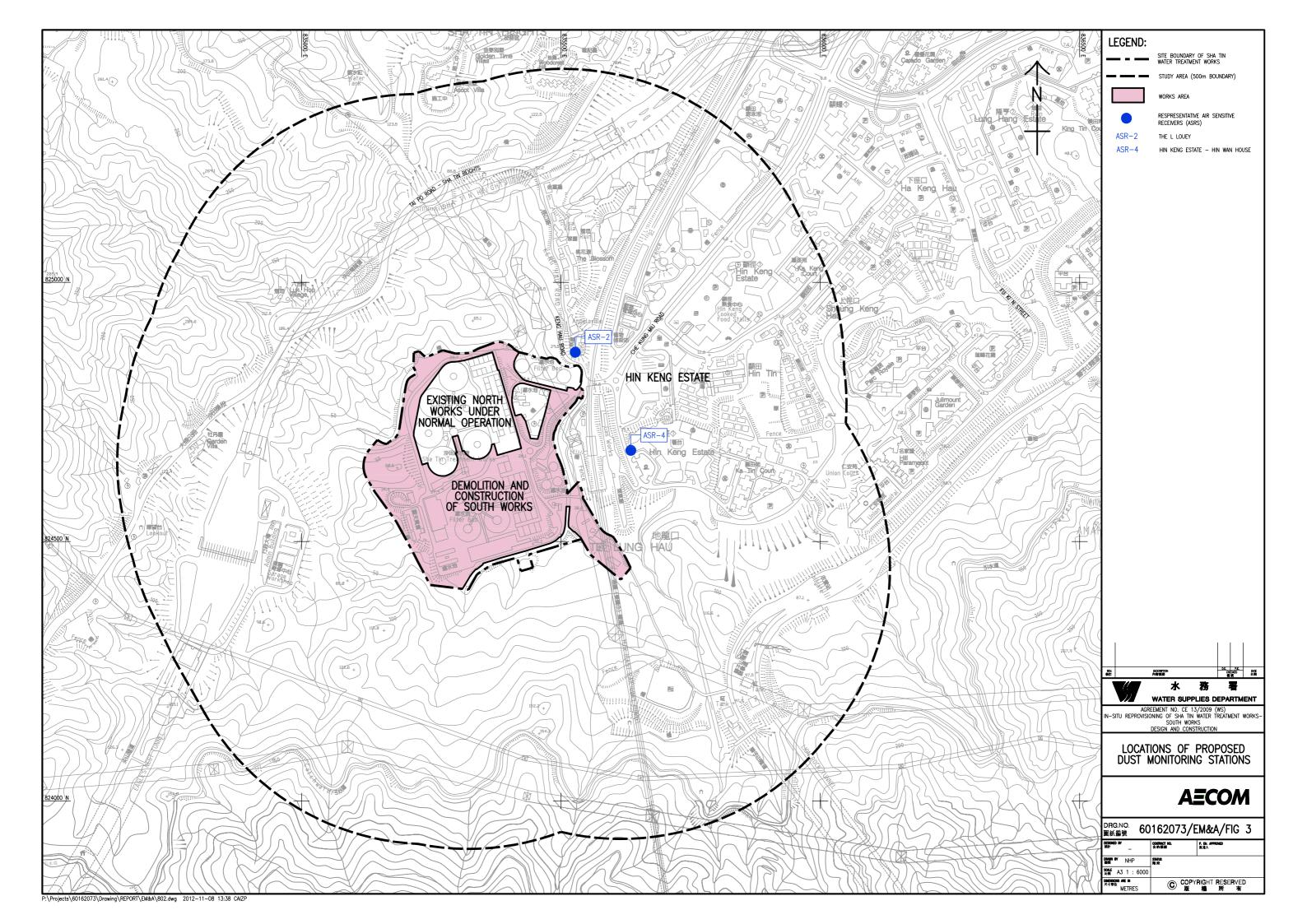
implemented; Increase	down or to stop all or	As directed by the ER,
the monitoring	part of the construction	to slow down or to stop
frequency to daily until	activities until no	all or part of the
no exceedance of Limit	exceedance of Limit	construction activities.
level for two	level.	
consecutive days.		

Appendix H Impact Monitoring Schedules

Impact Monitoring Schedule for STWTW

			Impact Monitoring Schedule for STWTW			
			Dec-22			
Sun	Mon	Tue	Wed	Thur	Fri	Sat
				1	2	3
					Impact	
					Water Quality monitoring for C1,	
					C2, C3, M1, M2 & M3	
4	5	6	7	8	9	10
	Impact	Impact	Impact		Impact	
	Water Quality monitoring for C1,	Air monitoring for AM1 & AM2	Water Quality monitoring for C1,		Water Quality monitoring for C1,	
	C2, C3, M1, M2 & M3	Noise monitoring for NM1, NM2	C2, C3, M1, M2 & M3		C2, C3, M1, M2 & M3	
		& NM3				
11	12	13	14	15	16	17
	12	13	14			
			I			
	Impact		Impact		Impact	Impact
	Water Quality monitoring for C1,		Water Quality monitoring for C1,		Water Quality monitoring for C1,	
	C2, C3, M1, M2 & M3		C2, C3, M1, M2 & M3			Air monitoring for AM1 & AM2
			C2, C3, IVI1, IVI2 & IVI3		C2, C3, M1, M2 & M3	Noise monitoring for NM1, NM2
	Air monitoring for AM1 & AM2					& NM3
	Noise monitoring for NM1, NM2					
18	19	20	21	22	23	24
	Impact		Impact		Impact	
	Water Quality monitoring for C1,		Water Quality monitoring for C1,		Water Quality monitoring for C1,	
	C2, C3, M1, M2 & M3		C2, C3, M1, M2 & M3		C2, C3, M1, M2 & M3	
					Air monitoring for AM1 & AM2	
					Noise monitoring for NM1, NM2	
25	26	27	28	29	30	31
			Impact		Impact	
			Пірасс	Impact	ППрасс	
			Water Quality monitoring for C1,	Air as seite vier for AAAA C AAAA	Water Quality monitoring for C1,	
			C2, C3, M1, M2 & M3	Air monitoring for AM1 & AM2	C2, C3, M1, M2 & M3	
			- CZ, CS, WII, WIZ & WIS	Noise monitoring for NM1, NM2	CZ, C3, WII, WIZ & WI3	
				& NM3		

Appendix I Location Plan of Air Quality Monitoring Station



Appendix J Calibration Certificates (Air Monitoring)





This instrument was produced under rigorous factory production control and documented standard procedures. It was individually visually inspected, leak tested and function tested for display, backlight, button and software performance. The accuracy of each of its primary measurements was individually calibrated and/or tested against standards traceable to the National Institute of Standards and Technology ("NIST") or calibrated intermediary standards. This instrument is certified to have performed at the time of manufacture in compliance with the following specifications as they apply to this meter's specific model, measurements and features.

Methods Used in Calibration and Testing

Wind Speed:

The Kestrel Pocket Weather Meter impeller installed in this unit was individually tested in a subsonic wind tunnel operating at approximately 300 fpm (1.5 m/s) and 1200 fpm (6.1 m/s) monitored by a Gill Instruments Model 1350 ultrasonic time-of-flight anemometer. The Standard's maximum combined uncertainty is +/-1.04% within the airspeed range 706.6 to 3923.9 fpm (3.59 to 19.93 m/s), and +/-1.66% within the airspeed range 166.6 to 706.6 fpm (0.85 to 3.59 m/s).

Temperature:

Temperature response is verified in comparison with a Eutechnics 4600 Precision Thermometer or a standard Kestrel 4000 Weather and Environmental Meter calibrated weekly against the Eutechnics 4600. The Eutechnics 4600 is calibrated annually and is traceable to NIST with a system accuracy of +/- 0.05 °C.

Direction / Heading

The sensitivity of the magnetic directional sensor is verfied at the component level by applying a magnetic field to the sensor and measuring the signal output at 4 points, as well as after assembly by orienting the unit to the cardinal directions and measuring the magnetic field output. In both cases the compass output must be accurate to within +/- 5 degrees.

Relative Humidity:

Relative humidity receives a two-point calibration in humidity and temperature controlled chambers at 75.3% RH and 32.8% RH at 25° C. The calibration tanks are monitored with an Edgetech Model 2002 DewPrime II Standard Chilled Mirror Hygrometer. Following calibration, performance is further verified at an RH of approximately 43.2% against the Edgetech Hygrometer. The Edgetech Hygrometer is calibrated annually and is traceable to NIST with a maximum relative expanded uncertainty of +/- 0.2% RH.

Barometric Pressure:

Pressure response is verified against a Mensor Series 6000 Digital Barometer or a standard Kestrel 4000 Weather and Environmental Meter calibrated weekly against the Mensor Barometer. The Mensor Barometer is calibrated annually and is traceable to NIST with a maximum relative expanded uncertainty of +/- 0.02% F.S.

Approved By:

Michael Naughton, Engineering Manager

SENSOR	1000	2000	2500	3000	3500	3500	4000	4200	4250	4300	4400	4500	4500	ACCURACY (+/-)*	SENSO	SPECIFICATION RANGE	OPERATIONAL RANGE	NOTES
Wind Speed Air Flow	•	•	•	•	•	•			•		•	•	HOR	Larger of 3% of reading, least significant digit or 20 ft/min	0.1 m/s 1 ft/min 0.1 km/h 0.1 mph 0.1 knots 1 B	0.6 to 40.0 m/s 118 to 7,874 ft/min 2.2 to 144.0 km/h 1.3 to 89.5 mph 1.2 to 77.8 knots 0 to 12 B	0.6 to 60.0 m/s 118 to 11,811 ft/min 2.2 to 216.0 km/h 1.3 to 134.2 mph 1.2 to 116.6 knots 0 to 12.8	Inch/25 mm diameter impeller with precision axis and low-friction Zystell bearings. Startup is stated as lower limit, readings may be taken down to 0.4 mis [78 ftmm] [1.5 kmh] [9 mph], after impeller startup, Off-asis accuracy -1% @ 5° off-axis; 2% @ 10° -35% @ 15° -Cashrid erf. 1 1% darb 10 hous use at 10 MB/17 mis. Repicement repoler (NR PH-2005) field installs without took (US Plainet C, 783 755). Whird speed calibration and testing about the down thratige in omegain closed at the burst for take of the control of the contr
Ambient Temperature					٠	•	٠						•	0.9*F 0.5*C	0.1 *F 0.1 *C	-20.0 to 158.0 °F -29.0 to 70.0 °C	14,0.0 to 131.0 °F -10.0 to 55.0 °C	Hermitically-sealed, practision thermition mounted externally and thermally isolated. US Pair 5.358.665 for rapid response. Aufflow of 2.2 mpc/1 mis or greater provides fastest response fastest response fastest reproduced in the properties of the
Globe Temperature - Tg														*F 1.4 *C	0.1 °F 0.1 °C	-20.0 to 140.0 °F -29.0 to 60.0 °C	14.0 to 131.0 °F -10.0 to 55.0 °C	Temperature inside 1in 25 mm black powder coated copper globe converted to Tg equivalen standard 6 in 150 mm globe. Closest equivalence obtained with airflow greater than 2.2 mph, m/s.
Relative Humidity								•			•			3.0 %RH	0.1 %RH	5 to 95% non-condensing	0 to 100%	Polymer capacitive humidity sensor mounted in thin-walled chamber external to case for rap accurate response (US Patert 6,257,074). To achieve stated accuracy, unit must be primit qualibate to external temperature when exposed to large, rapid temperature changes and to out of direct suright. Calibration drift +0-2% over 24 months. RIM: PRIVATION sensor may be recall at factory or index dusing Kestell furthing Calibration file. RIM: PRIVATION of the control of the control of th
Pressure			٠	23.5			•		•	•			•	0.03 inHg 1.0 hPalmbar 0.01 PSI	0.01 inHg 0.1 hPa mbar 0.01 PSI	8.86 to 32.49 inHg 300.0 to 1100.0 hPajmbar 4.35 to 15.95 PSI and 32.0 to 185.0 °F 0.0 to 85.0 °C	0.30 to 48.87 inHg 10.0 to 1654.7 hPalmbar 0.14 to 24.00 PSI and 14.0 to 131.0 °F -10.0 to 55.0 °C	Monofilhic silicon piezoresistive pressure sensor with second-order temperature correction. Pressure sensor may be reclaimbed of factory in field. Adjustate interiore attitude as display of station pressure or transmitic pressure connected to MSL. Kestelle 4200 displays station pressure or a dedicated screen. Relatele 2500 and 3500 displays station pressure or an edicated screen. Relatele 2500 and 3500 displays continuously update three-hour later matter pressure the related to relating station. Post displays pressure trend through graphing function. POI display on Kestel 4000 berlies only.
Compass												٠		5*	1* 1/16th Cardinal Scale	0 to 360°	0 to 360*	2-axis solid-state magnetoresistive sensor mounted perpendicular to unit plane. Accuracy of sensor dependent upon units vertical position. Self-calibration routine eliminates magnetic e from batteries or unit and must be run after every full power-down (batter) removal or charge. Readout indicates direction to which the back of the unit is pointed when held in a vertical orientation. Declarations have also adjustable for Tun North readout.
														CALCUL	ATED ME	ASUREMENTS		
MEASUREMENT	1000	2000	2500	3000	3500	3500 DT	4000	4200	4250	4300	4400	4500	4500 HOR	ACCURACY (+/-)*	RESOLUTION	SPECIFICATION RANGE	SENSORS EMPLOYED	NOTES
Air Density	i jen	491		W	133	17	ded	٠	•		133			0.0002 lb/ft ³ 0.0033 kg/m ³	0.001 lbs/ft ³ 0.001 kg/m ³	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Mass of air per unit volume
Air Flow														6.71%	1 cfm 1 m²/hr 1 m²/m 0.1m²/s 1 L/s	Refer to Ranges for Sensors Employed	Air Flow User Input (Duct Shape & Size)	Volume of air flowing through an opening. Automatically calculated from Air Velocity measure and user-specified duct shape (circle or rectangle) and dimensions (units: in, ft, cm or m). Maximum duct dimension input: 258.0 in 21.5 ft 655.3 cm 6.55 m.
Altitude														typical: 23.6 ft 7.2 m max: 48.2 ft	1 ft 1 m	typical: 750 to 1100 mBar max: 300 to 750 mBar	Pressure User Input (Reference Pressure)	Height above Mean Sea Level ("MSL"). Temperature compensated pressure (barometric) altimeter requires accurate reference barometric pressure to produce maximum absolute accuracy. Both accuracy specs corresponds to a reference pressure anywhere from 850 to mBar.
Barometric Pressure														14.7 m 0.07 inHg 2.4 hPa mbar 0.03 PSI	0.01 inHg 0.1 hPa mbar 0.01 PSI	Refer to Ranges for Sensors Employed	Pressure User Input (Reference Altitude)	imbar. Air pressure that would be present in identical conditions at MSL. Station pressure compens for local elevation provided by reference altitude. Requires accurate reference altitude to promaximum absolute accuracy.
Crosswind & Headwind/Tailwind												•		7.1%	1 mph 1 ft/min 0.1 km/h 0.1 m/s 0.1 knots	Refer to Ranges for Sensors Employed	Wind Speed Compass	Effective wind relative to a target or travel direction. Auto-switching headwindstallwind indicate
Delta T														3.2 °F	0.1 °F 0.1 °C	Refer to Ranges for	Temperature Relative Humidity	Difference between dry bulb temperature and wet bulb temperature. When spraying, indicat
	1XIII	Bysle:	0.0	708	13/3	1200			200					1.8 °C	1ft	Sensors Employed Refer to Ranges for	Pressure Temperature	evaporation rate and droplet lifetime. Safe range for pesticide spraying is 4 to 16 °F / 2 to 9 Local air density converted to equivalent elevation above sea level in a uniform layer consist
Density Altitude			na:											69 m	1 m	Sensors Employed	Relative Humidity Pressure	the International Standard Atmosphere. Temperature that a volume of air must be cooled to at constant pressure for the water vaporation.
Dewpoint				•	•	•	•	•	•	•	٠	•	•	3.4 °F 1.9 °C	0.1 °F 0.1 °C	Refer to Range for Temperature Sensor	Temperature Relative Humidity	present to condense into dewand form on a solid surface. Can also be considered to be the water-to-air saturation temperature.
Evaporation Rate										•				0.01 lb/ft²/hr 0.06 kg/m2/hr	0.01 b/ft²/hr 0.01 kg/m²/hr	Refer to Ranges for Sensors Employed	Wind Speed Temperature Relative Humidity Pressure User Input (Concrete Temperature)	The rate at which moisture is lost from the surface of curing concrete. Requires user measurement and entry of concrete temperature obtained with an accurate IR or probe the contracter of For *C**, not included, Readings should be taken 20 inches above pour surface with the thermister shaded, and averaged for 610 seconds using full-in averaging functions.
Heat Index			•	•	٠	-3379	•	•	•	•	•	•	•	7.1 °F 4.0 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Temperature Relative Humidity	Perceived temperature resulting from the combined effect of temperature and relative humic Calculated based on NWS Heat Index (HI) tables. Measurement range limited by extent of published tables.
Moisture Content Humidity Ratio ("Grains")									•					.3 gpp .04 g/kg	0.1 gpp 0.01 g/kg	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Mass of water vapor in a mass of air.
Relative Air Density					247	177	1 11						100	0.3%	0.1%	Refer to Ranges for Sensors Employed	Temperature Relative Humidity	The ratio, expressed as a percentage, of measured air density to the air density of a standa atmosphere as defined by the ICAO.
hermal Work Limit (TWL)						La P	197-1		1 01					10.9 W/m²	0.1 W/m²	Refer to Ranges for Sensors Employed	Pressure Wind Speed Temperature Globe Temperature Relative Humidity Pressure	armospere as connect on excession and extended substantial for the conditions and cityling factors. Based off of estimated metabolic rate (Wiln2) for the conditions and cityling factors. Based off of estimated metabolic output of typical human. O screen zone varings.
Outdoor Wet Bulb Globe Temperature (WBGT)								148						1.3 °F 0.7 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Wind Speed Temperature Globe Temperature Relative Humidity	Measure of human heat stress defined as the combination of effects due to radiation, convi and conduction. Outdoor WBGT is calculated from a veighted sum of natural web bull. Or the globe temperature (Tg), and dry bulb temperature (Td). User setable on-screen varning zo
Wet Bulb Temperature - aturally Aspirated (Tnwb)			1872			1100	18	B R	i te	25 kg	•	10		1.4 °F 0.8 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Pressure Wind Speed Temperature Globe Temperature Relative Humidity	Similar to psychrometric wer-bubl temporature (see below). However, Trivib only undergoes convection from the arrisent air velocity. Trivib is a measure of the evaporative cooling that will allow. This is accounted for by combining the effects of, mainly, relative humidity and windspeed.
Wet Bulb Temperature - Psychrometric	57	TELL S	5 10							•				3.2 °F 1.8 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Pressure Temperature Relative Humidity	Temperature indicated by a sing psychrometer. Due to nature of the psychrometric ratio for water-air system, this approximates the thermodynamic wet-bulb temperature. The thermody wet-bulb temperature is the temperature a parcel of air would have if cooled adiabatically to
Wind Chill	W.		•				•					•	•	1.6 °F 0.9 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Pressure Wind Speed Temperature	saturation temperature vis water evaporating into it. Perceived temperature resulting from combined effect of wind speed and temperature. Calc based on the NWS Wind Chill Temperature (WCT) Index, revised 2001, with wind speed by a factor of 1.5 to yield equivalent results to wind speed measured at 10 m above ground.
			0.1		133	901	1233	253	MA					ADDITIO	ONAL SEE	CIFICATIONS		Measurement range limited by extent of published tables.
Display & Backlight				•									SCHOOL SC	Reflective 3 1/2 digit LC	D. Digit height 0:38 in	9 mm. Aviation green electrol	luminescent backlight. Manual activation	on with auto-off. urninescent backlight. Manual activation with auto-off.
Response Time				1,1039	SIXE	SI-N	٠	٠	٠	•	•	•	•	Multifunction, multi-digit	monochrome dot-matri	x display. Choice of aviation	green or visible red (NV models only) e	uminescent backlight. Manual activation with auto-on: hectroluminescent backlight. Automatic or manual activation. nd all measurements which include RH in their calculation may require as long as 1 minute to f
& Display Update						:	•	•	•	•	•	•	•	equilibrate to a large cha	ange in the measurement start of Max Wind Gus	ent environment. Display updat it and Average Wind measure	tes every 1 second. ment.	ed lavel inscogmog act to balliev.
Max/Avg Wind							•	•	•	•	•	٠	•					with all other wind-related functions: air velocity, crosswind, headwind/tailwind, wind chill, WBC
ata Storage & Graphical Display, Min/Max/Avg History									3200 points					Minimum, maximum, ave independently. Auto-stor	erage and logged histo re interval settable from	ry stored and displayed for ew n 2 seconds to 12 hours, over	ery measured value. Large capacity da write on or off. Logs even when display	ata logger with graphical display. Manual and auto data storage. Min/Max/Avg history may be re y off except for 2 and 5 second intervals (code version 4.18 and later). Data capacity shown.
ata Upload & Bluetooth® Data Connect Option							•	•	•	•		•		Bluetooth Data Trans	fer Option: Adjustable	32) or Bluetooth data transfer e power consumption and radi rial Port Protocol for data tran	o range from up to 30 ft 9 meters. Inc	dividual unit ID and 4-digit PIN code preprogrammed for easy identification and data security w
Clock / Calendar			•	•	•	•								Requires optional PC in	terface (USB or RS-23	32) or Bluetooth data transfer 32) or Bluetooth data transfer	option and provided software.	18GPTO CANADOMO A LIBERTAL AND
Auto Shutdown	٠	•	•	•	•	•		•						Requires optional PC in Requires optional PC in	terface (USB or RS-23 terface (USB or RS-23	32) or Bluetooth data transfer 32) or Bluetooth data transfer	option and provided software.	
Languages Certifications	•	•	•			•				•				English, French, Germa CE certified, RoHS and	WEEE compliant. Indi	vidually tested to NIST-traceat	ole standards (written certificate of test	ts available at additional charge).
Origin Battery Life	•		•	•			•	•	٠	•	•	•	•	Designed and manufact CR2032, one, included.	ured in the USA from I Average life, 300 hour	JS and imported components. s. Battery life reduced by back	Complies with Regional Value Content slight use in 2000 to 3500 models.	t and Tariff Code Transformation requirements for NAFTA Preference Criterion B.
Shock Resistance	•	•	•			•	•					:		MIL-STD-810g, Transit	Shock, Method 516.5	d. Average life, 400 hours of u Procedure IV; unit only; impact	use, reduced by backlight or Bluetooth t may damage replaceable impeller.	radio transmission use.
Sealing Operational Temperature														Waterproof (IP67 and N 14° F to 131° F -10 °C	to 55 °C Measureme	nts may be taken beyond the li	imits of the operational temperature rai	nge of the display and batteries by maintaining the unit within the operational range and exposi
Limits Storage Temperature	•		•	•	•	•	•	•	•		•		•	-22.0 °F to 140.0 °F -3	0.0 °C to 60.0 °C	num time necessary to take rea		
														48 x 1 0 - 4 4 1- 1400	48 x 2 0 cm 44	102 g (including slip-on cover)		

^{*} NOTE: Accuracy calculated as uncertainty of the measurement derived from statistical analysis considering the comined effects from primary sensor specifications, circuit conversions, and all other sources of error using a coverage factor of k=2, or two standard deviations (2Σ).

北京航天计量测试技术研究所

中国航天 Beijing Aerospace Institute for Metrology and Measurement Technology

证书编号: CERTIFICATE №: NO.HD1e-2022-07- 28517842

第1页共3页

PAGE 1 OF 3 PAGES

校准证书

CALIBRATION CERTIFICATE

委托方 CLIENT

名 称:

Acumen Environmental Engineering and Technologies Co. Ltd.

NAME:

地 址:

Flat/RM D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Kowloon, Hong Kong

ADDRESS:

计量器具 MEASURING INSTRUMENTS

名称:

TSP 全尘浓度检测仪

NAME:

制造者:

青岛精诚仪器仪表有限公司

MANUFACTURER:

型号: PC-3A(E)

TYPE:

JC-220710222 编号:

No:

完张场 核验人: 行,考 破 签发人:

OPERATOR:

APPROVED SIGNATORY

07 月 08 年 2022 接收日期: DAY MONTH YEAR RECEIVED DATE: 08 \exists 年 07 月 2022 校准日期: DAY YEAR MONTH CAL. DATE: 日 年 月 建议下次校准日期: 2023 MONTH DAY YEAR NEXT TIME TO CALIBRAT:

本结果仅对所校准样品有效,证书未经本实验室批准,不得部分复印。

These results apply only to the calibrated sample, this certificate can't be partly copied without authorization

地址: 中国北京市丰台区东高地南大红门路1号

通讯: 北京 9200 信箱 24 分箱 邮政编码: 100076

电话: 86-10-68383637, 86-10-68383657

传真: 86-10-88522409 网址: http://www.102.com.cn Address: No.1 South Dahongmen Road, Beijing, China. P.O.Box: 9200-24, Beijing , China. Zip:100076

Tel.:86-10-68383637, 86-10-68383657

Fax:86-10-88522409

E-mail:jiliang102@163.com



北京航天计量测试技术研究所 Beijing Aerospace Institute for Metrology and Measurement Technology

证书编号: CERTIFICATE №: NO.HD1e-2022-07-28517842

第2页共3页 PAGE 2 OF 3 PAGES

本实验室是法定计量检定机构(包括被授权的计量检定机构)

This body is an institute of legal verification (including authorized body)

授权单位: 国家国防科技工业局

Authorized by: State Administration of Science Technology and Industry for National Defence

授权证书号: 国防军工-JLJG-1-003

Authorization certificate № 国防军工-JLJG-1-003

本实验室的质量管理体系符合 ISO/IEC17025 标准的要求,并经中国合格评定国家认可委员会认可,认可证

书号: CNAS L0283

This body is a CNAS accredited laboratory with a qualified quality management system in compliance with the

ISO/IEC17025 standard, Accreditation certificate № CNAS L0283

本实验室通过国家认证认可监督管理委员会的资质认定,认定证书编号: 170020180155

This body is accredited by Certification and Accreditation administration of the People's Republic of China

Accreditation Certificate №170020180155

测量溯源性的说明: 国家计量基准

A statement of Measurement traceability: National Metrology Standards

校准所使用的计量标准及主要测量设备

STANDARD AND EQUIPMENT USED IN THE CALIBRATION

名称/编号 NAME/NO.	测量范围 MEASURING RANGE	扩展不确定度 /准确度等级 /最大允许误差 EXPANDED UNCERTAINTY /ACCURACY CLASS /MAX.PERMISSIBLE ERROR	证书编号 CERTIFICATE NO.	证书有效期至 DUE DATE
低浓度粉尘发生装置	(0~10) mg/m ³	5.0%	2021D11-09-10227	2022-08-25

校准所依据的技术文件(编号、名称)

BASIS OF CALIBRATION (CODE, NAME) JJG 846-2015 粉尘浓度测量仪

校准的环境条件、地点,限制使用条件和测量范围

ENVIROMENTAL CONDITION IN THE CALIBRATION, LOCATION, LIMITED USING CONDITION AND MEASURING RANGE

温度 Temperature:

20.2

湿度 Moisture:

53 %RH

地点 Location: 北京市丰台区南大红门路一号

限制使用条件和测量范围 Limited using condition and measuring range:

北京航天计量测试技术研究所 Beijing Aerospace Institute for Metrology and Measurement Technology

证书编号: CERTIFICATE №: NO.HD1e-2022-07- 28517842

第3页共3页 PAGE 3 OF 3 PAGES

校准结果

RESULTS OF CALIBRATION

技术要求	校准结果
名牌内容及标识	完整
粉尘仪表面及采样头	无缺陷
±20%	-1.4%
±10%	2.0%
应能承受 1500V、50Hz 的电压,泄露电流不大于 5mA,持续时间 1min,无飞弧和击穿现象	符合要求
	名牌内容及标识 粉尘仪表面及采样头 ±20% ±10% 应能承受 1500V、50Hz 的电压, 泄 露电流不大于 5mA, 持续时间 1min,

- 说明 1. 本次校准测量结果的扩展不确定度: $U_{\rm rel} = 5.2\%$; (k=2)。
 - 2. 经校准, 所校项目符合检定规程技术要求。

以下空白

Blank Below

北京航天计量测试技术研究所

中国航天 Beijing Aerospace Institute for Metrology and Measurement Technology

证书编号: CERTIFICATE №: NO.HD1e-2022-07- 28517845

第1页共2页 PAGE 1 OF 2 PAGES

校准证书

CALIBRATION CERTIFICATE

委托方 CLIENT

Acumen Environmental Engineering and Technologies Co. Ltd.

NAME:

地 址:

Flat/RM D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Kowloon, Hong Kong

ADDRESS:

计量器具 MEASURING INSTRUMENTS

名称:

TSP 全尘浓度检测仪

型号:

PC-3A(E)

JC-220710225

NAME: 制造者:

青岛精诚仪器仪表有限公司

TYPE:

编号:

MANUFACTURER:

№:

12 15 K的人: 行,考 破 签发人:

OPERATOR:

APPROVED SIGNATOR

接收日期:	2022	年	07	月	08	日
RECEIVED DATE:		YEAR		MONTH		DAY
校准日期:	2022	年	07	月	08	日
CAL. DATE:		YEAR		MONTH		DAY
建议下次校准日期:	2023	年	07	月	07	日
NEXT TIME TO CALIBRAT:		YEAR		MONTH		DAY

本结果仅对所校准样品有效,证书未经本实验室批准,不得部分复印。

These results apply only to the calibrated sample, this certificate can't be partly copied without authorization.

地址: 中国北京市丰台区东高地南大红门路 1号

邮政编码: 100076 通讯: 北京 9200 信箱 24 分箱

电话: 86-10-68383637, 86-10-68383657

传真: 86-10-88522409

网址: http://www.102.com.cn

Address: No.1 South Dahongmen Road , Beijing , China.

P.O.Box: 9200-24, Beijing , China. Zip:100076

Tel.:86-10-68383637, 86-10-68383657

Fax:86-10-88522409

E-mail:jiliang102@163.com





北京航天计量测试技术研究所

中国航天 Beijing Aerospace Institute for Metrology and Measurement Technology

证书编号:

NO.HD1e-2022-07-28517845

CERTIFICATE №:

第2页共3页 PAGE 2 OF 3 PAGES

本实验室是法定计量检定机构(包括被授权的计量检定机构)

This body is an institute of legal verification (including authorized body)

授权单位: 国家国防科技工业局

Authorized by: State Administration of Science Technology and Industry for National Defence

授权证书号: 国防军工-JLJG-1-003

Authorization certificate № 国防军工-JLJG-1-003

本实验室的质量管理体系符合 ISO/IEC17025 标准的要求,并经中国合格评定国家认可委员会认可,认可证书号: CNAS L0283

This body is a CNAS accredited laboratory with a qualified quality management system in compliance with the ISO/IEC17025 standard, Accreditation certificate № CNAS L0283

本实验室通过国家认证认可监督管理委员会的资质认定,认定证书编号: 170020180155

This body is accredited by Certification and Accreditation administration of the People Republic of China Accreditation Certificate №170020180155

测量溯源性的说明: 国家计量基准

A statement of Measurement traceability: National Metrology Standards

校准所使用的计量标准及主要测量设备

STANDARD AND EQUIPMENT USED IN THE CALIBRATION

名称/编号 NAME/NO.	测量范围 MEASURING RANGE	扩展不确定度 /准确度等级 /最大允许误差 EXPANDED UNCERTAINTY /ACCURACY CLASS /MAX.PERMISSIBLE ERROR	证书编号 CERTIFICATE NO	证书有效期至 DUE DATE
低浓度粉尘发生装置	(0~10) mg/m ³	5.0%	2021D11-09-10227	2022-08-25

校准所依据的技术文件(编号、名称)

BASIS OF CALIBRATION (CODE、NAME) JJG 846-2015 粉尘浓度测量仪

校准的环境条件、地点,限制使用条件和测量范围

ENVIROMENTAL CONDITION IN THE CALIBRATION, LOCATION, LIMITED USING CONDITION AND MEASURING RANGE

温度 Temperature:

20.2 °C

湿度 Moisture:

53 %RH

地点 Location: 北京市丰台区南大红门路一号

限制使用条件和测量范围 Limited using condition and measuring range:

北京航天计量测试技术研究所 Beijing Aerospace Institute for Metrology and Measurement Technology

证书编号: CERTIFICATE №: NO.HD1e-2022-07- 28517845

第3页共3页 PAGE 3 OF 3 PAGES

校准结果

RESULTS OF CALIBRATION

校准项目	技术要求	校准结果
	名牌内容及标识	完整
外观及标志	粉尘仪表面及采样头 无缺陷	
示值误差	±20%	-2.6%
示值重复性	±10%	1.3%
绝缘强度	应能承受 1500V、50Hz 的电压,泄露电流不大于 5mA,持续时间 1min,无飞弧和击穿现象	符合要求

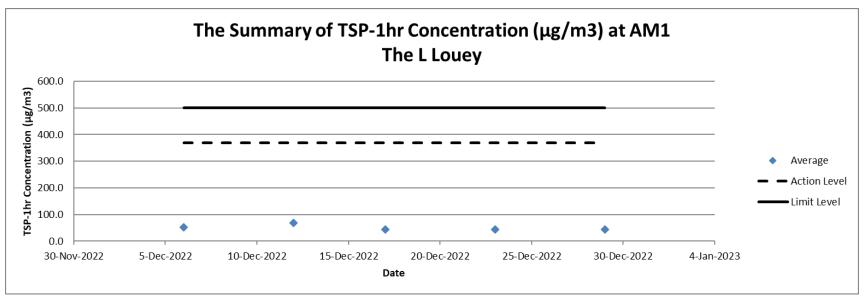
1. 本次校准测量结果的扩展不确定度: $U_{rel}=5.2\%$; (k=2)。

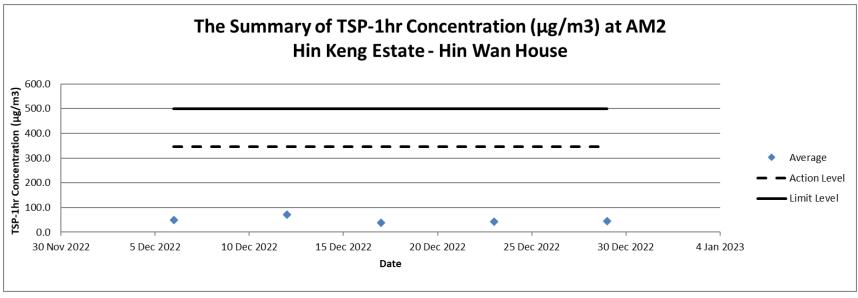
2. 经校准, 所校项目符合检定规程技术要求。

以下空白

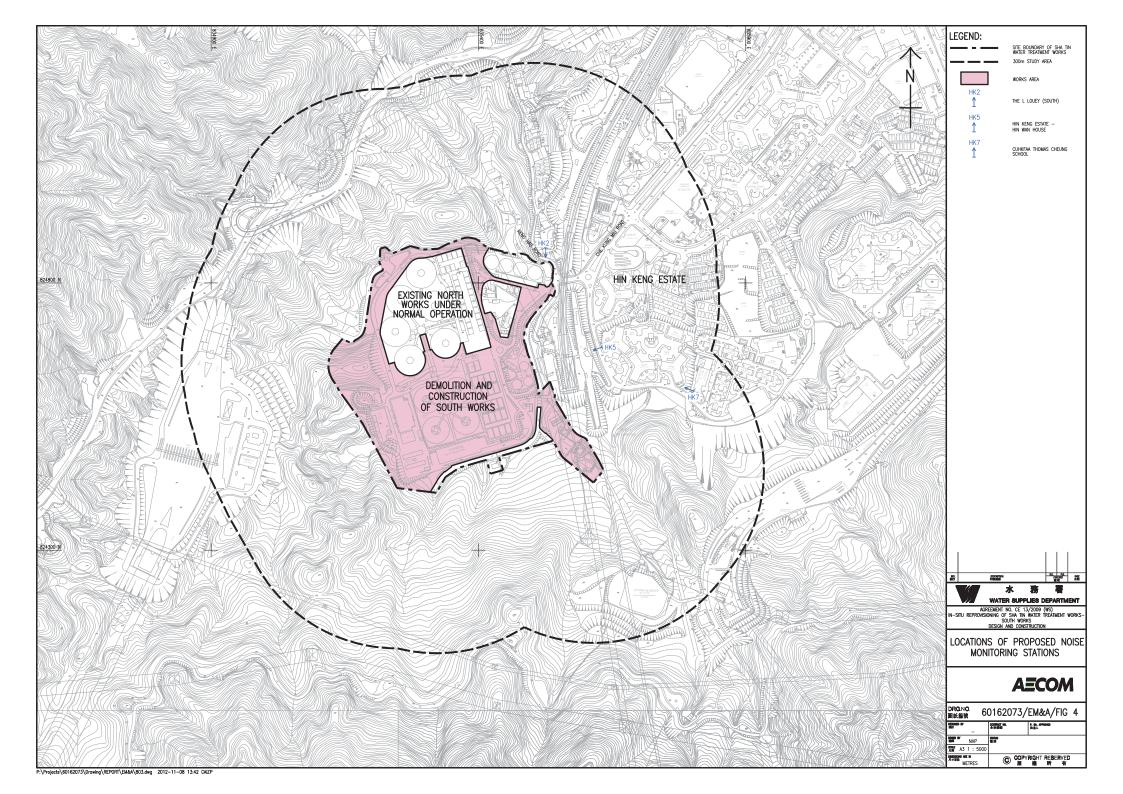
Blank Below

Appendix K Impact Air Quality Monitoring Results and Graphical Presentation





Appendix L Location Plan of Noise Monitoring Station



Appendix M Calibration Certificates (Noise)





This instrument was produced under rigorous factory production control and documented standard procedures. It was individually visually inspected, leak tested and function tested for display, backlight, button and software performance. The accuracy of each of its primary measurements was individually calibrated and/or tested against standards traceable to the National Institute of Standards and Technology ("NIST") or calibrated intermediary standards. This instrument is certified to have performed at the time of manufacture in compliance with the following specifications as they apply to this meter's specific model, measurements and features.

Methods Used in Calibration and Testing

Wind Speed:

The Kestrel Pocket Weather Meter impeller installed in this unit was individually tested in a subsonic wind tunnel operating at approximately 300 fpm (1.5 m/s) and 1200 fpm (6.1 m/s) monitored by a Gill Instruments Model 1350 ultrasonic time-of-flight anemometer. The Standard's maximum combined uncertainty is +/-1.04% within the airspeed range 706.6 to 3923.9 fpm (3.59 to 19.93 m/s), and +/-1.66% within the airspeed range 166.6 to 706.6 fpm (0.85 to 3.59 m/s).

Temperature:

Temperature response is verified in comparison with a Eutechnics 4600 Precision Thermometer or a standard Kestrel 4000 Weather and Environmental Meter calibrated weekly against the Eutechnics 4600. The Eutechnics 4600 is calibrated annually and is traceable to NIST with a system accuracy of +/- 0.05 °C.

Direction / Heading

The sensitivity of the magnetic directional sensor is verfied at the component level by applying a magnetic field to the sensor and measuring the signal output at 4 points, as well as after assembly by orienting the unit to the cardinal directions and measuring the magnetic field output. In both cases the compass output must be accurate to within +/- 5 degrees.

Relative Humidity:

Relative humidity receives a two-point calibration in humidity and temperature controlled chambers at 75.3% RH and 32.8% RH at 25° C. The calibration tanks are monitored with an Edgetech Model 2002 DewPrime II Standard Chilled Mirror Hygrometer. Following calibration, performance is further verified at an RH of approximately 43.2% against the Edgetech Hygrometer. The Edgetech Hygrometer is calibrated annually and is traceable to NIST with a maximum relative expanded uncertainty of +/- 0.2% RH.

Barometric Pressure:

Pressure response is verified against a Mensor Series 6000 Digital Barometer or a standard Kestrel 4000 Weather and Environmental Meter calibrated weekly against the Mensor Barometer. The Mensor Barometer is calibrated annually and is traceable to NIST with a maximum relative expanded uncertainty of +/- 0.02% F.S.

Approved By:

Michael Naughton, Engineering Manager

SENSOR	1000	2000	2500	3000	3500	3500	4000	4200	4250	4300	4400	4500	4500	ACCURACY (+/-)*	SENSO	SPECIFICATION RANGE	OPERATIONAL RANGE	NOTES
Wind Speed Air Flow	•	•	•	•	•	•			•		•	•	HOR	Larger of 3% of reading, least significant digit or 20 ft/min	0.1 m/s 1 ft/min 0.1 km/h 0.1 mph 0.1 knots 1 B	0.6 to 40.0 m/s 118 to 7,874 ft/min 2.2 to 144.0 km/h 1.3 to 89.5 mph 1.2 to 77.8 knots 0 to 12 B	0.6 to 60.0 m/s 118 to 11,811 ft/min 2.2 to 216.0 km/h 1.3 to 134.2 mph 1.2 to 116.6 knots 0 to 12.8	Inch/25 mm diameter impeller with precision axis and low-friction Zystell bearings. Startup is stated as lower limit, readings may be taken down to 0.4 mis [78 ftmm] [1.5 kmh] [9 mph], after impeller startup, Off-asis accuracy -1% @ 5° off-axis; 2% @ 10° -35% @ 15° -Cashrid erf. 1 1% darb 10 hous use at 10 MB/17 mis. Repicement repoler (NR PH-2005) field installs without took (US Plainet C, 783 755). Whird speed calibration and testing about the down thratige in omegain closed at the burst for take of the control of the contr
Ambient Temperature					٠	•	٠						•	0.9*F 0.5*C	0.1 *F 0.1 *C	-20.0 to 158.0 °F -29.0 to 70.0 °C	14,0.0 to 131.0 °F -10.0 to 55.0 °C	Hermitically-sealed, practision thermition mounted externally and thermally isolated. US Pair 5.358.665 for rapid response. Aufflow of 2.2 mpc/1 mis or greater provides fastest response fastest response fastest reproduced in the properties of the
Globe Temperature - Tg														*F 1.4 *C	0.1 °F 0.1 °C	-20.0 to 140.0 °F -29.0 to 60.0 °C	14.0 to 131.0 °F -10.0 to 55.0 °C	Temperature inside 1in 25 mm black powder coated copper globe converted to Tg equivalen standard 6 in 150 mm globe. Closest equivalence obtained with airflow greater than 2.2 mph, m/s.
Relative Humidity								•			•			3.0 %RH	0.1 %RH	5 to 95% non-condensing	0 to 100%	Polymer capacitive humidity sensor mounted in thin-walled chamber external to case for rap accurate response (US Patert 6,257,074). To achieve stated accuracy, unit must be primit qualibate to external temperature when exposed to large, rapid temperature changes and to out of direct suright. Calibration drift +0-2% over 24 months. RIM: PRIVATION sensor may be recall at factory or index dusing Kestell furthing Calibration file. RIM: PRIVATION of the control of the control of th
Pressure			٠	23.5			•		•	•			•	0.03 inHg 1.0 hPalmbar 0.01 PSI	0.01 inHg 0.1 hPa mbar 0.01 PSI	8.86 to 32.49 inHg 300.0 to 1100.0 hPajmbar 4.35 to 15.95 PSI and 32.0 to 185.0 °F 0.0 to 85.0 °C	0.30 to 48.87 inHg 10.0 to 1654.7 hPalmbar 0.14 to 24.00 PSI and 14.0 to 131.0 °F -10.0 to 55.0 °C	Monofilhic silicon piezoresistive pressure sensor with second-order temperature correction. Pressure sensor may be reclaimbed of factory in field. Adjustate interiore attitude as display of station pressure or transmitic pressure connected to MSL. Kestelle 4200 displays station pressure or a dedicated screen. Relatele 2500 and 3500 displays station pressure or an edicated screen. Relatele 2500 and 3500 displays continuously update three-hour later matter pressure the related to relating station. Post displays pressure trend through graphing function. POI display on Kestel 4000 berlies only.
Compass												٠		5*	1* 1/16th Cardinal Scale	0 to 360°	0 to 360*	2-axis solid-state magnetoresistive sensor mounted perpendicular to unit plane. Accuracy of sensor dependent upon units vertical position. Self-calibration routine eliminates magnetic e from batteries or unit and must be run after every full power-down (batter) removal or charge. Readout indicates direction to which the back of the unit is pointed when held in a vertical orientation. Declarations have also adjustable for Tun North readout.
														CALCUL	ATED ME	ASUREMENTS		
MEASUREMENT	1000	2000	2500	3000	3500	3500 DT	4000	4200	4250	4300	4400	4500	4500 HOR	ACCURACY (+/-)*	RESOLUTION	SPECIFICATION RANGE	SENSORS EMPLOYED	NOTES
Air Density	i jen	491		W	133	17	ded	٠	•		133			0.0002 lb/ft ³ 0.0033 kg/m ³	0.001 lbs/ft ³ 0.001 kg/m ³	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Mass of air per unit volume
Air Flow														6.71%	1 cfm 1 m²/hr 1 m²/m 0.1m²/s 1 L/s	Refer to Ranges for Sensors Employed	Air Flow User Input (Duct Shape & Size)	Volume of air flowing through an opening. Automatically calculated from Air Velocity measure and user-specified duct shape (circle or rectangle) and dimensions (units: in, ft, cm or m). Maximum duct dimension input: 258.0 in 21.5 ft 655.3 cm 6.55 m.
Altitude														typical: 23.6 ft 7.2 m max: 48.2 ft	1 ft 1 m	typical: 750 to 1100 mBar max: 300 to 750 mBar	Pressure User Input (Reference Pressure)	Height above Mean Sea Level ("MSL"). Temperature compensated pressure (barometric) altimeter requires accurate reference barometric pressure to produce maximum absolute accuracy. Both accuracy specs corresponds to a reference pressure anywhere from 850 to mBar.
Barometric Pressure														14.7 m 0.07 inHg 2.4 hPa mbar 0.03 PSI	0.01 inHg 0.1 hPa mbar 0.01 PSI	Refer to Ranges for Sensors Employed	Pressure User Input (Reference Altitude)	imbar. Air pressure that would be present in identical conditions at MSL. Station pressure compens for local elevation provided by reference altitude. Requires accurate reference altitude to promaximum absolute accuracy.
Crosswind & Headwind/Tailwind												•		7.1%	1 mph 1 ft/min 0.1 km/h 0.1 m/s 0.1 knots	Refer to Ranges for Sensors Employed	Wind Speed Compass	Effective wind relative to a target or travel direction. Auto-switching headwindstallwind indicate
Delta T														3.2 °F	0.1 °F 0.1 °C	Refer to Ranges for	Temperature Relative Humidity	Difference between dry bulb temperature and wet bulb temperature. When spraying, indicat
	1XIII	Bysle:	0.0	708	13/3	1200								1.8 °C	1ft	Sensors Employed Refer to Ranges for	Pressure Temperature	evaporation rate and droplet lifetime. Safe range for pesticide spraying is 4 to 16 °F / 2 to 9 Local air density converted to equivalent elevation above sea level in a uniform layer consist
Density Altitude			na:											69 m	1 m	Sensors Employed	Relative Humidity Pressure	the International Standard Atmosphere. Temperature that a volume of air must be cooled to at constant pressure for the water vaporation.
Dewpoint				•	•	•	•	•	•	•	٠	•	•	3.4 °F 1.9 °C	0.1 °F 0.1 °C	Refer to Range for Temperature Sensor	Temperature Relative Humidity	present to condense into dewand form on a solid surface. Can also be considered to be the water-to-air saturation temperature.
Evaporation Rate										•				0.01 lb/ft²/hr 0.06 kg/m2/hr	0.01 b/ft²/hr 0.01 kg/m²/hr	Refer to Ranges for Sensors Employed	Wind Speed Temperature Relative Humidity Pressure User Input (Concrete Temperature)	The rate at which moisture is lost from the surface of curing concrete. Requires user measurement and entry of concrete temperature obtained with an accurate IR or probe the contracter of For *C**, not included, Readings should be taken 20 inches above pour surface with the thermister shaded, and averaged for 610 seconds using full-in averaging functions.
Heat Index			•	•	٠	-3379	•	•	•	•	•	•	•	7.1 °F 4.0 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Temperature Relative Humidity	Perceived temperature resulting from the combined effect of temperature and relative humic Calculated based on NWS Heat Index (HI) tables. Measurement range limited by extent of published tables.
Moisture Content Humidity Ratio ("Grains")									•					.3 gpp .04 g/kg	0.1 gpp 0.01 g/kg	Refer to Ranges for Sensors Employed	Temperature Relative Humidity Pressure	Mass of water vapor in a mass of air.
Relative Air Density					247	177	1 11						100	0.3%	0.1%	Refer to Ranges for Sensors Employed	Temperature Relative Humidity	The ratio, expressed as a percentage, of measured air density to the air density of a standa atmosphere as defined by the ICAO.
hermal Work Limit (TWL)						La P	197-1		1 01					10.9 W/m²	0.1 W/m²	Refer to Ranges for Sensors Employed	Pressure Wind Speed Temperature Globe Temperature Relative Humidity Pressure	armospere as connect on excession and extended substantial for the conditions and cityling factors. Based off of estimated metabolic rate (Wiln2) for the conditions and cityling factors. Based off of estimated metabolic output of typical human. O screen zone varings.
Outdoor Wet Bulb Globe Temperature (WBGT)								148						1.3 °F 0.7 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Wind Speed Temperature Globe Temperature Relative Humidity	Measure of human heat stress defined as the combination of effects due to radiation, convi and conduction. Outdoor WBGT is calculated from a veighted sum of natural web bull. Or the globe temperature (Tg), and dry bulb temperature (Td). User setable on-screen varning zo
Wet Bulb Temperature - aturally Aspirated (Tnwb)			1872			1100	18	B R	i te	25 kg	•	10		1.4 °F 0.8 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Pressure Wind Speed Temperature Globe Temperature Relative Humidity	Similar to psychrometric wer-bubl temporature (see below). However, Trivib only undergoes convection from the arrisent air velocity. Trivib is a measure of the evaporative cooling that will allow. This is accounted for by combining the effects of, mainly, relative humidity and windspeed.
Wet Bulb Temperature - Psychrometric	57	TELL S	5 10							•				3.2 °F 1.8 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Pressure Temperature Relative Humidity	Temperature indicated by a sing psychrometer. Due to nature of the psychrometric ratio for water-air system, this approximates the thermodynamic wet-bulb temperature. The thermody wet-bulb temperature is the temperature a parcel of air would have if cooled adiabatically to
Wind Chill	W.		•				•					•	•	1.6 °F 0.9 °C	0.1 °F 0.1 °C	Refer to Ranges for Sensors Employed	Pressure Wind Speed Temperature	saturation temperature vis water evaporating into it. Perceived temperature resulting from combined effect of wind speed and temperature. Calc based on the NWS Wind Chill Temperature (WCT) Index, revised 2001, with wind speed by a factor of 1.5 to yield equivalent results to wind speed measured at 10 m above ground.
			0.1		133	901	1233	253	MA					ADDITIO	ONAL SEE	CIFICATIONS		Measurement range limited by extent of published tables.
Display & Backlight				•									SCHOOL SC	Reflective 3 1/2 digit LC	D. Digit height 0:38 in	9 mm. Aviation green electrol	luminescent backlight. Manual activation	on with auto-off. urninescent backlight. Manual activation with auto-off.
Response Time				1,1039	SIXE	SI-N	٠	٠	٠	•	•	•	•	Multifunction, multi-digit	monochrome dot-matri	x display. Choice of aviation	green or visible red (NV models only) e	uminescent backlight. Manual activation with auto-on: hectroluminescent backlight. Automatic or manual activation. nd all measurements which include RH in their calculation may require as long as 1 minute to f
& Display Update						:	•	•	•	•	•	•	•	equilibrate to a large cha	ange in the measurement start of Max Wind Gus	ent environment. Display updat it and Average Wind measure	tes every 1 second. ment.	ed lavel inscogmog act to balliev.
Max/Avg Wind							•	•	•	•	•	٠	•					with all other wind-related functions: air velocity, crosswind, headwind/tailwind, wind chill, WBC
ata Storage & Graphical Display, Min/Max/Avg History									3200 points					Minimum, maximum, ave independently. Auto-stor	erage and logged histo re interval settable from	ry stored and displayed for ew n 2 seconds to 12 hours, over	ery measured value. Large capacity da write on or off. Logs even when display	ata logger with graphical display. Manual and auto data storage. Min/Max/Avg history may be re y off except for 2 and 5 second intervals (code version 4.18 and later). Data capacity shown.
ata Upload & Bluetooth® Data Connect Option							•	•	•	•		•		Bluetooth Data Trans	fer Option: Adjustable	32) or Bluetooth data transfer e power consumption and radi rial Port Protocol for data tran	o range from up to 30 ft 9 meters. Inc	dividual unit ID and 4-digit PIN code preprogrammed for easy identification and data security w
Clock / Calendar			•	•	•	•								Requires optional PC in	terface (USB or RS-23	32) or Bluetooth data transfer 32) or Bluetooth data transfer	option and provided software.	18GPTO CANADOMO A LIBERTAL AND
Auto Shutdown	٠	•	•	•	•	•		•						Requires optional PC in Requires optional PC in	terface (USB or RS-23 terface (USB or RS-23	32) or Bluetooth data transfer 32) or Bluetooth data transfer	option and provided software.	
Languages Certifications	•	•	•			•				•			•	English, French, Germa CE certified, RoHS and	WEEE compliant. Indi	vidually tested to NIST-traceat	ole standards (written certificate of test	ts available at additional charge).
Origin Battery Life	•		•	•			•	•	٠	•	•	•	•	Designed and manufact CR2032, one, included.	ured in the USA from I Average life, 300 hour	JS and imported components. s. Battery life reduced by back	Complies with Regional Value Content slight use in 2000 to 3500 models.	t and Tariff Code Transformation requirements for NAFTA Preference Criterion B.
Shock Resistance	•	•	•			•	•					:		MIL-STD-810g, Transit	Shock, Method 516.5	d. Average life, 400 hours of u Procedure IV; unit only; impact	use, reduced by backlight or Bluetooth t may damage replaceable impeller.	radio transmission use.
Sealing Operational Temperature														Waterproof (IP67 and N 14° F to 131° F -10 °C	to 55 °C Measureme	nts may be taken beyond the li	imits of the operational temperature rai	nge of the display and batteries by maintaining the unit within the operational range and exposi
Limits Storage Temperature	•		•	•	•	•	•	•	•		•		•	-22.0 °F to 140.0 °F -3	0.0 °C to 60.0 °C	num time necessary to take rea		
														48 x 1 0 - 4 4 1- 1400	48 x 2 0 cm 44	102 g (including slip-on cover)		

^{*} NOTE: Accuracy calculated as uncertainty of the measurement derived from statistical analysis considering the comined effects from primary sensor specifications, circuit conversions, and all other sources of error using a coverage factor of k=2, or two standard deviations (2Σ).

Certificate of Calibration

for

Description:

Sound Level Meter

Manufacturer:

NTi Audio

Type No.:

XL2 (Serial No.: A2A-09696-E0)

Microphone:

ACO 7052 (Serial No.:68840)

Preamplifier:

NTi Audio M2211 MA220 (Serial No.:5287)

Submitted by:

Customer:

Acumen Environmental Engineering and Technologies Co.

Ltd.

Address:

Unit D, 12/F, Ford Glory Plaza,

Nos. 37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

Upon receipt for calibration, the instrument was found to be:

Within

☐ Outside

the allowable tolerance.

The test equipment used for calibration are traceable to National Standards via:

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

Date of receipt: 24 March 2022

Date of calibration: 26 March 2022

Calibrated by:

Calibration Technician

Certified by:

Mr. Ng Yan Wa

Laboratory Manager

Date of issue: 26 March 2022

Certificate No.: APJ21-161-CC001

Page 1 of 4



1. Calibration Precaution:

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.

2. Calibration Conditions:

Air Temperature:

22.6°C

Air Pressure:

1006 hPa

Relative Humidity:

74.5 %

3. Calibration Equipment:

Type

Serial No.

Calibration Report Number

Traceable to

Multifunction Calibrator

B&K 4226

2288467

AV200041

HOKLAS

4. Calibration Results

Sound Pressure Level

Reference Sound Pressure Level

Sett	ing of Ur	nit-under-t	est (UUT)	Appl	ied value	UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. V	Veighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBA	SPL	Fast	94	1000	94.1	±0.4

Linearity

Sett	ing of Unit	t-under-t	est (UUT)	App	lied value	UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. W	eighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
				94		94.1	Ref
30-130	dBA	SPL	Fast	104	1000	104.1	±0.3
				114		114.1	±0.3

Time Weighting

Sett	ing of U	Jnit-under-t	est (UUT)	Appl	ied value	UUT Reading,	IEC 61672 Class 1
Range, dB	Freq.	Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBA	SPL	Fast	94	1000	94.1	Ref
30-130	uD/		Slow	94	1000	94.1	±0.3

Certificate No.: APJ21-161-CC001

(A+A) *L S Page 2 of 4



Frequency Response

Linear Response

Setti	ing of Unit	t-under-t	est (UUT)	Appl	ied value	UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. We	eighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
					31.5	94.0	±2.0
					63	94.1	±1.5
					125	94.1	±1.5
					250	94.0	±1.4
30-130	dB	SPL	Fast	94	500	94.1	±1.4
					1000	94.1	Ref
					2000	94.3	±1.6
					4000	94.9	±1.6
<u> </u>					8000	93.6	+2.1; -3.1

A-weighting

Setti	ing of Uni	t-under-t	est (UUT)	Appl	ied value	UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. W	eighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
					31.5	54.7	-39.4 ±2.0
					63	67.9	-26.2 ±1.5
					125	78.0	-16.1 ±1.5
					250	85.4	-8.6 ± 1.4
30-130	dBA	SPL	Fast	94	500	90.9	-3.2 ±1.4
					1000	94.1	Ref
					2000	95.5	+1.2 ±1.6
					4000	95.9	+1.0±1.6
					8000	92.5	-1.1+2.1; -3.1

C-weighting

Sett	ing of Uni	it-under-t	est (UUT)	Appl	ied value	UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. W	eighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
					31.5	91.0	-3.0 ±2.0
					63	93.2	-0.8 ±1.5
					125	93.9	-0.2 ±1.5
					250	94.0	-0.0 ±1.4
30-130	dBC	SPL	Fast	94	500	94.1	-0.0 ±1.4
					1000	94.1	Ref
					2000	94.1	-0.2 ±1.6
					4000	94.1	-0.8 ±1.6
					8000	90.6	-3.0 +2.1: -3.1

Certificate No.: APJ21-161-CC001



Page 3 of 4



5. Calibration Results Applied

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 61672 Class 1.

Uncertainties of Applied Value:

94 dB	31.5 Hz	± 0.05
	63 Hz	± 0.05
	125 Hz	± 0.05
	250 Hz	± 0.05
	500 Hz	± 0.05
	1000 Hz	± 0.05
	2000 Hz	± 0.05
	4000 Hz	± 0.05
	8000 Hz	± 0.10
104 dB	1000 Hz	± 0.05
114 dB	1000 Hz	± 0.05

The uncertainties are evaluated for a 95% confidence level.

Note:

The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. (A+A)*L shall not be liable for any loss or damage resulting from the use of the equipment.

Page 4 of 4

Certificate No. D224349E



CALIBRATION CERTIFICATE

Product : SOUND CALIBRATOR

Type : NC-75

Serial number : 34724243

Manufacturer : RION CO., LTD.

Calibration quantities : Sound pressure level (with reference standard microphone)

Calibration method : Measured by specified secondary standard microphone

according to JCSS calibration procedure specified by RION.

Ambient conditions : Temperature 23.9 °C, Relative humidity 49 %,

Static pressure 99.9 kPa

Calibration date : 05/07/2022 (DD/MM/YYYY)

Calibration location : 3-20-41 Higashimotomachi, Kokubunji, Tokyo 185-8533, Japan

RION CO., LTD. Calibration Room

We hereby certify that the results of this calibration were as follows.

Issue date: 11/07/2022 (DD/MM/YYYY)

Junichi Kawamura
Manager
Quality Assurance Section,
Quality Assurance Department,
Environmental Instrument Division,
RION CO., LTD.

3-20-41 Higashimotomachi, Kokubunji,

Tokyo 185-8533, Japan

This certificate is based on article 144 of the Measurement Law and indicates the result of calibration in accordance with measurement standards traceable to Primary Measurement Standards (National Standards) which realizes the physical units of measurement according to the International System of Units (SI).

The accreditation symbol is attestation of which the result of calibration is traceable to Primary Measurement Standards (National Standards).

The certificate shall not be reproduced except in full, without the written approval of the issuing laboratory.

The calibration laboratory who issued this calibration certificate conforms to ISO/IEC 17025:2017.

This calibration certificate was issued by the calibration laboratory accredited by IAJapan who is a signatory to the Mutual Recognition Arrangement (MRA) of International Laboratory Accreditation Cooperation (ILAC) and Asia Pacific Accreditation Cooperation (APAC). This (These) calibration result(s) may be accepted internationally through ILAC/APAC MRA.





Certificate No. D224349E

CALIBRATION RESULT

1. Sound pressure level (with reference standard microphone)

Measured	Expanded
value	uncertainty *1
93.99 dB	0.09 dB

Specified secondary standard microphone:

Type

: 4160

Serial number : 2973341

Reference Sound pressure: 2×10.5 Pa

*1 Defines an interval estimated to have a level of confidence of approximately 95 %.

Coverage factor k=2

Calibration result is the calibration value in ambient conditions during calibration.

BE OUT OF JCSS CALIBRATION

1. Frequency

M	Measurement
Measured value	uncertainty (k=2)
1000.0 Hz	$3.9 \times 10^{-4} \mathrm{Hz}$

Working measurement standard universal counter:

Type

: 53132A

Serial number : MY40005574

(JCSS Calibration Certificate No. 21081499079575510)

2. Total distortion

Measured	
value	1100
0.2 %	

Working measurement standard distortion meter:

: VA-2230A

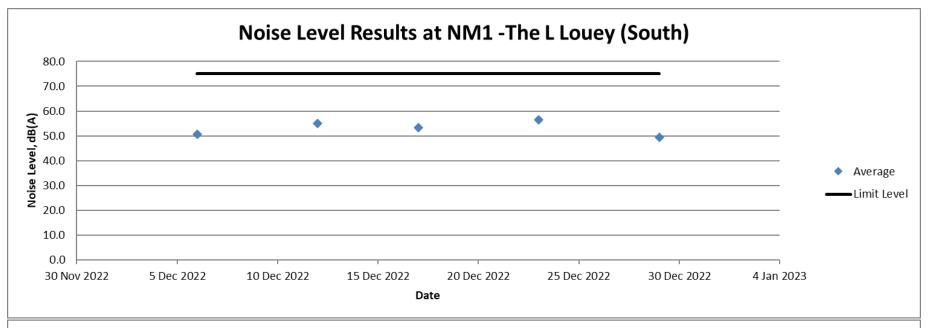
Serial number : 11076061

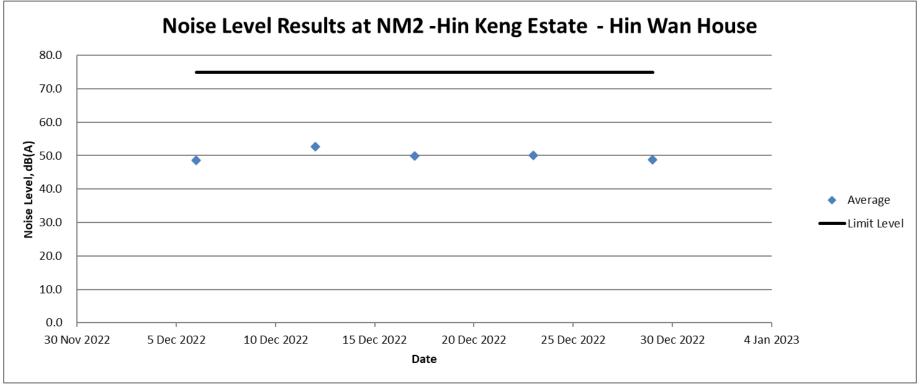
(A2LA Calibration Certificate No. 1501-03080)

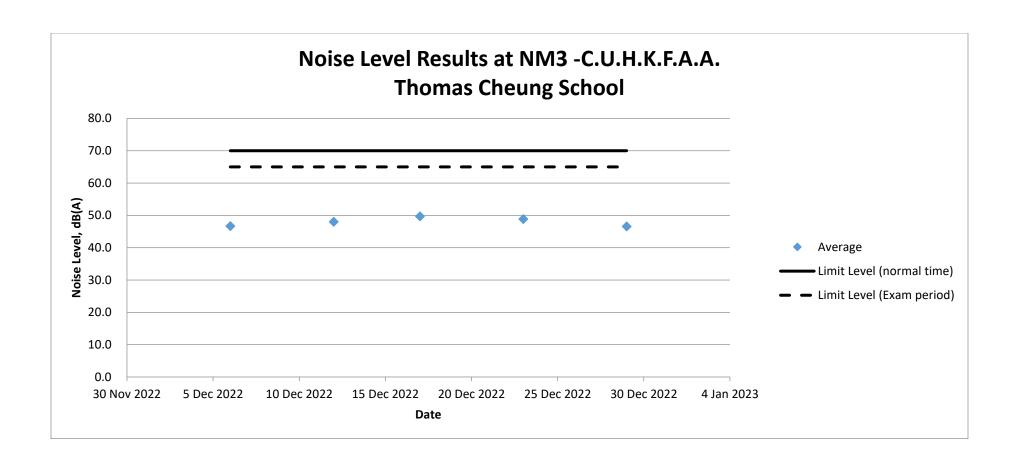
- closing -



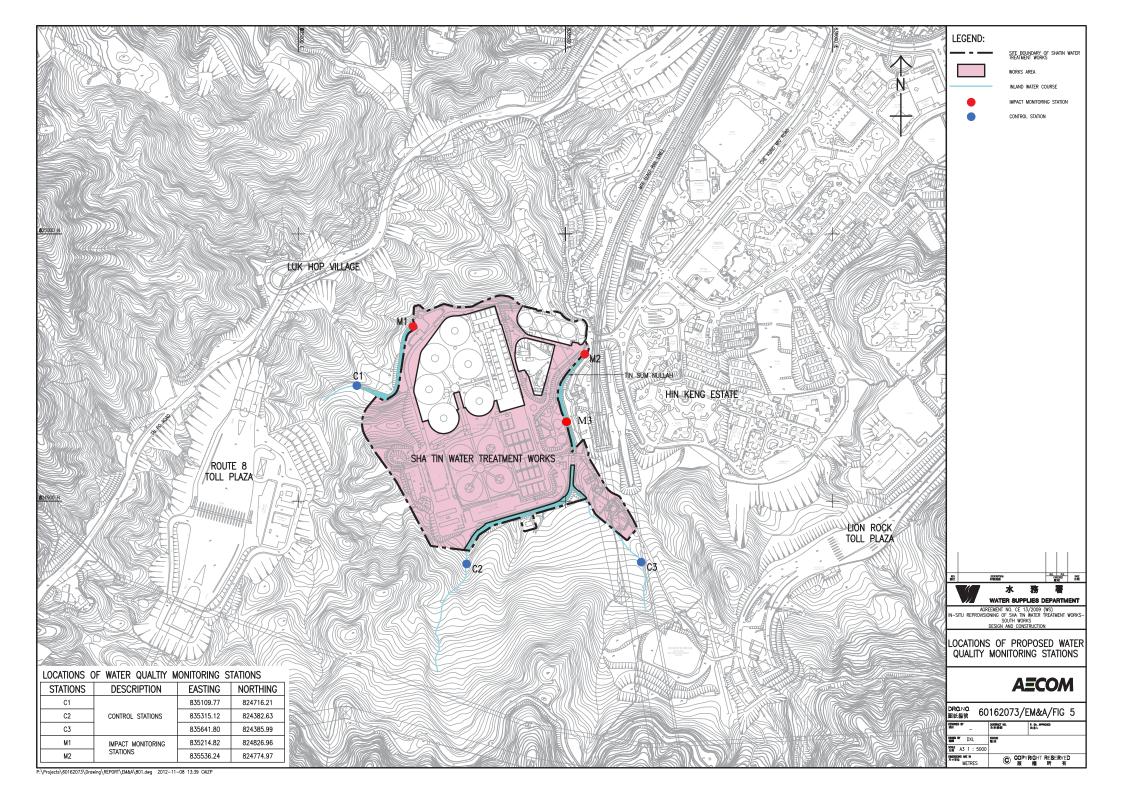
Appendix N Impact Noise Monitoring Results and Graphical Presentation







Appendix O Location Plan of Water Quality Monitoring Station



Appendix P Calibration Certificate (Water Quality)



專業化驗有限公司 QUALITY PRO TEST-CONSULT LIMITED

Unit 10, 14/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong Email: info@qualityprotest.com; Website: www.qualityprotest.com Tel: (852) 3956 8717; Fax: (852) 3956 3928

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No.

: R-BB100041

Date of Issue

: 17 October 2022

Page No.

: 1 of 2

PART A - CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited

Unit E, 12/F, Ford Glory Plaza 37-39 Wing Hong Street, Cheung Sha Wan

Kowloon (HK) Hong Kong

PART B - SAMPLE INFORMATION

Name of Equipment:

HORIBA U-53

Manufacturer:

HORIBA

Serial Number:

S2A98W8H

Date of Received:

12 October 2022

Date of Calibration:

14 October 2022

Date of Next Calibration:

13 January 2023

Request No.:

D-BB100041

PART C - REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Test Parameter

Reference Method

pH value

APHA 21e 4500 H+

Temperature

Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March

2008: Working Thermometer Calibration Procedure

Salinity

APHA 21e 2520 B

Dissolved oxygen

APHA 21e 4500 O

Turbidity

APHA 21e 2130 B

PART D - CALIBRATION RESULT

(1) pH value

Target (pH unit)	Display Reading (pH unit)	Tolerance	Result
4.00	4.03	0.03	Satisfactory
7.42	7.31	-0.11	Satisfactory
10.01	9.91	-0.10	Satisfactory

Tolerance of pH value should be less than ± 0.2 (pH unit)

(2) Temperature

Reading of Ref. thermometer (°C)	Display Reading (°C)	Tolerance	Result
11	11.24	0.24	Satisfactory
23	22.45	-0.55	Satisfactory
40	38.75	-0.75	Satisfactory

Tolerance of Temperature should be less than ± 2.0 (°C)

(3) Salinity

Expected Reading (g/L)	Display Reading (g/L)	Tolerance (%)	Result
10	9.68	-3.20	Satisfactory
20	19.78	-1.10	Satisfactory
30	30.20	0.67	Satisfactory

Tolerance of Salinity should be less than ± 10.0 (%)

--- CONTINUED ON NEXT PAGE ---

AUTHORIZED SIGNATORY:

LEE Chun-ning
Assistant Manager (Chemical Testing)

This report shall not be reproduced unless with prior written approval from this laboratory



專業化驗有限公司 QUALITY PRO TEST-CONSULT LIMITED

Unit 10, 14/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong Email: info@qualityprotest.com; Website: www.qualityprotest.com Tel: (852) 3956 8717; Fax: (852) 3956 3928

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No.

: R-BB100041

Date of Issue

: 17 October 2022

Page No.

: 2 of 2

(4) Dissolved oxygen

Expected Reading (mg/L)	Display Reading (mg/L)	Tolerance	Result
7.70	7.90	0.20	Satisfactory
5.39	5.00	-0.39	Satisfactory
3.46	3.02	-0.44	Satisfactory
1.49	1.13	-0.36	Satisfactory

Tolerance of Dissolved oxygen should be less than \pm 0.5 (mg/L)

(5) Turbidity

Expected Reading (NTU)	Display Reading (NTU)	Tolerance (%)	Result
0	0.89		Satisfactory
10	10.8	8.0	Satisfactory
20	20.6	3.0	Satisfactory
100	97.3	-2.7	Satisfactory
800	790.6	-1.2	Satisfactory

Tolerance of Turbidity should be less than ± 10.0 (%)

Remark(s)

- 'The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted form relevant international standards.
- ·The results relate only to the calibrated equipment as received
- •The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
- "Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.
- ·The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards.

--- END OF REPORT ---

Appendix Q The Certification of Laboratory with HOKLAS accredited Analytical Tests



Hong Kong Accreditation Service 香港認可處

Certificate of Accreditation

認可證書

This is to certify that 特此證明

ACUMEN LABORATORY AND TESTING LIMITED

浩科檢測中心有限公司

Lot 12, Tam Kon Shan Road, North Tsing Yi, New Territories, Hong Kong 香港新界青衣北担杆山路12路段

has been accepted by the HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a 在認可諮詢委員會的建議下獲香港認可處執行機關接受為

HOKLAS Accredited Laboratory 「香港實驗所認可計劃」認可實驗所

This laboratory meets the requirements of ISO/IEC 17025:2005 and it has been accredited for performing specific tests or calibrations as listed in the scope of accreditation within the test category of

Environmental Testing

此實驗所符合ISO/IEC 17025:2005所訂的要求 並獲認可進行載於認可範圍內下述測試類別中的指定測試或校正工作

環境測試

This accreditation to ISC/IEC 17025:2005 demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (see joint IAF-ILAC-ISO Communiqué). 此項 ISC/IEC 17025:2005 的部可資格證明此實驗所是明存機能完整時內所領的技術能力並實施一套實驗所質量管理體系(見圖際認可論壇、國際實驗所認可合作組織及圖際標準化組織的聯合公報)。

The common seal of the Hong Kong Accreditation Service is affixed hereto by the authority of the HKAS Executive 現經香港認可處執行機關授權在此蓋上香港認可處的印章

WONG Wang-wan, Executive Administrator

報行幹事 黄宏華 Issue Date: 16 July 2014 簽發日期: 二零一四年七月十六日

Registration Number: HOKLAS 241

Date of First Registration: 16 July 2014 首次註冊日期:二零一四年七月十六日

This certificate is issued subject to the terms and conditions laid down by HKAS 本證書按照香港認可處訂立的條款及條件發出

L 001195

Appendix R Impact Water Quality Monitoring Results

Date	Time	Weather	Location	Co-or	dinates	Water Depth	Sample Depth	Te	mp.	DO	con.	Turk	oidity	р	Н	SS
				East	North	m	m		C C	m	g/L	N	TU	u	nit	mg/L
	9:55	Sunny	C1	835110	824716	0.04	0.02	22.12	22.13	11.2	12.06	0	0			<1
	10:33	Sunny	C2	835403	824470	0.02	0.01	22.94	22.56	10.08	10.18	1.32	1.33	8.23	8.31	<1
2/12/2022	N/A	Sunny	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2/12/2022	10:00	Sunny	M1	835215	824827	0.8	0.4	23.17	23.04	10.26	11.12	0	0	7.96	8.12	1.0
	10:25	Sunny	M2	835536	824775	0.05	0.025	22.38	22.3	11.58	11.63	6.01	5.85	7.83	7.91	<1
	10:27	Sunny	M3	835501	824648	0.02	0.01	23.32	23.28	11.09	10.95	0	0	8.23	8.22	<u>4.3</u>
	11:50	cloudy	C1	835110	824716	0.04	0.02	21.41	21.39	11.29	11.46	1.53	1.88	7.77	7.64	1.3
	12:15	cloudy	C2	835403	824470	0.02	0.01	21.92	22.18		13.98	0.68	0.52	8.01	7.9	<1
5/12/2022	N/A	cloudy	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3,12,2322	11:25	cloudy	M1	835215	824827	0.8	0.4	21.38	21.38	14.77	14.64	2.58	2.44	7.91	7.9	<1
	10:39	cloudy	M2	835536	824775	0.05	0.025	21.94	22.28	12.81	12.2	0	0	8.48	8.49	1.6
	10:52	cloudy	M3	835501	824648	0.02	0.01	22.24	22.31	12.69	12.79	0	0	8.14	8.24	<u>1.1</u>
	16:00	Fine	C1	835110	824716	0.04	0.02	22.17	22.16		9.82	1.89	1.71	7.69		<1
	16:22	Fine	C2	835403	824470	0.02	0.01	22.4	22.51	11.39	11.47	0	0			<1
7/12/2022	N/A	Fine	C3	835642		N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A
.,,	16:05	Fine	M1	835215	824827	0.8	0.4	22.07	22.04	12.32	11.43	2.83	3.07	7.95	7.99	<u>3.6</u>
	16:17	Fine	M2	835536	824775	0.05	0.025	21.78	21.89	10.08	10.4	6.86	6.28	8.46		2.1
	16:20	Fine	M3	835501	824648	0.02	0.01	22.38	22.52	13.1	12.42	0	0	8.27	8.27	<u>2.3</u>
				,								1				
	16:00	Fine	C1	835110	824716	0.04	0.02	22.24	22.23		12.31	1.86	1.82	7.59		1.6
	16:22	Fine	C2	835403	824470	0.02	0.01	22.69	22.6		9.49	0.93	0.76			1.0
9/12/2022	N/A	Fine	C3	835642		N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A
	16:05	Fine	M1	835215	824827	0.8	0.4	22.24	22.23	10.26	12.04	2.01	2.14	7.74	7.78	2.9
	16:17	Fine	M2	835536	824775	0.05	0.025	22.49	22.49	12.4	12.18	0	0		8.41	<1
	16:20	Fine	M3	835501	824648	0.02	0.01	22.62	22.52	12.13	12.19	0	0	7.83	7.91	<1
	9:30	Cloudy	C1	835110	824716	0.04	0.02	22.68	22.61	10.39	10.1	1.63	1.76			3.9
	10:00	Cloudy	C2	835403	824470	0.02	0.01	21.9			12	0	. 0			<1
12/12/2022	N/A	Cloudy	C3	835642	824386	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	N/A	N/A	N/A
	9:35	Cloudy	M1	835215	824827	0.8	0.4	22.35	22.29	11.48	11.45	2.27	2.49	7.7	7.86	2.3
	9:55	Cloudy	M2	835536	824775	0.05	0.025	21.97	21.64	12.4	13.07	0	0		8.15	<1
	9:57	Cloudy	M3	835501	824648	0.02	0.01	21.82	21.86	11.49	10.61	0	0	8.09	8.18	<1
	0.27	Ei	C1	025442	024746	0.01	0.00	24.00	24.20	42.10	42.55	2.55	2.72	7.00	7.10	1.0
	9:37	Fine	C1	835110	824716	0.04	0.02	21.02	21.36		12.45	3.65	3.73			1.9
	10:05	Fine	C2	835403	824470	0.02	0.01	20.71	21.11	9.49	9.02	1.5	1.32	7.75	7.66	<1
14/12/2022	N/A	Fine	C3	835642	824386	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	N/A	N/A	N/A
	9:42	Fine	M1	835215	824827	0.8	0.4	20.87	21.4	12.97	13.77	4	4.18	7.84	7.91	1.5
	10:00	Fine	M2	835536	824775	0.05	0.025	21.22	21.27	10.24	11.74	0	0		8.36	<1
	10:02	Fine	M3	835501	824648	0.02	0.01	20.69	20.56	11.06	10.03	0	0	8.15	8.31	<1

	13:00	Fine	C1	835110	824716	0.04	0.02	21.98	21.94	8.16	8.04	1.59	1.36	7.79	7.83	<1
	13:24	Fine	C2	835403	824470	0.02									7.83	<1
	N/A	Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16/12/2022	13:05	Fine	M1	835215	824827	0.8	· ·		21.79			1.52	1.6		7.94	<1
	13:20	Fine	M2	835536	824775	0.05		21.34	21.4	11.23	12.1	0			7.05	<1
	13:22	Fine	M3	835501	824648	0.02						0				<1
	9:50	Fine	C1	835110	824716	0.04	0.02	18.84	18.98	8.35	8.08	1.8	2.09	6.94	7.14	3.3
	10:35	Fine	C2	835403	824470	0.02	0.01	19.63	19.72	12.05	12.94	0.25	0.26	8.28	8.27	<1
19/12/2022	N/A	Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19/12/2022	9:55	Fine	M1	835215	824827	0.8	0.4	19	18.37	9.77	9.59	1.84	2.04	7.83	7.94	2.4
	10:30	Fine	M2	835536	824775	0.05	0.025	19.84	19.85	14.25	13.43	0	0	8.12	8.16	<1
	10:32	Fine	M3	835501	824648	0.02	0.01	19.2	19.23	12.08	13.22	0	0	7.93	7.93	<1
	12:45	Fine	C1	835110	824716	0.04			21.26				3.69	7.62	7.34	2.0
	13:04	Fine	C2	835403	824470	0.02			20.95		13.96			8.17	8.04	<1
21/12/2022	N/A	Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
' '	12:50	Fine	M1	835215	824827	0.8	1	22.4	22.45	10.2	11.8	4.11	4.27	7.71	7.73	2.2
	13:00	Fine	M2	835536	824775	0.05		20.8	20.77	13.44	14.45	0			7.92	<1
	13:02	Fine	M3	835501	824648	0.02	0.01	21.23	21.34	11.83	11.92	0	0	8.27	8.33	<1
	10.25	Ein -	C1	025440	024746	0.04	0.03	22.72	22.57	10.43	11.11	4.22	1.37	7.7	7.75	-1
	10:35	Fine	C1	835110	824716	0.04	1		22.57	10.43		1.33 0.54	0.6	7.7 7.09		<1 <1
	10:50 N/A	Fine Fine	C2 C3	835403 835642	824470 824386	0.02 N/A	0.01 N/A	22.05 N/A	21.97 N/A	9.94 N/A	9.64 N/A		N/A	7.09 N/A	7.18 N/A	N/A
23/12/2022	10:15	Fine	M1	835215	824827	0.8		22.45	22.41	12.75	-	1.96	2.02	7.83	7.81	1.5
	9:31	Fine	M2	835536	824775	0.05	1	22.43	22.41	14.72	13.17	0			8.75	<1
	9:34	Fine	M3	835501	824648	0.02		22.27	22.24	14.01	13.67	0			7.87	<1
	515 1	Time	1115	000001	02 10 10	0.02	0.01	LLIL	EE,E,	11101	15107	ū	ű	7101	7107	
	10:16	Sunnv	C1	835110	824716	0.04	0.02	22.74	22.74	10.32	10.12	0.54	0.55	7.5	7.62	2.2
	10:28	Sunny	C2	835403	824470	0.02	0.01	20.59	20.63	9.04	10		1.52		7.97	<1
20/42/2022	N/A	Sunny	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
28/12/2022	10:02	Sunny	M1	835215	824827	0.8	0.4	22.69	22.74	11.53	12.04	2.33	2.15	7.92	8.05	2.3
	9:40	Sunny	M2	835536	824775	0.05	0.025	20.64	20.75	11.73	10.73	0.39	0.43	8.12	8.11	<1
	9:43	Sunny	M3	835501	824648	0.02	0.01	22.59	22.51	12.67	13.55	0	0	7.31	7.39	<1
	9:22	Fine	C1	835110	824716	0.04	0.02	23.13	22.85	14.25	13	1.62	1.54	7.48	7.58	1.4
	10:00	Fine	C2	835403	824470	0.02		21.47	21.56		11.98		0.86	8.22	8.26	<1
30/12/2022	N/A	Fine	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
1 - 1, - 2, - 322	9:27	Fine	M1	835215	824827	3.0		23.03	22.93	12.56		2.11	1.85	8.08	8.07	2.1
	9:55	Fine	M2	835536	824775	0.05	1	21.32	20.7	12.08	12.72	1.21	1.04	8.35	8.34	<1
	9:57	Fine	M3	835501	824648	0.02	0.01	21.41	21.52	10.64	10.4	0.13	0.17	8.02	8.05	<1

Remark 1: Values that are <1 is assumed to be 1 during calculation.

Remark 2: Bolded values indicated exceedance of action level.

 ${\it Remark~3: Underlined~values~indicated~exceedance~of~limit~level.}$

There were 0 exceedances of Action Level and 4 exceedance of Limit Level. All exceedances were found non project related.



Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Report Number

Q220002aR221947

Job Number

R221947

Issue Date

16/12/2022

Applicant Name

Acumen Environmental Engineering and Technologies Co, Ltd.

Page 1 of 2

Applicant Address

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

Project Name

: CJO-3113-1084

Test Required

Total Suspended Solids (TSS)

Sampling Date

02/12/2022

Date Samples Received

02/12/2022

Sample Nature

Water

Number of Samples Received

_

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

HDPE Plastic Bottles

Laboratory ID

R221947/1-5

Test Period

02/12/2022 - 03/12/2022

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature

Hui Wai Fung, Huntington

Laboratory Manager



Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Page 2 of 2

Report Number

Q220002aR221947

Job Number

R221947

Issue Date

16/12/2022

Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R221947/1	02/12/2022	C1	<1
R221947/2	02/12/2022	C2	<1
R221947/3	02/12/2022	M1	1.0
R221947/4	02/12/2022	M2	<1
R221947/5	02/12/2022	М3	4.3

Note:

- mg/L indicates milligram per liter
- 2. < indicates less than.
- 3. Reporting limit is 2.5mg/L for 1L sample
- 4. Reporting limit is 1 mg/L for 2.5L sample
- 5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.

The result(s) relate only to the item(s) tested.

The result(s) are applied only to the sample(s) received.

End of Report

Hong Kong Accreditation Service (HKAS) has accredited Acumen Laboratory and Testing Limited (Reg. No. HOKLAS 241 - TEST) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. This report is issued subject to Acumen Laboratory and Testing Limited standard TERMS AND CONDITIONS, and shall not be reproduced except in full or with written approval by Acumen Laboratory and Testing Limited.



Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong

Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Report Number

Q220002aR221948

Job Number

R221948

Issue Date

16/12/2022

Applicant Name

Acumen Environmental Engineering and Technologies Co, Ltd.

Page 1 of 2

Applicant Address

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street.

Cheung Sha Wan, Kowloon, Hong Kong

Project Name

CJO-3113-1085

Test Required

Total Suspended Solids (TSS)

Sampling Date

05/12/2022

Date Samples Received

05/12/2022

Sample Nature

Water

Number of Samples Received

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

HDPE Plastic Bottles

Laboratory ID

R221948/1-5

Test Period

05/12/2022 - 06/12/2022

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature

Hui Wai Fung, Huntington

Laboratory Manager



Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Page 2 of 2

Report Number

Q220002aR221948

Job Number

R221948

Issue Date

16/12/2022

Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R221948/1	05/12/2022	C1	1.3
R221948/2	05/12/2022	C2	<1
R221948/3	05/12/2022	M1	<1
R221948/4	05/12/2022	M2	1.6
R221948/5	05/12/2022	М3	1.1

Note:

- mg/L indicates milligram per liter
- < indicates less than.
- Reporting limit is 2.5mg/L for 1L sample Reporting limit is 1 mg/L for 2.5L sample 3.
- 4.
- Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- The result(s) relate only to the item(s) tested.
- The result(s) are applied only to the sample(s) received.



Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Report Number : Q220002aR221949

Job Number : R221949

Issue Date : 16/12/2022

Applicant Name : Acumen Environmental Engineering and Technologies Co, Ltd.

Applicant Address : Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street.

Cheung Sha Wan, Kowloon, Hong Kong

Page 1 of 2

Project Name : CJO-3113-1086

Test Required : Total Suspended Solids (TSS)

Sampling Date : 07/12/2022

Date Samples Received : 07/12/2022

Sample Nature : Water

Number of Samples Received :

Condition Received : Sample(s) arrived laboratory in chilled condition

Type of Container : HDPE Plastic Bottles

Laboratory ID : R221949/1-5

Test Period : 07/12/2022 – 08/12/2022

Method Used : In-house Method, QPL-15e for Total Suspended Solids

Test Result : Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature

Hui Wai Fung, Huntington

Laboratory Manager



Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Page 2 of 2

Report Number

Q220002aR221949

Job Number

R221949

Issue Date

16/12/2022

Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R221949/1	07/12/2022	C1	<1
R221949/2	07/12/2022	C2	<1
R221949/3	07/12/2022	M1	3.6
R221949/4	07/12/2022	M2	2.1
R221949/5	07/12/2022	М3	2.3

Note:

- 1. mg/L indicates milligram per liter
- 2. < indicates less than.
- Reporting limit is 2.5mg/L for 1L sample
- Reporting limit is 1 mg/L for 2.5L sample
- 5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- 6. The result(s) relate only to the item(s) tested.
- 7. The result(s) are applied only to the sample(s) received.



Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong

Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Report Number

Q220002aR221969

Job Number

R221969

Issue Date

16/12/2022

Applicant Name

Acumen Environmental Engineering and Technologies Co, Ltd.

Page 1 of 2

Applicant Address

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

Project Name

CJO-3113-1087

Test Required

Total Suspended Solids (TSS)

Sampling Date

09/12/2022

Date Samples Received

09/12/2022

Sample Nature

Water

Number of Samples Received

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

HDPE Plastic Bottles

Laboratory ID

R221969/1-5

Test Period

09/12/2022 - 10/12/2022

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature

Hui Wai Fung, Huntington

Laboratory Manager

Chemical and Microbiological Division

Hong Kong Accreditation Service (HKAS) has accredited Acumen Laboratory and Testing Limited (Reg. No. HOKLAS 241 - TEST) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. This report is issued subject to Acumen Laboratory and Testing Limited standard TERMS AND CONDITIONS, and shall not be reproduced except in full or with written approval by Acumen Laboratory and Testing



Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong Fax: (852) 2333 1316

Tel: (852) 2333 6823

Test Report

Page 2 of 2

Report Number

Q220002aR221969

Job Number

R221969

Issue Date

16/12/2022

Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R221969/1	09/12/2022	C1	1.6
R221969/2	09/12/2022	C2	1.0
R221969/3	09/12/2022	М1	2.9
R221969/4	09/12/2022	M2	<1
R221969/5	09/12/2022	М3	<1

Note:

- mg/L indicates milligram per liter
- < indicates less than. 2.
- Reporting limit is 2.5mg/L for 1L sample Reporting limit is 1 mg/L for 2.5L sample 3.
- Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- The result(s) relate only to the item(s) tested.
- The result(s) are applied only to the sample(s) received.



Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Report Number

Q220002aR221988

Job Number

R221988

Issue Date

23/12/2022

Applicant Name

Acumen Environmental Engineering and Technologies Co. Ltd.

Page 1 of 2

Applicant Address

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

Project Name

CJO-3113-1088

Test Required

Total Suspended Solids (TSS)

Sampling Date

12/12/2022

Date Samples Received

12/12/2022

Sample Nature

Water

Number of Samples Received

5

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

HDPE Plastic Bottles

Laboratory ID

R221988/1-5

Test Period

12/12/2022 - 13/12/2022

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature

Hui Wai Fung, Huntington

Laboratory Manager



Acumen Laboratory and Testing Limited Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong

Fax: (852) 2333 1316 Tel: (852) 2333 6823

Test Report

Page 2 of 2

Report Number

Q220002aR221988

Job Number

R221988

Issue Date

23/12/2022

Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R221988/1	12/12/2022	C1	3.9
R221988/2	12/12/2022	C2	<1
R221988/3	12/12/2022	M1	2.3
R221988/4	12/12/2022	M2	<1
R221988/5	12/12/2022	M3	<1

- mg/L indicates milligram per liter
- < indicates less than.
- Reporting limit is 2.5mg/L for 1L sample Reporting limit is 1 mg/L for 2.5L sample
- Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- The result(s) relate only to the item(s) tested.
- The result(s) are applied only to the sample(s) received.



Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Page 1 of 2

Report Number

Q220002aR221989

Job Number

R221989

Issue Date

23/12/2022

Applicant Name

Acumen Environmental Engineering and Technologies Co, Ltd.

Applicant Address

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

Project Name

CJO-3113-1089

Test Required

Total Suspended Solids (TSS)

Sampling Date

14/12/2022

Date Samples Received

14/12/2022

Sample Nature

Water

Number of Samples Received

5

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

HDPE Plastic Bottles

Laboratory ID

R221989/1-5

Test Period

14/12/2022 - 15/12/2022

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature

Hui Wai Fung, Huntington

Laboratory Manager



Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Page 2 of 2

Report Number

Q220002aR221989

Job Number

R221989

Issue Date

23/12/2022

Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R221989/1	14/12/2022	C1	1.9
R221989/2	14/12/2022	C2	<1
R221989/3	14/12/2022	M1	1.5
R221989/4	14/12/2022	M2	<1
R221989/5	14/12/2022	M3	<1

Note:

- 1. mg/L indicates milligram per liter
- < indicates less than.
- 3. Reporting limit is 2.5mg/L for 1L sample
- 4. Reporting limit is 1 mg/L for 2.5L sample
- 5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- 6. The result(s) relate only to the item(s) tested.
- The result(s) are applied only to the sample(s) received.



Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Page 1 of 2

Report Number

Q220002aR221990

Job Number

R221990

Issue Date

23/12/2022

Applicant Name

Acumen Environmental Engineering and Technologies Co, Ltd.

Applicant Address

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

Project Name

CJO-3113-1090

Test Required

Total Suspended Solids (TSS)

Sampling Date

16/12/2022

Date Samples Received

16/12/2022

Sample Nature

Water

Number of Samples Received

5

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

HDPE Plastic Bottles

Laboratory ID

R221990/1-5

Test Period

16/12/2022 - 17/12/2022

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature

Hui Wai Fung, Huntington

Laboratory Manager



Acumen Laboratory and Testing Limited Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong

Fax: (852) 2333 1316 Tel: (852) 2333 6823

Test Report

Page 2 of 2

Report Number

Q220002aR221990

Job Number

R221990

Issue Date

23/12/2022

Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R221990/1	16/12/2022	C1	<1
R221990/2	16/12/2022	C2	<1
R221990/3	16/12/2022	M1	<1
R221990/4	16/12/2022	M2	<1
R221990/5	16/12/2022	М3	<1

- mg/L indicates milligram per liter
- < indicates less than.
- Reporting limit is 2.5mg/L for 1L sample
- Reporting limit is 1 mg/L for 2.5L sample
- Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- The result(s) relate only to the item(s) tested.
- The result(s) are applied only to the sample(s) received.



Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Report Number

Q220002aR222021

Job Number

R222021

Issue Date

29/12/2022

Applicant Name

Acumen Environmental Engineering and Technologies Co, Ltd.

Page 1 of 2

Applicant Address

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

Project Name

CJO-3113-1091

Test Required

Total Suspended Solids (TSS)

Sampling Date

19/12/2022

Date Samples Received

19/12/2022

Sample Nature

Water

Number of Samples Received

11010

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

HDPE Plastic Bottles

Laboratory ID

R222021/1-5

Test Period

19/12/2022 - 20/12/2022

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature

Hui Wai Fung, Huntington

Laboratory Manager



Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong

Tel: (852) 2333 6823

Fax: (852) 2333 1316

Test Report

Page 2 of 2

Report Number

Q220002aR222021

Job Number

R222021

Issue Date

29/12/2022

Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R222021/1	19/12/2022	C1	3.3
R222021/2	19/12/2022	C2	<1
R222021/3	19/12/2022	⁽³⁾ M1	2.4
R222021/4	19/12/2022	M2	<1
R222021/5	19/12/2022	М3	<1

Note:

- 1. mg/L indicates milligram per liter
- < indicates less than.
- 3. Reporting limit is 2.5mg/L for 1L sample
- 4. Reporting limit is 1 mg/L for 2.5L sample
- Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- 6. The result(s) relate only to the item(s) tested.
- 7. The result(s) are applied only to the sample(s) received.



Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Page 1 of 2

Report Number

Q220002aR222022

Job Number

R222022

Issue Date

29/12/2022

Applicant Name

Acumen Environmental Engineering and Technologies Co, Ltd.

Applicant Address

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

Project Name

CJO-3113-1092

Test Required

Total Suspended Solids (TSS)

Sampling Date

21/12/2022

Date Samples Received

21/12/2022

Sample Nature

Water

Number of Samples Received

_

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

HDPE Plastic Bottles

Laboratory ID

R222022/1-5

Test Period

21/12/2022 - 22/12/2022

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature

Hui Wai Fung, Huntington

Laboratory Manager



Acumen Laboratory and Testing Limited
Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong

Fax: (852) 2333 1316 Tel: (852) 2333 6823

Test Report

Page 2 of 2

Report Number

Q220002aR222022

Job Number

R222022

Issue Date

29/12/2022

Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R222022/1	21/12/2022	C1	2.0
R222022/2	21/12/2022	C2	<1
R222022/3	21/12/2022	M1	2.2
R222022/4	21/12/2022	M2	<1
R222022/5	21/12/2022	М3	<1

Note:

- mg/L indicates milligram per liter
- 2. < indicates less than.
- Reporting limit is 2.5mg/L for 1L sample
- Reporting limit is 1 mg/L for 2.5L sample
- Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- The result(s) relate only to the item(s) tested.
- The result(s) are applied only to the sample(s) received.



Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong

Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Report Number : Q220002aR222023

Job Number : R222023

Issue Date : 29/12/2022

Applicant Name : Acumen Environmental Engineering and Technologies Co, Ltd.

Applicant Address : Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

Page 1 of 2

Project Name : CJO-3113-1093

Test Required : Total Suspended Solids (TSS)

Sampling Date : 23/12/2022 Date Samples Received : 23/12/2022

Sample Nature : Water

Number of Samples Received : 5

Condition Received : Sample(s) arrived laboratory in chilled condition

Type of Container : HDPE Plastic Bottles

Laboratory ID : R222023/1-5

Test Period : 23/12/2022 – 24/12/2022

Method Used : In-house Method, QPL-15e for Total Suspended Solids

Test Result : Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature

Hui Wai Fung, Huntington

Laboratory Manager



Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong

Tel: (852) 2333 6823

Fax: (852) 2333 1316

Test Report

Page 2 of 2

Report Number

Q220002aR222023

Job Number

R222023

Issue Date

29/12/2022

Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R222023/1	23/12/2022	C1	<1
R222023/2	23/12/2022	C2	<1
R222023/3	23/12/2022	M1	1.5
R222023/4	23/12/2022	M2	<1
R222023/5	23/12/2022	M3	<1

Note:

- 1. mg/L indicates milligram per liter
- < indicates less than.
- 3. Reporting limit is 2.5mg/L for 1L sample
- 4. Reporting limit is 1 mg/L for 2.5L sample
- 5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- 6. The result(s) relate only to the item(s) tested.
- 7. The result(s) are applied only to the sample(s) received.



Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Q220002aR222024

Page 1 of 2

Job Number : R222024

Report Number

Issue Date : 29/12/2022

Applicant Name : Acumen Environmental Engineering and Technologies Co, Ltd.

Applicant Address : Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

Project Name : CJO-3113-1094

Test Required : Total Suspended Solids (TSS)

Sampling Date : 28/12/2022

Date Samples Received : 28/12/2022

Sample Nature : Water

Number of Samples Received : 5

Condition Received : Sample(s) arrived laboratory in chilled condition

Type of Container : HDPE Plastic Bottles

Laboratory ID : R222024/1-5

Test Period : 28/12/2022 – 29/12/2022

Method Used : In-house Method, QPL-15e for Total Suspended Solids

Test Result : Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature

Hui Wai Fung, Huntington

Laboratory Manager



Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong Fax: (852) 2333 1316 Tel: (852) 2333 6823

Test Report

Page 2 of 2

Report Number

Q220002aR222024

Job Number

R222024

Issue Date

29/12/2022

Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R222024/1	28/12/2022	C1	2.2
R222024/2	28/12/2022	C2	<1
R222024/3	28/12/2022	M1	2.3
R222024/4	28/12/2022	M2	<1
R222024/5	28/12/2022	М3	<1

Note:

- mg/L indicates milligram per liter
- < indicates less than.
- 3.
- Reporting limit is 2.5mg/L for 1L sample Reporting limit is 1 mg/L for 2.5L sample 4.
- Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- The result(s) relate only to the item(s) tested.
- The result(s) are applied only to the sample(s) received.



Acumen Laboratory and Testing Limited

Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong

Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Page 1 of 2

Report Number

Q220002aR222074

Job Number

R222074

Issue Date

05/01/2023

Applicant Name

Acumen Environmental Engineering and Technologies Co, Ltd.

Applicant Address

Unit D, 12/F, Ford Glory Plaza, No.37-39 Wing Hong Street,

Cheung Sha Wan, Kowloon, Hong Kong

Project Name

: CJO-3113-1095

Test Required

Total Suspended Solids (TSS)

Sampling Date

30/12/2022

Date Samples Received

30/12/2022

Sample Nature

Water

Number of Samples Received

....

Condition Received

Sample(s) arrived laboratory in chilled condition

Type of Container

HDPE Plastic Bottles

Laboratory ID

R222074/1-5

Test Period

30/12/2022 - 31/12/2022

Method Used

In-house Method, QPL-15e for Total Suspended Solids

Test Result

Refer to the results on page 2

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature

Hui Wai Fung, Huntington

Laboratory Manager

Chemical and Microbiological Division



Acumen Laboratory and Testing Limited

Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong

Tel: (852) 2333 6823

Fax: (852) 2333 1316

Test Report

Page 2 of 2

Report Number

: Q220002aR222074

Job Number

R222074

Issue Date

05/01/2023

Test Result:

Lab ID	Sampling Date	Client Sample ID	Total Suspended Solids (TSS), mg/L
R222074/1	30/12/2022	C1	1.4
R222074/2	30/12/2022	C2	<1
R222074/3	30/12/2022	M1	2.1
R222074/4	30/12/2022	M2	<1
R222074/5	30/12/2022	М3	<1

Note:

- mg/L indicates milligram per liter
- 2. < indicates less than.
- 3. Reporting limit is 2.5mg/L for 1L sample
- Reporting limit is 1 mg/L for 2.5L sample
- 5. Applicant name, applicant address, project name, sampling date, sample ID and sample nature are provided by applicant.
- The result(s) relate only to the item(s) tested.
- 7. The result(s) are applied only to the sample(s) received.

End of Report

Appendix S Impact Monitoring report for Ecology

Project no.: CJO-3113

Post-Transplantation Monitoring Report

for Agreement No. CE 13/2009 (WS)
IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS – SOUTH WORKS

Report No.100

December 2022

TABLE OF CONTENTS

1.	INTRODUCTION
2.	DESCRIPTION OF TREE MONITORING SITE3
3.	MONITORING METHODOLOGY3
4.	RESULT3
5.	MITIGATION MEASURE4
6.	SUMMARY8
ANN	NEXES
ANN Phot	NEX I- os10
ANN	NEX II- Table for condition of transplanted plant17

1. INTRODUCTION

- 1.1 Pursuant to the Environmental Impact Assessment (EIA) Ordinance, the Director of Environmental Protection (DEP) granted the Environmental Permit (No. EP- 494/2015) to the Water Supplies Department (WSD) to construct and operate the designated project for "In-situ Reprovisioning of Sha Tin Water Treatment Works South Works" ("The Project").
- 1.2 Upon the requirement of the Environmental Permit, a detailed vegetation report presenting the baseline vegetation condition for flora species with conservation interest, transplanting and monitoring programme for the Project has been prepared and approved by DEP in February 2016.
- 1.3 There were 4 flora species of conservation importance were recorded in the woodland habitat within project site including Ailanthus (*Ailanthus fordii*), Incense Tree (*Aquilaria sinensis*), Lamb of Tartary (*Cibotium barometz*) and Hong Kong Eagle's Claw (*Artabotrys hongkongensis*). In total, 2 nos. of Incense Tree (*Aquilaria sinensis*), 1 no. of Ailanthus (*Ailanthus fordii*) tree, 5 colonies of Lamb of Tartary (*Cibotium barometz*) and 1 no. Hong Kong Eagle's Claw (*Artabotrys hongkongensis*) were recommended to be transplanted in the approved detailed vegetation survey report.
- 1.4 As planned in the detailed vegetation report, Incense Tree (*Aquilaria sinensis*) and Ailanthus (*Ailanthus fordii*) trees would be transplanted within existing Sha Tin Water Treatment Works (STWTW). All other shrubs including Lamb of Tartary (*Cibotium barometz*) and Hong Kong Eagle's Claw (*Artabotrys hongkongensis*) would be transplanted to the hillside slope at Sha Tin South Fresh Water Service Reservoir (STSFWSR).
- 1.2 Upon the requirement of the Environmental Permit, a qualified Ecologist was commissioned to prepare a post-transplantation monitoring report to present the status (health condition and survival rate) of transplanted vegetation and submitted to the DEP.
- 1.3 Monitoring of transplanted flora was conducted after the transplantation. The monitoring will be conducted at twice per month during the first year and once per month during the course of planting works. The parameters to be monitoring will include the health condition and survival rate of the transplanted flora. Any observations and recommendations will be reported in monthly EM&A reports.
- 1.3 This Tree Report presents survey findings on 30 December 2022. It contains the following information:
 - Introduction (Section 1);
 - Description of Tree Monitoring Area (Section 2);
 - Monitoring Methodology (Section 3);
 - Result (Section 4);
 - Mitigation Measures (Section 5);
 - Summary (Section 6);

- Photos (Annex I);
- Summary table (Annex II); and
- Typhoon information (Annex III).

2. DESCRIPTION OF TREE MONITORING SITE

- 2.1 Incense Tree (*Aquilaria sinensis*) and Ailanthus (*Ailanthus fordii*) tree were transplanted to the extended compensatory plantation area within existing Sha Tin Water Treatment Works (STWTW). The area was flat and without covering with concrete.
- 2.2 Lamb of Tartary (*Cibotium barometz*) will be transplanted to the Sha Tin South Fresh Water Service Reservoir (STSFWSR). Ploughing is required before planting on to this open corner of short grassland.
- 2.3 Other compensatory trees have been planted at STWTW and STSFWSR.

3. MONITORING METHODOLOGY

- 3.1 Site inspection will be carried out by walking through the transplanting area. Health condition and survival rate will be observed during inspection.
- 3.4 Health condition of all transplanted vegetation including trees/shrubs surveyed was evaluated according to the following criteria:
 - Transplanted vegetation with good health is classified as **good**;
 - Transplanted vegetation with few or no visible defects or health problems is classified as being **fair**; and
 - Transplanted vegetation that was badly damaged or clearly suffering from decay die back or the effects of very heavy vine growth is classified as **poor**.
- 3.5 Survival rate for each of transplanted vegetation species will be calculated based on site observation.

4. RESULT

- 4.1 The monthly monitoring inspection was conducted on 30 December 2022.
- 4.2 Three trees TA572, TA326 and TA327 were transplanted to tree compensation area within the Sha Tin Water Treatment Works (STWTW) on 20 June 2016.
- 4.3 The condition of TA572 was observed in fair health despite in poor form due to the damage of the two main trunks. TA327 was in poor condition. The already dead tree TA326 collapsed due to

- big hit by the Signal No.10 typhoon Mangkhut on 16 September 2018. Tree guying cables have been installed to provide external support to the remaining two transplanted trees.
- 4.4 The joint site meeting with our ecologist, Project Manager, Contractor and Landscape Contractor on 20 October 2020 revealed that the designated recipient site at STSFWSR was under excessive exposure of direct sunlight, strong winds, far from riparian zone/ moist valley and low in soil moisture. This was not a favourable microhabitat for *Cibotium barometz* to be transplanted back. Two best portions within this recipient site would be a corner with shading canopy from trees on a man-made feature nearby; as well as understory zone of an existing tree. Mitigation measures are proposed in Section 5 to enhance a sustainable survival of *Cibotium barometz* during the post-transplantation stage.
- 4.5 All 27 nos. of *Cibotium barometz* transplanted from the nursery at Shui Mei Tsuen, Kam Tin were generally in fair condition at their current location at STSFWSR.
- 4.6 The Hong Kong Eagle's Claw (*Artabotrys hongkongensis*) was observed dead during inspection on 20 August 2016.
- 4.7 The transplantation of the 27 nos. of *Cibotium barometz* and the compensatory planting of TA326 and the climber *Artabotrys hongkongensis* have been conducted as detailed in Section 5.

5. MITIGATION MEASURE

5.1 In order to compensate for the loss of the transplanted *Artabotrys hongkongensis* which is in climber growing form, it is recommended to plant an individual of native climber species at the compensatory planting site together with compensatory tree planting. Recommended list of species is given in the Table 1 below. It is suggested that about 1 species of climber to be selected from the following list according to availability of the nursery source. The recommended plant species have been recorded from adjacent secondary woodland in an approved EIA Report (AEIAR-187/2015). These species would have certain ecological value in terms of plant ecology and the associated wildlife including birds.

Table 1. Table for Recommended native climber species list to be planted

Common Name	Latin Name	Chinese Name	Growing Form
Climbing Bauhinia	Bauhinia glauca	粉葉羊蹄甲	Climber
Spiny-fruited Vine	Byttneria aspera	刺果藤	Climber
Bentham's Rose-wood	Dalbergia benthamii	兩廣黃檀	Climber
Desmos	Desmos chinensis	假鷹爪	Climber
Glaucescent Diploclisia	Diploclisia glaucescens	蒼白秤鈎風	Climber
Luofushan Joint-fir	Gnetum luofuense	羅浮買麻藤	Climber
Australian Cow-plant	Gymnema sylvestre	匙羹藤	Climber
Shining Hypserpa	Hypserpa nitida	夜花藤	Climber
Large-flowered	Lanicara macrantha	大花忍冬	Climber
Honeysuckle	Lonicera macrantha		
Splash-of-white	Mussaenda pubescen	玉葉金花	Climber
Rusty-haired Raspberry	Rubus reflexus	鏽毛莓	Climber
Sandpaper Vine	Tetracera asiatica	錫葉藤	Climber
Hong Kong Eagle's Claw	Artabotrys hongkongensis	鷹爪花	Climber

- 5.2 Desmos chinensis has been finalized as the candidate. Two individuals were planted at Wall C in STWTW on 1 April 2021 (Annex I).
- 5.3 New small sprouts keep emerging from the two *Desmos chinensis* that have been reported dead previously. Construction materials was also found too close to the planter. An eye-catching protective fence shall be set up as a protection zone. No construction materials shall be placed near/ within the protection zone.
- 5.4 All 27 nos. Lamb of Tartary (*Cibotium barometz*) were transplanted successfully back to Portion E of STSFWSR on 23 April 2021 (Annex I). In order to enhance a sustainable survival during the post-transplantation stage, a shelter (such as 遮光網) has been installed to reduce intensity of direct sunlight received and avoid direct hit of rainstorm/ typhoon.
- 5.5 Transplanted *Cibotium barometz* shall be watered at least once in the morning and once in the afternoon; before irrigation spray head has been installed to facilitate watering frequency whenever necessary.
- An eye-catching protective net has been set up to enclose the 27 nos. transplanted *Cibotium barometz* (in groups when planted together) to avoid disturbance/ damage from works activities. Any collapsed shelter and fencing shall be rectified promptly.
- 5.7 However, signs of ploughed soil by wild boar(s) were found at the two groups of transplanted *Cibotium barometz*, making them exposed under sunlight or even uprooted. Installation of robust fencing, such as mesh wire, is recommended to protect the group of *Cibotium barometz* from damage caused by wild boars.

- 5.8 Given that leftover/ garbage was observed nearby, illegal feeding of wild pigs or other wild animals was also suspected to occur. Warning signs of illegal feeding and plant protection zone may be put along the receptor site to remind the hikers. Reporting the case to the relevant government department, i.e. AFCD, is suggested to prevent further aggregation of wild boars in the area.
- 5.9 Weeding within the two protection zones of *Cibotium barometz* shall only be conducted by hand-held tools rather than grass cutting machine. No fire/ chemical weeding shall be allowed.
- 5.10 The 27 nos. transplanted *Cibotium barometz* shall be maintained with proposed mitigated measures mentioned for 12 months for establishment. A 12-month post-transplantation monitoring period helps to assess their survival during the establishment period.
- 5.11 Any dead individuals/ those in poor condition before transplant back to STSFWSR or during the post-transplantation period shall be replaced by planting healthy individuals of *Cibotium barometz*. Other possible fern candidate such as *Brainea insignis*, which is more adaptive to more exposed habitat under direct sunlight, can be sourced for compensatory planting.
- 5.12 Root ball of TA572 and TA327 tree should be kept moisture especially during non-raining day.
- 5.13 The Incense Tree (*Aquilaria sinensis*) tagged as TA326 was observed dead during inspection on 10 August 2017. Its DBH was measured as 346mm. In accordance with the Tree Preservation, Development Bureau Technical Circular (Works) No. 7/2015, the compensatory planting aimed to achieve the compensatory planting ratio of 1:1 in terms of aggregated DBH.
- 5.14 In total, 3 individual of native tree species with heavy standard size were planted with 2.5-3 meters (center to center) spacing at compensatory planting site. Recommended list of species was given in the Table 2 below. It was suggested that at least 1 tree species to be selected from the following list according to availability of the nursery source. The recommended plant species was recorded from adjacent secondary woodland in an approved EIA Report (AEIAR-187/2015). These species would have certain ecological value in terms of plant ecology and the associated wildlife including birds.

Table 2. Table for recommended native tree species list to be planted

Common Name	Latin Name	Chinese Name	Growing Form
Ivy Tree	Schefflera heptaphylla	鴨腳木	Tree
Levine's Syzygium	Syzygium levinei	山蒲桃	Tree
Chekiang Machilus	Machilus chekiangensis	浙江潤楠	Tree
Aporusa	Aporusa dioica	銀柴	Tree
Mountain Tallow Tree	Sapium discolor	山鳥桕	Tree
Fragrant Litsea	Litsea cubeba	山蒼樹	Tree
Chinese Apea Ear-ring	Archidendron lucidum	亮葉猴耳環	Tree
Chinese Hackberry	Celtis sinensis	朴樹	Tree
Turn-in-the-wind	Mallotus paniculatus	白楸	Tree

Common Name	Latin Name	Chinese Name	Growing Form
Acronychia	Acronychia pedunculata	降真香	Tree

- 5.15 Based on the Tree Survey Report, the following trees transplanted under Contract No. 3/WSD/15 were found dead. In accordance with GS 3.97 (3), replacement planting of TB0054, B0056, TB0101 and TC0138 was completed on 25 March 2021 (Annex I).
- 5.16 Two *Syzygium levinei* and one *Schefflera heptaphylla* were chosen from Table 2 as compensation for the loss of TA0326.
- 5.17 However, the two native *Syzygium levinei* (山蒲桃) were mis-planted by two exotic *Syzygium jambos* (蒲桃), of which both of their Chinese names and Scientific names are different by one word.
- 5.18 The two mis-planted *Syzygium jambos* were then replaced by another native tree species *Celtis sinensis* chosen from Table 2 due to market availability at that time. Replacement work was conducted on 31 May 2021.

Table 3. Summary table compensatory planting.

Tree No.	Species	Compensatory/ Replacement Planting
TA0326	Aguilaria sinensis 土沉香	Compensated by 1 no. of Schefflera heptaphylla and
1 A0320		2 nos. of Celtis sinensis

- 5.19 With completion of compensatory planting for the loss of *Artabotrys hongkongensis* and TA0326 (*Aquilaria sinensis*), the survival of the replaced species has been monitored since then (i.e. 2 nos. of *Desmos chinensis*; 1 no. of *Schefflera heptaphylla* and 2 nos. of *Celtis sinensis*).
- 5.20 Survival of the 27 nos. of Lamb of Tartary (*Cibotium barometz*) transplanted back to STSFWSR has also been monitored too. No more individual was stored at the nursery.
- 5.21 Health condition and survival rate are shown in Annex II.

6. SUMMARY

- 6.1 The condition of TA572 was observed in fair health despite in poor form. TA327 was in poor condition; while already dead TA326 collapsed under Signal No. 10 typhoon Mangkhut in September 2018. Tree guying cables have been installed to provide external support to the two remaining transplanted trees.
- 6.2 Compensatory planting of TA326 has been completed on 25 March 2020 by planting two *Syzygium levinei* and one *Schefflera heptaphylla*. However, the two native *Syzygium levinei* were mis-planted by two exotic *Syzygium jambos*, which have been replaced by another native tree species *Celtis sinensis* on 31 May 2021.
- 6.3 Desmos chinensis has been finalized as the candidate to compensate for the loss of Artabotrys hongkongensis. Two individuals were planted at Wall C in STWTW on 1 April 2021.
- 6.4 New small sprouts keep emerging from the two *Desmos chinensis* that have been reported dead previously. Construction materials was also found too close to the planter. An eye-catching protective fence shall be set up as a protection zone. No construction materials shall be placed near/ within the protection zone.
- 6.5 In order to enhance a sustainable survival during the post-transplantation stage, a shelter (such as 遮光網) has been installed to reduce intensity of direct sunlight received and avoid direct hit of rainstorm/typhoon to the 27 nos. of transplanted *Cibotium barometz* at Portion E of STSFWSR.
- 6.6 Regular irrigation, set up of protection zone and weeding by hand held tools within protection zone, shall also be provided to the transplanted/ compensated plants in order to sustain their survival during the post-transplantation (establishment) stage.
- 6.7 Root ball of TA572 and TA327 tree should be kept moisture especially during dry and non-raining day.
- 6.8 Signs of ploughed soil by wild boar(s) were found at the two groups of transplanted *Cibotium barometz*, making them exposed under sunlight or even uprooted. Installation of robust fencing, such as mesh wire, is recommended to protect the group of *Cibotium barometz* from damage caused by wild boars.
- 6.9 Given that leftover/ garbage was observed nearby, illegal feeding of wild pigs or other wild animals was also suspected to occur. Warning signs of illegal feeding and plant protection zone may be put along the receptor site to remind the hikers. Reporting the case to the relevant government department, i.e. AFCD, is suggested to prevent further aggregation of wild boars in the area.

ANNEX I Photo



Photo 1. Broken orange fencing to be rectified

Photo 2. Overgrowing weeds to be removed





Photo 3. Garbage found in the collapsed protection zone

Photo 4. Broken shelter results in Cibotium barometz being exposed under direct sunlight





Photo 5 & 6. The shelter was totally lost and pending renovation. Cibotium barometz were exposed under direct sunlight and are vulnerable to disturbance



Photo 7. Transplanted Incense Tree (*Aquilaria sinensis*) – TA327 (left); and Ailanthus (*Ailanthus fordii*) – TA572 (right)



Photo 8. Fortunately the fallen log (red dotted line) does not hit the TA327. Dead log shall be cleared



Photo 9. Weeding around TA572 shall be conducted.

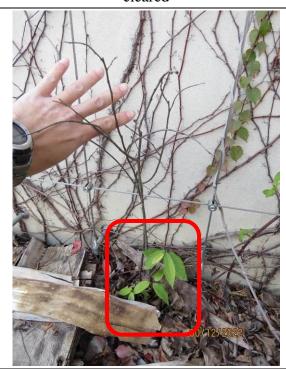


Photo 10. New sprouts keep emerging from the *Desmos chinensis* that reported dead previously. Construction materials nearby shall be taken away.



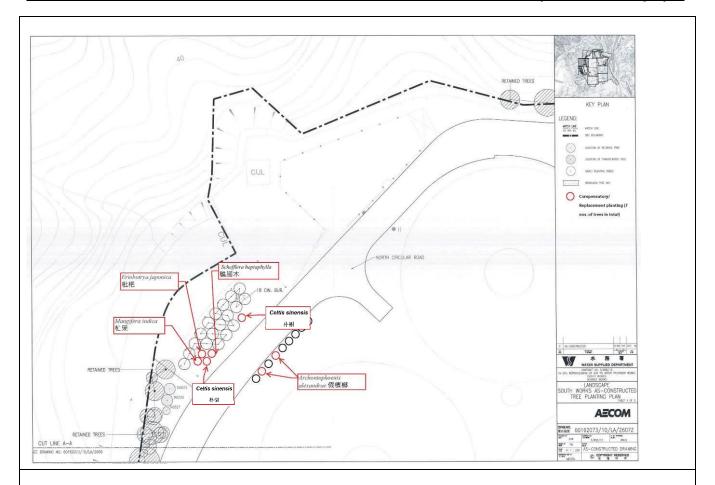
Photo 11. *Schefflera heptaphylla* as compensatory planting of TA326; sign of chlorosis.





Photo 12 and 13. The two exotic *Syzygium jambos* (mis-treated as the native *Syzygium levine*i) are replaced by another native tree *Celtis sinensis* (due to market availability) as compensatory planting of TA326. *Celtis sinensis* is a deciduous species.

Weeding shall be carried out during routine maintenance work



Indicative location of compensatory planting

N-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS – SOUTH WORKS–Post-Transplantation Monitoring Repo	<u>'t</u>

ANNEX II

Table for condition of transplanted plant

Fern Cibotium barometz and climber Desmos chinensis

No.	Species	Condition	Alive/Dead	Remark			
1	Cibotium barometz	Fair	Alive				
2	Cibotium barometz	Fair	Alive				
3	Cibotium barometz	Fair	Alive				
4	Cibotium barometz	Fair	Alive				
5	Cibotium barometz	Fair	Alive	27 individuals were			
6	Cibotium barometz	Fair	Alive	transplanted back to			
7	Cibotium barometz	Fair	Alive	STSFWSR on 23 April			
8	Cibotium barometz	Fair	Alive	2021.			
9	Cibotium barometz	Fair	Alive				
10	Cibotium barometz	Fair	Alive	The shelter has been			
11	Cibotium barometz	Fair	Alive	repeatedly damaged by			
12	Cibotium barometz	Fair	Alive	wild boars, resulting the			
13	Cibotium barometz	Fair	Alive	plants vulnerable to uprooting. Some			
14	Cibotium barometz	Fair	Alive	individuals were exposed			
15	Cibotium barometz	Fair	Alive	under direct sunlight due			
16	Cibotium barometz	Fair	Alive	to the damage of shelter.			
17	Cibotium barometz	Fair	Alive	A robust wire mesh			
18	Cibotium barometz	Fair	Alive	protection zone shall be			
19	Cibotium barometz	Fair	Alive	considered. Any illegal			
20	Cibotium barometz	Fair	Alive	feeding by hikers shall be			
21	Cibotium barometz	Fair	Alive	reported to AFCD/ hotline			
22	Cibotium barometz	Fair	Alive	<u> </u>			
23	Cibotium barometz	Fair	Alive				
24	Cibotium barometz	Fair	Alive				
25	Cibotium barometz	Fair	Alive				
26	Cibotium barometz	Fair	Alive				
27	Cibotium barometz	Fair	Alive				
	The shelter (such as 遮:			g and against direct hit of			
	rainstorm/ typhoon on the plants.						

28	Desmos chinensis	Poor-Fair	Alive	Two individuals were
				planted at Wall C in
				STWTW on 1 April 2021;
				Resprouted since
				monitoring made on 30
				November 2022
		Survival rate (%)	100	

Transplanted/ compensatory Trees

Species	Condition	Alive/Dead	Remark
Ailanthus fordii	Fair	Alive	Two main trunks were
			broken during typhoon
			on 23 August 2017.
			Cracks and wounds
			observed in one of the
			trunks. Canopy formed
			by sprouts.
Aquilaria sinensis	Fair	Alive	Tree crown of TA327
			was thinner after
			transplantation. Water
			sprouts, cracks on tree
			bark and would at trunk
			base observed.
Celtis sinensis	Fair	Alive	Compensate for TA326;
			Syzygium jambos
			replaced by Celtis
			sinensis on 31 May 2021.
Celtis sinensis	Fair	Alive	Compensate for TA326;
			Syzygium jambos
			replaced by Celtis
			sinensis on 31 May 2021.
Schefflera	Fair	Alive	Compensate for TA326;
heptaphylla			old leaved replaced by
			new leaf buds
	Survival rate (%)	100%	
	Ailanthus fordii Aquilaria sinensis Celtis sinensis Celtis sinensis	Ailanthus fordii Fair Aquilaria sinensis Fair Celtis sinensis Fair Schefflera Fair heptaphylla	Ailanthus fordii Fair Alive Aquilaria sinensis Fair Alive Celtis sinensis Fair Alive Schefflera Fair Alive Schefflera heptaphylla

Appendix T Monthly Summary of Waste Flow Table

Project no.: CJO-3113

Monthly Summary Waste Flow Table for 2022

Contract No.: 1/WSD/19 Contract Title: In-situ Reprovisioning of Sha Tin Water Treatment Works (South Works)

-Water Treatment Works and Ancillary Facilities

	A	Actual Quantities of Iner	t C&D Materials C	enerated / Imported	(in '000m3)			Actual Qua	ntities of C&D Wastes (Generated	
		Broken Concrete							Plastics		
3.645		(including rock for				Imported		Paper/	(bottles/containers,plas		Others, e.g.
Month	Total Quantity	recycling into	Reused in the	Reused in other	Disposed as	C&D		cardboard	tic sheets/foam	Chemical	general
	Generated	aggregates)	Contract	Projects	Public Fill	Material	Metals	packaging	package material)	Waste	refuse
	(a+b+c+d)	(a)	(b)	(c)	(d)		(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)	(in '000m ³)
Jan	2.89956	0.03358	2.72000	0.00000	0.14598	0.12200	306.1120	0.00000	0.00000	0.05035	0.53594
Feb	2.96333	0.45576	1.85004	0.13415	0.52339	0.13700	22.4200	0.00000	0.00000	0.03482	0.45114
Mar	5.63862	0.75239	2.95110	1.87115	0.06398	0.13400	14.2870	0.00000	0.00000	0.00993	0.02443
Apr	1.14329	0.03737	0.00000	0.44517	0.66075	0.25300	14.8000	0.00000	0.00000	0.00143	0.02172
May	7.50424	0.00000	6.61894	0.00000	0.88530	0.23100	142.3600	0.00000	0.00000	0.00000	0.03810
Jun	10.37100	0.00000	10.26800	0.10300	0.00000	0.53300	163.4800	0.00000	0.00000	0.00000	0.47800
Sub-total	30.52003	1.27910	24.40807	2.55346	2.27940	1.41000	663.4590	0.00000	0.00000	0.09653	1.54934
Jul	10.79890	0.11760	5.66300	5.01830	0.00000	1.19490	151.6000	0.00000	0.00000	0.00044	0.45200
Aug	25.37176	0.55431	1.23093	9.46873	14.11779	0.59360	184.2000	0.00000	0.00000	0.00348	0.65742
Sep	36.42626	1.65997	0.16202	22.81040	11.79387	0.38452	193.6300	0.00000	0.00000	0.00000	0.05000
Oct	48.24726	1.26554	0.00000	35.93153	11.05019	0.20392	204.1200	0.00000	0.00000	0.00050	0.04837
Nov	46.68579^	0.97252^	0.00000	29.35852^	16.35474	0.05500	210.9800	0.00000	0.00000	0.00000	0.03150
Dec	52.73396*	1.35642*	0.00000	47.74576*	3.63178	0.21508	165.7500	0.00000	0.00000	0.00000	0.01540
Total	250.78395	7.20547	31.46402	152.88670	59.22776	4.05702	1773.73900	0.00000	0.00000	0.10095	2.80403

Note: ^The waste record for November 2022 has been updated.

^{*} The waste record will be updated in the next reporting month.



Name of Department: WSD Co	ntract No.: 6/WSD/21
----------------------------	----------------------

Monthly Summary Waste Flow Table for 2022 (year)

		Actual Quantities	of Inert C&D N	Materials Generate	ed Monthly		Actua	l Quantities o	f C&D Wastes	Generated Mo	onthly
Month	Total Quantity Generated	II arde Broken		Reused in other Projects	•	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemicai	Others, e.g. general refuse
	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)
Jan	0	0	0	0	0	0	0	0	0	0	0
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	3	0	0	0	0	0	0	0	0	0	3
Jun	1.66	0	0	0	0	0	0	0	0	0	1.66
Sub-total	4.66	0	0	0.00	0.00	0	0	0	0	0	4.66
Jul	391.94	0	0	385.60	3.63	0	0	0	0	0	2.71
Aug	4776.50	0	0	3053.95	1719.79	0	0	0	0	0	2.76
Sep	2102.48	0	0	1884.71	0.00	207.15	0.0032	0.0274	0.0038	0	10.59
Oct	22.78	0	0	0.00	14.03	0	0	0.0601	0.0014	0	8.69
Nov	4281.25	0	0	3351.84	915.49	0	12.72	0.0767	0.0018	0	1.12
Dec	1393.58	0	0	1345.40	42.78	0	0.001	0.0237	0.0009	0	5.37
Total	12973.19	0	0	10021.50	2695.72	207.15	12.7242	0.1879	0.0079	0	35.90

Notes:

- (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- (2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
- (3) All recyclable materials, including metals, paper / carboard packaging, plastics, etc. will be collected by registered collector for recycling. (4) Conversion factors for reporting purpose:

in-situ: rock = 2.5 tonnes/m3; soil = 2.0 tonnes/m3

excavated: rock = 2.0 tonnes/m3; soil = 1.8 tonnes/m3; broken concrete and bitumen = 2.4 tonnes/m3

C&D Waste = 0.9 tonnes/m3; bentonite slurry = 2.8 tonnes/m3

Appendix U Implementation Schedule of Environmental Mitigation Measures (EMIS)

Project no.: CJO-3113

Environmental Mitigation and Enhancement Measure Implementation Schedule at Construction Stage

EIA Ref.	Recommended Mitigation Measures	Location of the	Implementation	Relevant Legislation	Impl	Implementation Phase		Status
		Measures	Agent	and Guidelines	D	С	0	
Air Quality								l .
4.7.1	Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.	All works areas	Contractor	Air Pollution Control		V		Y
4.7.1	Side enclosure and covering of any aggregate or stockpiling of dusty material to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.	All works areas	Contractor	Ordinance and Air Pollution Control (Construction		V		Υ
4.7.1	Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.	All works areas	Contractor	Dust) Regulation EM&A Manual		√		Υ
4.7.1	Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.	All works areas	Contractor	- EIVIQA Manuai		1		Υ
4.7.1	Imposition of speed controls for vehicles on site haul roads.	All works areas	Contractor			V		Υ
4.7.1	Implement EM&A program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.	All works areas / Monitoring points	Contractor			V		Υ
Noise		P =	l.	I.	1	1		I
5.6.4	Implement good site practices to reduce noise level	All works areas	Contractor	Noise Control Ordinance		1		Υ
5.6.5	Adoption of Quiet PME	All works areas	Contractor			1		N/A
5.6.6	Use of Movable Noise Barrier	All works areas	Contractor			1		N/A
5.8	Noise monitoring	Monitoring points	Contractor			√		Υ
Water Quality								
6.8.1	Surface run-off from construction sites should be discharged into storm drains via adequately designed sand/silt removal facilities such as sand	All works areas	Contractor	ProPECC PN 1/94 Construction		1		Υ

sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries should be provided where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchptis and perimeter channels should be constructed in advance of site formation works and earthworks. 3.2. Silt removal facilities, channels should be constructed in advance of site formation works and earthworks. 3.8.1 Temporary exposed slope surfaces should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to prevent local flooding. 3.8.3 Temporary exposed slope surfaces should be covered and temporary access roads should be protected by crushed stone or gravel, as exavation proceeds. Intercepting channels should be provided to prevent storm run-off from washing across exposed soil surfaces. 3.8.4 Earthworks final surfaces should be evidence should be provided to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary. 3.8.5 Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. 3.8.6 Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites should be covered with trappatin or similar fabric during rainstorms. 3.8.7 Mahnoles (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system. 3.8.8 Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. 3.8.9 All vehicles and plant should be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay should be provided at every site exit if practicable an			T	1		 -	 1
Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to prevent local flooding. S.8.3 Temporary exposed slope surfaces should be covered and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided to prevent storm run-off from washing across exposed soil surfaces. S.8.4 Earthworks final surfaces should be well compacted and the subsequent partner work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary. S.8.5 Rainwater pumped out from trenches or foundation excavations should be provided where necessary. S.8.6 Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric during rainstorms. S.8.7 Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system. S.8.8 Good site practices should be adopted to remove rubbish and litter from construction materials or debris from getting into the drainage system. S.8.9 All vehicles and plant should be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. S.8.10 Before commencing any demolition works, all drainage connections. All works areas Contractor		stormwater to such silt removal facilities. Perimeter channels at site boundaries should be provided where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels should be constructed in advance of			Water Pollution Control		
Temporary exposed slope surfaces should be covered and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided to prevent storm run-off from washing across exposed soil surfaces. Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary. S.8.5 Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. S.8.6 Open stockpiles of construction materials (e.g. aggregates, sand and fill during rainstorms. Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system. S.8.8 Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. All works areas Contractor	6.8.2	Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of	All works areas	Contractor		√	Υ
permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary. 8.8.5 Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. 8.8.6 Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric during rainstorms. 8.8.7 Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system. 8.8.8 Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. 8.8.9 All vehicles and plant should be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. 8.8.10 Before commencing any demolition works, all drainage connections All works areas Contractor	6.8.3	Temporary exposed slope surfaces should be covered and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided to	All works area	Contractor		√	Υ
Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric during rainstorms. All works areas Contractor	6.8.4	permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be	All works areas	Contractor		V	N/A
material) on sites should be covered with tarpaulin or similar fabric during rainstorms. 5.8.7 Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system. 6.8.8 Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. 6.8.9 All vehicles and plant should be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. 6.8.10 Before commencing any demolition works, all drainage connections All works areas Contractor	6.8.5	Rainwater pumped out from trenches or foundation excavations should	All works areas	Contractor		√	Υ
adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system. 5.8.8 Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. 6.8.9 All vehicles and plant should be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. 6.8.10 Before commencing any demolition works, all drainage connections All works areas Contractor	6.8.6	material) on sites should be covered with tarpaulin or similar fabric	All works areas	Contractor		V	Υ
construction sites so as to prevent the rubbish and litter from spreading from the site area. 5.8.9 All vehicles and plant should be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. 5.8.10 Before commencing any demolition works, all drainage connections All works areas Contractor	6.8.7	adequately covered and temporarily sealed so as to prevent silt,	All works areas	Contractor		√	Υ
site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. 5.8.10 Before commencing any demolition works, all drainage connections All works areas Contractor	6.8.8	construction sites so as to prevent the rubbish and litter from spreading	All works areas	Contractor		√	Υ
5.8.10 Before commencing any demolition works, all drainage connections All works areas Contractor	6.8.9	site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before	All works areas	Contractor		V	Υ
<u> </u>	6.8.10	· ·	All works areas	Contractor		√	N/A

	drains.					
6.8.11	Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities should not be discharged into the stormwater drainage system. If the wastewater is to be tankered off site for disposal into foul sewers, it should undergo the removal of settleable solids in a silt removal facility, and pH adjustment as necessary.	All works areas	Contractor		√	Y
6.8.12	Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10. The neutralized wastewater should be tankered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters.	All works areas	Contractor		√	N/
6.8.13	All surface run-off must proper collected and discharge at designated location. The discharge quality must meet the requirements specified in the discharge license.	All works areas	Contractor		√	Y
6.8.15	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	All works areas	Contractor		V	Y
6.8.16	Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges	All works areas	Contractor		√	Υ
6.8.17	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance.	All works areas	Contractor		√	Υ
6.8.18	Sewage generated from the workforce should be properly treated by interim treatment facilities, such as chemical toilets which are properly maintained with the employment of licensed collectors for the collection and disposal on a regular basis.	All works areas	Contractor		V	Υ
6.8.19	Adopt relevant measures stated in ETWB TC (Works) No. 5/2005 "Protection of Natural Streams/rivers from Adverse Impacts arising from Construction Works" to minimize the potential water quality impacts from the construction works near any water courses.	All works areas	Contractor		V	Y
6.10	Water quality monitoring	Monitoring points	Contractor		√	Υ

7.6.1	Appropriate waste handling, transportation and disposal methods for all waste arisings generated during the construction works for the Project should be implemented to ensure that construction wastes do not enter the nearby streams or drainage channel.	All works areas	Contractor	Waste Disposal Ordinance DEVB TCW No.	√	Υ
7.6.2	Implementation of good site practices for waste management	All works areas	Contractor	6/2010,	√	Υ
7.6.3	Implementation of trip ticket system to control waste disposal	All works areas	Contractor	ETWB TCW No.	√	Υ
7.6.4	Implementation of good site practices to reduce waste generations	All works areas	Contractor	19/2005 Land	√	Υ
7.6.5	Re-use of excavated C&D materials on site as far as practical. A suitable area should be designated within the site for temporary stockpiling of C&D material and to facilitate the sorting process.	All works areas	Contractor	(Miscellaneous Provisions) Ordinance	√	Υ
7.6.8	General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material.	All works areas	Contractor	Code of Practice on the Packaging, Labelling and	√	Υ
7.6.9	All storage of asbestos waste should be carried out properly in a secure place isolated from other substances so as to prevent any possible release of asbestos fibres into the atmosphere and contamination of other substances. The storage area should bear warning panels to alert people of the presence of asbestos waste.	All works areas	Contractor	Storage of Chemical Wastes	V	N/A
7.6.10	A licensed asbestos waste collector will be appointed to collect the asbestos waste and deliver to the designated landfill for disposal. Application should be submitted to EPD.	All works areas	Contractor		√	N/A
7.6.11	If chemical wastes were to be produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer, and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport the chemical wastes. The licensed collector shall deliver the waste to the Chemical Waste Treatment Centre at Tsing Yi, or other licenced facility, in accordance with	All works areas	Contractor		√	Y

	the Waste Disposal (Chemical Waste) (General) Regulation.					
Ecology			I			I
8.8.1	Ecological impacts on important habitats and the associated wildfile caused by the proposed development should be mitigated and compensation approaches to the maximum practical extent	All works areas in particular important	The Engineer/ Contractor	EIAO-TM EM&A Manual	V	Y
8.8.2	Reduce the amount of vegetation removal required and thereby minimize the footprint of the slope at the woodland habitat	habitats All works areas	The Engineer/ Contractor		√	Υ
8.8.3	Conduct detailed vegetation survey and implement suggested measures for species of conservation importance.		The Engineer/ Contractor		V	Υ
8.8.4	The affected Incense Tree and Ailanthus as mentioned in the detailed vegetation survey report within the works area will be transplanted		The Engineer/ Contractor		V	Υ
8.8.5	To avoid impacts on Short-nosed Fruit Bat, the tree with records of an active roost and trees showing evidence of roosting activity should be retained where possible. Where Chinese Fan-palm (Livistona chinensis) removal is required, these should be checked by suitably qualified ecologist with over 7 years relevant experience for roosting bats prior to their removal. If roosting bats are observed, a strategy for passive removal will be agreed with the AFCD and implemented. This could include undertaking the works just after the bats have left the roost (i.e. dusk).		The Engineer/ Contractor		√	N/A
8.8.6	The inclusion of Chinese Fan-palm of similar size as the affected plant within the areas of compensatory planting or other suitable areas is recommended to replace affected specimens, and compensate for the impact to roosting opportunities for this bat species		The Engineer/ Contractor		~	N/A
8.8.7	Implement good site measures to minimize the disturbance impacts to terrestrial habitat and associated wildlife arising from the land-based construction activities.		The Engineer/ Contractor		V	Υ
8.8.8	To minimize the contamination of wastewater discharge, accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as diverting the site runoff to silt trap facilities before discharging into storm drain, proper waste and dumping management and standard good site practice for land-based construction.		The Engineer/ Contractor		√	Υ
8.8.9-8.8.11	Implement woodland compensation		The Engineer/ Contractor		V	N/A

Landscape and 9.8.1	Existing tress to be retained on site shall be carefully protected during	All works areas	Contractor	DEVB TCW No.		
7.0.1	construction. Trees unavoidably affected by the works shall be transplanted as far as possible.	All Works areas	Contractor	10/2013	$\sqrt{}$	Y
	Compensatory Planting shall be provided in accordance with DEVB TCW No. 10/2013 – Tree Preservation.	All works areas	Contractor	EIAO TM	V	Υ
	Control of night-time lighting glare.	All works areas	Contractor		V	Υ
	Erection of decorative screen hoarding compatible with the surrounding setting.	All works areas	Contractor		V	Y
	Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.	All works areas	Contractor		√	Υ
Cultural Herita	nge					
10.6.2	Vibration monitoring at Ex KCR Beacon Hill Tunnel during piling works of Administration Building	Work site	The Engineer /Contractor		V	N/A
Land Contamii	nation	1	1	1	· · · · · · · · · · · · · · · · · · ·	.
11.7	Identify contamination and implement appropriate remedial measures on site. Provide relevant submission and obtain approval from EPD if necessary.	All works areas	Contractor	Guidance Note for Contaminated Land Assessment and Remediation Guidance Manual for Use of Risk based	V	N/A
				Remediation Goals for Contaminated Land Management (Guidance Manual)		
Hazard to Life						
Table 12.22	Ensure speed limit enforcement is specified in the contractor's Method Statement to limit the speed of construction vehicles on site	All works areas	The Engineer	EIAO-TM	$\sqrt{}$	Y
	Develop an audit procedure to ensure enforcement of speed limits and to ensure adequate site access control	All works areas	The Engineer		V	Υ
	Ensure construction method statement is endorsed by the Engineer (AECOM)	All works areas	The Engineer		√	Υ

Ensure designated manoeuvring area for the new access road	New access	Contractor/		V	/	Υ
construction is away from the Chlorination House	road area	The Engineer	<u> </u>			
Ensure that the emergency response plan and procedures (including	All works areas	Contractor/		V	J	γ
drills) cover the reprovisioning activities		The Engineer		,	*	'
Safety training to be provided to construction workers and WSD/Engineer	All works area	Contractor/			1	\ \ \
staff regarding evacuation procedures		The Engineer		1	V	Υ
Ensure communication protocol is in place between construction and	All works areas	Contractor/				
operation staff with regard to the change of chlorine delivery route and		The Engineer		V	J	N/A
the switchover from the existing to new chlorinated water piping;						
Ensure temporary suspension of crane operation and construction truck	All works areas	Contractor/			1	
movements during chlorine delivery		The Engineer		V	√	Υ
Provide a crash barrier between the construction site and the north side	Chlorination	Contractor	-			
of the Chlorination House.	House area	Contractor		√	√	Υ
		Cambonatan	<u> </u>			
Conduct vibration monitoring at the Chlorination House during piling	Chlorination	Contractor		1	,	\ \ \
activities to ensure vibration levels are acceptable and will not lead to	House area			ν	V	Υ
any damage of the Chlorination House Civil engineering calculation to be performed to confirm differential	Chlorination	Combination	<u> </u>			
settlement from excavation work is within acceptable limits for the		Contractor		1	1	Υ
Chlorination House	House area			'	Y	l t
Provide settlement monitoring for the Chlorination House to ensure no	Chlorination	Contractor				
subsidence occurs from nearby excavation works.	House area	Contractor		V	J	Υ
·			-			
Confirm the chlorine concentration for the chlorinated water before the	Chlorinated	WSD				
switchover from the existing to new piping. This is to avoid the potential	water piping			V	J	N/A
for chlorine gas vapours being released if the concentration is too high						
and there is spillage during switchover	All	Country at and	_			
Develop an operating procedure for performing the chlorinated water	All works areas	Contractor/			,	N1 /A
switchover from the existing piping to new piping.		The Engineer /		1	V	N/A
		WSD	<u> </u>			
Ensure the location/height of the lifting equipment is such there is no	Chlorination	Contractor/			,	\ \ \
impact on Chlorination House/chlorine delivery route in case of falling,	House area	The Engineer		1	V	Υ
swinging or dropped load.	5 5014	0 1 1	_			
Implement the controlled demolition of the existing E&M workshop to	Existing E&M	Contractor/				
ensure that any steel structural elements can only fall away from the	Workshop	The Engineer			,	NI/A
Chlorination House	and			٧	٧	N/A
	Chlorination					
	House		<u> </u>			<u> </u>

	areas			
Stop any construction activities which may lead to vibrations and potential slope/boulder disturbance during the chlorine deliveries	All works areas	Contractor	√	+
Installation of Chlorine gas monitors with audible alarms in the relevant reprovisioning works area	Reprovisioning works areas	Contractor/ The Engineer	V	1
Provision of an accompanying vehicle for the chlorine truck on the WTW site and ensuring that during the chlorine drums delivery construction works are stopped and the construction workers moved away from Chlorination House	All works areas	Contractor	1	
Establish a liaison between the contractor and HKCG and develop a chlorine/town gas emergency plan to ensure gas safety during the Construction Phase	Beacon Hill North Gas Offtake Station and Gas Pipelines in Old Beacon Hill Tunnel	The Engineer / Contractor / HKCG	V	
Temporary suspend chlorine delivery during the short period of construction of the concerned section of elevated walkway to avoid mobile crane impact on the chlorine truck		The Engineer / Contractor	√	
Provide clear road signs for site vehicles	Chlorine delivery route and reprovisioning works access roads	The Engineer / Contractor	1	
Large equipment/plant movement should be controlled by 'Permit-to-move' system	All works areas	The Engineer / Contractor / WSD	V	
Define restricted zone for the equipment (i.e. keep the equipment from the Chlorination House at a safe distance). The extent of the restricted zone would be determined by the size of the equipment	Chlorination House area	The Engineer / Contractor	√	
Locate the construction site office at or near property boundary away from the Chlorination House as far as possible	Construction Office area	The Engineer / Contractor	V	
Entry of non-authorized personnel to the construction site to be prohibited	All works areas	Contractor	√	

12.15.4, 12.18.1, 12.22.9	GPS fleet management system with driver training to help enforce truck speeds	Chlorine delivery trucks, fleet management centre	WSD / Chlorine Supply Contractor	EIAO-TM	V	k.i.v.
	Improved clamps with independent checks to prevent load shedding	Chlorine			√	F
	Installation of fire screen and larger fire extinguishers to prevent engine and wheel fires from spreading to the cargo area	delivery trucks			V	F
	Adoption of the chlorine delivery route from Sham Shui Kok Dock to Sha Tin WTW				V	F
	Provision of emergency repair kit				V	F
12.34.3 Table 12.37	Ban the use of retreaded tyres and perform regular visual checks on the tyres.				√	F
& 12.38	A vehicle accompanying chlorine truck along critical road sections in Sha Tin. The truck should be equipped with emergency kit, fire extinguisher, radio set for communication. The accompanying vehicle will be ahead of the chlorine truck after the vehicles entering the water treatment works site – An accompanying vehicle may provide rapid response to an incident but any action would be limited to containing a small leak. Limit fuel tanks capacity at the beginning of the Project (Item 2.3 of Table				1	F
	12.37 – advance measure).				$\sqrt{}$	F
	Review the practicality of reducing combustible materials or use of fire retardant materials in the cab. (Item 2.3 of Table 12.37 – further measure)				√	k.i.v.
	Annual periodic radiography or ultrasonic test inspections of the chlorine drums should be considered for implementation as soon as feasible (Item 3.8 of Table 12.37).	Chlorine drums			√	k.i.v.
	Implement side, front and rear crash guards with high energy absorption in coordination and accordance with the relevant authorities.	Chlorine delivery trucks			√	k.i.v.
	Implement a sturdy steel frame to minimize the potential for chlorine release due to truck rollover				V	k.i.v.
12.34.4	WSD will continue to keep under review the latest development of use of alternative disinfectants in water supply industry to aim at minimising on-site chlorine storage.4	Chlorine delivery Route	WSD		V	k.i.v.

Training should be provided for the use of the GPS fleet management and improved safe driving.	√	k.i.
Ensured that independent checks are performed to ensure proper chlorine drum latching and clamping.	√	F
Chlorine truck drivers or driver attendants should be further trained to check and detect potential chlorine leaks during transport. This should include the timely application of the emergency kit.	√	k.i
Training should be provided to driver and driver attendant for the emergency use of the new 2 × 9L AFFF extinguishers.	√	F
Induction training for new drivers and driver attendant should include familiarisation with the route, familiarisation with chlorine risks, defensive driving, application of emergency kits, use of fire extinguishers and emergency response	√	k.i
Provision of a fire screen between the cab and cargo as well as fire retardant materials for the wheel arches on the chlorine truck should be planned and provided	√	F
To keep under review alternate chlorine receiving dock in Sha Tin/Tai Po area for chlorine delivery to STWTW.	√	k.i

Legend

- D Design Phase
- C Construction Phase
- O Operation Phase
- Y Compliance of Mitigation Measures
- N/A Not Applicable in Reporting Period
- k.i.v Keep In View
- F Completed

Appendix V Cumulative Statistics on Exceedances, Complaints, Notifications of Summons and Successful Prosecutions

Statistical Summary of Exceedances (October 2022)

	Air Quality											
Location	A	ction Lev	el		I	imit Leve	el		Total			
AM1		0					0					
AM2	0						0					
Noise												
Location	A	ction Lev	el		I	imit Leve	el		Total			
NM1		0				0			0			
NM2		0					0					
NM3		0		0					0			
				Wat	ter Quality	y						
Location		Action Level			Limit Level				Total			
Location	DO	Turbidity	SS	pН	DO	Turbidity	SS	pН	Iotai			
C1	0	0	2	0	0	0	0	0	2			
C2	0	0	0	0	0	0	0	0	0			
C3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0			
M1	0	0	1	0 0 0 1 0				2				
M2	0	0	0	0	0	0	0	0	0			
M3	0	0	0	0	0	0	5	0	5			

There were 3 exceedance of Action Level and 6 exceedances of Limit Level in October 2022. All exceedances were found non-project related.

Statistical Summary of Exceedances (Cumulative)

				Ai	r Quality	7			
Location	A	ction Leve	el		Ī	Limit Leve	el		Total
AM1		0				0			0
AM2		0				0			0
					Noise				
Location	A	ction Leve	el		I	Limit Leve	el		Total
NM1		0				0			0
NM2		0		0					0
NM3		0		0					0
				Wa	ter Qualit	У			
Location		Action	Level			Limit	Level		Total
Location	DO	Turbidity	SS	pН	DO	Turbidity	SS	pН	Total
C1	0	0	15	4	1	10	6	3	40
C2	0	1	11	1	5	9	5	1	34
C3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0
M1	0	1	6	1	1	6	22	7	51
M2	0	0	0	0	9	3	2	0	14
M3	0	0	0	2	10	21	31	0	65

Statistical Summary of Environmental Complaints

Reporting	Environmental Complaint Statistics							
Period	Frequency	Complaint Nature	Cumulative					
1 October - 31 October 2022	0	N/A	4					

Statistical Summary of Environmental Summons

Reporting	Environmental Summons Statistics							
Period	Frequency	Details	Cumulative					
1 October - 31 October 2022	0	N/A	0					

Statistical Summary of Environmental Prosecution

Reporting	orting Environmental Prosecution Statistics							
Period	Frequency	Details	Cumulative					
1 October - 31 October 2022	0	N/A	0					



Acumen Environmental Engineering & Technologies Co., Ltd.

香港青衣(北)担杆山路12號地段

To IEC (AECOM), ER (AECOM), Contractor Fax No By-email

(ATAL - CW - MH JV (ACMJV), CW-FWS

JV)

From Oliver Chiu Date 16 December 2022

Our Ref CJO - 3113

RE Contract No. 1/WSD/19 & 6/WSD/21

In-situ Provisioning of Sha Tin Water Treatment Works (South Works) – Water

Treatment Works and Ancillary Facilities – Environmental Team

Notification of Exceedance (NOE) for Water Quality Monitoring on 2 December

2022

Dear Sir/ Madam,

Exceedances of water quality were found in the monitoring on 2 December 2022. Please find the exceedances in the table below. Investigation report will be submitted separately.

Station	Parameter	Weather	Action	Limit Level	Measured	Range of	Exceedance
			Level		Level	Baseline	
C1	Suspended Solids (mg/L)	Sunny	4.19	6.73	<1	<1-9.7	-
C2	Suspended Solids (mg/L)	Sunny	4.33	8.16	<1	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Sunny	3.30	3.56	1.0	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Sunny	18.84	26.80	<1	<1 - 38	-
M3	Suspended Solids (mg/L)	Sunny	1.00	1.00	4.3	<1 – 1.3	Limit Level

Should you have any queries or need further information, please do not hesitate to contact us or the undersigned at Tel: 2333-6823 or Fax: 2333-1316.

Yours Faithfully, For and on Behalf of Acumen Environmental Engineering & Technologies Co., Ltd.

Oliver Chiu

Assistant Environmental Consultant



Acumen Environmental Engineering & Technologies Co., Ltd.

香港青衣(北)担杆山路12號地段

Investigation Report on Limit Level Non-compliance on 2 December 2022

CONTRACT NO. 1/WSD/19 & 6/WSD/21

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) — WATER

TREATMENT WORKS AND ANCILLARY FACILITIES

Date: 16 December 2022

(I) Summary of exceedance on 2 December 2022

Station	Parameter	Weather	Action	Limit Level	Measured	Range of	Exceedance
			Level		Level	Baseline	
C1	Suspended Solids (mg/L)	Sunny	4.19	6.73	<1	<1-9.7	-
C2	Suspended Solids (mg/L)	Sunny	4.33	8.16	<1	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Sunny	3.30	3.56	1.0	<1-4.7	-
M2	Suspended Solids (mg/L)	Sunny	18.84	26.80	<1	<1 - 38	-
M3	Suspended Solids (mg/L)	Sunny	1.00	1.00	4.3	<1 – 1.3	Limit Level

(II) Investigation Results, Recommendations & Mitigation Measures

- 1) According to the field observation from the Environmental Team (ET) on 2 December 2022, no polluted discharge was made from construction site to the Impact Monitoring Station M3 (Photo 1). In general, the condition of water at Impact Station M3 was in order and no discharge from construction was observed (Photo 1). The water quality monitoring locations and contract site area are illustrated in Figure 1.
- 2) Weekly site inspection by the Contractor, ET was conducted on 30 November 2022 to audit the site environmental performance. The finding of inspection was summarized below:

1/WSD

- (i) Contractors are reminded to remove the general refuse at Area S1F regularly.
- 3) In our investigation on 2 December 2022, the Contractor had implemented water quality mitigation measures (eg. sandbags were put within the site to avoid wastewater from leaking out of the site) and wastewater have been properly treated (Photo 2 & 4). No adverse water quality impact was observed during the site inspection (Photo 3). Based on the site observation, it is concluded that the exceedance of limit level was non-project related.
- 4) Nevertheless, the Contractor should continually fully implement the water mitigation measures as recommended in the implementation schedule for environmental mitigation measures in the EM&A Manual.



Acumen Environmental Engineering & Technologies Co., Ltd.

香港青衣(北)担杆山路12號地段

Photo Record



Photo 1 (M3)



Photo 2 (Water quality of water treatment tank at 6/WSD)



Photo 3 (Discharge point at 6/WSD)



Acumen Environmental Engineering & Technologies Co., Ltd.

香港青衣(北)担杆山路12號地段



Photo 4 (Water quality of water treatment tank at 1/WSD)



Acumen Environmental Engineering & Technologies Co., Ltd.

香港青衣(北)担杆山路12號地段

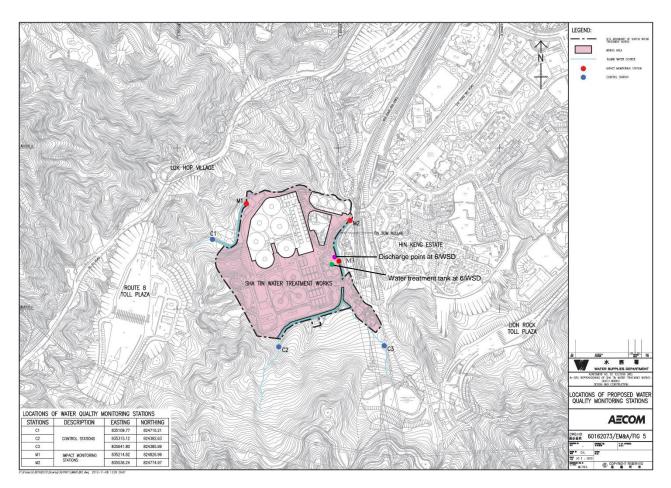


Figure 1 Location Map Water Quality Monitoring Location



Acumen Environmental Engineering & Technologies Co., Ltd.

香港青衣(北)担杆山路12號地段

To IEC (AECOM), ER (AECOM), Contractor Fax No By-email

(ATAL - CW - MH JV (ACMJV), CW-FWS

JV)

From Oliver Chiu Date 16 December 2022

Our Ref CJO - 3113

RE Contract No. 1/WSD/19 & 6/WSD/21

In-situ Provisioning of Sha Tin Water Treatment Works (South Works) – Water

Treatment Works and Ancillary Facilities – Environmental Team

Notification of Exceedance (NOE) for Water Quality Monitoring on 5 December

2022

Dear Sir/ Madam,

Exceedances of water quality were found in the monitoring on 5 December 2022. Please find the exceedances in the table below. Investigation report will be submitted separately.

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Cloudy	4.19	6.73	1.3	<1-9.7	-
C2	Suspended Solids (mg/L)	Cloudy	4.33	8.16	<1	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Cloudy	3.30	3.56	<1	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Cloudy	18.84	26.80	1.6	<1 - 38	-
M3	Suspended Solids (mg/L)	Cloudy	1.00	1.00	1.1	<1 – 1.3	Limit Level

Should you have any queries or need further information, please do not hesitate to contact us or the undersigned at Tel: 2333-6823 or Fax: 2333-1316.

Yours Faithfully, For and on Behalf of Acumen Environmental Engineering & Technologies Co., Ltd.

Oliver Chiu

Assistant Environmental Consultant



Acumen Environmental Engineering & Technologies Co., Ltd.

香港青衣(北)担杆山路12號地段

Investigation Report on Limit Level Non-compliance on 5 December 2022

CONTRACT NO. 1/WSD/19 & 6/WSD/21

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) – WATER

TREATMENT WORKS AND ANCILLARY FACILITIES

Date: 16 December 2022

(I) Summary of exceedance on 5 December 2022

Station	Parameter	Weather	Action	Limit Level	Measured	Range of	Exceedance
			Level		Level	Baseline	
C1	Suspended Solids (mg/L)	Cloudy	4.19	6.73	1.3	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Cloudy	4.33	8.16	<1	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Cloudy	3.30	3.56	<1	<1 – 4.7	-
M2	Suspended Solids (mg/L)	Cloudy	18.84	26.80	1.6	<1 - 38	-
M3	Suspended Solids (mg/L)	Cloudy	1.00	1.00	1.1	<1 – 1.3	Limit Level

(II) Investigation Results, Recommendations & Mitigation Measures

- According to the field observation from the Environmental Team (ET) on 5 December 2022, no polluted discharge was made from construction site to the Impact Monitoring Station M3 (Photo 1). In general, the condition of water at Impact Station M3 was in order and no discharge from construction was observed (Photo 1). The water quality monitoring locations and contract site area are illustrated in Figure 1.
- 2) Weekly site inspection by the Contractor, ET was conducted on 30 November 2022 to audit the site environmental performance. The finding of inspection was summarized below:

1/WSD

- (i) Contractors are reminded to remove the general refuse at Area S1F regularly.
- 3) In our investigation on 5 December 2022, the Contractor had implemented water quality mitigation measures (eg. sandbags were put within the site to avoid wastewater from leaking out of the site) and wastewater have been properly treated (Photo 2 & 4). No adverse water quality impact was observed during the site inspection (Photo 3). Based on the site observation, it is concluded that the exceedance of limit level was non-project related.
- 4) Nevertheless, the Contractor should continually fully implement the water mitigation measures as recommended in the implementation schedule for environmental mitigation measures in the EM&A Manual.



Acumen Environmental Engineering & Technologies Co., Ltd.

香港青衣(北)担杆山路12號地段

Photo Record



Photo 1 (M3)



Photo 2 (Water quality of water treatment tank at 6/WSD)



Photo 3 (Discharge point at 6/WSD)



Acumen Environmental Engineering & Technologies Co., Ltd.

香港青衣(北)担杆山路12號地段



Photo 4 (Water quality of water treatment tank at 1/WSD)



Acumen Environmental Engineering & Technologies Co., Ltd.

香港青衣(北)担杆山路12號地段

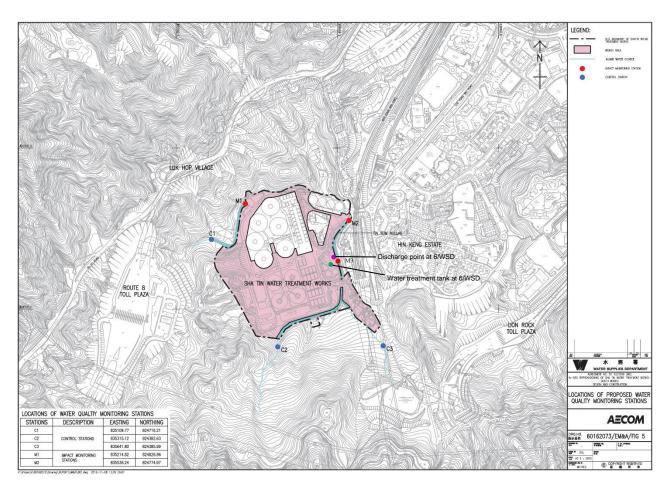


Figure 1 Location Map Water Quality Monitoring Location



Acumen Environmental Engineering & Technologies Co., Ltd.

香港青衣(北)担杆山路12號地段

To IEC (AECOM), ER (AECOM), Contractor Fax No By-email

(ATAL - CW - MH JV (ACMJV), CW-FWS

JV)

From Oliver Chiu Date 16 December 2022

Our Ref CJO - 3113

RE Contract No. 1/WSD/19 & 6/WSD/21

In-situ Provisioning of Sha Tin Water Treatment Works (South Works) – Water

Treatment Works and Ancillary Facilities – Environmental Team

Notification of Exceedance (NOE) for Water Quality Monitoring on 7 December

2022

Dear Sir/ Madam,

Exceedances of water quality were found in the monitoring on 7 December 2022. Please find the exceedances in the table below. Investigation report will be submitted separately.

Station	Parameter	Weather	Action Level	Limit Level	Measured Level	Range of Baseline	Exceedance
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	<1	<1-9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	<1	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	3.6	<1-4.7	Limit Level
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	2.1	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.3	<1 – 1.3	Limit Level

Should you have any queries or need further information, please do not hesitate to contact us or the undersigned at Tel: 2333-6823 or Fax: 2333-1316.

Yours Faithfully, For and on Behalf of Acumen Environmental Engineering & Technologies Co., Ltd.

Oliver Chiu

Assistant Environmental Consultant



Acumen Environmental Engineering & Technologies Co., Ltd.

香港青衣(北)担杆山路12號地段

<u>Investigation Report on Limit Level Non-compliance on 7 December 2022</u>

CONTRACT NO. 1/WSD/19 & 6/WSD/21

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS (SOUTH WORKS) – WATER

TREATMENT WORKS AND ANCILLARY FACILITIES

Date: 16 December 2022

(I) Summary of exceedance on 7 December 2022

Station	Parameter	Weather	Action	Limit Level	Measured	Range of	Exceedance
			Level		Level	Baseline	
C1	Suspended Solids (mg/L)	Fine	4.19	6.73	<1	<1 – 9.7	-
C2	Suspended Solids (mg/L)	Fine	4.33	8.16	<1	<1 – 12.0	-
M1	Suspended Solids (mg/L)	Fine	3.30	3.56	3.6	<1 – 4.7	Limit Level
M2	Suspended Solids (mg/L)	Fine	18.84	26.80	2.1	<1 - 38	-
M3	Suspended Solids (mg/L)	Fine	1.00	1.00	2.3	<1 – 1.3	Limit Level

(II) Investigation Results, Recommendations & Mitigation Measures

- 1) According to the field observation from the Environmental Team (ET) on 7 December2022, no polluted discharge was made from construction site to Impact Monitoring Station M1 (Photo 1). The condition of water at Impact Station M1 was in order and no discharge from construction was observed (Photo 1)
- 2) According to the field observation from the Environmental Team (ET) on 7 December 2022, no polluted discharge was made from construction site to the Impact Monitoring Station M3 (Photo 2). In general, the condition of water at Impact Station M3 was in order and no discharge from construction was observed (Photo 2). The water quality monitoring locations and contract site area are illustrated in Figure 1.
- 3) Weekly site inspection by the Contractor and ET was conducted on 7 December 2022 to audit the site environmental performance. The overall site condition was in compliance.
- 4) In our investigation on 7 December 2022, the Contractor had implemented water quality mitigation measures (eg. sandbags were put within the site to avoid wastewater from leaking out of the site) and wastewater have been properly treated (Photo 3 & 5). No adverse water quality impact was observed during the site inspection (Photo 4). Based on the site observation, it is concluded that the exceedance of limit level was non-project related.
- 5) Nevertheless, the Contractor should continually fully implement the water mitigation measures as recommended in the implementation schedule for environmental mitigation measures in the EM&A Manual.



Acumen Environmental Engineering & Technologies Co., Ltd.

香港青衣(北)担杆山路12號地段

Photo Record

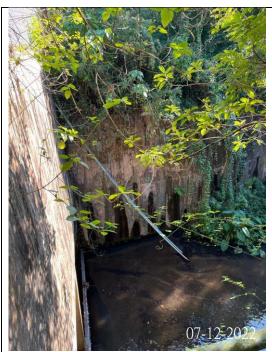


Photo 1 (M1)



Photo 2 (M3)



Acumen Environmental Engineering & Technologies Co., Ltd.

香港青衣(北)担杆山路12號地段

Lot 12, Tam Kon Shan Road, Tsing Yi (N), Hong Kong (852) 2333-6823 www.acumenhk.com (852) 2333-1316



Photo 3 (Water quality of water treatment tank at 6/WSD)



Photo 4 (Discharge point at 6/WSD)



Photo 5 (Water quality of water treatment tank at 1/WSD)



Acumen Environmental Engineering & Technologies Co., Ltd.

香港青衣(北)担杆山路12號地段

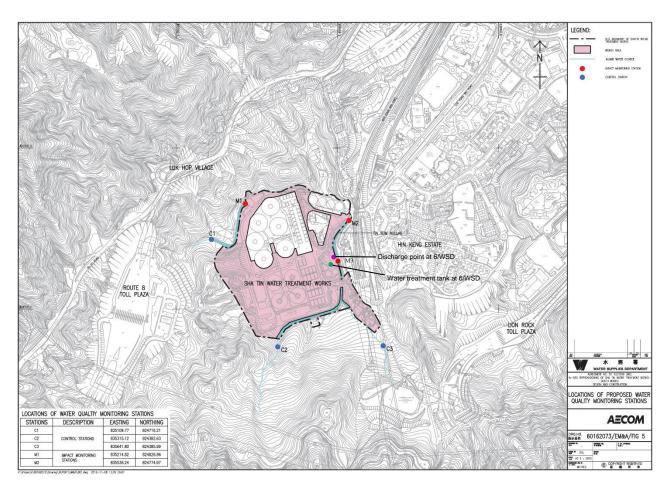


Figure 1 Location Map Water Quality Monitoring Location

Appendix W Tentative Schedule of Impact Monitoring

Tentative Impact Monitoring Schedule for STWT

	Tentative Impact Monitoring Schedule for STWTW										
			Jan-23	,							
Sun	Mon	Tue	Wed	Thur	Fri	Sat 7					
		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	6	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3					
8	9	10	NW3	12	13	14					
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3						
15	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	17	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	19	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3					
22	23	24	25	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3					
29	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	31									

Tentative Impact Monitoring Schedule for STWTW

Tentative Impact Monitoring Schedule for STWTW										
Feb-23										
Sun	Mon	Tue	Wed		Fri	Sat				
			1	2	3	4				
			Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3					
5	6	7	8	9	10	11				
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 &		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3					
12	13	14	15	16	17	18				
	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3					
19	20	21	22	23	24	25				
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 &		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3				
26	27	28								
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3									

Tentative Impact Monitoring Schedule for STWTW

Tentative Impact Monitoring Schedule for STWTW										
Mar-23 Sun Mon Tue Wed Thur Fri Sat										
Sui	William	Tue	1	2	3	4				
			Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3				
5	6	7	8	9	10	11				
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 &					
12	13	14	15	16	17	18				
	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3					
19	20	21	22	23	24	25				
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3 Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 &		Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3				
26	27	28	29	30	31					
	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3	Impact Air monitoring for AM1 & AM2 Noise monitoring for NM1, NM2 & NM3	Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Impact Water Quality monitoring for C1, C2, C3, M1, M2 & M3					