Drainage Services Department

Agreement No. SPW 07/2019

Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1

Monthly EM&A Report

January 2020

(Version 1)

Certified By 

(Environmental Team Leader:
Mr. KS Lee)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

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

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Ref.: DSDSWHS1EM00_0_0031L.20

13 February 2020

By E-mail and Fax (3922 9797)

AECOM Asia Company Limited
8/F., Grand Central Plaza, Tower 2,
138 Shatin Rural Committee Road
Sha Tin, New Territories, Hong Kong

Attention: Mr CHANG Ping Wah

Dear Mr CHANG,

Re: Contract No. SPW 08/2019
Independent Environmental Checker for
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1

Monthly EM&A Report for January 2020

Reference is made to the Environmental Team's submission of Monthly EM&A Report for January 2020 (Version 1) certified by the ET Leader and provided to us via e-mail on 13 January 2020.

Please be informed that we have no adverse comments on the captioned submission. We write to verify the captioned submission in accordance with Condition 3.4 of FEP-02/474/2013.

Thank you for your attention. Please do not hesitate to contact us should you have any queries.

Yours sincerely,
For and on behalf of
Ramboll Hong Kong Limited

Ray Yan
Independent Environmental Checker

c.c.

DSD	Attn.: Ms Konica Cheung	(By Fax: 3104 6420)
Cinotech	Attn.: Mr K. S. Lee	(By Fax: 3107 1388)

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EXECUTIVE SUMMARY

Introduction

1. This is the 1st EM&A Report prepared by the Environmental Team, Cinotech Consultants Ltd., for Agreement No. SPW 07/2019 "Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1". This report summarized the monitoring results and audits findings of the EM&A programme under the issued further EP No. FEP-02/474/2013 and in accordance with the Updated EM&A Manual during the reporting month of January 2020.

Summary of Main Works Undertaken and Key Measures Implemented

2. The main works undertaken during the reporting period are as follows:

Table I Summary Table for Major Site Activities in the Reporting Month

Contract No.	Contract Title	Site Activities
DC/2018/06	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Civil Works for Sludge Treatment Facilities and 132kV Primary Substation	• Underground utility detection • Demolition of existing structure • Tree felling works • Hoarding installation • Predrilling works • Sheet piling installation • H-piles installation
DC/2018/07	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Civil Works for Sewage Treatment Facilities	• Trial pit works • Underground utilities detection • Site clearance
DE/2018/03	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Sidestream Treatment Facilities and E&M Works for Sluge Treatment Faciliteis	No construction activities in the reporting month.
DE/2018/04	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - E&M Works for Sewage Treatment Facilities	No construction activities in the reporting month.

3. Implementation of the key mitigation measures during the reporting period are as follows:

Air Quality
- Water spraying on haul road and unpaved area was done to minimize dust generation.
- Stockpiles were covered by impervious sheets.

Water Quality

- Water from road washing should not fall into the drainage system.
- Manholes were covered by impervious sheets to avoid dirty run-off into the drainage system

Waste Management

- Waste pile was covered by impervious sheets.

Summary of Exceedances, Investigation and Follow-up

4. Exceedance of Action/Limit levels during the reporting month (January 2020) and the investigation results and/or follow-up actions:

Air Quality Monitoring

- No Action/Limit Level exceedance for 1-hour TSP was recorded.
- No Action/Limit Level exceedance for 24-hour TSP was recorded.

Construction Noise Monitoring

- No Action/Limit Level exceedance for day time construction noise monitoring was recorded in the reporting month.

Ecological Monitoring

- 1 Action Level was triggered. No Limit Level was triggered.

Complaint Handling, Prosecution and Public Engagement

Table II Summary of Complaint/Summons/Prosecution in the Reporting Month

Event	Event Details		Follow-up/ Remedial Actions	Status/ Remarks
	Number	Brief Description		
Complaints Received	0	-	-	-
Notification of Summons and Prosecutions Received	0	-	-	-
Public Engagement Activities	0	-	-	-

Reporting Changes

5. There were no reporting changes during the reporting month.

Future Key Issues

6. The key works or activities will be anticipated in the next reporting period are as follows:

Table III Summary Table for Site Activities in the Next Reporting Period

Contract No.	Contract Title	Site Activities
DC/2018/06	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Civil Works for Sludge Treatment Facilities and 132kV Primary Substation	• Underground utility detection • Demolition of existing structure • Tree felling works • Hoarding installation • Trial pit excavation for underground utility • Predrilling works • H-piles installation • Sheet piling installation • Drainage diversion work
DC/2018/07	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Civil Works for Sewage Treatment Facilities	• Trial pit works • Underground utilities detection • Site clearance • Trench excavation
DE/2018/03	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Sidestream Treatment Facilities and E&M Works for Sluge Treatment Faciliteis	• Site clearance and fencing work
DE/2018/04	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - E&M Works for Sewage Treatment Facilities	• Preparation work of E&M installation at temporary filtrate lifting well and equalization tank • Modification of existing emergency generator electrical works

1 INTRODUCTION

Background

1.1 The Further Expansion of Shek Wu Hui Effluent Polishing Plant (SWHEPP) is a designated Project (DP) under F.1 and F.2 of Part 1, Schedule 2 of Environmental Impact Assessment Ordinance (EIAO). The "North East New Territories New Development Areas" Environmental Impact Assessment (NENT NDAs EIA) Report (Registered No.: AEIAR-175/2013) covered the assessment for the Further Expansion of SWHSTW Phase 1A, 1B and 2, and the associated Environmental Monitoring and Audit (EM&A) Manual was approved on 18 October 2013.

1.2 The existing Shek Wu Hui Sewage Treatment Works (SWHSTW) is operated and maintained by the Drainage Services Department (DSD). It provides secondary level treatment to sewage collected from Sheung Shui, Fanling and adjacent areas, SWHSTW was completed in two stages and expanded progressively in the past year. In 2009, the expansion of SWHSTW was completed and its design capacity was 93,000m^2/day at average dry weather flow (ADWF). After the Resource Allocation Exercise 2017, the existing SWHSTW is proposed to be upgraded from secondary to tertiary treatment level as the new SWHEPP at 3 stages: Main Works Stage 1, Stage 2 and Stage 3.

1.3 A Further Environmental Permit (EP) (Permit No. FEP-02/474/2013) was issued on 15 February 2018 to DSD as the Permit Holder to assume the responsibility for construction and operating the SWHEPP Project up to a capacity of 190,000m^3/day. The updated Environmental Monitoring and Audit (EM&A) Manual was prepared in accordance with Condition 2.3 of the Further EP. The site layout plan for the Project is shown in **Figure 1.1**.

1.4 Cinotech Consultants Ltd. was designated as the Environmental Team (ET) to undertake the EM&A works for "Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1" (hereinafter called the "Project").

Purpose of the Report

1.5 This is the 1st Monthly EM&A Report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period in January 2020.

Project Organizations

1.6 Different Parties with different levels of involvement in the project organization include:

- Permit Holder – Drainage Service Department (DSD)
- Supervisor Representative – AECOM Asia Company Limited (AECOM)
- Environmental Team (ET) – Cinotech Consultants Limited (Cinotech)
- Independent Environmental Checker (IEC) – Ramboll Hong Kong Limited (Ramboll)
- Contractors
  - Contract No.: DC/2018/06 - Kwan Lee - Chun Wo Joint Venture (KLCWJV)
  - Contract No.: DC/2018/07 - Kwan Lee - Chun Wo Joint Venture (KLCWJV)
  - Contract No.: DE/2018/03 - Jardine Engineering Corporation Limited (JEC)
  - Contract No.: DE/2018/04 - Bestwise Envirotech Limited (Bestwise)

1.7 The key contacts of the Project are shown in **Table 1.1**.

Table 1.1 Key Project Contacts

Party	Role	Contact Person	Phone No.
DSD	Permit Holder	Ms. Konica Cheung	2594 7463
AECOM	Supervisor Representative	Mr. Henry Tai	3792 0580
Cinotech	Environmental Team	Mr. KS Lee (ETL)	2151 2091
		Ms. Jennifer Mok	2151 2076
Ramboll	Independent Environmental Checker	Mr. Ray Yan	3465 2836
KLCWJV	Contractor (DC/2018/06)	Mr. Yip Yun Lam	9532 7174
KLCWJV	Contractor (DC/2018/07)	Mr. Karsten Kwong	9771 0059
JEC	Contractor (DE/2018/03)	Mr. Lau Kim Hung	2947 1125
Bestwise	Contractor (DE/2018/04)	Mr. Albus Cheung	9731 0831

1.8 The Organizational Structure for Environmental Management is shown in **Figure 1.2**.

Construction Activities undertaken during the Reporting Month

1.9 The major site activities undertaken in the reporting month included:

Table 1.2 Summary Table for Major Site Activities in the Reporting Month

Contract No.	Contract Title	Site Activities
DC/2018/06	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Civil Works for Sludge Treatment Facilities and 132kV Primary Substation	• Underground utility detection • Demolition of existing structure • Tree felling works • Hoarding installation • Predrilling works • Sheet piling installation • H-piles installation
DC/2018/07	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Civil Works for Sewage Treatment Facilities	• Trial pit works • Underground utilities detection • Site clearance
DE/2018/03	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Sidestream Treatment Facilities and E&M Works for Sluge Treatment Faciliteis	No construction activities in the reporting month.
DE/2018/04	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - E&M Works for Sewage Treatment Facilities	No construction activities in the reporting month.

Summary of EM&A Requirements

1.10 The EM&A programme requires construction noise monitoring, air quality monitoring, water quality monitoring, ecological monitoring and environmental site audit, etc. The EM&A requirements for each parameter are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event Action Plans;
- Environmental mitigation measures, as recommended in the Project EIA Report.

1.11 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 8 of this report.

1.12 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the monitoring parameters of the required environmental monitoring works and audit works for the Project in January 2020.

Statues of Environmental Licensing and Permitting

1.13 All permits/licenses obtained for the Project are summarized in **Table 1.3**.

Table 1.3 Summary of Environmental License and Permit

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
Environmental Permit (EP)				
All	FEP-02/474/2013	15 Feb 2018	N/A	Valid
All	EP-474/2013	21 Nov 2013	N/A	Valid
Notification of Construction Works under Air Pollution Control Ordinance (APCO)				
DC/2018/06	449210 (Portion A & C)	23 Sep 2019	11 Mar 2024	Valid
DC/2018/06	449211(WM1)	23 Sep 2019	11 Mar 2024	Valid
DC/2018/07	N/A	11 Nov 2019	31 Dec 2024	Valid
Billing Account for Construction Waste Disposal				
DC/2018/06	7035390	11 Oct 2019	N/A	Valid
DC/2018/07	7035985	9 Dec 2019	N/A	Valid
DE/2018/03	7035700	6 Nov 2019	N/A	Valid
DE/2018/04	703621912	2 Jan 2020	N/A	Valid
Registration of Chemical Waste Producer				
DC/2018/06	5213-624-K3371-01	14 Nov 2019	N/A	Valid
DC/2018/07	5213-624-K3371-02	N/A	N/A	Valid
Effluent Discharge License				
DC/2018/06	WT00035431-2019	20 Jan 2020	31 Jan 2025	Valid

2 AIR QUALITY

Monitoring Requirement

2.1 According to the Updated EM&A Manual of SWHEPP, 1-hour and 24-hour Total Suspended Particulates (TSP) monitoring were conducted to monitor the air quality for this Project. For regular impact monitoring, a sampling frequency of at least once in every six days at all of the monitoring stations for 24-hour TSP monitoring. For 1-hour TSP monitoring, the sampling frequency of at least three times in every six days shall be undertaken when the highest dust impact occurs. **Appendix A** shows the established Action/Limit Levels for the environmental monitoring works.

Monitoring Locations

2.2 Four designated monitoring stations were selected for air quality monitoring programme. **Table 2.1** describes the air quality monitoring locations, which are also depicted in **Figure 2**.

Table 2.1 Air Quality Monitoring Locations

Monitoring Stations	Location	Location of Measurement
AM1(1)	Wai Loi Tsuen	Ground Level
AM2(1)	Fu Tei Au	Ground Level
AM1a(2)	Site Boundary of the Shek Wu Hui STW (East)	Ground Level
AM2a(2)	Site Boundary of the Shek Wu Hui STW (North)	Ground Level

Remarks: (1) For 1-hour TSP monitoring; (2) For 24-hour TSP monitoring

Monitoring Parameters and Frequency

2.3 **Table 2.2** summarizes the monitoring parameters, monitoring period and frequencies of impact air quality monitoring. The monitoring schedule is shown in **Appendix B**.

Table 2.2 Frequency and Parameters of Air Quality Monitoring

Monitoring Stations	Parameter	Period	Frequency
AM1 & AM2	1-hour TSP	0700 – 1900	3 times/day, once every 6 days
AM1a & AM2a	24-hour TSP	24 hours	Once every 6 days

Monitoring Equipment

2.4 High Volume Samplers (HVS) in compliance with the specification stipulated in the EM&A Manual, Section 2.2.2, were used to carry out 24-hour TSP monitoring. Direct reading dust meter were also used to measure 1-hour average TSP levels. The 1-hour sampling was determined by HVS to check the validity and accuracy of the results measured by direct reading method.

2.5 Wind data monitoring equipment was set on rooftop (about 4/F) of the SWHSTW control room building for logging wind speed and wind direction such that the wind sensors were clear of obstructions or turbulence caused by building. The wind data monitoring equipment was re-calibrated at least once every six months and the wind directions were divided into 16 sectors

of 22.5 degrees each.

2.6 **Table 2.3** summarizes the equipment to be used for air quality monitoring. Copies of calibration certificates are attached in **Appendix C**.

Table 2.3 Air Quality Monitoring Equipment

Equipment	Model and Make	Quantity
1-hour TSP Dust Meter	Sibata Model No. LD-5R	4
HVS Sampler	TISCH Model: TE-5170	2
Calibrator	TISCH Model: TE-5025A	1
Wind Anemometer	Davis Instrument 6152	1

Monitoring Methodology

1-hour TSP Monitoring

Measuring Procedures

2.7 The measuring procedures of the 1-hour dust meter are in accordance with the Manufacturer's Instruction Manual as follows:

(Sibata Model No.: LD-5R)

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

Maintenance/Calibration

2.8 The following maintenance/calibration is required for the 1-hour dust meter:

- Check and calibrate the meter by HVS to check the validity and accuracy of the results measured by direct reading method at 2-month intervals throughout all stages of the air quality monitoring.

24-hour TSP Monitoring

Instrumentation

2.9 High volume samplers (HVS) (TISCH Model: TE-5170) complete with appropriate sampling inlets was employed for 24-hour TSP monitoring. The sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complied with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50). Moreover, the HVS also met all the requirements in Section 2.2 of the Annex II Specification.

2.10 The positioning of the HVS samplers are as follows:

- A horizontal platform with appropriate support to secure the samplers against gusty wind shall be provided;
- No two samplers shall be placed less than 2 meter apart;
- The distance between the sampler and an obstacle, such as buildings, must be at least twice the height that the obstacle protrudes above the sampler;
- A minimum of 2 metres of separation from walls, parapets and penthouses is required for rooftop samplers;
- A minimum of 2 metres of separation from any supporting structure, measured horizontally is required;
- No furnace or incinerator flue is nearby;
- Airflow around the sampler is unrestricted;
- The sampler is more than 20 metres from the dripline;
- Any wire fence and gate, to protect the sampler, shall not cause any obstruction during monitoring;
- Permission must be obtained to set up the samplers and to obtain access to the monitoring stations; and
- A secured supply of electricity is needed to operate the samplers.

Operating/analytical procedures for the operation of HVS

2.11 Operating/analytical procedures for the air quality monitoring are highlighted as follows:

- Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 1.1 m^3/min. and 1.4 m^3/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.
- For TSP sampling, fiberglass filters with a collection efficiency of > 99% for particles of 0.3μm diameter were used.
- The power supply was checked to ensure the sampler worked properly. On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air monitoring station.
- The filter holding frame was then removed by loosening the four nuts and a weighted and conditioned filter was carefully centered with the stamped number upwards, on a supporting screen.

- The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- The shelter lid was closed and secured with the aluminum strip.
- The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
- After sampling, the filter was removed and sent to the HOKLAS laboratory (Wellab Ltd.) for weighing. The elapsed time was also recorded.
- Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%.

Maintenance/Calibration

2.12 The following maintenance/calibration is required for the HVS:

- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
- High volume samplers were calibrated at bi-monthly intervals using TE-5028A Calibration Kit throughout all stages of the air quality monitoring.

Results and Observations

2.13 Impact air quality monitoring was conducted at four monitoring stations as scheduled. The monitoring schedule is shown in **Appendix B**.

2.14 No Action/Limit Level exceedance was recorded for all 1-hour TSP monitoring in the reporting month.

2.15 No Action/Limit Level exceedance was recorded for all 24-hour TSP monitoring in the reporting month.

2.16 The air temperature, precipitation and the relative humidity data was obtained from daily extract of Ta Kwu Ling Station in Hong Kong Observatory Climate Information Service, where the wind speed and wind direction were recorded by the installed Wind Anemometer at rooftop (about 4/F) of the SWHSTW control room building. This weather information for the reporting month is summarized in **Appendix D**.

2.17 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendix E** and **Appendix F** respectively.

2.18 According to our field observations, the major dust source identified at the designated air quality monitoring stations are as follows:

Table 2.4 Major Dust Source during Air Quality Monitoring

Monitoring Stations	Major Dust Source
AM1 - Wai Loi Tsuen	Village House Renovation Works
AM2 - Fu Tei Au	N/A
AM1a - Site Boundary of the Shek Wu Hui STW (East)	Vehicle Movement within SWHSTW
AM2a - Site Boundary of the Shek Wu Hui STW (North)	N/A

Comparison of EM&A Result with EIA Prediction

2.19 The air monitoring data was compared with the predictions in the EIA Report (as approved in 2013) as summarised in **Tables 2.5** and **Table 2.6**.

Table 2.5 Comparison of 1-hr TSP Monitoring Data with Predictions in EIA Report (as approved in 2013)

Monitoring Stations	ASR ID	Predicted 1-hr TSP Concentration in EIA Report (as Approved in 2013), dB(A), µg/m^3	Reporting Month (January 2020), µg/m^3
AM1 - Wai Loi Tsuen	N/A	N/A(1)	42.9 – 163.2
AM2 - Fu Tei Au	FLN-E28	255	39.6 – 194.7

Remarks:
(1) No 1-hr TSP concentration was predicted in EIA Report (as approved in 2013).

Table 2.6 Comparison of 24-hr TSP Monitoring Data with Predictions in EIA Report (as approved in 2013)

Monitoring Stations	Predicted 24-hr TSP Concentration in EIA Report (as approved in 2013), dB(A), µg/m^3	Reporting Month (January 2020), µg/m^3
AM1a - Site Boundary of the Shek Wu Hui STW (East)	N/A(1)	57.4 – 78.3
AM2a - Site Boundary of the Shek Wu Hui STW (North)	N/A(1)	27.6 - 57.3

Remarks:
(1) No 24-hr TSP concentration was predicted in EIA Report (as approved in 2013))

2.20 The 1-hour TSP concentration at AM2 in the reporting month was lower than the prediction in the EIA Report (as approved in 2013). The 1-hour TSP concentrations at AM1 as well as 24-hour TSP concentrations at AM1a and AM2a were not predicted in the EIA Report (as approved in 2013).

3 NOISE

Monitoring Requirements

3.1 According to the Updated EM&A Manual, construction noise monitoring was conducted to monitor the construction noise arising from the construction activities. The regular monitoring frequency for each monitoring station shall be on a weekly basis and conduct one set of measurements between 0700 and 1900 hours on normal weekdays. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Monitoring Locations

3.2 Noise monitoring was conducted at three designated monitoring stations in the reporting period. **Table 3.1** and **Figure 3** show the locations of these stations.

Table 3.1 Noise Monitoring Stations

Monitoring Stations	Location	Location of Measurement
NM1	Wai Loi Tsuen	Ground Level
NM2	Fu Tei Au	Ground Level
NM3	Man Kok Village	Ground Level

Monitoring Parameters, Frequency and Duration

3.3 **Table 3.2** summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix B**.

Table 3.2 Frequency and Parameters of Noise Monitoring

Monitoring Stations	Time Period	Duration	Frequency	Parameter	Measurement
NM1	0700-1900 hrs on normal weekdays	30 minutes	Once per week	L_{10}(30 min.) dB(A) L_{90}(30 min.) dB(A) L_{eq}(30 min.) dB(A)	Free Field
NM2					Free Field
NM3					Free Field

Monitoring Equipment

3.4 Integrating Sound Level Meter was used for impact noise monitoring. The meters were Type 1 sound level meter capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x) that also complied with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications. **Table 3.3** summarizes the noise monitoring equipment being used. Copies of calibration certificates are attached in **Appendix G**.

Table 3.3 Noise Monitoring Equipment

Equipment	Model and Make	Quantity
Integrating Sound Level Meter	BSWA 308	2
Calibrator	ST-120	1

Monitoring Methodology and QA/QC Procedure

3.5 The monitoring procedures are as follows:

- The monitoring station was normally be at a point 1m from the exterior of the sensitive receivers building façade and be at a position 1.2m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces. All records for free field noise levels were adjusted with a correction of +3 dB(A).
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - Frequency weighting: A
  - Time weighting: Fast
  - Time measurement: 30 minutes
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- The wind speed was frequently checked with the portable wind meter.
- At the end of the monitoring period, the L_{eq}, L_{90} and L_{10} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise monitoring would be cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s. Supplementary monitoring would be provided to ensure sufficient data would be obtained.

Maintenance and Calibration

3.6 The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.

3.7 The sound level meter and calibrator were checked and calibrated at yearly intervals.

3.8 Immediately prior to and following each 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. Measurements were accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

Results and Observations

3.9 No Action/Limit Level exceedance was recorded for all construction noise monitoring in the reporting month.

3.10 Noise monitoring results and graphical presentations are shown in **Appendix H**.

3.11 The major noise sources identified at the noise monitoring stations are shown in **Table 3.4**.

Table 3.4 Other Noise Source Identified during Noise Monitoring

Monitoring Stations	Major Noise Source
NM1	Railway Noise & Village House Renovation Works
NM2	N/A
NM3	Road traffic at Po Wan Road

3.12 All the Construction Noise Levels (CNLs) reported in this report were adjusted with the corresponding baseline level (i.e. Measured Leq – Baseline Leq = CNL), in order to facilitate the interpretation of the noise exceedance. The baseline noise level and the Noise Limit Level at each designated noise monitoring station are presented in **Table 3.5**.

Table 3.5 Baseline Noise Level and Noise Limit Level for Monitoring Stations

Monitoring Stations	Baseline Noise Level, dB (A) (at 0700 – 1900 hrs on normal weekdays)	Noise Limit Level, dB (A) (at 0700 – 1900 hrs on normal weekdays)
NM1	63.4	75
NM2	58.0	
NM3	63.4	

Comparison of EM&A Result with EIA Prediction

3.13 The noise monitoring data was compared with the predictions in EIA Report (as approved in 2013) as summarised in **Table 3.6**.

Table 3.6 Comparison of Noise Monitoring Data with Predictions in EIA Report (as approved in 2013)

Monitoring Stations	NSR ID	Predicted Mitigated Construction Noise Levels in EIA Report (as Approved in 2013), dB(A)	Reporting Month (January 2020), Leq (30min) dB(A)
NM1 - Wai Loi Tsuen	N/A	N/A(1)	53.8 - 61.4
NM2 - Fu Tei Au	N/A	N/A(1)	55.7 – 58.4
NM3 – Man Kok Village	FN-18	66-75	47.1 – 62.1

Remarks:
(1) No construction noise level was predicted in EIA Report (as approved in 2013).

3.14 The results at NM3 were lower than the range of the predicted mitigated construction noise levels in the EIA Report (as approved in 2013). Construction noise levels at NM1 and NM2 were not predicted in the EIA Report (as approved in 2013).

4 ECOLOGY

Monitoring Requirements

4.1 According to the Updated EM&A Manual, waterbird species which use rivers near the Project Site were identified and recorded. The monitoring requirement in the EM&A Manual is shown in **Table 4.1**. **Appendix A** shows the established Action/Limit Levels for ecological monitoring works.

Table 4.1 Monitoring of Measures to Minimise Disturbance to Waterbirds on Ng Tung, Sheung Yue and Shek Sheung Rivers during Construction Phase

Phase	Methodology
Construction	Weekly transect at both high and low tides to identify and enumerate all bird species utilising the river channels and identify any sources of actual or potential disturbance to birds due to construction activities throughout the construction period.

4.2 The monitoring should be conducted by the ET and supervised by a qualified ecologist who will be a member of the ET.

Monitoring Locations

4.3 Transect and point count surveys were proposed within the 500m boundary of Ng Tung River, Sheung Yue River and Shek Sheung River of the assessment area. Three transects and seven-point count locations during high and low tides were applied. These locations are shown in **Figure 4** and summarized in **Table 4.2**. The photo of each transect is provided in **Appendix J**.

Table 4.2 Ecological Monitoring Stations

Monitoring Stations	Descriptions	Influenced by Tidal Action
Transect T1	Along Ng Tung River	No
Transect T2		
Point Count Location P1		
Point Count Location P2		
Point Count Location P3		
Point Count Location P4		
Point Count Location P5	At Shek Sheung River (Low-flow Channel)	No
Transect T3	Along Shek Sheung River & Sheung Yue River	Yes
Point Count Location P6	At Shek Sheung River	Yes
Point Count Location P7	At Intersection between Sheung Yue River and Shek Sheung River	Yes

Monitoring Parameters, Frequency and Duration

4.4 Monitoring surveys were conducted on a weekly basis at both high and low tides (it is considered high tide when tidal levels are above 1.5m and low tide when tidal level are below 1.5m at Tsim Bei Tsui Station). The magnitude of how much above or below 1.5m was subject to tidal conditions of that week as it varied throughout different times of the year. Nonetheless, the high and low tide relative to that week's tidal condition were taken into consideration. The ecological monitoring schedule is shown in **Appendix B**.

Monitoring Methodology

4.5 Transect survey was undertaken along the concerned rivers (Ng Tung River, Sheung Yue River and Shek Sheung River) adjacent to proposed construction activities. As the sensitive receivers (large waterbirds) are easily visible and the surveyor has used auxiliary equipment such as camera(s) and binoculars (magnification 7-10x). The transect route only follows one bank of these rivers.

4.6 At point count locations, surveyors identified and recorded bird species which were seen or heard along the river channel. For each point count, surveyors quantitatively recorded all species seen and heard for the duration of five minutes up to the distance where birds were still detectable. All avifauna along the walk transect were recorded. Noticeable behaviours (e.g. breeding behaviours such as nesting and presence of recently fledged juveniles, roosting and feeding activities, etc.) were recorded as well.

4.7 Ornithological nomenclature used in report should follow *The Avifauna of Hong Kong* (Carey et al. (2001)), *The Birds of Hong Kong and South China* (Viney et al. (2005)) and the most recent updated list from other sources (e.g. Hong Kong Bird Watching Society).

4.8 Weather conditions, tidal information at the time of the survey and other noticeable activities occurring within or in the vicinity of the survey areas (e.g. ongoing routine drainage channel maintenance works and other human activities that could create disturbances to birds) were recorded.

Analytical Methodology

4.9 The number and species of waterbirds utilizing the rivers fluctuate every day naturally. Therefore, the survey data were collectively analysed on a monthly basis to increase the sample size and to reduce random error on one survey day. Since occurrence of waterbirds has distinctive seasonal pattern, the construction phase data for all waterbirds and representative waterbirds were compared with the baseline data for the respective month and season. The representatives of waterbirds are listed in **Table 4.3**.

Table 4.3 Representative Waterbirds

Species Name	Common Name	Chinese Name
Egretta garzetta	Little Egret	小白鷺
Ardea cinerea	Grey Heron	蒼鷺
Ardeola bacchus	Chinese Pond Heron	池鷺
Phalacrocorax carbo	Great Cormorant	普通鸕鷀
Ardea alba	Great Egret	大白鷺
Bubulcus coromandus	Eastern Cattle Egret	牛背鷺

4.10 When a decline in abundance of all or representative waterbird is identified, one-tailed Student t-test was adopted to statistically analyse whether the drop is significant. If the collected data for the reporting month fails to show no significant difference from that in the baseline phase at 95% confidence level, the action level will be triggered. Likewise, the limit level is set at 99% confidence level.

4.11 In addition, if important behaviours such as breeding, brooding, nesting and presence of recently fledged juveniles of species of conservation importance are observed, the Resident Engineer, Contractor and IEC should be notified immediately after the survey. The Contractor should review current construction programme and minimize disturbance due to construction activities.

Results

4.12 For this reporting month, the numbers of species and individuals recorded were provided in **Table 4.4**. The photo record of waterbirds can be found in **Appendix J**.

Table 4.4 Total Bird Species and Abundance in the Reporting Month

	Number of Species	Abundance
All Avifauna	53	636
Waterbirds	20	343

4.13 **Table 4.5** presents the abundance of representative species.

Table 4.5 Abundance of Representative Waterbirds in the Reporting Month

Species Name	Common Name	Chinese Name	Abundance
Egretta garzetta	Little Egret	小白鷺	65
Ardea cinerea	Grey Heron	蒼鷺	114
Ardeola bacchus	Chinese Pond Heron	池鷺	12
Phalacrocorax carbo	Great Cormorant	普通鸕鷀	32
Ardea alba	Great Egret	大白鷺	20
Bubulcus coromandus	Eastern Cattle Egret	牛背鷺	40

Analysis

4.14 The result of student t-tests for all waterbirds and representative waterbirds are compiled in **Table 4.6** and **4.7** respectively. Further details are provided in **Appendix I**.

Table 4.6 T-test Result for All Waterbirds in the Reporting Month

T-values of Data in Reporting Month			Confidence Level (Critical Value)	
			95% (-2.353)	99% (-4.541)
Abundance	Monthly	0.799	✔	✔
	Seasonal	0.932	✔	✔

Remarks
✔ = T-value falls within the confidence level, the impact monitoring data shows no significant difference to the baseline data.
✖ = T-value falls outside the confidence level, the impact monitoring data shows significant difference to the baseline data.

Table 4.7 T-test Result for Representative Waterbirds in the Reporting Month

Common Name of Representative Waterbird	T-value	Confidence Level (Critical Value)		T-value	Confidence Level (Critical Value)		Overall
	Monthly	95% (-2.353)	99% (-4.541)	Seasonal	95% (-2.353)	99% (-4.541)	
Little Egret	0.435	✔	✔	0.207	✔	✔	✔
Grey Heron	0.976	✔	✔	1.431	✔	✔	✔
Chinese Pond Heron	-4.067	✖	✔	-4.826	✖	✖	Action Level
Great Cormorant	0.707	✔	✔	0.411	✔	✔	✔
Great Egret	-0.151	✔	✔	-0.124	✔	✔	✔
Eastern Cattle Egret	2.114	✔	✔	1.683	✔	✔	✔

Remarks
✔ = T-value falls within the confidence level, the impact monitoring data shows no significant difference to the baseline data.
✖ = T-value falls outside the confidence level, the impact monitoring data shows significant difference to the baseline data.

4.15 The t-test concluded that the abundance for Chinese Pond Heron was significantly lower than the baseline monitoring result for January and winter at 95% confidence level, 1 Action Level was triggered for ecological monitoring in the reporting month. No Limit Level was triggered.

4.16 Despite a drop in Chinese Pond Heron abundance, the average number of all waterbirds recorded in January 2020 (87 nos.) was higher than those in the same month and season in baseline period (65 and 62 nos. respectively). Table V of **Appendix I** shows a notable increase in Grey Heron abundance (29 nos. versus 18 nos. for the same month). Also, no significant change was observed for Little Egret (8 nos. versus 7 nos. for the same month). As both species shares similar niche as Chinese Pond Heron, it is unlikely that project activity (e.g. noise) will affect one species only. In addition, no wastewater discharge from the Project Site was observed. As the decline was considered non-project related, no remedial measure for the project is proposed. The monitoring work will continue next month to evaluate any construction impact on waterbirds.

Observations

4.17 Waterbird behaviour observed during ecological monitoring are listed below:

- Foraging
- Flying
- Resting
- Soaring

4.18 The anthropogenic activities observed during ecological monitoring are listed in **Table 4.8**.

Table 4.8 Observations during Ecological Monitoring in the Reporting Month

Location	Observations
T1 (PC1, PC2)	Fishing, remote boating
T2 (PC3, PC4)	Fishing, project and non-project related construction activities
PC5	N/A
T3 (PC6, PC7)	Fishing, open burning outside works area

5 WATER QUALITY

Monitoring Requirement

5.1 According to the Updated EM&A Manual, no water monitoring is required before the commencement of outfall construction at Ng Tung River.

5.2 Site audits were carried out on a weekly basis to monitor and audit the timely implementation of water quality mitigation measures within the site boundaries of this Project. The summaries of site audits are attached in **Appendix K**.

6 WASTE MANAGEMENT

Monitoring Requirement

6.1 According to the Updated EM&A Manual, waste management would be the contractor's responsibility to ensure that all wastes produced during the construction works for the Project are handled, stored and disposed of in accordance with good waste management practices, EPD's regulations and requirements.no monitoring for waste management is required for the Project. An environmental management plan (EMP) should be prepared and submitted to the Supervisor for approval. The monitoring and auditing requirements of the EMP should be followed with regard to the management of C&D material.

Waste Management Status

6.2 Site audits were carried out on a weekly basis to monitor and audit to ensure that proper storage, transportation and disposal practices of waste materials generated during construction activities, such as construction and demolition (C&D) materials and general refuse are being implemented. The summaries of site audits are attached in **Appendix K**.

6.3 The amount of wastes generated by the major site activities of this Project during the reporting month is shown in **Appendix L**.

7 LANDSCAPE AND VISUAL

Audit Requirement

7.1 According to the Updated EM&A Manual, site audits would be undertaken during the construction phase of the Project to check that the proposed landscape and visual mitigation measures are properly implemented and maintained as per their intended objectives. Particularly audits would be carried out during site clearance when proposed tree felling and transplantation may occur. Site inspections would be undertaken at least once every two weeks during the construction period.

7.2 Site clearance and tree felling works were undertaken during the reporting period as per **Table I** and **Table 1.2**, site audits were carried out on a weekly basis to monitor and audit the timely implementation of landscape and visual mitigation measures within the site boundaries of this Project. The summaries of site audits are attached in **Appendix K**.

8 ENVIRONMENTAL AUDIT

Site Audits

8.1 Site audits were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix K**.

8.2 Site audits were conducted on 6, 14 & 21 January 2020 in the reporting month. As all construction works were suspended between 29 January and 31 January 2020, the weekly site audit was also suspended. Joint site inspection with the representative of IEC was conducted on 6 January 2020. No non-compliance was observed during the site audit.

Implementation Status of Environmental Mitigation Measures

8.3 According to Environmental Permits, the approved EIA Report (Register No.: AEIAR-175/2013), and the Updated EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix N**.

8.4 The ET weekly site inspections were carried out during the reporting month and the observations and recommendations are summarized in **Tables 8.1 and 8.2**. Refer to **Appendix K** for the site inspection summary reports in the reporting month.

Table 8.1 Observations and Recommendations of Site Audit of Contract No. DC/2018/06

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	14 Jan 2020	Manholes were not covered properly. They should be covered tightly at Portion A.	The condition was observed to be improved/rectified by the contractor during the audit session on 21 Jan 2020.
	14 & 21 Jan 2020	Muddy water was accumulated at Portion C. It should be removed or pump through the sedimentation tank.	Follow-up actions will be reported in the next month.
Air Quality	6 Jan 2020	Haul roads appear dry during site inspection. Regular water spraying at haul road is recommended at Portion C.	The condition was observed to be improved/rectified by the contractor during the audit session on 14 Jan 2020.
	6 Jan 2020	Soil on the public road should be removed outside Portion C.	The condition was observed to be improved/rectified by the contractor during the audit session on 14 Jan 2020.
	14 Jan 2020	Dust generation was observed at the western side of Portion C. Haul road should be sprayed with water to avoid excessive dusty materials.	The condition was observed to be improved/rectified by the contractor during the audit session on 21 Jan 2020.

Parameters	Date	Observations and Recommendations	Follow-up
	14 Jan 2020	Stockpile observed in Portion C should be covered by impervious materials or cleared as soon as possible.	The condition was observed to be improved/rectified by the contractor during the audit session on 21 Jan 2020.
	21 Jan 2020	Muddy soil was leaked onto the public road outside Portion C. It should be cleaned as soon as possible.	Follow-up actions will be reported in the next month.
Noise	N/A	There was no observation in the reporting period.	N/A
Waste / Chemical Management	14 & 21 Jan 2020	Waste was deposited on the road at Portion A. The Contractor should remove the waste as soon as possible.	Follow-up actions will be reported in the next month.
Visual and Landscape	N/A	There was no observation in the reporting period.	N/A
Permits /Licences	N/A	There was no observation in the reporting period.	N/A

Table 8.2 Observations and Recommendations of Site Audit of Contract No. DC/2018/07

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	N/A	There was no observation in the reporting period.	N/A
Air Quality	14 Jan 2020	Dust generation was found in Portion B. The soil inside should be sprayed with water to avoid dust generation.	The condition was observed to be improved/rectified by the contractor during the audit session on 21 Jan 2020.
Noise	N/A	There was no observation in the reporting period.	N/A
Waste / Chemical Management	6 Jan 2020	Temporary waste pile accumulated at Portion B should be covered by impervious materials before removal.	The condition was observed to be improved/rectified by the contractor during the audit session on 14 Jan 2020.
	14 & 21 Jan 2020	Waste stockpile is accumulated at Portion B. Contractor is reminded to remove the waste pile and cover it with impervious sheeting until disposal.	Follow-up actions will be reported in the next month.
Visual and Landscape	N/A	There was no observation in the reporting period.	N/A

Parameters	Date	Observations and Recommendations	Follow-up
Permits /Licences	N/A	There was no observation in the reporting period.	N/A

Implementation Status of Event and Action Plans

8.5 The Event and Action Plans for air quality, construction noise, ecological monitoring and landscape and visual are presented in **Appendix M**.

Air Quality Monitoring

- No Action/Limit Level exceedance for 1-hour TSP was recorded.
- No Action/Limit Level exceedance for 24-hour TSP was recorded.

Construction Noise Monitoring

- No documented complaint on construction noise was received; no Action Level exceedance for day time construction noise monitoring was recorded.
- No Limit Level exceedance for day time construction noise monitoring was recorded in the reporting month.

Ecological Monitoring

- 1 Action Level was triggered and no Limit Level was triggered.

Landscape and Visual Monitoring

- No non-conformity for landscape and visual was recorded.

9 ENVIRONMENTAL NON-CONFORMANCE

Summary of Complaint, Warning, Notification of any Summons and Successful Prosecution

9.1 The summaries of environmental complaint, warning, summon and notification of successful prosecution for the Project is presented in **Appendix O**.

Summary of Exceedance

9.2 The summary of exceedance record in reporting month is shown in **Appendix P**.

10 FUTURE KEY ISSUES

10.1 Tentative construction programmes for the next three months are provided in **Appendix Q**.

10.2 Major site activities undertaken for the coming months are summarized in **Table 10.1**.

Table 10.1 Summary Table for Site Activities in the next Reporting Period

Contract No.	Contract Title	Site Activities
DC/2018/06	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Civil Works for Sludge Treatment Facilities and 132kV Primary Substation	• Underground utility detection • Demolition of existing structure • Tree felling works • Hoarding installation • Trial pit excavation for underground utility • Predrilling works • H-piles installation • Sheet piling installation • Drainage diversion work
DC/2018/07	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Civil Works for Sewage Treatment Facilities	• Trial pit works • Underground utilities detection • Site clearance
DE/2018/03	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - Sidestream Treatment Facilities and E&M Works for Sluge Treatment Faciliteis	• Site clearance and fencing work
DE/2018/04	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 - E&M Works for Sewage Treatment Facilities	• Preparation work of E&M installation at temporary filtrate lifting well and equalization tank • Modification of existing emergency generator electrical works

10.3 Key environmental issues in the coming months include:

- Stockpile accumulation on-site;
- Water spraying for dust generating activities and on haul road;
- Wastewater and runoff discharge from site;
- Coverage of open manholes to avoid dirty runoff to drainage system; and
- Accumulation of general refuse and construction waste on-site.

Monitoring Schedule

10.4 The tentative environmental monitoring schedule for the next month is shown in **Appendix B**.

11 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

11.1 This is the 1st Monthly EM&A Report which presents the EM&A works undertaken during the reporting month in accordance with the Updated EM&A Manual and the requirement under EP.

Air Quality Monitoring

11.2 No Action/Limit Level exceedance was recorded for all 1-hour and 24-hour TSP monitoring in the reporting month.

Construction Noise Monitoring

11.3 No Action/Limit Level exceedance was recorded for all noise monitoring in the reporting month.

Ecology

11.4 1 Action Level was triggered and no Limit Level was triggered for all ecological monitoring in the reporting month. The analysis concluded that the decline in Chinese Pond Heron abundance is not project related.

Site Audit

11.5 3 ET joint weekly environmental site inspections were conducted in the reporting month.

Complaint, Notification of Summons and Successful Prosecution

11.6 No environmental complaints, notifications of summons and successful prosecutions were received in the reporting month.

Recommendations

11.7 According to the environmental audit performed in the reporting month, the following recommendations were made:

Air Quality

- Regular water spraying on haul road and dry surfaces should be applied to minimize dust generation.
- Stockpiles should be covered by impervious materials.

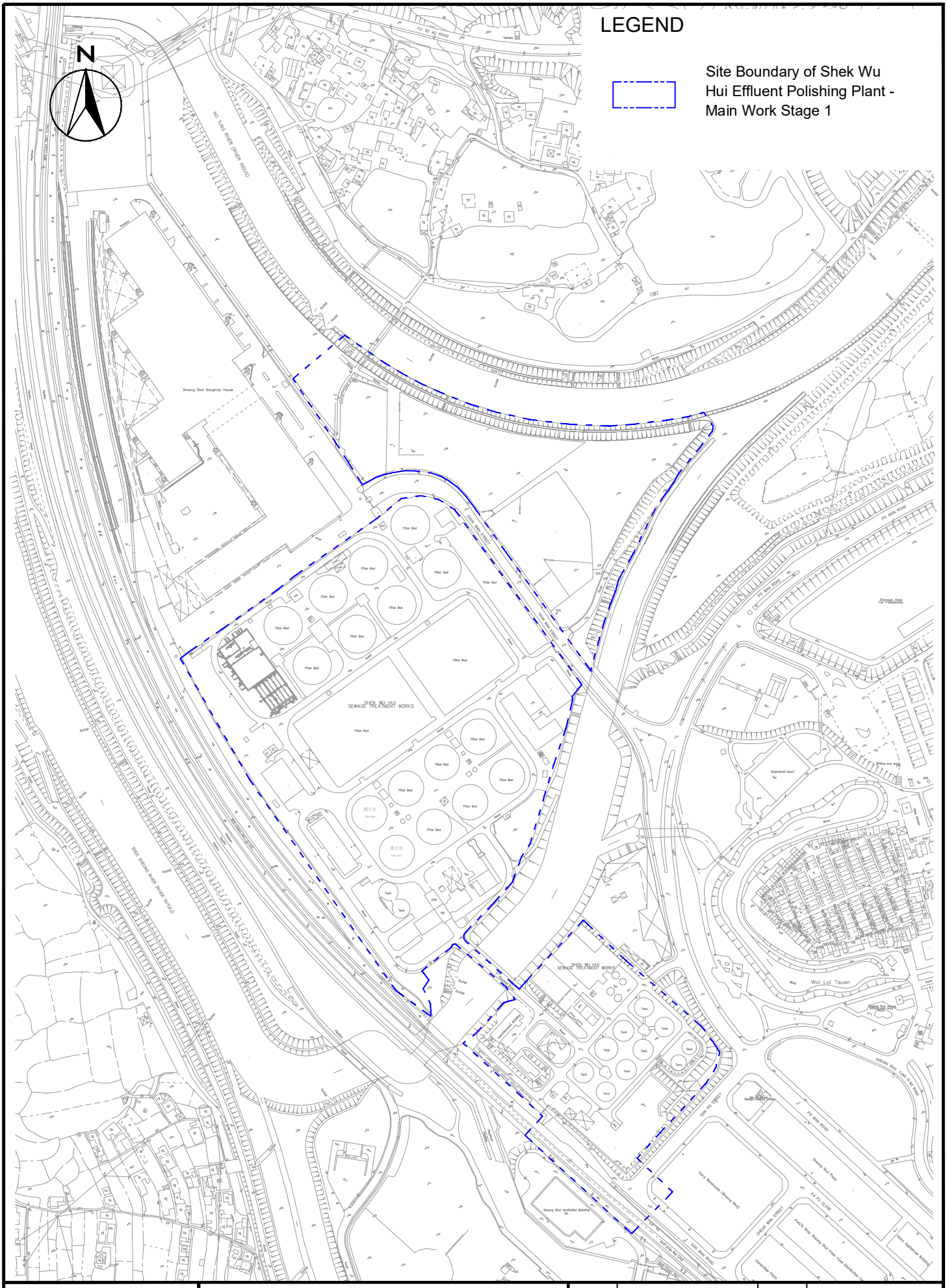
Water Quality

- Water from road washing should not fall into the drainage system.
- Ponding water should be removed.

Waste Management

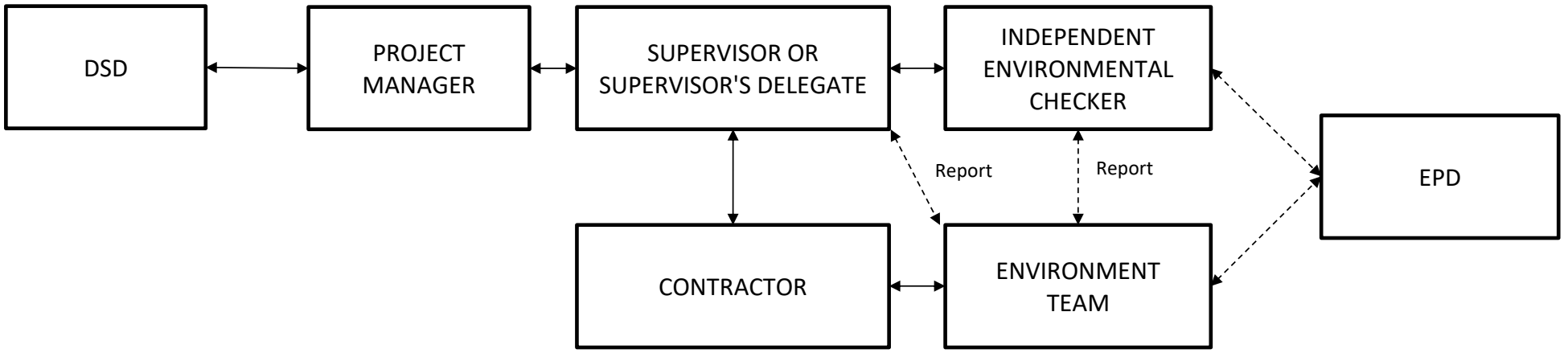
- Waste accumulation should be avoided.

FIGURES



CINOTECH Cinotech Consultants Limited	Shek Wu Hui Effluent Polishing Plant - Site Layout	SCALE: 1:4000@A4	DATE: SEP 2019
		CHECK: JM	DRAWN: SY
		JOB No.: MA19019	FIGURE NO.: 1.1
			REV: -

F:/Project_drawings

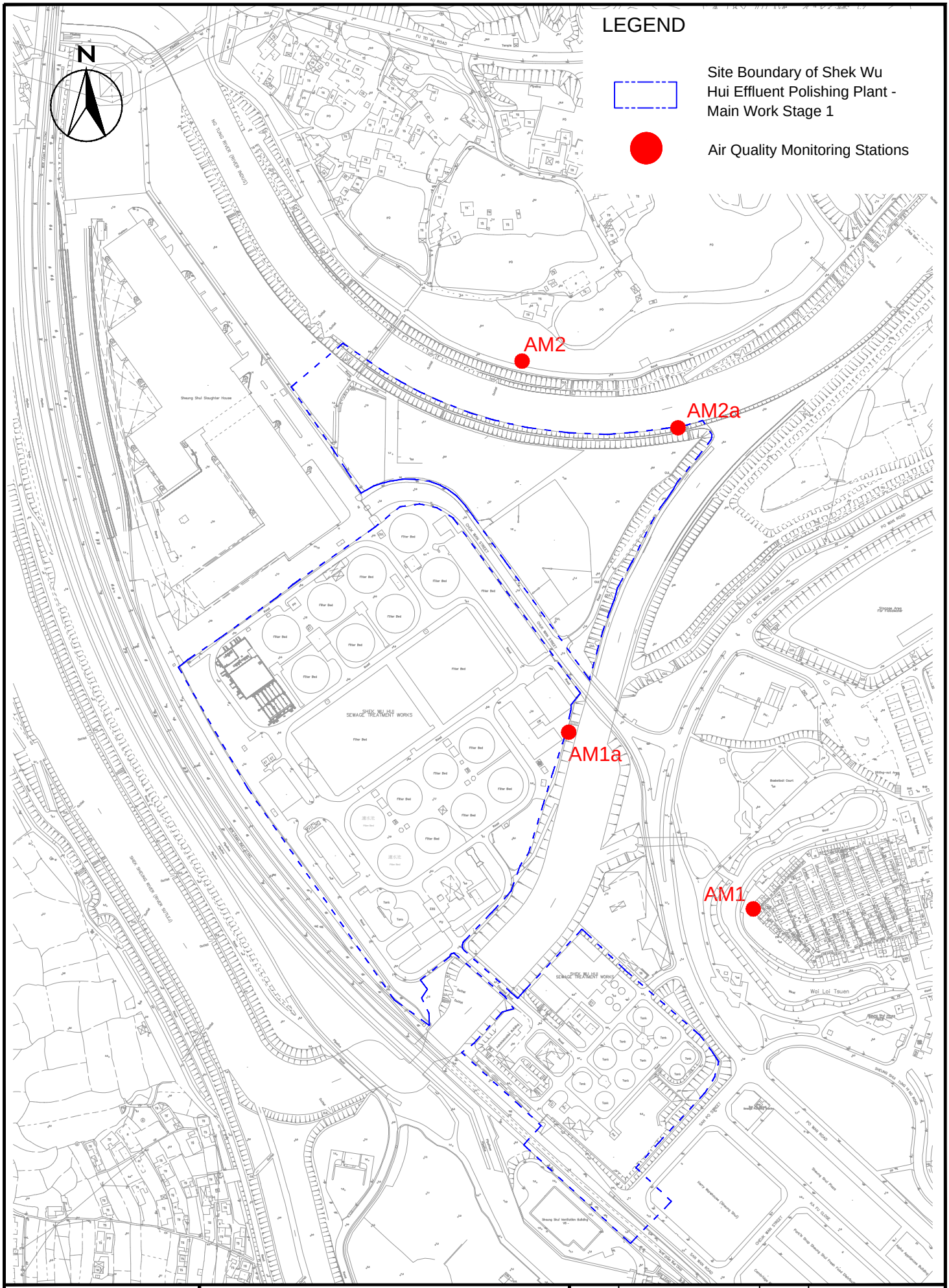


CINOTECH

Agreement No. SPW07/2019
Shek Wu Hui Effluent Polishing Plant- Main Works Stage 1

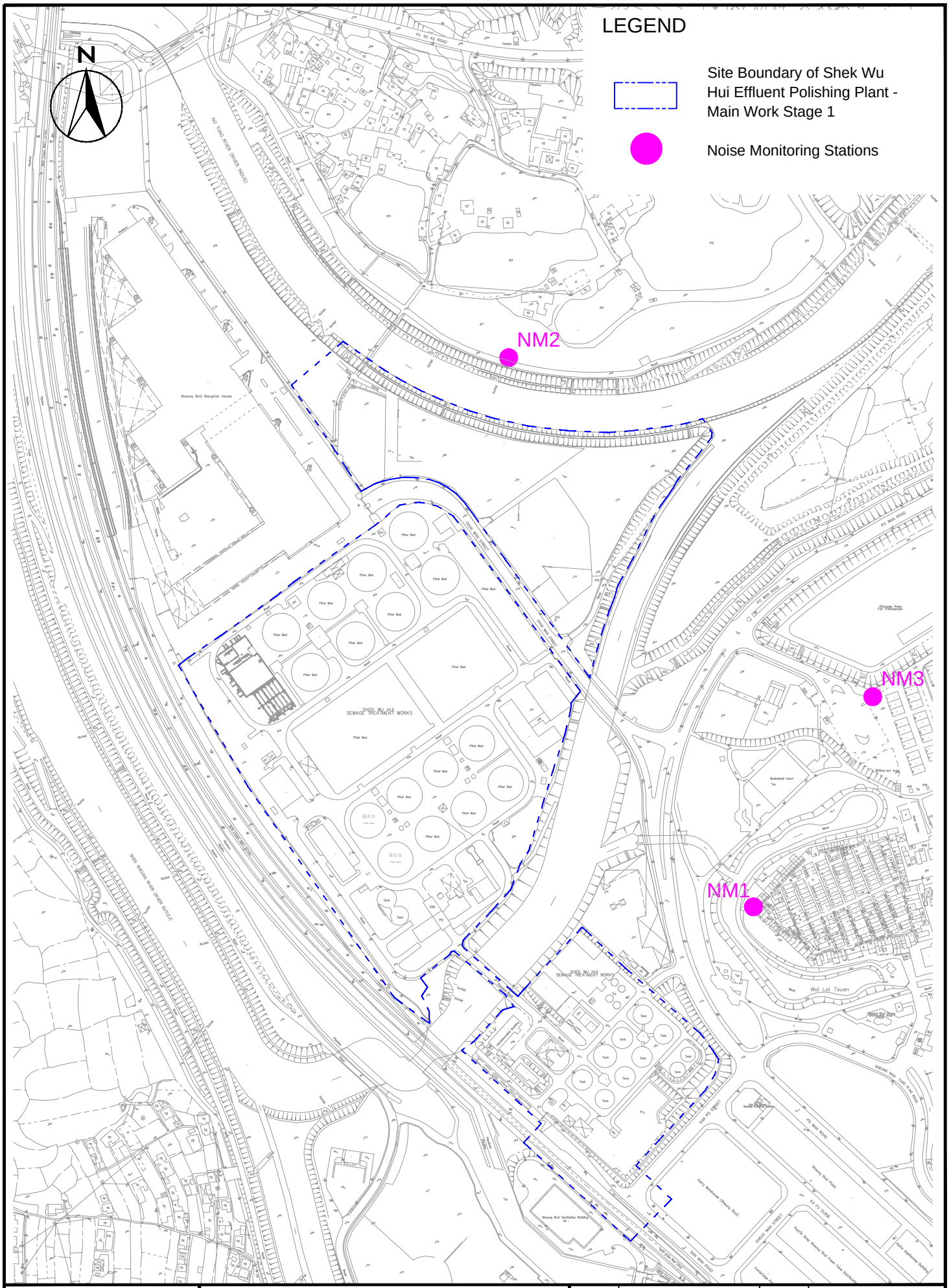
Project Organisation For Environmental Monitoring and Audit

SCALE	N.T.S.	**DATE**	Sep 2019
CHECK	JM	**DRAWN**	SY
JOB NO.	MA19019	**FIGURE NO.**	1.2

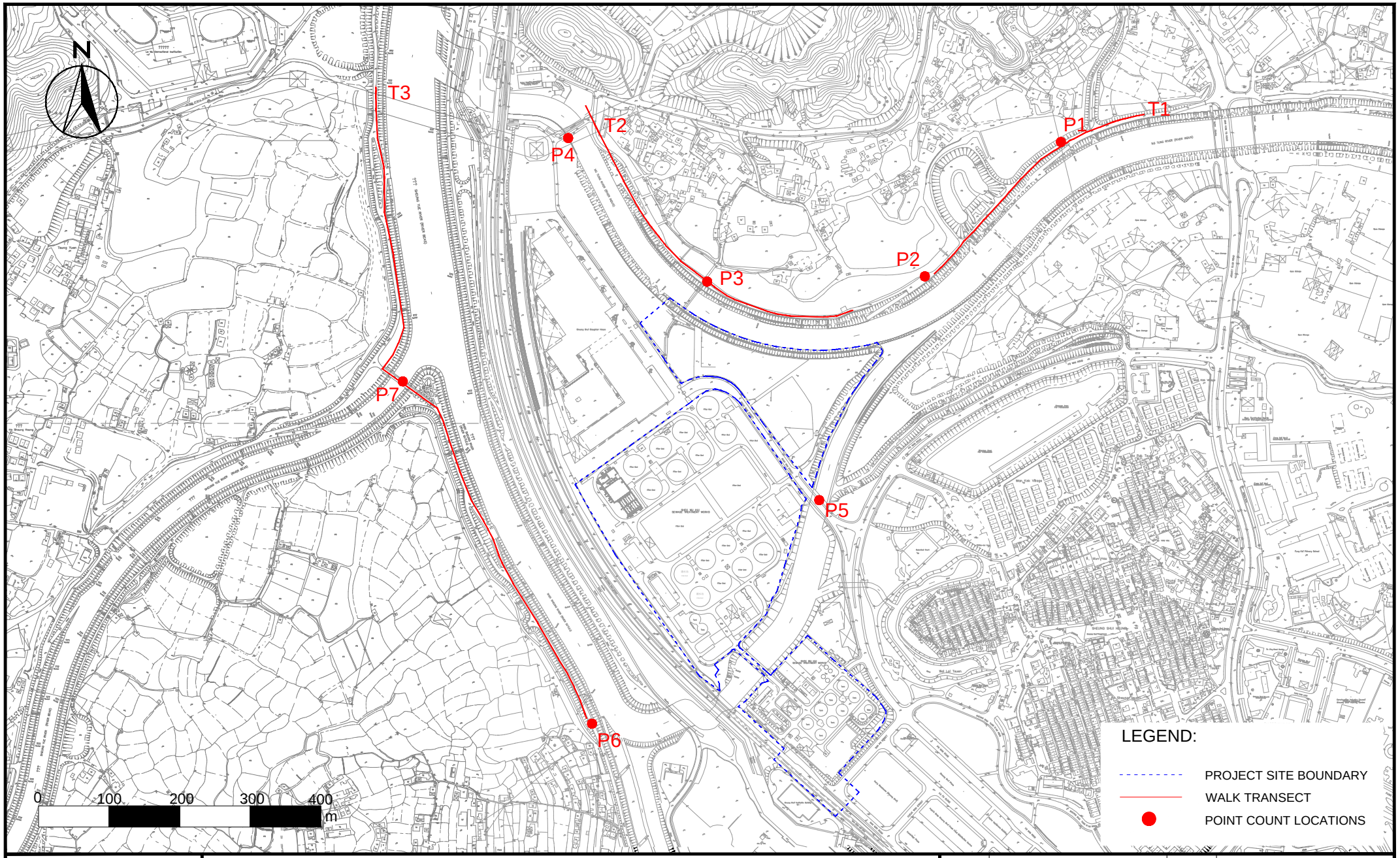


CINOTECH Cinotech Consultants Limited	Shek Wu Hui Effluent Polishing Plant - Location of Air Quality Monitoring Stations		
SCALE	1:4000@A4	DATE	SEP 2019
CHECK	JM	DRAWN	SY
JOB No.	MA19019	FIGURE NO. 2	REV -

F:/Project_drawings



CINOTECH Cinotech Consultants Limited	Shek Wu Hui Effluent Polishing Plant Location of Noise Monitoring Stations	SCALE: 1:4000@A4	DATE: SEP 2019
		CHECK: JM	DRAWN: SY
		JOB No.: MA19019	FIGURE NO.: 3
			REV: -



CINOTECH
Cinotech Consultants Limited

Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1

Survey Location for Impact Ecological Monitoring

SCALE	1:7000 @ A4	DATE	Jan 2020
CHECK	BC	DRAWN	JM
JOB No.	MA19019	FIGURE NO. 4	REV -

APPENDIX A
ACTION AND LIMIT LEVELS

Appendix A - Action and Limit Levels

Table A-1 Action and Limit Levels for 1-hour TSP

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM1	320	500
AM2	322	

Table A-2 Action and Limit Levels for 24-hour TSP

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM1a	189	260
AM2a	187	

Table A-3 Action and Limit Levels for Noise during Construction Period

Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A)[(1)]

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

Table A-4 Action and Limit Levels of Disturbance to Waterbirds using Ng Tung, Sheung Yue and Shek Sheung Rivers during Construction Phase

Action Level	Limit Level
Decline in numbers of all waterbird species relative to numbers during Baseline Monitoring such that the Action Level response is triggered.	Decline in numbers of all waterbird species relative to numbers during baseline monitoring such that the limit level response is triggered.
Decline in numbers of any one waterbird species occurring in significant numbers* during Baseline Monitoring such that the Action Level response is triggered.	Decline in numbers of any one waterbird species occurring in significant numbers* during Baseline Monitoring such that the Limit Level response is triggered.

Note: Whether numbers are significant depend on species and season after collection and evaluation of baseline survey data.

APPENDIX B
ENVIRONMENTAL MONITORING SCHEDULES

Agreement No. SPW07/2019
Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
Impact Air, Noise and Ecology Monitoring Schedule (January 2020)

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

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)
Remarks:
The air quality, noise and ecology monitoring between 29 Jan and 31 Jan 2020 was cancelled as all construction works were suspended during this period.

Air Quality Monitoring Station
1-hr TSP
AM1 - Wai Loi Tsuen
AM2 - Fu Tei Au

24-hr TSP
AM1a - Site Boundary of the Shek Wu Hui STW (East)
AM2a - Site Boundary of the Shek Wu Hui STW (North)

Noise Monitoring Station

NM1 - Wai Loi Tsuen
NM2 - Fu Tei Au
NM3 - Man kok Village

Agreement No. SPW07/2019
Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
Tentative Impact Air, Noise and Ecology Monitoring Schedule (February 2020)

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

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

Air Quality Monitoring Station
1-hr TSP
AM1 - Wai Loi Tsuen
AM2 - Fu Tei Au

24-hr TSP
AM1a - Site Boundary of the Shek Wu Hui STW (East)
AM2a - Site Boundary of the Shek Wu Hui STW (North)

Noise Monitoring Station

NM1 - Wai Loi Tsuen
NM2 - Fu Tei Au
NM3 - Man kok Village

APPENDIX C
COPIES OF CALIBRATION CERTIFICATES FOR AIR QUALITY MONITORING

Cerificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler

Description: Digital Dust Indicator
Date of Calibration 25-Nov-19
Manufacturer: Sibata Scientific Technology LTD.
Validity of Calibration Record 24-Jan-20
Model No.: LD-5R
Serial No.: 972778
Equipment No.: SA-01-07
Sensitivity 0.001 mg/m3
High Volume Sampler No.: A-01-01A
Before Sensitivity Adjustment 735 CPM
Tisch Calibration Orifice No.: 3607
After Sensitivity Adjustment 735 CPM

Calibration of 1 hr TSP		
Calibration Point	**Laser Dust Monitor** Mass Concentration (µg/m3) **X-axis**	**HVS** Mass concentration (µg/m^3) **Y-axis**
1	22.0	71.0
2	38.0	125.5
3	57.0	179.2
Average	**39.0**	**125.2**

By Linear Regression of Y on X

Slope , mw = **3.0832** **Intercept, bw =** **4.9876**

Correlation coefficient* = **0.9986**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	125.2
Particaulate Concentration by Dust Meter (µg/m^3)	39.0
Measureing time, (min)	60.0

Set Correlation Factor , SCF

SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)] **3.2**

In-house method in according to the instruction manual:
The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (Wellab Litimed)

Calibrated by: Wong Shing Kwai

Approved by: Henry Leung

Cerificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler

Description: Digital Dust Indicator

Date of Calibration 25-Nov-19

Manufacturer: Sibata Scientific Technology LTD.

Validity of Calibration Record 24-Jan-20

Model No.: LD-5R

Serial No.: 972779

Equipment No.: SA-01-08

Sensitivity 0.001 mg/m3

High Volume Sampler No.: A-01-01A

Before Sensitivity Adjustment 744 CPM

Tisch Calibration Orifice No.: 3607

After Sensitivity Adjustment 744 CPM

Calibration of 1 hr TSP		
Calibration Point	**Laser Dust Monitor**	**HVS**
	Mass Concentration (µg/m3) **X-axis**	Mass concentration (µg/m^3) **Y-axis**
1	20.0	71.0
2	39.0	125.5
3	55.0	179.2
Average	**38.0**	**125.2**

By Linear Regression of Y on X

Slope , mw = **3.0845** **Intercept, bw =** **8.0213**

Correlation coefficient* = **0.9990**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	125.2
Particaulate Concentration by Dust Meter (µg/m^3)	38.0
Measureing time, (min)	60.0
Set Correlation Factor , SCF	
SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)]	**3.3**

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (Wellab Litimed)

Calibrated by: Wong Shing Kwai

Approved by: Henry Leung

Cerificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler

Description: Digital Dust Indicator

Date of Calibration 25-Nov-19

Manufacturer: Sibata Scientific Technology LTD.

Validity of Calibration Record 24-Jan-20

Model No.: LD-5R

Serial No.: 972780

Equipment No.: SA-01-09

Sensitivity 0.001 mg/m3

High Volume Sampler No.: A-01-01A

Before Sensitivity Adjustment 739 CPM

Tisch Calibration Orifice No.: 3607

After Sensitivity Adjustment 739 CPM

Calibration of 1 hr TSP		
Calibration Point	**Laser Dust Monitor**	**HVS**
	Mass Concentration (µg/m3) **X-axis**	Mass concentration (µg/m^3) **Y-axis**
1	21.0	71.0
2	39.0	125.5
3	56.0	179.2
Average	**38.7**	**125.2**

By Linear Regression of Y on X

Slope , mw = **3.0908** **Intercept, bw =** **5.7222**

Correlation coefficient* = **0.9999**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	125.2
Particaulate Concentration by Dust Meter (µg/m^3)	38.7
Measureing time, (min)	60.0

Set Correlation Factor , SCF

SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)] **3.2**

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (Wellab Litimed)

Calibrated by: Wong Shing Kwai

Approved by: Henry Leung

Cerificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler

Description: Digital Dust Indicator
Date of Calibration 25-Nov-19
Manufacturer: Sibata Scientific Technology LTD.
Validity of Calibration Record 24-Jan-20
Model No.: LD-5R
Serial No.: 972781
Equipment No.: SA-01-10
Sensitivity 0.001 mg/m3
High Volume Sampler No.: A-01-01A
Before Sensitivity Adjustment 734 CPM
Tisch Calibration Orifice No.: 3607
After Sensitivity Adjustment 734 CPM

Calibration of 1 hr TSP		
Calibration Point	**Laser Dust Monitor**	**HVS**
	Mass Concentration (µg/m3) **X-axis**	Mass concentration (µg/m^3) **Y-axis**
1	21.0	71.0
2	38.0	125.5
3	56.0	179.2
Average	**38.3**	**125.2**

By Linear Regression of Y on X

Slope , mw = **3.0904** **Intercept, bw =** **6.7692**

Correlation coefficient* = **0.9998**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	125.2
Particaulate Concentration by Dust Meter (µg/m^3)	38.3
Measureing time, (min)	60.0

Set Correlation Factor , SCF

SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)] **3.3**

In-house method in according to the instruction manual:
The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (Wellab Litimed)

Calibrated by: Wong Shing Kwai

Approved by: Henry Leung

TISCH Environmental

RECALIBRATION DUE DATE:
January 8, 2020

Certificate of Calibration

Calibration Certification Information					
Cal. Date:	January 8, 2019	**Rootsmeter S/N:** 438320	**Ta:** 294	°K	
Operator:	Jim Tisch		**Pa:** 748.0	mm Hg	
Calibration Model #:	TE-5025A	**Calibrator S/N:** **3607**			

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4340	3.2	2.00
2	3	4	1	1.0190	6.3	4.00
3	5	6	1	0.9110	7.8	5.00
4	7	8	1	0.8650	8.7	5.50
5	9	10	1	0.7150	12.6	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
0.9934	0.6927	1.4125	0.9957	0.6944	0.8866
0.9892	0.9708	1.9976	0.9916	0.9731	1.2538
0.9872	1.0837	2.2334	0.9896	1.0862	1.4018
0.9860	1.1399	2.3424	0.9884	1.1426	1.4703
0.9808	1.3718	2.8251	0.9832	1.3750	1.7732
QSTD	**m=**	**2.07879**	**QA**	**m=**	**1.30170**
	b=	**-0.02422**		**b=**	**-0.01520**
	r=	**0.99997**		**r=**	**0.99997**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$

Qa= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg

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

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

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

TISCH Environmental

RECALIBRATION DUE DATE:
January 17, 2021

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	January 17, 2020	**Rootsmeter S/N:** 438320	**Ta:** 295	°K
Operator:	Jim Tisch		**Pa:** 744.2	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **3746**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4340	3.2	2.00
2	3	4	1	1.0180	6.4	4.00
3	5	6	1	0.9080	7.9	5.00
4	7	8	1	0.8700	8.7	5.50
5	9	10	1	0.7150	12.6	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
0.9849	0.6868	1.4066	0.9957	0.6944	0.8904
0.9807	0.9633	1.9892	0.9914	0.9739	1.2592
0.9787	1.0779	2.2240	0.9894	1.0896	1.4078
0.9776	1.1237	2.3325	0.9883	1.1360	1.4765
0.9724	1.3601	2.8131	0.9831	1.3749	1.7808
QSTD	**m=**	**2.09221**	**QA**	**m=**	**1.31010**
	b=	**-0.02779**		**b=**	**-0.01759**
	r=	**0.99994**		**r=**	**0.99994**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$

Qa= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg

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

RECALIBRATION

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

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High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA19019/17/0002

Project No. AM1a - Site boundary of the Shek Wu Hui STW (East)

Date: 6-Jan-20 Next Due Date: 5-Mar-20 Operator: SK

Equipment No.: A-01-17 Model No.: GS2310 Serial No. 3460

Ambient Condition			
Temperature, Ta (K)	294	Pressure, Pa (mmHg)	764.3

Orifice Transfer Standard Information					
Serial No.	3607	Slope, mc	0.0588	Intercept, bc	-0.02422
Last Calibration Date:	8-Jan-19	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	8-Jan-20	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	16.3	4.08	69.73	10.3	3.24
2	12.5	3.57	61.12	7.8	2.82
3	9.2	3.06	52.49	6.2	2.51
4	5.6	2.39	41.04	4.0	2.02
5	3.3	1.83	31.60	2.5	1.60

By Linear Regression of Y on X

Slope , mw = **0.0424** **Intercept, bw =** **0.2651**

Correlation coefficient* = **0.9993**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

mw x Qstd + bw = [ΔW x (Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **4.29**

Remarks:

Conducted by: SK Wong Signature: Date: 6 January 2020

Checked by: Henry Leung Signature: Date: 6 January 2020

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA19019/24/0002

Project No. AM2a - Site Boundary of the Shek Wu Hui STW (North)

Date: 6-Jan-20 Next Due Date: 5-Mar-20 Operator: BF

Equipment No.: A-01-24 Model No.: TE 5170 Serial No. 3460

Ambient Condition			
Temperature, Ta (K)	294	Pressure, Pa (mmHg)	764.3

Orifice Transfer Standard Information					
Serial No.	3607	Slope, mc	0.0588	Intercept, bc	-0.02422
Last Calibration Date:	8-Jan-19	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	8-Jan-20	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	13.7	3.74	63.97	9.6	3.13
2	10.7	3.30	56.58	7.6	2.78
3	7.9	2.84	48.67	6.0	2.47
4	4.9	2.23	38.42	4.3	2.09
5	3.0	1.75	30.15	3.0	1.76

By Linear Regression of Y on X

Slope , mw = **0.0399** **Intercept, bw =** **0.5480**

Correlation coefficient* = **0.9993**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

mw x Qstd + bw = [ΔW x (Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **5.03**

Remarks:

Conducted by: SK Wong Signature: Date: 6 January 2020

Checked by: Henry Leung Signature: Date: 6 January 2020

Cerificate of Calibration - Wind Monitoring Station

Description: BM3 - Control Room at SWHSTW

Manufacturer: Global Water Instrumentation

Model No.: WE800 Weather Station

Serial No.: 1517001963

Equipment No.: SA-03-01

Date of Calibration 30-Oct-2019

Next Due Date 30-Apr-2020

1. Performance check of Wind Speed

Wind Speed, m/s		Difference D (m/s)
Wind Speed Reading (V1)	Anemometer Value (V1)	D = V1 – V2
0.0	0.0	0.0
1.5	1.5	0.0
2.5	2.7	-0.2
4.0	4.3	-0.3

2. Performance check of Wind Direction

Wind Direction (^{o})		Difference D (^{o})
Wind Direction Reading (V1)	Marine Compass Value (V1)	D = W1 - W2
0	0	0.0
90	90	0.0
180	180	0.0
270	270	0.0

Test Specification:

1. Performance Wind Speed Test - The wind meter was on-site calibrated against the anemometer

2. Performance Wind Direction Test - The wind meter was on-site calibrated against the marine compass at four direction

Calibrated by: _____ Wong Shing Kwai

Approved by: _____ Henry Leung

APPENDIX D
WEATHER INFORMATION

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information from Hong Kong Observatory

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
3-Jan-20	18.9	82	0
4-Jan-20	19.2	83	0
5-Jan-20	20.0	79	0
6-Jan-20	21.0	78	0
7-Jan-20	22.4	83	Trace
8-Jan-20	21.9	72	0
9-Jan-20	19.3	77	0
10-Jan-20	19.9	82	0
11-Jan-20	20.9	81	0
12-Jan-20	17.9	65	0
13-Jan-20	18.3	76	0
14-Jan-20	19.0	76	0
15-Jan-20	19.5	80	0.1
16-Jan-20	19.8	84	Trace
17-Jan-20	18.5	69	0
18-Jan-20	18.3	73	0
19-Jan-20	18.2	75	0
20-Jan-20	18.0	75	0
21-Jan-20	18.8	80	0
22-Jan-20	20.5	82	Trace
23-Jan-20	21.9	86	0
24-Jan-20	21.5	89	Trace
25-Jan-20	19.7	89	2.1
26-Jan-20	16.5	86	12.3
27-Jan-20	13.0	70	0.2
28-Jan-20	13.0	66	0.1
29-Jan-20	13.8	55	0
30-Jan-20	14.7	44	0
31-Jan-20	14.8	52	0

* The above information was extracted from the daily extract of Ta Kwu Ling Station in Hong Kong Observatory Climate Information Service.

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
3-Jan-20	0:00	90.2	0.1
3-Jan-20	1:00	63.2	0.1
3-Jan-20	2:00	105.8	0.1
3-Jan-20	3:00	86.5	0.1
3-Jan-20	4:00	98.6	0.1
3-Jan-20	5:00	80	0.1
3-Jan-20	6:00	89.5	0.2
3-Jan-20	7:00	67	0.1
3-Jan-20	8:00	92.7	0.1
3-Jan-20	9:00	76.5	0.1
3-Jan-20	10:00	91.1	0.1
3-Jan-20	11:00	81	0.1
3-Jan-20	12:00	116.1	0.3
3-Jan-20	13:00	81.8	0.6
3-Jan-20	14:00	87.6	0.7
3-Jan-20	15:00	97.2	0.3
3-Jan-20	16:00	167.4	0.1
3-Jan-20	17:00	90.1	0.1
3-Jan-20	18:00	145.6	0.2
3-Jan-20	19:00	107.3	0.3
3-Jan-20	20:00	101	0.1
3-Jan-20	21:00	87.1	0.1
3-Jan-20	22:00	72.5	0.1
3-Jan-20	23:00	106.7	0.1
4-Jan-20	0:00	152	0.1
4-Jan-20	1:00	103.1	0.2
4-Jan-20	2:00	111.7	0.3
4-Jan-20	3:00	105.2	0.1
4-Jan-20	4:00	97.1	0.1
4-Jan-20	5:00	48.6	0.1
4-Jan-20	6:00	53.1	0.1
4-Jan-20	7:00	56.1	0.1
4-Jan-20	8:00	44.5	0.2
4-Jan-20	9:00	52.6	0.1
4-Jan-20	10:00	57.2	0.2
4-Jan-20	11:00	70.8	0.1

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
4-Jan-20	12:00	50.4	0.4
4-Jan-20	13:00	52.5	0.3
4-Jan-20	14:00	93.2	0.3
4-Jan-20	15:00	45.1	0.3
4-Jan-20	16:00	120.6	0.3
4-Jan-20	17:00	103.3	0.2
4-Jan-20	18:00	50.1	0.1
4-Jan-20	19:00	59.5	0.2
4-Jan-20	20:00	64.5	0.1
4-Jan-20	21:00	31.3	0.1
4-Jan-20	22:00	58.1	0.1
4-Jan-20	23:00	67	0.1
5-Jan-20	0:00	49.7	0.1
5-Jan-20	1:00	38.7	0.1
5-Jan-20	2:00	22.8	0.1
5-Jan-20	3:00	83.8	0.1
5-Jan-20	4:00	81.7	0.1
5-Jan-20	5:00	65.5	0.2
5-Jan-20	6:00	78.2	0.1
5-Jan-20	7:00	65.4	0.1
5-Jan-20	8:00	57	0.1
5-Jan-20	9:00	79.5	0.1
5-Jan-20	10:00	54	0.1
5-Jan-20	11:00	77.1	0.1
5-Jan-20	12:00	128.3	0.1
5-Jan-20	13:00	89.9	0.1
5-Jan-20	14:00	110.9	0.3
5-Jan-20	15:00	93.2	0.1
5-Jan-20	16:00	115.5	0
5-Jan-20	17:00	83	0.2
5-Jan-20	18:00	63.2	0.2
5-Jan-20	19:00	43.6	0.2
5-Jan-20	20:00	60.2	0.2
5-Jan-20	21:00	86.9	0.2
5-Jan-20	22:00	82.2	0.2
5-Jan-20	23:00	80.9	0.2

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
6-Jan-20	0:00	86.4	0.2
6-Jan-20	1:00	99.5	0.3
6-Jan-20	2:00	114.2	0.3
6-Jan-20	3:00	104.2	0.3
6-Jan-20	4:00	110.1	0.3
6-Jan-20	5:00	125.3	0.3
6-Jan-20	6:00	114.4	0.2
6-Jan-20	7:00	171.7	0.2
6-Jan-20	8:00	122.7	1.5
6-Jan-20	9:00	116.1	0.2
6-Jan-20	10:00	132	0.2
6-Jan-20	11:00	94.5	0.4
6-Jan-20	12:00	90.5	0.6
6-Jan-20	13:00	151.6	0.4
6-Jan-20	14:00	73.2	0.2
6-Jan-20	15:00	109.4	0.3
6-Jan-20	16:00	84.5	0.2
6-Jan-20	17:00	119	0.2
6-Jan-20	18:00	100	0.2
6-Jan-20	19:00	109.7	0.2
6-Jan-20	20:00	113.2	0.2
6-Jan-20	21:00	111.3	0.4
6-Jan-20	22:00	91.1	0.2
6-Jan-20	23:00	74.8	0.5
7-Jan-20	0:00	113.9	0.2
7-Jan-20	1:00	74.7	0.4
7-Jan-20	2:00	59.9	0.3
7-Jan-20	3:00	138.6	0.4
7-Jan-20	4:00	91	1.6
7-Jan-20	5:00	104.9	0.3
7-Jan-20	6:00	67.1	0.3
7-Jan-20	7:00	108.3	0.3
7-Jan-20	8:00	119.3	0.2
7-Jan-20	9:00	94	0.3
7-Jan-20	10:00	137.5	0.7
7-Jan-20	11:00	107.7	0.5

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
7-Jan-20	12:00	115.9	0.4
7-Jan-20	13:00	94.9	0.2
7-Jan-20	14:00	92	0.2
7-Jan-20	15:00	64.4	0.2
7-Jan-20	16:00	107.9	0.2
7-Jan-20	17:00	88.2	0.2
7-Jan-20	18:00	100.6	0.2
7-Jan-20	19:00	81.6	0.2
7-Jan-20	20:00	91.3	0.3
7-Jan-20	21:00	68.3	0.2
7-Jan-20	22:00	94.6	0.2
7-Jan-20	23:00	78	0.2
8-Jan-20	0:00	92.9	0.2
8-Jan-20	1:00	82.6	0.2
8-Jan-20	2:00	118.4	0.4
8-Jan-20	3:00	83.4	0.7
8-Jan-20	4:00	89.4	0.8
8-Jan-20	5:00	99.1	0.4
8-Jan-20	6:00	170.7	0.2
8-Jan-20	7:00	91.9	0.2
8-Jan-20	8:00	148.5	0.3
8-Jan-20	9:00	109.4	0.4
8-Jan-20	10:00	103	0.2
8-Jan-20	11:00	88.8	0.2
8-Jan-20	12:00	74	0.2
8-Jan-20	13:00	108.8	0.2
8-Jan-20	14:00	155	0.2
8-Jan-20	15:00	105.1	0.3
8-Jan-20	16:00	113.9	0.4
8-Jan-20	17:00	107.3	0.2
8-Jan-20	18:00	99	0.2
8-Jan-20	19:00	49.6	0.2
8-Jan-20	20:00	54.1	0.2
8-Jan-20	21:00	57.2	0.2
8-Jan-20	22:00	45.4	0.3
8-Jan-20	23:00	53.6	0.2

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
9-Jan-20	0:00	58.3	0.3
9-Jan-20	1:00	72.2	0.2
9-Jan-20	2:00	51.4	0.5
9-Jan-20	3:00	53.5	0.4
9-Jan-20	4:00	95.1	0.4
9-Jan-20	5:00	46	0.4
9-Jan-20	6:00	123	0.4
9-Jan-20	7:00	105.4	0.3
9-Jan-20	8:00	51.1	0.2
9-Jan-20	9:00	60.7	0.3
9-Jan-20	10:00	65.8	0.2
9-Jan-20	11:00	31.9	0.2
9-Jan-20	12:00	59.2	0.2
9-Jan-20	13:00	68.3	0.2
9-Jan-20	14:00	50.6	0.2
9-Jan-20	15:00	39.4	0.2
9-Jan-20	16:00	23.2	0.2
9-Jan-20	17:00	85.5	0.2
9-Jan-20	18:00	83.3	0.2
9-Jan-20	19:00	66.8	0.3
9-Jan-20	20:00	79.8	0.2
9-Jan-20	21:00	66.7	0.2
9-Jan-20	22:00	58.1	0.2
9-Jan-20	23:00	81	0.2
10-Jan-20	0:00	55	0.2
10-Jan-20	1:00	78.6	0.2
10-Jan-20	2:00	130.8	0.2
10-Jan-20	3:00	91.7	0.3
10-Jan-20	4:00	113.1	0.5
10-Jan-20	5:00	95	0.3
10-Jan-20	6:00	117.8	0.2
10-Jan-20	7:00	87.9	0.1
10-Jan-20	8:00	107.2	0.2
10-Jan-20	9:00	71.2	0.5
10-Jan-20	10:00	86.6	0.1
10-Jan-20	11:00	110	0.1

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
10-Jan-20	12:00	58.8	0.1
10-Jan-20	13:00	98.8	0.1
10-Jan-20	14:00	63.7	0.2
10-Jan-20	15:00	122.4	0.1
10-Jan-20	16:00	170.5	0.1
10-Jan-20	17:00	96.5	0.1
10-Jan-20	18:00	78.6	0.2
10-Jan-20	19:00	154	0.1
10-Jan-20	20:00	63.6	0.1
10-Jan-20	21:00	75.2	0.1
10-Jan-20	22:00	80.1	0.1
10-Jan-20	23:00	91.5	0.1
11-Jan-20	0:00	75	0.1
11-Jan-20	1:00	85.9	0.2
11-Jan-20	2:00	79.4	0.1
11-Jan-20	3:00	104.8	0.1
11-Jan-20	4:00	92.2	0.1
11-Jan-20	5:00	79.6	0.1
11-Jan-20	6:00	90.7	0.1
11-Jan-20	7:00	84.2	0.1
11-Jan-20	8:00	89.8	0.1
11-Jan-20	9:00	62	0.1
11-Jan-20	10:00	60.6	0.1
11-Jan-20	11:00	211.8	0.1
11-Jan-20	12:00	225.4	0.1
11-Jan-20	13:00	205.7	0.1
11-Jan-20	14:00	291.3	0.4
11-Jan-20	15:00	251	1
11-Jan-20	16:00	255.9	0.3
11-Jan-20	17:00	253.6	0.5
11-Jan-20	18:00	234.9	0.1
11-Jan-20	19:00	319.3	0.3
11-Jan-20	20:00	31.3	0.9
11-Jan-20	21:00	8.3	1.2
11-Jan-20	22:00	184.5	0.5
11-Jan-20	23:00	161	0.1

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
12-Jan-20	0:00	53.8	0.1
12-Jan-20	1:00	172.3	0.2
12-Jan-20	2:00	52.6	0.1
12-Jan-20	3:00	60.1	0.4
12-Jan-20	4:00	40.3	0.1
12-Jan-20	5:00	81.3	0.1
12-Jan-20	6:00	116.1	0.2
12-Jan-20	7:00	240.7	0.1
12-Jan-20	8:00	39.5	0.1
12-Jan-20	9:00	193	0.2
12-Jan-20	10:00	54.9	0.3
12-Jan-20	11:00	191.4	0.1
12-Jan-20	12:00	52.8	0.8
12-Jan-20	13:00	87.6	0.3
12-Jan-20	14:00	75.8	0.2
12-Jan-20	15:00	179.7	0.2
12-Jan-20	16:00	85.9	0.1
12-Jan-20	17:00	97.4	0.1
12-Jan-20	18:00	83.2	0.1
12-Jan-20	19:00	73.3	0.1
12-Jan-20	20:00	97.3	0.1
12-Jan-20	21:00	74.8	0.1
12-Jan-20	22:00	74.3	0.1
12-Jan-20	23:00	50.4	0.1
13-Jan-20	0:00	66.9	0.1
13-Jan-20	1:00	83.8	0.1
13-Jan-20	2:00	67	0.1
13-Jan-20	3:00	3.5	0.1
13-Jan-20	4:00	74.7	0.1
13-Jan-20	5:00	39	0.1
13-Jan-20	6:00	75	0.1
13-Jan-20	7:00	53.3	0.1
13-Jan-20	8:00	90.6	0.1
13-Jan-20	9:00	52.6	0.1
13-Jan-20	10:00	83.8	0.1
13-Jan-20	11:00	68.3	1

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
13-Jan-20	12:00	74.3	0.1
13-Jan-20	13:00	106.3	0.2
13-Jan-20	14:00	151.4	0.5
13-Jan-20	15:00	133.5	0.9
13-Jan-20	16:00	142	0.6
13-Jan-20	17:00	152.3	0.6
13-Jan-20	18:00	102.7	0.2
13-Jan-20	19:00	81.3	0.1
13-Jan-20	20:00	95.5	0.1
13-Jan-20	21:00	81.3	0.1
13-Jan-20	22:00	75.9	0.4
13-Jan-20	23:00	117.2	0.4
14-Jan-20	0:00	75.8	0.4
14-Jan-20	1:00	100.5	0.2
14-Jan-20	2:00	97.4	0.1
14-Jan-20	3:00	79.4	0.1
14-Jan-20	4:00	68.3	0.1
14-Jan-20	5:00	102.2	0.1
14-Jan-20	6:00	101.2	0.1
14-Jan-20	7:00	83.4	0.5
14-Jan-20	8:00	108.4	0.2
14-Jan-20	9:00	127.5	0.4
14-Jan-20	10:00	91.4	0.1
14-Jan-20	11:00	78.3	0.3
14-Jan-20	12:00	83.2	0.1
14-Jan-20	13:00	113.8	0.2
14-Jan-20	14:00	104	0.5
14-Jan-20	15:00	126.4	0.3
14-Jan-20	16:00	168.6	0.9
14-Jan-20	17:00	100.3	0.1
14-Jan-20	18:00	83.7	0.1
14-Jan-20	19:00	73.5	0.1
14-Jan-20	20:00	89.5	0.1
14-Jan-20	21:00	82.8	0.1
14-Jan-20	22:00	64.3	0.1
14-Jan-20	23:00	75.1	0.1

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
15-Jan-20	0:00	99.1	0.1
15-Jan-20	1:00	80.7	0.3
15-Jan-20	2:00	101.4	0.2
15-Jan-20	3:00	52.4	0.3
15-Jan-20	4:00	97.7	0.2
15-Jan-20	5:00	82.4	0.2
15-Jan-20	6:00	114.9	0.3
15-Jan-20	7:00	100.3	0.6
15-Jan-20	8:00	73.6	0.4
15-Jan-20	9:00	74.2	0.9
15-Jan-20	10:00	87.9	0.2
15-Jan-20	11:00	153.9	0.8
15-Jan-20	12:00	123.6	0.2
15-Jan-20	13:00	224.6	0.3
15-Jan-20	14:00	150.1	0.1
15-Jan-20	15:00	111.7	0.2
15-Jan-20	16:00	64.7	0.4
15-Jan-20	17:00	91.5	0.3
15-Jan-20	18:00	97.5	0.1
15-Jan-20	19:00	63.4	0.1
15-Jan-20	20:00	112.1	0.6
15-Jan-20	21:00	139.6	0.1
15-Jan-20	22:00	75.2	0.1
15-Jan-20	23:00	98.7	0.3
16-Jan-20	0:00	88.1	0.2
16-Jan-20	1:00	106.2	0.3
16-Jan-20	2:00	112.3	0.4
16-Jan-20	3:00	109.1	0.2
16-Jan-20	4:00	87.6	0.1
16-Jan-20	5:00	107	0.2
16-Jan-20	6:00	81.5	0.1
16-Jan-20	7:00	221.3	0.1
16-Jan-20	8:00	85	0.4
16-Jan-20	9:00	75.4	0.6
16-Jan-20	10:00	138.8	0.3
16-Jan-20	11:00	116.9	1.3

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
16-Jan-20	12:00	97.7	0.3
16-Jan-20	13:00	194.5	0.2
16-Jan-20	14:00	109.4	0.3
16-Jan-20	15:00	137.1	1.5
16-Jan-20	16:00	97.4	0.1
16-Jan-20	17:00	148.8	0.3
16-Jan-20	18:00	112	0.1
16-Jan-20	19:00	76.9	0.1
16-Jan-20	20:00	73.3	0.1
16-Jan-20	21:00	95.3	0.1
16-Jan-20	22:00	89.4	0.1
16-Jan-20	23:00	87	0.2
17-Jan-20	0:00	125.1	0.1
17-Jan-20	1:00	68.9	0.6
17-Jan-20	2:00	32.6	1.1
17-Jan-20	3:00	174.7	0.2
17-Jan-20	4:00	40.7	0.6
17-Jan-20	5:00	62.2	0.2
17-Jan-20	6:00	38.8	1.4
17-Jan-20	7:00	72.3	0.2
17-Jan-20	8:00	52.6	0.5
17-Jan-20	9:00	86.3	0.7
17-Jan-20	10:00	23.2	0.6
17-Jan-20	11:00	178.3	0.6
17-Jan-20	12:00	162.6	0.2
17-Jan-20	13:00	202	0.1
17-Jan-20	14:00	77.8	0.3
17-Jan-20	15:00	69.4	0.3
17-Jan-20	16:00	72.8	0.1
17-Jan-20	17:00	204.4	0.9
17-Jan-20	18:00	53.9	0.2
17-Jan-20	19:00	40.4	0.1
17-Jan-20	20:00	45.2	0.2
17-Jan-20	21:00	44.7	0.3
17-Jan-20	22:00	72.8	0.1
17-Jan-20	23:00	43.8	0.1

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
18-Jan-20	0:00	79.6	0.2
18-Jan-20	1:00	25.1	0.1
18-Jan-20	2:00	61.2	0.1
18-Jan-20	3:00	80	0.3
18-Jan-20	4:00	59.4	0.3
18-Jan-20	5:00	201.4	0.2
18-Jan-20	6:00	159.5	0.1
18-Jan-20	7:00	62.4	0.1
18-Jan-20	8:00	70.2	0.1
18-Jan-20	9:00	50	0.1
18-Jan-20	10:00	63.4	0.1
18-Jan-20	11:00	33.5	0.2
18-Jan-20	12:00	66	0.1
18-Jan-20	13:00	110.4	0.2
18-Jan-20	14:00	59	0.4
18-Jan-20	15:00	123	0.3
18-Jan-20	16:00	126.5	0.2
18-Jan-20	17:00	135.4	0.1
18-Jan-20	18:00	82.7	0.1
18-Jan-20	19:00	88.4	0.3
18-Jan-20	20:00	97.3	0.4
18-Jan-20	21:00	81.2	0.3
18-Jan-20	22:00	89.3	0.1
18-Jan-20	23:00	89	0.1
19-Jan-20	0:00	76.4	0.1
19-Jan-20	1:00	66.3	0.3
19-Jan-20	2:00	100.3	0.1
19-Jan-20	3:00	78.4	0.1
19-Jan-20	4:00	82.1	0.1
19-Jan-20	5:00	73.4	0.2
19-Jan-20	6:00	35.9	0.3
19-Jan-20	7:00	42	0.1
19-Jan-20	8:00	56.7	0.1
19-Jan-20	9:00	66.1	0.2
19-Jan-20	10:00	74.2	0.5
19-Jan-20	11:00	48.5	0.3

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
19-Jan-20	12:00	25.6	0.2
19-Jan-20	13:00	191.8	0.2
19-Jan-20	14:00	60.5	0.1
19-Jan-20	15:00	36	0.6
19-Jan-20	16:00	195.3	1.2
19-Jan-20	17:00	37.4	1.2
19-Jan-20	18:00	18.8	0.3
19-Jan-20	19:00	15.8	0.3
19-Jan-20	20:00	83.7	0.1
19-Jan-20	21:00	57.3	0.1
19-Jan-20	22:00	68.3	0.1
19-Jan-20	23:00	49.7	0.1
20-Jan-20	0:00	35.3	0.2
20-Jan-20	1:00	128.3	0.1
20-Jan-20	2:00	64.8	0.1
20-Jan-20	3:00	70.8	0.1
20-Jan-20	4:00	180	0.1
20-Jan-20	5:00	244.2	0.1
20-Jan-20	6:00	61.3	0.2
20-Jan-20	7:00	54.3	0.1
20-Jan-20	8:00	59	0.1
20-Jan-20	9:00	73.9	0.1
20-Jan-20	10:00	75.2	0.1
20-Jan-20	11:00	198.5	0.3
20-Jan-20	12:00	50.3	0.1
20-Jan-20	13:00	77.8	0.1
20-Jan-20	14:00	76.8	0.1
20-Jan-20	15:00	83.7	0.2
20-Jan-20	16:00	145.9	0.2
20-Jan-20	17:00	99	0.1
20-Jan-20	18:00	77.4	0.2
20-Jan-20	19:00	87.5	0.3
20-Jan-20	20:00	77.6	0.2
20-Jan-20	21:00	52.9	0.2
20-Jan-20	22:00	73.9	0.1
20-Jan-20	23:00	31.6	0.1

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
21-Jan-20	0:00	68	0.1
21-Jan-20	1:00	27.9	0.1
21-Jan-20	2:00	88.1	0.1
21-Jan-20	3:00	62.3	0.1
21-Jan-20	4:00	98.4	0.1
21-Jan-20	5:00	61.1	0.1
21-Jan-20	6:00	95.5	0.1
21-Jan-20	7:00	84	0.1
21-Jan-20	8:00	82.6	0.2
21-Jan-20	9:00	98.2	0.2
21-Jan-20	10:00	57.2	0.3
21-Jan-20	11:00	79.9	0.6
21-Jan-20	12:00	71.5	0.2
21-Jan-20	13:00	58.3	0.5
21-Jan-20	14:00	142.1	0.9
21-Jan-20	15:00	245.9	0.2
21-Jan-20	16:00	94.6	1.2
21-Jan-20	17:00	105.9	0.4
21-Jan-20	18:00	107.4	0.2
21-Jan-20	19:00	79.3	0.1
21-Jan-20	20:00	99.2	0.1
21-Jan-20	21:00	199	0.1
21-Jan-20	22:00	92.3	0.1
21-Jan-20	23:00	90.1	0.1
22-Jan-20	0:00	84.5	0.1
22-Jan-20	1:00	59.2	0.1
22-Jan-20	2:00	62.6	0.1
22-Jan-20	3:00	76.1	0.1
22-Jan-20	4:00	107.8	0.1
22-Jan-20	5:00	115.4	0.1
22-Jan-20	6:00	81.2	0.1
22-Jan-20	7:00	62	0.2
22-Jan-20	8:00	75.6	0.1
22-Jan-20	9:00	57.8	0.1
22-Jan-20	10:00	92.6	0.1
22-Jan-20	11:00	70.8	0.2

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
22-Jan-20	12:00	69.5	0.2
22-Jan-20	13:00	151.7	0.3
22-Jan-20	14:00	188.4	0.5
22-Jan-20	15:00	167.2	0.1
22-Jan-20	16:00	169.5	0.1
22-Jan-20	17:00	120.4	0.2
22-Jan-20	18:00	92.7	0.1
22-Jan-20	19:00	80.9	0.1
22-Jan-20	20:00	72.7	0.1
22-Jan-20	21:00	92.6	0.2
22-Jan-20	22:00	94.5	0.1
22-Jan-20	23:00	62.3	0.1
23-Jan-20	0:00	71.8	0.1
23-Jan-20	1:00	86.7	0.1
23-Jan-20	2:00	98.3	0.1
23-Jan-20	3:00	76.6	0.1
23-Jan-20	4:00	80	0.4
23-Jan-20	5:00	77.9	0.1
23-Jan-20	6:00	89.1	0.1
23-Jan-20	7:00	89.6	0.1
23-Jan-20	8:00	110.6	0.1
23-Jan-20	9:00	108.6	0.1
23-Jan-20	10:00	70.7	0.8
23-Jan-20	11:00	75.4	0.5
23-Jan-20	12:00	127.3	0.2
23-Jan-20	13:00	58.7	0.1
23-Jan-20	14:00	73.5	0.3
23-Jan-20	15:00	142.3	0.1
23-Jan-20	16:00	117.9	0.1
23-Jan-20	17:00	87.6	0.3
23-Jan-20	18:00	102.7	0.3
23-Jan-20	19:00	147.6	0.1
23-Jan-20	20:00	113.8	0.1
23-Jan-20	21:00	89	0.1
23-Jan-20	22:00	87.5	0.3
23-Jan-20	23:00	196.2	0.3

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
24-Jan-20	0:00	116.9	0.2
24-Jan-20	1:00	148.8	0.1
24-Jan-20	2:00	78.5	0.1
24-Jan-20	3:00	75.6	0.1
24-Jan-20	4:00	82.2	0.1
24-Jan-20	5:00	80.9	0.1
24-Jan-20	6:00	88.3	0.1
24-Jan-20	7:00	184.6	0.1
24-Jan-20	8:00	133.2	0.1
24-Jan-20	9:00	110.5	0.3
24-Jan-20	10:00	73.1	0.4
24-Jan-20	11:00	84.9	0.1
24-Jan-20	12:00	51.7	0.1
24-Jan-20	13:00	107.8	0.2
24-Jan-20	14:00	71.8	0.1
24-Jan-20	15:00	145.4	0.9
24-Jan-20	16:00	98.8	0.7
24-Jan-20	17:00	133	0.2
24-Jan-20	18:00	116.1	0.2
24-Jan-20	19:00	111.1	0.2
24-Jan-20	20:00	90.1	0.3
24-Jan-20	21:00	50.1	0.1
24-Jan-20	22:00	95.9	0.1
24-Jan-20	23:00	68.7	0.2
25-Jan-20	0:00	79.6	0.2
25-Jan-20	1:00	91.8	0.1
25-Jan-20	2:00	113.7	0.8
25-Jan-20	3:00	88.7	0.1
25-Jan-20	4:00	79	0.1
25-Jan-20	5:00	99.8	0.1
25-Jan-20	6:00	62.9	0.2
25-Jan-20	7:00	71.8	0.1
25-Jan-20	8:00	91.6	0.1
25-Jan-20	9:00	73.2	0.2
25-Jan-20	10:00	101.9	0.1
25-Jan-20	11:00	112.4	0.2

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
25-Jan-20	12:00	121.6	0.3
25-Jan-20	13:00	96.5	0.5
25-Jan-20	14:00	57.3	0.2
25-Jan-20	15:00	74	0.1
25-Jan-20	16:00	85.9	0.2
25-Jan-20	17:00	116.2	0.6
25-Jan-20	18:00	87	0.1
25-Jan-20	19:00	80.3	0.1
25-Jan-20	20:00	85.2	0.1
25-Jan-20	21:00	73.1	0.1
25-Jan-20	22:00	63.3	0.1
25-Jan-20	23:00	66.9	0.2
26-Jan-20	0:00	38.4	0.1
26-Jan-20	1:00	27.7	0.4
26-Jan-20	2:00	204.8	0.4
26-Jan-20	3:00	44.8	0.3
26-Jan-20	4:00	69	0.4
26-Jan-20	5:00	70.7	0.4
26-Jan-20	6:00	317.2	0.5
26-Jan-20	7:00	65.1	0.4
26-Jan-20	8:00	49.5	1.3
26-Jan-20	9:00	25.7	0.8
26-Jan-20	10:00	81.6	1
26-Jan-20	11:00	154.4	1.1
26-Jan-20	12:00	216.4	0.9
26-Jan-20	13:00	183.6	0.8
26-Jan-20	14:00	292.6	1.2
26-Jan-20	15:00	205.8	0.9
26-Jan-20	16:00	333.2	0.6
26-Jan-20	17:00	148.4	0.5
26-Jan-20	18:00	221	0.8
26-Jan-20	19:00	158	0.3
26-Jan-20	20:00	175.5	0.3
26-Jan-20	21:00	316.3	0.1
26-Jan-20	22:00	178.6	2.1
26-Jan-20	23:00	78	0.2

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
27-Jan-20	0:00	100.4	0.2
27-Jan-20	1:00	125.1	0.8
27-Jan-20	2:00	71	0.6
27-Jan-20	3:00	66.9	0.1
27-Jan-20	4:00	50.6	0.3
27-Jan-20	5:00	53.4	0.2
27-Jan-20	6:00	70.8	0.1
27-Jan-20	7:00	81.2	0.1
27-Jan-20	8:00	199.9	0.2
27-Jan-20	9:00	72.6	0.5
27-Jan-20	10:00	75.5	0.2
27-Jan-20	11:00	39.8	1.7
27-Jan-20	12:00	147.9	0.2
27-Jan-20	13:00	117	0.2
27-Jan-20	14:00	348.4	0.2
27-Jan-20	15:00	172.5	0.3
27-Jan-20	16:00	333.1	0.3
27-Jan-20	17:00	137.4	0.1
27-Jan-20	18:00	199.3	0.2
27-Jan-20	19:00	32	0.1
27-Jan-20	20:00	79.4	0.1
27-Jan-20	21:00	46	0.1
27-Jan-20	22:00	179.1	0.1
27-Jan-20	23:00	85.2	1.4
28-Jan-20	0:00	50.3	2.4
28-Jan-20	1:00	189.2	1.2
28-Jan-20	2:00	63.9	0.4
28-Jan-20	3:00	51.6	0.4
28-Jan-20	4:00	74.5	0.3
28-Jan-20	5:00	170.4	0.2
28-Jan-20	6:00	37.6	0.2
28-Jan-20	7:00	68.8	0.2
28-Jan-20	8:00	61.2	0.4
28-Jan-20	9:00	52.3	0.1
28-Jan-20	10:00	177.1	0.1
28-Jan-20	11:00	65.6	0.2

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
28-Jan-20	12:00	200.5	0.2
28-Jan-20	13:00	51.6	0.4
28-Jan-20	14:00	68.3	0.2
28-Jan-20	15:00	48.7	0.3
28-Jan-20	16:00	205.9	0.3
28-Jan-20	17:00	75	0.1
28-Jan-20	18:00	37.1	0.1
28-Jan-20	19:00	62.5	0.1
28-Jan-20	20:00	51.8	0.1
28-Jan-20	21:00	72.6	0.2
28-Jan-20	22:00	68.9	0.2
28-Jan-20	23:00	71.3	0.3
29-Jan-20	0:00	109.5	0.2
29-Jan-20	1:00	31.7	0.3
29-Jan-20	2:00	92.9	0.3
29-Jan-20	3:00	57.5	0.2
29-Jan-20	4:00	72.5	0.3
29-Jan-20	5:00	40.9	1
29-Jan-20	6:00	70.6	1.3
29-Jan-20	7:00	70.5	0.2
29-Jan-20	8:00	44.3	0.2
29-Jan-20	9:00	100.9	0.8
29-Jan-20	10:00	107.4	1.1
29-Jan-20	11:00	29.9	0.6
29-Jan-20	12:00	63.7	0.2
29-Jan-20	13:00	46.5	1.1
29-Jan-20	14:00	71.5	0.7
29-Jan-20	15:00	176.6	0.2
29-Jan-20	16:00	74.3	0.2
29-Jan-20	17:00	347.4	0.2
29-Jan-20	18:00	53.3	0.1
29-Jan-20	19:00	58.9	0.1
29-Jan-20	20:00	120.4	0.1
29-Jan-20	21:00	145.6	0.1
29-Jan-20	22:00	82.2	0.2
29-Jan-20	23:00	72.7	0.1

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
30-Jan-20	0:00	85.7	0.2
30-Jan-20	1:00	89.7	0.1
30-Jan-20	2:00	21.8	0.5
30-Jan-20	3:00	66.5	0.6
30-Jan-20	4:00	66.3	0.2
30-Jan-20	5:00	141.4	0.1
30-Jan-20	6:00	106.2	0.2
30-Jan-20	7:00	20	0.2
30-Jan-20	8:00	62.5	0.4
30-Jan-20	9:00	76.1	0.9
30-Jan-20	10:00	68.6	0.8
30-Jan-20	11:00	44.8	0.8
30-Jan-20	12:00	53.9	1.5
30-Jan-20	13:00	88	2.1
30-Jan-20	14:00	86.8	0.5
30-Jan-20	15:00	26.2	0.5
30-Jan-20	16:00	88.3	0.4
30-Jan-20	17:00	52.7	0.1
30-Jan-20	18:00	64	0.2
30-Jan-20	19:00	74	0.1
30-Jan-20	20:00	204	0.2
30-Jan-20	21:00	173.3	0.2
30-Jan-20	22:00	223.8	0.2
30-Jan-20	23:00	163.4	0.1
31-Jan-20	0:00	49.8	0.1
31-Jan-20	1:00	91.1	0.2
31-Jan-20	2:00	60.7	0.1
31-Jan-20	3:00	43.4	0.2
31-Jan-20	4:00	59.1	0.1
31-Jan-20	5:00	58.2	0.1
31-Jan-20	6:00	206.6	0.1
31-Jan-20	7:00	66.1	0.1
31-Jan-20	8:00	82.7	0.1
31-Jan-20	9:00	57.7	0.1
31-Jan-20	10:00	34.5	0.6
31-Jan-20	11:00	103.2	0.2

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Direction (°)	Wind Speed (m/s)
31-Jan-20	12:00	55	0.9
31-Jan-20	13:00	76.5	0.3
31-Jan-20	14:00	92.2	0.1
31-Jan-20	15:00	148.1	0.5
31-Jan-20	16:00	145.6	0.1
31-Jan-20	17:00	104.1	0.2
31-Jan-20	18:00	82	0.1
31-Jan-20	19:00	88.5	0.1
31-Jan-20	20:00	61.4	0.1
31-Jan-20	21:00	86.3	0.1
31-Jan-20	22:00	69.3	0.1
31-Jan-20	23:00	67.7	0.1

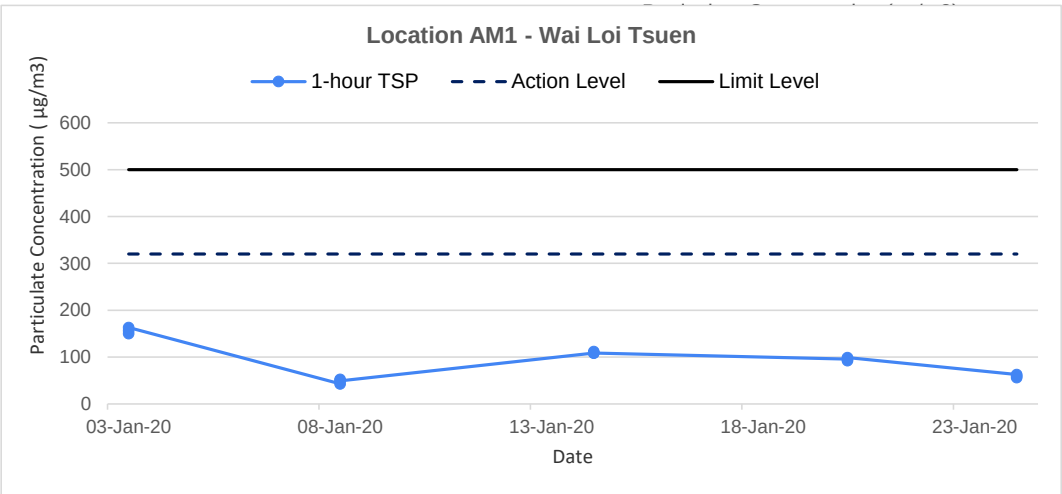
APPENDIX E
1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

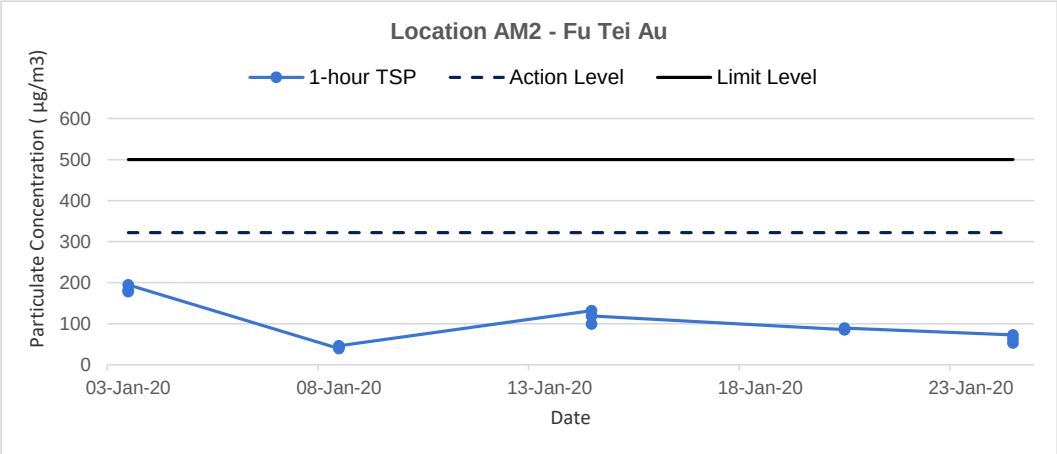
Appendix E - 1-hour TSP Monitoring Results

Location AM1 - Wai Loi Tsuen			
Date	Time	Weather	Particulate Concentration (μg/m^3)
3-Jan-20	13:00	Fine	150.4
3-Jan-20	14:00	Fine	156.8
3-Jan-20	15:00	Fine	163.2
8-Jan-20	13:00	Sunny	42.9
8-Jan-20	14:00	Sunny	52.8
8-Jan-20	15:00	Sunny	49.5
14-Jan-20	9:00	Sunny	108.8
14-Jan-20	10:00	Sunny	112.0
14-Jan-20	11:00	Sunny	108.8
20-Jan-20	9:00	Fine	95.7
20-Jan-20	10:00	Fine	92.4
20-Jan-20	11:00	Fine	99.0
24-Jan-20	13:00	Sunny	62.7
24-Jan-20	14:00	Sunny	56.1
24-Jan-20	15:00	Sunny	59.4
		Average	94.0
		Maximum	163.2
		Minimum	42.9

Location AM2 - Fu Tei Au			
Date	Time	Weather	Particulate Concentration (μg/m^3)
3-Jan-20	13:00	Fine	178.2
3-Jan-20	14:00	Fine	181.5
3-Jan-20	15:00	Fine	194.7
8-Jan-20	13:00	Sunny	39.6
8-Jan-20	14:00	Sunny	42.9
8-Jan-20	15:00	Sunny	46.2
14-Jan-20	9:00	Sunny	132.0
14-Jan-20	10:00	Sunny	99.0
14-Jan-20	11:00	Sunny	118.8
20-Jan-20	13:00	Fine	85.8
20-Jan-20	14:00	Fine	85.8
20-Jan-20	15:00	Fine	89.1
24-Jan-20	9:00	Fine	72.6
24-Jan-20	10:00	Fine	62.7
24-Jan-20	11:00	Fine	52.8
		Average	98.8
		Maximum	194.7
		Minimum	39.6

1-hr TSP Concentration Levels





Title: Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1	Date: Jan 2020	Project No.: MA19019	CINOTECH
Graphical Presentation of 1-hour TSP Monitoring Results		Appendix: E	

APPENDIX F
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Appendix F - 24-hour TSP Baseline Monitoring Results

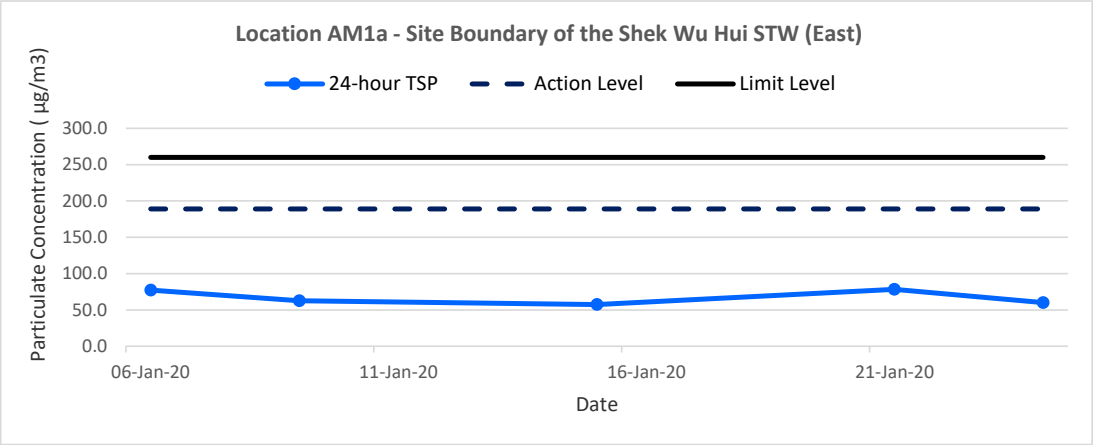
Location AM1a - Site Boundary of the Shek Wu Hui STW (East)

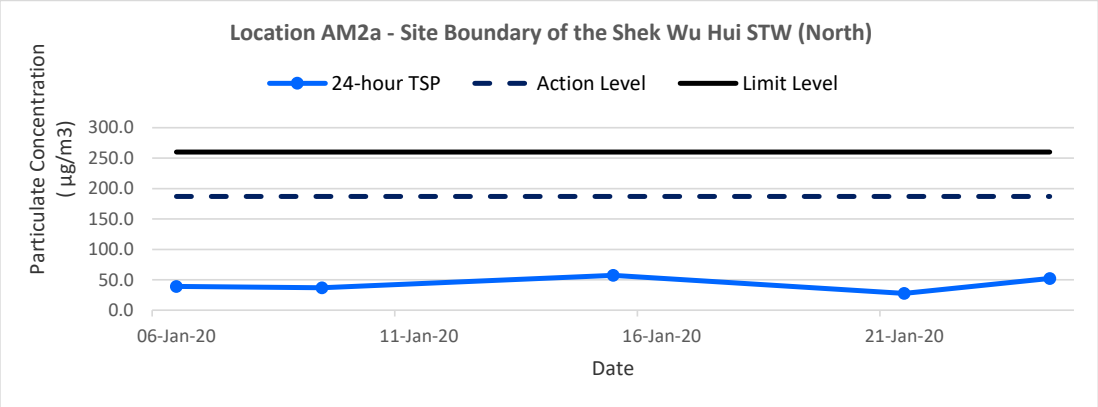
Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (hrs.)	Flow Rate (m^3/min.)		Av. Flow (m^3/min)	Total vol. (m^3)	Conc. (µg/m^3)
				Initial	Final		Initial	Final		Initial	Final			
6-Jan-20	Sunny	292.1	767.5	3.4545	3.5911	0.1366	8035.8	8059.8	24.0	1.23	1.23	1.23	1766.0	77.4
9-Jan-20	Sunny	292.6	763.9	3.5146	3.6249	0.1103	8059.8	8083.8	24.0	1.22	1.22	1.22	1759.4	62.7
15-Jan-20	Sunny	292.7	764.5	3.5248	3.6258	0.1010	8083.8	8107.8	24.0	1.22	1.22	1.22	1760.0	57.4
21-Jan-20	Sunny	292.7	766.6	3.4891	3.6271	0.1380	8107.8	8131.8	24.0	1.23	1.22	1.22	1762.7	78.3
24-Jan-20	Cloudy	293.6	763.9	3.5077	3.6132	0.1055	8131.8	8155.8	24.0	1.22	1.22	1.22	1755.9	60.1
													Min	57.4
													Max	78.3
													Average	67.2

Location AM2a - Site Boundary of the Shek Wu Hui STW (North)

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (hrs.)	Flow Rate (m^3/min.)		Av. Flow (m^3/min)	Total vol. (m^3)	Conc. (µg/m^3)
				Initial	Final		Initial	Final		Initial	Final			
6-Jan-20	Sunny	292.1	767.5	3.5090	3.5776	0.0686	18253.0	18277.0	24.0	1.23	1.22	1.23	1765.5	38.9
9-Jan-20	Sunny	292.6	763.9	3.4628	3.5280	0.0652	18277.0	18301.0	24.0	1.22	1.22	1.22	1758.0	37.1
15-Jan-20	Sunny	292.7	764.5	3.4826	3.5833	0.1007	18301.0	18325.0	24.0	1.22	1.22	1.22	1758.6	57.3
21-Jan-20	Sunny	292.7	766.6	3.4836	3.5322	0.0486	18325.0	18349.0	24.0	1.23	1.22	1.22	1761.8	27.6
24-Jan-20	Cloudy	293.6	763.9	3.5190	3.6104	0.0914	18349.0	18373.0	24.0	1.22	1.22	1.22	1753.9	52.1
													Min	27.6
													Max	57.3
													Average	42.6

24-hr TSP Concentration Levels





Title	Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1	Date	Project No.	CINOTECH
		Jan 2020	MA19019	
	Graphical Presentation of 24-hour TSP Monitoring Results		Appendix	
			F	

APPENDIX G
COPIES OF CALIBRATION CERTIFICATES FOR NOISE MONITORING

Equipment no.: N-12-02

Calibration Certificate

0022522

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong Customer Code : SVEC09005	Object 1 : BSWA 308 SLM Serial No. /Ref. No. : 570187 / 550841 Object 2 : Serial No. /Ref. No. : Manufacturer : BSWAtech
Date of calibration: 23/09/2019 Date of the recommended re-calibration: 23/09/2020	Certificate No.: 0022522 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	94.0dB	0.0dB	+/- 1.5dB	1
114.0dB	113.9dB	-0.1dB	+/- 1.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2 dB for probability not less than 95%.

Conformity

1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
5.The calibrations certificate may not be reproduced.

Measured value(s) within **the allowable deviation.**

Performed by

Calibration Technician

Approved by

Quality Manager

Equipment no.: N-12-03

Calibration Certificate

0022523

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong Customer Code : SVEC09005	Object 1 : BSWA 308 SLM Serial No. /Ref. No. : 570188 / 550850 Object 2 : Serial No. /Ref. No. : Manufacturer : BSWAtech
Date of calibration: 23/09/2019 Date of the recommended re-calibration: 23/09/2020	Certificate No.: 0022523 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	94.0dB	0.0dB	+/- 1.5dB	1
114.0dB	114.0dB	0.0dB	+/- 1.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2 dB for probability not less than 95%.

Conformity

1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
5.The calibrations certificate may not be reproduced.

Measured value(s) **within** **the allowable deviation.**

Performed by

Calibration Technician

Approved by

Quality Manager

Calibration Certificate

0022673

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong Customer Code : SVEC09005	Object 1 : ST-120 sound calibrator Serial No. /Ref. No. : 181001608 Object 2 : Serial No. /Ref. No. : Manufacturer : Soundtek
Date of calibration: 24/10/2019 Date of the recommended re-calibration: 24/10/2020	Certificate No.: 0022673 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	94.0dB	0.0dB	+/- 0.3dB	1
114.0dB	114.1dB	+0.1dB	+/- 0.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Level Meter and 1kHz Sound Source .

Uncertainty

+/- 0.2 dB for probability not less than 95%.

Conformity

1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
5.The calibrations certificate may not be reproduced.

Measured value(s) within **the allowable deviation.**

Performed by

Calibration Technician

Approved by

Quality Manager

Appleone Calibration Laboratory Ltd. Rm1309, 13/F, No.77 Wing Hong St, Kln, HKSAR Tel: +852 2370 4437 Fax: +852 2114 0393

APPENDIX H
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Appendix H - Noise Monitoring Results

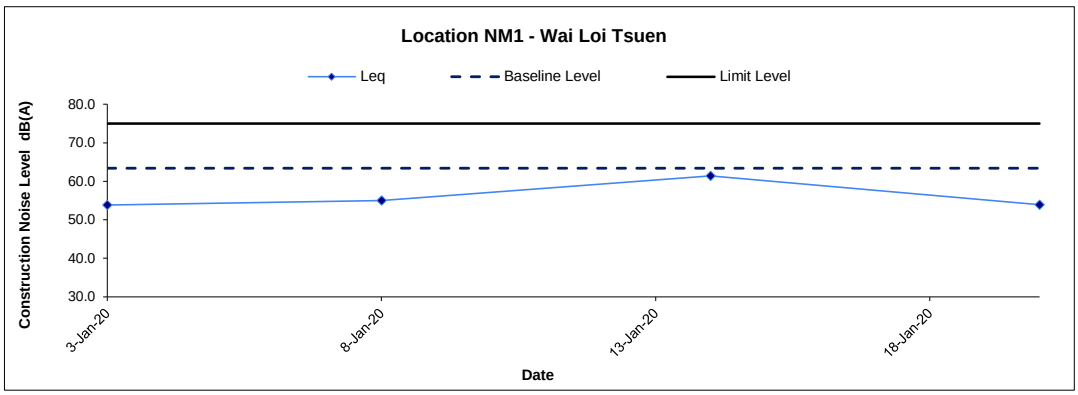
(0700-1900 hrs on Normal Weekdays)

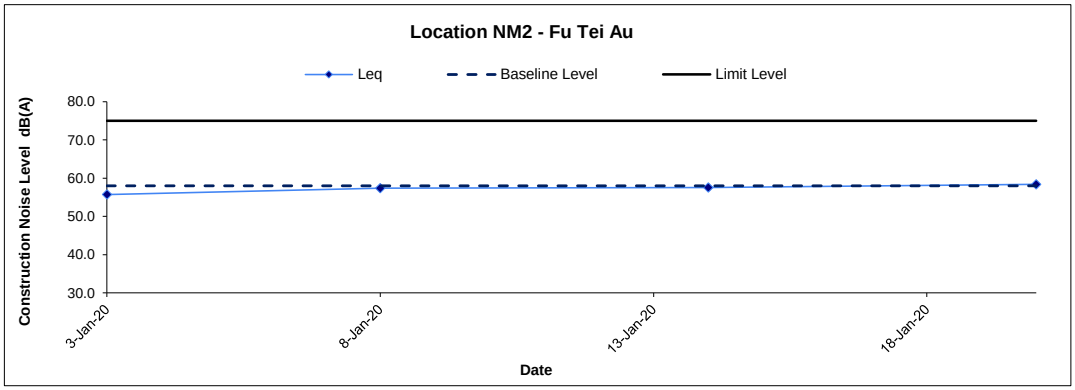
Location NM1 - Wai Loi Tsuen							
			Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
Date	Time	Weather	L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
3-Jan-20	13:30	Fine	53.8	56.1	50.9	63.4	53.8 Measured ≦ Baseline
8-Jan-20	13:15	Sunny	55.0	56.6	50.9		55.0 Measured ≦ Baseline
14-Jan-20	13:00	Sunny	61.4	62.8	60.6		61.4 Measured ≦ Baseline
20-Jan-20	11:00	Fine	53.9	56.1	50.9		53.9 Measured ≦ Baseline

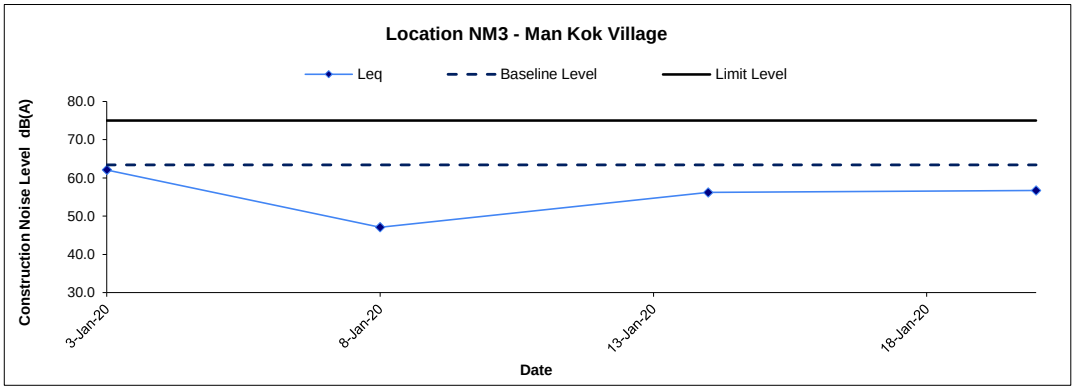
Location NM2 - Fu Tei Au							
			Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
Date	Time	Weather	L eq	L_{10}	L_{90}	L_{eq}	L_{eq}
3-Jan-20	14:45	Fine	55.7	58.3	52.1	58.0	55.7 Measured ≦ Baseline
8-Jan-20	14:30	Sunny	60.7	63.2	56.8		57.4
14-Jan-20	15:00	Sunny	60.8	61.9	59.3		57.6
20-Jan-20	13:50	Fine	61.2	65.0	56.6		58.4

Location NM3 - Man Kok Village							
			Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
Date	Time	Weather	L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
3-Jan-20	16:00	Sunny	62.1	62.6	59.3	63.4	62.1 Measured ≦ Baseline
8-Jan-20	15:30	Sunny	63.5	65.2	59.6		47.1
14-Jan-20	14:00	Sunny	56.2	57.2	55.2		56.2 Measured ≦ Baseline
20-Jan-20	15:00	Fine	56.7	59.2	50.4		56.7 Measured ≦ Baseline

Noise Levels







Title: Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1	Date: Jan 2020	Project No.: MA19019	CINOTECH
Graphical Presentation of Construction Noise Monitoring Results		Appendix: H	

APPENDIX I
ECOLOGICAL MONITORING RESULTS AND ANALYSIS

MA19019 - Ecological Monitoring Results and Analysis

Table I: Recorded Bird Species and their Abundance in the Reporting Month					
Scientific Name	**Common Name**	**Chinese Name**	**Waterbird**	**Point Count Abundance**	**Transect Abundance**
Acridotheres cristatellus	Crested Myna	八哥		79	+++++
Actitis hypoleucos	Common Sandpiper	磯鷸	*	15	++
Alcedo atthis	Common Kingfisher	普通翠鳥	*	1	+
Anthus hodgsoni	Olive Backed Pipit	樹鷚		37	++++
Apus nipalensis	House Swift	小白腰雨燕		16	++
Ardea alba	Great Egret	大白鷺	*	20	++
Ardea cinerea	Grey Heron	蒼鷺	*	114	+++++
Ardeola bacchus	Chinese Pond Heron	池鷺	*	12	+++
Bubulcus coromandus	Eastern Cattle Egret	牛背鷺	*	40	+++
Buteo japonicus	Eastern Buzzard	普通鵟	*	1	+
Ceryle rudis	Pied Kingfisher	斑魚狗	*	1	+
Charadrius dubius	Little Ringed Plover	金眶鴴	*	1	
Copsychus saularis	Magpie Robin	鵲鴝		0	+
Corvus macrorhynchus	Jungle Crow	大嘴烏鴉		1	+
Corvus torquatus	Collared Crow	白頸鴉	*	7	+
Dicrurus hottentottus	Hair-crested Drogon	髮冠卷尾		1	
Dicrurus macrocercus	Black Drongo	黑卷尾		0	+
Egretta garzetta	Little Egret	小白鷺	*	65	+++++
Egretta intermedia	Intermediate Egret	中白鷺	*	2	+
Emberiza spodocephala	Blacked-face Bunting	灰頭鵐		8	+
Eudynamys scolopacea	Common Koel	噪鵑		2	
Garrulax perspicillatus	Masked Laughing Thrush	黑臉噪鸝		2	+
Halcyon smyrnensis	White-throated Kingfisher	白胸翡翠	*	2	+
Himantopus himantopus	Black-winged Stilt	黑翅長腳鷸	*	8	
Lonchura punctulata	Spotted Munia	斑文鳥		8	+
Milvus migrans	Black Kite	黑鳶	*	4	+
Motacilla alba	White Wagtail	白鶺鴒		47	+++++
Motacilla cinerea	Grey Wagtail	灰鶺鴒		2	+
Myophonus caeruleus	Blue Whistling Thrush	紫嘯鶇		0	+
Orthotomus sutorius	Common Tailorbird	長尾縫葉鶯		3	+
Parus cinereus	Cinereous Tit	蒼背山雀		0	+
Passer montanus	Eurasian Tree Sparrow	樹麻雀		1	
Phalacrocorax carbo	Great Cormorant	普通鸕鷀	*	32	+++++
Phoenicurus auroreus	Daurian Redstart	北紅尾鴝		4	++
Phylloscopus borealis	Arctic Warbler	極北柳鶯		0	+
Phylloscopus fuscatus	Dusky Warbler	褐柳鶯		2	+
Phylloscopus inornatus	Yellow-browed Warbler	黃眉柳鶯		15	++
Phylloscopus proregulus	Pallas's Leaf Warbler	黃腰柳鶯		1	+
Pica pica	Magpie	喜鵲		1	+
Prinia flaviventris	Yellow-bellied Prinia	黃腹鷦鶯		2	+
Prinia inornata	Plain Prinia	純色鷦鶯		9	+
Pycnonotus jocosus	Crested bulbul	紅耳鵯		12	++
Pycnonotus sinensis	Chinese Bulbul	白頭鵯		5	+
Saxicola stejnegeri	Stejneger's Stonechat	黑喉石鴝		3	+
Streptopelia chinensis	Spotted Dove	珠頸斑鳩		18	++++
Sturnus nigricollis	Black-necked Starling	黑領椋鳥		2	
Tachybaptus ruficollis	Little Grebe	小鸊鷉	*	6	
Tringa glareola	Wood Sandpiper	林鷸	*	0	+
Tringa nebularia	Common Greenshank	青腳鷸	*	8	+
Tringa ochropus	Green Sandpiper	白腰草鷸	*	10	++
Urocissa erythrorhyncha	Red-billed Blue Magpie	紅咀藍鵲		0	+
Zitting cisticola	Streaked Fantail Warbler	棕扇尾鶯		5	
Zosterops japonicus	Japanese White-eye	暗綠繡眼鳥		1	++
			Total Point Count Abundance	636	
			Total Waterbirds	349	

*For waterbird

For transect abundance, +: <10, ++: 11-20, +++: 21-30, ++++: 31-40, +++++: >40

MA19019 - Ecological Monitoring Results and Analysis

Monitoring Month Jan
Season Winter

Table II : Total Bird Abundance from Point Count						
Survey Information				Total Bird Abundance from Point Count		
No.	Date	Time	Tide Level	Individuals Recorded	Total	Species Recorded
#1	3 Jan 2020	15:00	High	104	**217**	17
		10:00	Low	113		15
#2	10 Jan 2020	15:00	High	58	**131**	15
		10:00	Low	73		20
#3	16 Jan 2020	13:30	High	43	**102**	15
		9:00	Low	59		20
#4	20 Jan 2020	14:00	High	112	**186**	21
		11:00	Low	74		23
				Overall Total	**636**	

Table III: Total Waterbird Abundance from Point Count					
Survey Information				Numbers of Waterbirds	
No.	Date	Time	Tide Level	Individuals Recorded	Total
#1	3 Jan 2020	15:00	High	81	**164**
		10:00	Low	83	
#2	10 Jan 2020	15:00	High	30	**62**
		10:00	Low	32	
#3	16 Jan 2020	13:30	High	7	**41**
		9:00	Low	34	
#4	20 Jan 2020	14:00	High	40	**82**
		11:00	Low	42	
				Overall Total	**349**
				Average	**87**

Table IV: T-Test Analysis for All Waterbirds

Baseline Data
Monthly Average Abundance (Jan) 65.75
Seasonal Average Abundance (Winter) 62.15

T-test
The following hypothesis was made and a one-tail t-test will be used to test the data collected from the monitoring:

H_0 The data collected in the reporting month falls within the normal distrubution when compared to the baseline monitoring data.

H_1 The data collected does not falls within the normal distrubution when compared to the baseline monitoring data.

If t-test value is smaller than the critical value, then rejects H_0.
For the data in the reporting month, the critical values are:
Crit. Value = -2.353 (95% Confidence Level)
Crit. Value = -4.541 (99% Confidence Level)

			Confidence Level	
T-values of Data in Reporting Month			95%	99%
Abundance	Monthly	0.799	✓	✓
	Season	0.932	✓	✓
		Overall:	✓	✓

Remarks:
✓ = T-value falls within the confidence level, the impact monitoring data shows no significant difference to the baseline data.
✕ = T-value falls outside the confidence level, the impact monitoring data shows significant difference to the baseline data.

MA19019 -Ecological Monitoring Results and Analysis

Monitoring Month Jan
Season Winter

Table V: Abundance of Representative Waterbirds from Point Count

Representative Species			Recorded Abundance							Baseline Data	
Species Name	Common Name	Chinese Name	3 Jan 2020	10 Jan 2020	16 Jan 2020	20 Jan 2020		Total	Average	Avg (Jan)	Avg (Winter)
Egretta garzetta	Little Egret	小白鷺	39	5	8	13		65	16	13	15
Ardea cinerea	Grey Heron	蒼鷺	58	13	12	31		114	29	18	13
Ardeola bacchus	Chinese Pond Heron	池鷺	2	6	0	4		12	3	8	9
Phalacrocorax carbo	Great Cormorant	普通鸕鷀	10	13	5	4		32	8	7	7
Ardea alba	Great Egret	大白鷺	12	2	1	5		20	5	5	5
Bubulcus coromandus	Eastern Cattle Egret	牛背鷺	19	4	5	12		40	10	3	4

Table VI: T-test Analysis for Representative Waterbirds from Point Count

The following hypothesis was made and a one-tail t-test will be used to test the data collected from the monitoring:

H_0 The data collected in the reporting month falls within the normal distrubution when compare to the baseline monitoring data.

H_1 The data collected does not falls within the normal distrubution when compare to the baseline monitoring data.

If t-test value for a specific representative is smaller than the critical value, then rejects H_0.

For the data in the reporting month, the critical values are:

Crit. Value = -2.353 (95% Confidence Level)
Crit. Value = -4.541 (99% Confidence Level)

Representative Species			T-value	Confidence Level		T-value	Confidence Level		Overall
Species Name	Common Name	Chinese Name	Monthly	95%	99%	Seasonal	95%	99%	
Egretta garzetta	Little Egret	小白鷺	0.435	✓	✓	0.207	✓	✓	✓
Ardea cinerea	Grey Heron	蒼鷺	0.976	✓	✓	1.431	✓	✓	✓
Ardeola bacchus	Chinese Pond Heron	池鷺	-4.067	✕	✓	-4.826	✕	✕	Action Level
Phalacrocorax carbo	Great Cormorant	普通鸕鷀	0.707	✓	✓	0.411	✓	✓	✓
Ardea alba	Great Egret	大白鷺	-0.151	✓	✓	-0.124	✓	✓	✓
Bubulcus coromandus	Eastern Cattle Egret	牛背鷺	2.114	✓	✓	1.683	✓	✓	✓

Remarks

✓ = T-value falls within the confidence level, the impact monitoring data shows no significant difference to the baseline data.

✕ = T-value falls outside the confidence level, the impact monitoring data shows significant difference to the baseline data.

APPENDIX J
PHOTO RECORDS OF ECOLOGICAL MONITORING

Appendix J - Photo Records of Ecological Monitoring

Part A - Conditions of Rivers

Sheung Yue River (Taken on 10 Jan 20)

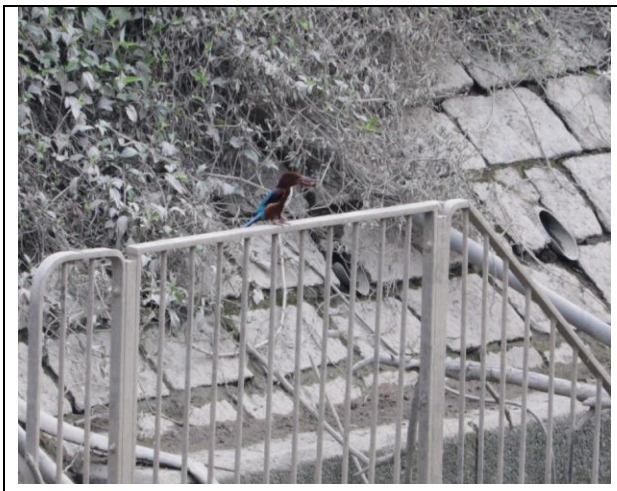
Ng Tung River (Taken on 16 Jan 20)

Shek Sheung River (Taken on 10 Jan 20)

Part B – Waterbird Species

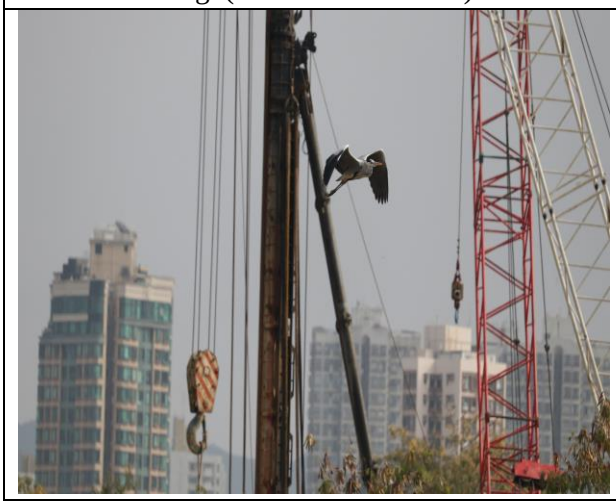
	
Actitis hypoleucos (Taken on 20 Jan 20)	*Alcedo atthis* (Taken on 10 Jan 20)
	
Ardea alba (Taken on 3 Jan 20)	*Ardea cinerea* (Taken on 3 Jan 20)
	
Ardeola bacchus (Taken on 3 Jan 20)	*Bubulcus coromandus* (Taken on 16 Jan 20)

	
Buteo japonicas (Taken on 16 Jan 20)	*Ceryle rudis* (Taken on 10 Jan 20)
	
Charadrius dubius (Taken on 10 Jan 20)	*Corvus torquatus* (Taken on 10 Jan 20)
	
Egretta garzetta (Taken on 3 Jan 20)	*Egretta intermedia* (Taken on 16 Jan 20)

	
Halcyon smyrnensis (Taken on 20 Jan 20)	*Himantopus himantopus* (Taken on 10 Jan 20)
	
Milvus migrans (Taken on 16 Jan 20)	*Phalacrocorax carbo* (Taken on 16 Jan 20)
	
Tringa glareola (Taken on 10 Jan 20)	*Tachybaptus ruficollis* (Taken on 3 Jan 20)

	
Tringa nebularia (Taken on 10 Jan 20)	*Tringa ochropus* (Taken on 3 Jan 20)

Part C – Human Activities & Site Conditions

	
Fishing (Taken on 10 Jan 20)	Open Burning (Taken on 10 Jan 20)
	
Remote Boating (Taken on 16 Jan 20)	Oil stain (Taken on 16 Jan 20)
	
Pre-boring (Taken on 20 Jan 20)	Vibration Hammer (Taken on 20 Jan 20)

Dogs playing (Taken on 16 Jan 20)

APPENDIX K
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	200106
Date	6 January 2020
Time	14:00 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
R1	• Haul roads appear dry during site inspection. Regular water spraying at haul road is recommended at Portion C.	C5
R2	• Soil on the public road should be removed outside Portion C.	C9
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	N/A	

	Name	Signature	Date
Recorded by	Miss Echo Hung	Echo	6 January 2020
Checked by	Miss Jennifer Mok	JM	7 January 2020

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	200114
Date	14 January 2020
Time	14:25 – 15:20

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
R2	• Manholes were not covered properly. They should be covered tightly at Portion A.	B7
R3	• Ponding water is observed at Portion C. Contractor is reminded to remove the ponding water.	B8
	C. Air Quality	
R4	• Dust generation was observed at the western side of Portion C. Haul road should be sprayed with water to avoid excessive dusty materials.	C5
R5	• Stockpile observed in Portion C should be covered by impervious materials or cleared as soon as possible.	C1
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
R1	• Waste accumulated on the road should be removed at Portion A.	E2iii
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	Following up on the previous site inspection (ref no.: 200106): All items (200106- R1 & R2) in the previous inspections were rectified/improved by the Contractor.	

	Name	Signature	Date
Recorded by	Miss Echo Hung		14 January 2020
Checked by	Miss Jennifer Mok		15 January 2020

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	200121
Date	21 January 2020
Time	14:05 – 15:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
200114-R3	• Muddy water was accumulated at Portion C. It should be removed or pump through the sedimentation tank.	B8
	C. Air Quality	
200121-R1	• Muddy soil was leaked onto the public road outside Portion C. It should be cleaned as soon as possible.	C9
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
200114-R1	• Waste was deposited on the road at Portion A. The Contractor should remove the waste as soon as possible.	E2iii
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	Following up on the previous site inspection (ref no.: 200114): Follow-up actions are needed to be reviewed for items 200114-R1 & R3. Items 200114-R2, R4 & R5 were rectified/improved by the Contractor.	

	Name	Signature	Date
Recorded by	Miss Echo Hung		21 January 2020
Checked by	Miss Jennifer Mok		22 January 2020

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	200106
Date	6 January 2020
Time	14:00 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
R1	• Temporary waste pile accumulated at Portion B should be covered by impervious materials before removal.	E2iv
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	N/A	

	Name	Signature	Date
Recorded by	Miss Echo Hung		6 January 2020
Checked by	Miss Jennifer Mok		7 January 2020

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	200114
Date	14 January 2020
Time	14:25 – 15:20

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
R1	• The unpaved area inside Portion B should be sprayed with water to avoid dust generation.	C12
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
R2	• Waste accumulated should be cleared at Portion B.	E2iv
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	Following up on the previous site inspection (ref no.: 200106): All items (200106- R1) in the previous inspection were rectified/improved by the Contractor.	

	Name	Signature	Date
Recorded by	Miss Echo Hung		14 January 2020
Checked by	Miss Jennifer Mok		15 January 2020

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	200121
Date	21 January 2020
Time	14:05 – 15:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
200114-R2	• Waste stockpile is accumulated at Portion B. Contractor is reminded to remove the waste pile and cover it with impervious sheeting until disposal.	E2iv
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	Following up on the previous site inspection (ref no.: 200114): Follow-up actions are needed to be reviewed for item 200114-R2. Item 200114-R1 was rectified/improved by the Contractor.	

	Name	Signature	Date
Recorded by	Miss Echo Hung		21 January 2020
Checked by	Miss Jennifer Mok		22 January 2020

APPENDIX L
WASTE FLOW TABLE

Name of Department: DSD

Contract No. DC/2018/06

Monthly Summary Waste Flow Table for 2020 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in kg)	(in '000kg)
Jan	0.376	0.000	0.000	0.000	0.376	0.000	0.000	0.000	0.000	0.000	80.800
Feb											
Mar											
Apr											
May											
Jun											
Sub-total	0.376	0.000	0.000	0.000	0.376	0.000	0.000	0.000	0.000	0.000	80.800
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	0.376	0.000	0.000	0.000	0.376	0.000	0.000	0.000	0.000	0.000	80.800

Notes:
1. Assume the density of soil fill is 2 ton/m3.
2. Assume the density of rock and broken concrete is 2.5 ton/m3.
3. Assume the density of mixed rock and soil is 1.9 ton/m3.
4. Assume the density of slurry and bentonite is 2.8 ton/m3.
5. The slurry and bentonite are disposed at Tseung Kwan O Area 137 Fill Bank.
6. The non-inert C&D wastes are disposed at NENT.

Name of Department: DSD

Contract No. DC/2018/07

Monthly Summary Waste Flow Table for 2020 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in kg)	(in '000kg)
Jan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.760
Feb											
Mar											
Apr											
May											
Jun											
Sub-total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.760
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.760

Notes:
1. Assume the density of soil fill is 2 ton/m3.
2. Assume the density of rock and broken concrete is 2.5 ton/m3.
3. Assume the density of mixed rock and soil is 1.9 ton/m3.
4. Assume the density of slurry and bentonite is 2.8 ton/m3.
5. The slurry and bentonite are disposed at Tseung Kwan O Area 137 Fill Bank.
6. The non-inert C&D wastes are disposed at NENT.

Environmental Aspect Evaluation Form

Name of Department: ~~ArchSD/CEDD~~/DSD/~~EMSD/HyD/WSD~~ Contract No.: DE/2018/03

Monthly Summary Waste Flow Table for 2020 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Jan	0	0	0	0	0	0	0	0	0	0	0
Feb	-	-	-	-	-	-	-	-	-	-	-
Mar	-	-	-	-	-	-	-	-	-	-	-
Apr	-	-	-	-	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-	-	-	-	-
June	-	-	-	-	-	-	-	-	-	-	-
Sub-total	0	0	0	0	0	0	0	0	0	0	0
July	-	-	-	-	-	-	-	-	-	-	-
Aug	-	-	-	-	-	-	-	-	-	-	-
Sept	-	-	-	-	-	-	-	-	-	-	-
Oct											
Nov											
Dec											
Total											

Environmental Aspect Evaluation Form

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

Notes:
(1) The performance targets are given in PS Clause 6A.27.8(14).
(2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
(4) The *Contractor* shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000 m^3. (PS Clause 6.21.7(4)(b) refers)

Name of Department: DSD Contract No.: DE/2018/04

Monthly Summary Waste Flow Table for 2020 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Jan	0	0	0	0	0	0	0	0	0	0	0
Feb											
Mar											
Apr											
May											
June											
Sub-total	0	0	0	0	0	0	0	0	0	0	0
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total	0	0	0	0	0	0	0	0	0	0	0

Notes: (1) The performance targets are given in PS Clause 6.21.8(14).
(2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
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APPENDIX M
EVENT AND ACTION PLANS

Appendix M - Event Action Plans

Table M-1 Event/Action Plan for Air Quality

Event	Action			
	ET	IEC	ER	Contractor
Action level being exceeded by one sampling	1. Identify source, investigate the causes of complaint and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action level being exceeded by two or more consecutive sampling	1. Identify source; 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues,	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial actions to IEC within three working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.

Appendix M - Event Action Plans

Event	Action			
	ET	IEC	ER	Contractor
	arrange meeting with IEC and ER; 8. If exceedance stops, cease additional monitoring.			
Limit level being exceeded by one sampling	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform Contractor, IEC, ER, and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Limit level being exceeded by two or more consecutive sampling	1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings;	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification;

Appendix M - Event Action Plans

Event	Action			
	ET	**IEC**	**ER**	**Contractor**
	4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Appendix M - Event Action Plans

Table M-2 Event/Action Plan for Construction Noise

Event	Action			
	ET	IEC	ER	Contractor
Action Level	1. Notify IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC; 2. Implement noise mitigation proposals.
Limit Level	1. Identify source; 2. Inform IEC, ER, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem;	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals;

Appendix M - Event Action Plans

Event	Action			
	ET	**IEC**	**ER**	**Contractor**
	Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	3. Supervise the implementation of remedial measures.	4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Appendix M - Event Action Plans

Table M-3 Event/Action Plan for Ecology

Action Level	Response	Limit Level	Response
Construction Phase			
Decline in numbers of all waterbird species relative to numbers during Baseline Monitoring such that the Action Level response is triggered.	Investigate cause and if cause identified as related to the Project instigate remedial action to remove or reduce source of disturbance.	Decline in numbers of all waterbird species relative to numbers during Baseline Monitoring such that the Limit Level response is triggered.	Investigate cause and if caused identified as related to the Project instigate remedial action.
Decline in numbers of any one waterbird species occurring in significant numbers* during Baseline Monitoring such that the Action Level response is triggered.	Investigate cause and if cause identified as related to the Project instigate remedial action to remove or reduce source of disturbance.	Decline in numbers of any one waterbird species occurring in significant numbers* during Baseline Monitoring such that the Limit Level response is triggered.	Investigate cause and if caused identified as related to the Project instigate remedial action.

Appendix M - Event Action Plans

Table M-4 Event/Action Plan for Landscape and Visual

Event	Action			
	ET	IEC	ER	Contractor
Non-conformity on one occasion	1. Inform the Contractor, IEC and ER; 2. Discuss remedial actions with IEC, ER and Contractor 3. Monitor remedial actions until rectification has been completed.	1. Check inspection report; 2. Check Contractor's working method; 3. Discuss with ET, ER and Contractor on possible remedial measures; 4. Advise ER on effectiveness of proposed remedial measures.	1. Confirm receipt of notification of non-conformity in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise implementation of remedial measures.	1. Identify source and investigate the non-conformity; 2. Implement remedial measures; 3. Amend working methods agreed with ER as appropriate; 4. Rectify damage and undertake any necessary replacement.

Appendix M - Event Action Plans

Event	Action			
	ET	**IEC**	**ER**	**Contractor**
Repeated Non-conformity	1. Identify source; 2. Inform the Contractor, IEC and ER; 3. Discuss inspection frequency; 4. Discuss remedial actions with IEC, ER and Contractor; 5. Monitor remedial actions until rectification has been completed; 6. If non-conformity stops, cease additional monitoring.	1. Check inspection report; 2. Check Contractor's working method; 3. Discuss with ET, ER and Contractor on possible remedial measures; 4. Advise ER on effectiveness of proposed remedial measures.	1. Notify the Contractor; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise implementation of remedial measures.	1. Identify source and investigate the non-conformity; 2. Implement remedial measures; 3. Amend working methods agreed with ER as appropriate; 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by ER until the non-conformity is abated.

APPENDIX N
ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE (EMIS)

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
Air Quality Impact							
S2.3.1.3	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices:	To minimize the dust impact	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	Air Pollution Control Ordinance (APCO) and Air Pollution Control (Construction Dust) Regulation	^
	Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;						*
	Any dusty material remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;						*
	A stockpile of dusty material should not be extended beyond the pedestrian barriers, fencing or traffic cones;						^
	The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle;						*
	Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;						^
	When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period.						^
	The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;						#

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
S2.3.1.3	Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously;	To minimize the dust impact	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	Air Pollution Control Ordinance (APCO) and Air Pollution Control (Construction Dust) Regulation	^
	Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;						^
	Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;						N/A(1)
	Any skip hoist for material transport should be totally enclosed by impervious sheeting;						N/A
	Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;						N/A
	Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed;						N/A
	Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and						N/A
	Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shortcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies						^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
Noise Impact							
S3.2.1.1	Use of movable barrier, enclosure, acoustic mat and quiet plant. Use of wooden frames barrier with a small-cantilevered upper portion of superficial density not less than 14kg/m² on a skid footing with 25mm thick internal sound absorptive lining.	To minimize construction noise impact arising from the Project at the affected noise sensitive receivers (NSRs)	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM, Noise Control Ordinance (NCO)	^
S3.2.1.2	Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM, NCO	^
	Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program.						^
	Mobile plant, if any, should be sited as far away from NSRs as possible.						^
	Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum.						^
	Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.						^
	Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.						N/A(1)

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
Ecological Impact							
S4.2.1.1	Solid dull green noise/visual barriers of at least 2m high shall be erected and maintained between active works area and all areas of ecological importance.	Minimize noise and human disturbances during construction phase.	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM	^
S4.2.1.2	Avoid unnecessary lighting.	Minimize mortality impacts on birds.	Design / Contractor/ Plant Operator	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM	^
S4.2.1.3	Good construction site practice to minimise dust generation should be followed on all construction sites. Measures to avoid, minimise and mitigate impacts on air quality are detailed in this schedule	Minimize dust generation from construction sites.	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM	^
S4.2.1.4	Temporary sewerage and drainage to be designed and installed to collect wastewater and prevent it from entering water bodies;	Avoid, minimise and mitigate impact on water quality	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM	^
	Proper locations well away from nearby water bodies should be used for temporary storage of materials (i.e. equipment, filling materials, chemicals and fuel) and temporary stockpiles of construction debris and spoil, and these should be identified before commencement of works;						^
	To prevent muddy water entering nearby water bodies, work sites close to nearby water bodies should be isolated, using such items as sandbags or silt curtains with lead edge at bottom and properly supported props. Other protective measures should also be taken to ensure that no pollution or siltation occurs to the water gathering grounds of the work sites;						*
	Construction debris and spoil should be covered and/or properly disposed of as soon as possible to avoid these being washed into nearby water bodies;						^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
S4.2.1.4	Proper locations for discharge outlets of temporary wastewater treatment facilities well away from sensitive receivers should be identified;	Avoid, minimise and mitigate impact on water quality	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM	^
	Adequate lateral support should be erected where necessary in order to prevent soil/mud from slipping into water bodies;						^
	Site boundaries should be clearly marked and any works beyond the boundary strictly prohibited;						^
	Regular water monitoring and site audit should be carried out at adequate points along any watercourses where construction works are underway upstream within their catchments and also on the Ng Tung, Sheung Yue and Shek Sheung Rivers. If the monitoring and audit results show that pollution occurs, adequate measures including temporarily cessation of works should be considered;						N/A
	Excavation profiles should be properly designed and executed with attention to the relevant requirements for environment, health and safety;						^
	Where soil to be excavated is situated beneath the groundwater table, it may be necessary to lower the groundwater table by installing well points or similar means;						N/A
	Stockpiling sites should be lined with impermeable sheeting and bunded. Stockpiles should be properly covered by impermeable sheeting to reduce dust emission during dry season or contaminated run-off during rainy season. Watering should be avoided on stockpiles of contaminated soil to minimize contaminated runoff and construction materials should be properly covered and located away from nearby water bodies; and						*
	Supply of suitable clean backfill material after excavation, if required.						N/A
	Vehicles containing any excavated materials should be suitably covered to limit potential dust emissions or contaminated run-off, and truck bodies and tailgates should be sealed to prevent discharge during transport or during wet season;						^
	Speed control for the trucks carrying contaminated materials should be enforced;						^
	Vehicle wheel washing facilities at construction sites' exit points should be established and used, where necessary						^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
Water Quality Impact							
S5.2.2.1	Construction Site Runoff Practices and measures provided in the Practice Note for Professional Persons on Construction Site Drainage, (PROPECC PN1/94) should be followed where applicable.	Control construction runoff	Contractors	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM, WPCO, EIAO	^
S5.2.2.2 – S5.2.2.3	Portable chemical toilets and sewage holding tanks should be provided for handling the construction sewage generated by the workforce. A licensed Contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.	Handling of site sewage	Contractors	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM, WPCO, EIAO	^
	Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the Project. Regular environmental audit on construction site should be conducted in order to provide an effective control of any malpractices and achieve continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the Project would not cause water quality impact after undertaking all required measures						^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
Waste Management							
S6.2.2.1	Nomination of an approved person, such as a site manager, to be responsible for the implementation of good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site;	Minimize waste generation during construction	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	Waste Disposal Ordinance (WDO)	^
	Training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling;						^
	Provision of sufficient waste disposal points and regular collection for disposal;						^
	Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;						^
	Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;						^
	An Environmental Management Plan (EMP) should be prepared by the contractor and submitted to the Supervisor for approval.						N/A
S6.2.3.1	Segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal;	Reduce waste generation	Contractor	Work Sites	Prior to the commencement of construction of Main Works Stage 1, Stage 2 and Stage 3	WDO	^
	Proper storage and site practices to minimize the potential for damage and contamination of construction materials;						^
	Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste;						^
	Sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc.); and						^
	Provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.						^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
6.2.4.1	Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution;	Minimize waste impacts arising from waste storage	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	WDO	^
	Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and						*
	Different locations should be designated to stockpile each material to enhance reuse.						^
S6.2.4.2	Remove waste in timely manner;	Minimize waste impacts arising from waste storage	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	WDO	#
	Employ the trucks with cover or enclosed containers for waste transportation						^
	Obtain relevant waste disposal permits from the appropriate authorities						^
	Disposal of waste should be done at licensed waste disposal facilities.						^
S6.2.5.2	Maintain temporary stockpiles and reuse excavated fill material for backfilling;	Minimize waste impacts from excavated and C&D materials	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	Land (Miscellaneous Provisions) Ordinance, WDO, ETWB TCW No. 19/2005	^
	Carry out on-site sorting;						^
	Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate;						^
	Adopt “selective demolition” technique to demolish the existing structure and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; and						N/A
	Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified.						^
S6.2.5.3	The Contractor should recycle as much as possible of the C&DM on-site. Public fill and C&DM waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. For example, concrete and masonry can be crushed and used as fill, and steel reinforcing bar can be used by scrap steel mills. Different areas of the work sites should be designated for such segregation and storage.	Minimize waste impacts from building demolition and new building construction	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	Land (Miscellaneous Provisions) Ordinance, WDO, ETWB TCW No. 19/2005	^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
S6.2.5.3	The use of wooden hoardings shall not be allowed. An alternative material, such as metal, aluminium or alloy etc, could be used.	Minimize waste impacts from building demolition and new building construction	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	Land (Miscellaneous Provisions) Ordinance, WDO, ETWB TCW No. 19/2005	^
	Government has developed a charging policy for the disposal of waste to landfill at present. It will provide additional incentive to reduce the volume of generated waste and ensure proper segregation to allow reuse of the inert material on site when implemented.						^
	In order to minimize the impacts of the demolition works, the generated wastes must be cleared as quickly as possible after demolition. Therefore, the demolition and clearance works should be undertaken simultaneously. To facilitate proper segregation of inert and non-inert C&D material arising from demolition works, selective demolition method should be adopted.						^
S6.2.5.4	If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producers.	Control the chemical waste and ensure proper storage, handling and disposal	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	Waste Disposal (Chemical Waste General) Regulation, Code of Practice on the Packaging, Labelling and Storage of Chemical Waste	^
	Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste contractor. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.						^
S6.2.5.5	General refuse should be stored in enclosed bins separately from construction and chemical wastes.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	Waste Disposal (Chemical Waste General) Regulation	^
	Recycling bins should also be placed to encourage recycling.						^
	Preferably enclosed and covered areas should be provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean.						^
	A reputable waste collector should be employed to remove general refuse on a daily basis.						^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
Landscape and Visual							
S7.3.1.1	For areas unavoidably disturbed by the Project on a short term basis e.g. works areas, the general principle to try and restore these to their former state to suit future land use, should be adhered to.	Minimize the impact to the landscape and visual	Contractor	Work Sites	Prior to construction and construction phase		N/A
	With regard to topsoil, where identified, it should be stripped, treated appropriately, and where suitable and practical stored for re-use in the construction of the soft landscape works such as roadside amenity strips, and open space sites.						N/A
S7.3.2.1	MM4 – Tree Protection & Preservation Existing trees to be retained within the Project Site should be carefully protected during construction. In particular Old and Valuable Trees (OVTs) will be preserved according to ETWB TC (Works) No. 29/2004. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in Contractor's works areas. A detailed tree survey will be carried out for the Tree Removal Application (TRA) process which will be carried out at the later detailed design stage of the Project. The detailed tree survey will propose which trees should be retained, transplanted or felled and will include details of tree protection measures for those trees to be retained.	Protect and Preserve Trees	Designer / Contractor	Work Sites	Prior to construction and construction phase	ETWB TCW No. 29/2004 and DEVB TC(W) No.7/2015	N/A

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
S7.3.2.1	MM5 - Tree Transplantation Trees unavoidably affected by the Project works should be transplanted where practical. Trees should be transplanted straight to their final receptor site and not held in a temporary nursery as far as possible. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, where applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme. A detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBTC No. 2/2004 and DEVB TC(W) No. 7/2015 and final locations of transplanted trees should be agreed prior to commencement of the work. For trees associated with highways e.g. roadside planting along highways, that are unavoidably affected and should be transplanted, HyD HQ/GN/13 'Interim Guidelines for Tree Transplanting Works under Highways Department's Vegetation Maintenance Ambit' should be referred to.	Transplant Trees where suitable for transplantation	Designer / Contractor	Work Sites where possible. Otherwise consider offsite locations	Prior to construction, construction phase and operation phase	DEVB TC(W) No. 7/2015 and ETWB TCW No.2/2004 HyD HQ/GN/13 Interim Guidelines for Tree Transplanting Works under Highways Department's Vegetation Maintenance Ambit	N/A
S7.3.2.1	MM6 - Slope Landscaping Site formation should be reduced as far as possible. Hydroseeding of modified slopes should be done as soon as grading works are completed to prevent erosion and subsequent loss of landscape recourses and charter. Woodland tree seedings and/or shrubs should be planted where slope gradient and site conditions allow.	To avoid substantial slope cutting and fill slopes. To prevent erosion and subsequent loss of landscape resources and character. To ensure man-made slopes are as visually amenable as possible.	Designer / Contractor	Work Sites	Prior to construction, construction phase and operation phase	GEO Publication (1999) - Use of Vegetation as Surface Protection on Slope; GEO Publication No. 1/2011-Technical Guidelines on Landscape Treatment for Slopes	N/A
	In addition, landscape planting should be provided for the retaining structures associated with modified slopes where conditions allow. All slope landscaping works should comply with GWO Publication No. 1/2011-Technical Guidelines on Landscape Treatment for Slopes.						N/A

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
S7.3.2.1	MM7 - Compensatory Planting Compensatory tree planting for felled trees shall be provided to the satisfaction of relevant Government departments. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Removal Application process under DEVB TC(W) No. 7/2015.	Compensate for trees and shrubs lost due to the Project	Designer / Contractor	Work Sites where possible. Otherwise consider offsite locations	Prior to construction, construction phase and operation phase	DEVB TC(W) No. 7/2015 and ETWB TCW No. 2/2004	N/A
	Compensatory planting is proposed at the potential open areas such as open spaces, amenity areas, open areas of the streetscapes, as well as the open areas within development lots.						N/A
	Compensatory planting for shrubs should be considered in suitable locations. Native species such as *Melastoma malabathricum, Diospyros vaccinioides, Gardenia jasminoides, Ixora chinensis, Ligustrum sinense, Litsea rotundifolia, Melastoma dodecandrum, Atalantia buxifolia, Rhodomyrtus tomentosa, Rhaphiolepis indica,* and *Rhododendron simsii* are suggested.						N/A
S7.3.2.1	MM9 - Vertical Greening Planting of climbers to grow up vertical surfaces were appropriate.	Soften hard surfaces and facilities	Designer / Contractor	On appropriate structures	Prior to construction, construction phase and operation phase	ETWB TCW No.11/2004 – Cyber Manual for Greening	N/A
S7.3.2.1	MM10 - Green Roof Roof greening where appropriate should be established on proposed buildings as per the guidelines stated. These guidelines provide further details including information regarding structural loading, design, maintenance, etc. considerations as well as providing information on what types of plants might be suitable.	Reduce exposure to untreated concrete surfaces and particularly mitigate visual impact to visually sensitive receivers (VSRs) at high levels. Provide greening.	Designer / Contractor	On appropriate buildings	Prior to construction, construction phase and operation phase	CIBSE HK Branch, Technical Guidelines for Green Roof Systems in Hong Kong (2011); ArchSD/Urbis Study on Green Roof Application in HK (2007)	N/A

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Status
S7.3.2.1	MM11 - Screen Planting Tall screen/buffer trees and shrubs should be planted. This measure may additionally form part of the compensatory planting.	To screen proposed structures such as roads and buildings. Improve compatibility with the surrounding environment and create a pleasant pedestrian environment	Designer / Contractor	Along roads, around suitable built structures, or around VSRs to contain their view out to the structures.	Prior to construction, construction phase and operation phase	ETWB TCW No. 10/2013 and 3/2006	N/A
S7.3.2.1	MM16 - Screen Hoarding Screen hoarding shall be erected along areas of the construction works site boundary where the works site borders publically accessible routes and/or is close to visually sensitive receivers (VSRs). It is proposed that the screening be compatible with the surrounding environment and where possible, non-reflective, recessive colours be used. Any works areas near the ecological sensitive areas should erect 2m high dull green site boundary fence.	To screen undesirable views of the works site.	Designer	Work Sites	Construction phase		N/A
S7.3.2.1	MM17 - Light Control Construction day and night time lighting should be controlled to minimize glare impact to adjacent VSRs during the Construction phase. Street and night time lighting shall also be controlled to minimize glare impact to adjacent VSRs during the operation phase.	To minimize glare impact to adjacent VSRs.	Designer / Contractor	Work Sites and/or the Plant	Construction phase and operation phase		^

Remarks: EM&A Programme under FEP-02/474/2013	
^	Compliance of mitigation measure;
N/A N/A(1)	Not applicable at this stage; Not observed;
*	Recommendation was made during site audit but improved/retified by the contractor;
#	Recommendation was made during site audit but not yet improved/retified by the contractor;
X	Non-compliance of mitigation measure;
●	Non-compliance but rectified by the contractor.

APPENDIX O
SUMMARIES OF ENVIRONMENTAL COMPLAINT, WARNING, SUMMON AND NOTIFICATION OF SUCCESSFUL PROSECUTION

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1

Appendix O – Summary of environmental complaint, warning, summon and notification of successful prosecution

Reporting Month: January 2020

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

Remarks: No environmental complaint/warning/summon and prosecution were received in the reporting period.

APPENDIX P
SUMMARY OF EXCEEDANCE

Agreement No. SPW 07/2019
Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1

Appendix P – Summary of Exceedance

Reporting Month: January 2020

(A) Exceedance Report for Air Quality
(NIL in the reporting month)

(B) Exceedance Report for Construction Noise
(NIL in the reporting month)

(C) Exceedance Report for Ecology
One (1) Action Level of ecological monitoring was triggered in the reporting month.
No Limit Level of ecological monitoring was triggered in the reporting month.

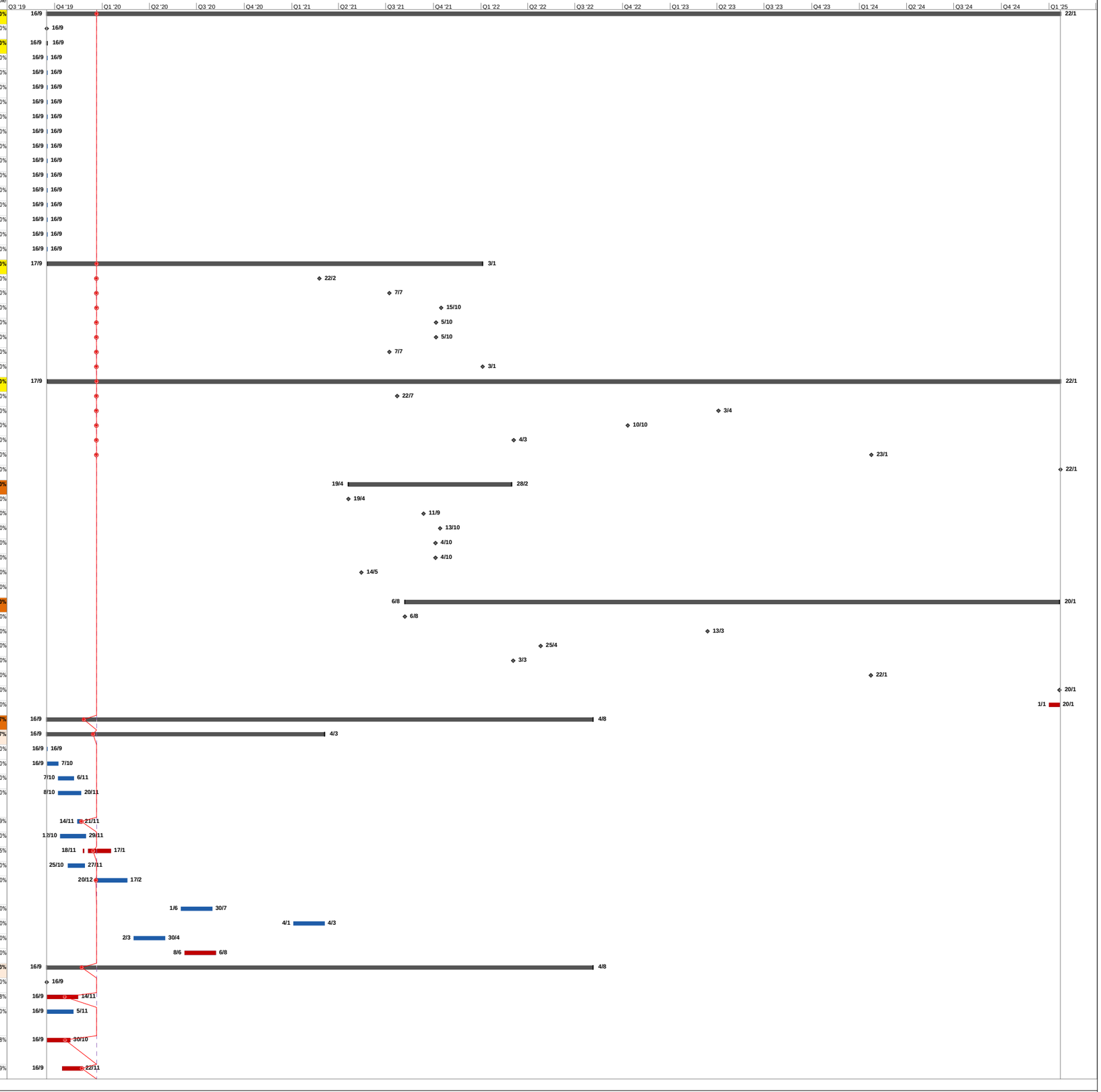
APPENDIX Q
TENTATIVE CONSTRUCTION PROGRAMME

Contract No.: DC/2018/06
Contract Title: Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
- Civil Works for Sludge Treatment Facilities and CLP 132kV Primary Substation

Revised Programme.(Status Date: 20/01/2020)

群利－俊和聯營體
KL－CW JV

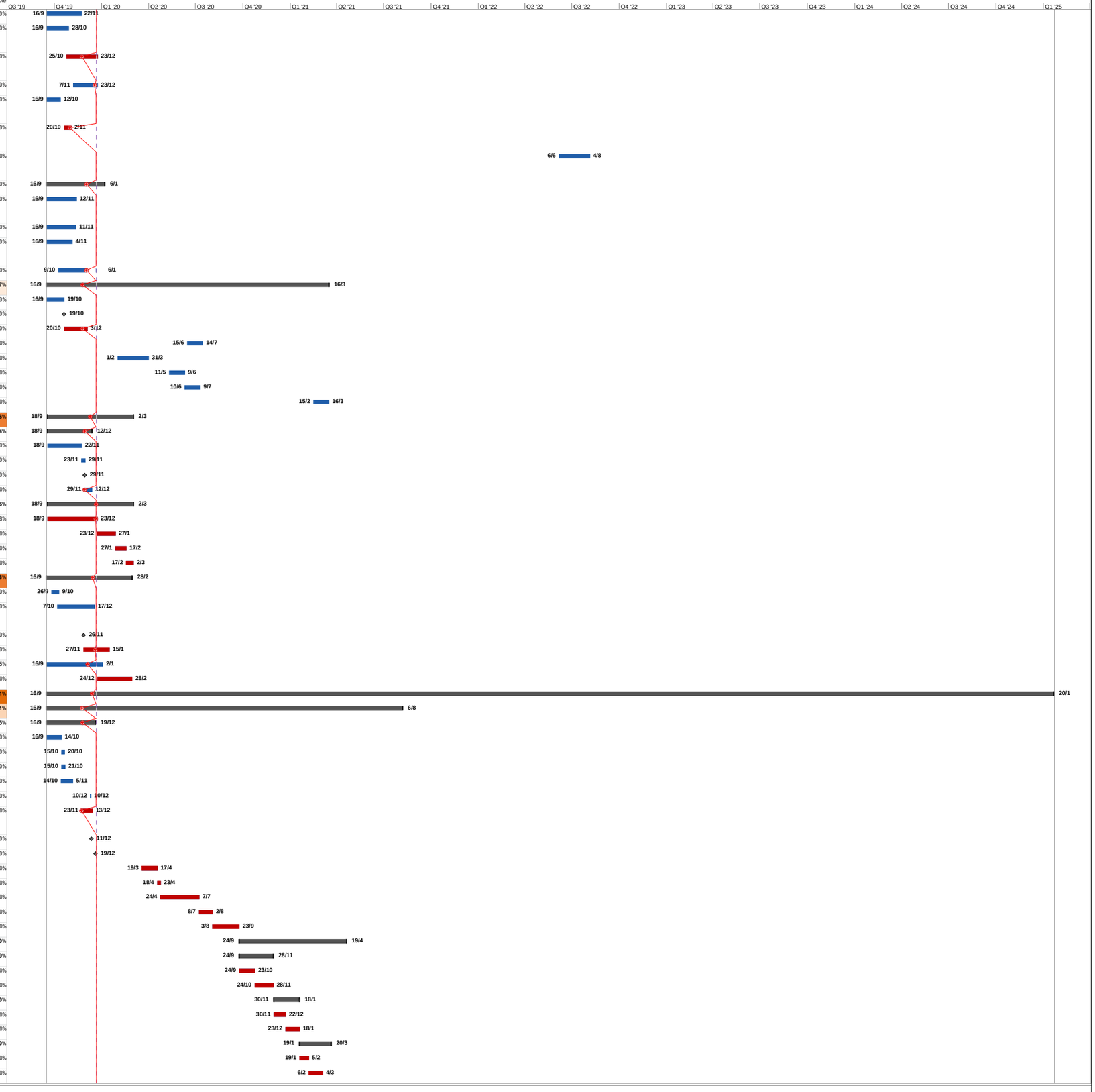
ID	KD	Task Name	Duration	Start	Finish	Actual Start	Actual Finish	Total Slack	Predecessors	Successors	% Comple
1		**Contract Dates**	**1956 day**	**Mon 16/9/19**	**Wed 22/1/25**	**Mon 16/9/19**	**Wed 22/1/25**	**0 days**			**100%**
2		Starting Date	0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days		4,5FS+180 days,(	100%
3		**Access Date (cal. day)**	**1 day**	**Mon 16/9/19**	**Mon 16/9/19**	**Mon 16/9/19**	**Mon 16/9/19**	**0 days**			**100%**
4		Portion A-1	1 day	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%
5		Portion A-2	1 day	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2FS+180 days		100%
6		Portion C-1A	1 day	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%
7		Portion C-1B	1 day	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%
8		Portion C-2A	1 day	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%
9		Portion C-2B	1 day	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%
10		Portion C-2C	1 day	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%
11		Portion C-2D	1 day	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%
12		Portion C-3	1 day	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%
13		Portion C-4	1 day	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%
14		Portion C-5	1 day	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%
15		Portion C-6	1 day	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2FS+180 days	308,300	100%
16		Works Area WA1	1 day	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%
17		Works Area WA2-A	1 day	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%
18		**Key Date (cal. day)**	**840 days**	**Tue 17/9/19**	**Mon 3/1/22**	**Tue 17/9/19**	**Mon 3/1/22**	**0 days**			**100%**
19		KD1A (525 days after starting date)	525 days	Tue 17/9/19	Mon 22/2/21	Tue 17/9/19	Mon 22/2/21	0 days	34FF		100%
20		KD2A (660 days after starting date)	660 days	Tue 17/9/19	Wed 7/7/21	Tue 17/9/19	Wed 7/7/21	0 days	2,35FF		100%
21		KD3A (760 days after starting date)	760 days	Tue 17/9/19	Fri 15/10/21	Tue 17/9/19	Fri 15/10/21	0 days	2,36FF		100%
22		KD3B (750 days after starting date)	750 days	Tue 17/9/19	Tue 5/10/21	Tue 17/9/19	Tue 5/10/21	0 days	2,37FF		100%
23		KD3C (750 days after starting date)	750 days	Tue 17/9/19	Tue 5/10/21	Tue 17/9/19	Tue 5/10/21	0 days	2,38FF		100%
24		KD3D (660 days after starting date)	660 days	Tue 17/9/19	Wed 7/7/21	Tue 17/9/19	Wed 7/7/21	0 days	2,39FF		100%
25		KD3E (840 days after starting date)	840 days	Tue 17/9/19	Mon 3/1/22	Tue 17/9/19	Mon 3/1/22	0 days	2,40FF		100%
26		**Completion Date (cal. day)**	**1955 day**	**Tue 17/9/19**	**Wed 22/1/25**	**Tue 17/9/19**	**Wed 22/1/25**	**0 days**			**100%**
27		Section 1 of Works (675 days after starting date)	675 days	Tue 17/9/19	Thu 22/7/21	Tue 17/9/19	Thu 22/7/21	0 days	2,42FF		100%
28		Section 2 of Works (1,295 days after starting date)	1295 day	Tue 17/9/19	Mon 3/4/23	Tue 17/9/19	Mon 3/4/23	0 days	2,43FF		100%
29		Section 3 of Works (1,120 days after starting date)	1120 day	Tue 17/9/19	Mon 10/10/22	Tue 17/9/19	Mon 10/10/22	0 days	2,44FF		100%
30		Section 4 of Works (900 days after starting date)	900 days	Tue 17/9/19	Fri 4/3/22	Tue 17/9/19	Fri 4/3/22	0 days	2,45FF		100%
31		Section 5 of Works (1,590 days after starting date)	1590 day	Tue 17/9/19	Tue 23/1/24	Tue 17/9/19	Tue 23/1/24	0 days	2,46FF	32	100%
32		Defect Liability Period, & Soft Landscape Establishment Works	366 days	Tue 23/1/24	Wed 22/1/25	Tue 23/1/24	Wed 22/1/25	0 days	31,47FF		100%
33	*	**Planned Completion - Key Date (cal. day)**	**315 days**	**Mon 19/4/21**	**Mon 28/2/22**	**NA**	**NA**	**-57 days**			**0%**
34	KD1A	KD1A (525 days after starting date)	0 days	Mon 19/4/21	Mon 19/4/21	NA	NA	-57 days	137FF,135FF	19FF	0%
35	KD2A	KD2A (660 days after starting date)	0 days	Sat 11/9/21	Sat 11/9/21	NA	NA	-67 days	363FF	20FF	0%
36	KD3A	KD3A (760 days after starting date)	0 days	Wed 13/10/21	Wed 13/10/21	NA	NA	0 days	177FF,178FF	21FF	0%
37	KD3B	KD3B (750 days after starting date)	0 days	Mon 4/10/21	Mon 4/10/21	NA	NA	0 days	195FF,196FF	22FF	0%
38	KD3C	KD3C (750 days after starting date)	0 days	Mon 4/10/21	Mon 4/10/21	NA	NA	0 days	207FF,208FF	23FF	0%
39	KD3D	KD3D (660 days after starting date)	0 days	Fri 14/5/21	Fri 14/5/21	NA	NA	53 days	233FF,234FF	24FF	0%
40	KD3E	KD3E (840 days after starting date)	0 days	Mon 28/2/22	Mon 28/2/22	NA	NA	-57 days	250FF,245FF,281F	25FF	0%
41	*	**Planned Completion - Section of the Works (cal. day)**	**1263 day**	**Fri 6/8/21**	**Mon 20/1/25**	**NA**	**NA**	**-16 days**			**0%**
42	SW1	Section 1 of Works (675 days after starting date)	0 days	Fri 6/8/21	Fri 6/8/21	NA	NA	-16 days	139FF,306FF,138F	27FF	0%
43	SW2	Section 2 of Works (1,295 days after starting date)	0 days	Mon 13/3/23	Mon 13/3/23	NA	NA	20 days	368FF,365FF,367F	28FF	0%
44	SW3	Section 3 of Works (1,120 days after starting date)	0 days	Mon 25/4/22	Mon 25/4/22	NA	NA	167 days	209FF,210FF,235F	29FF	0%
45	SW4	Section 4 of Works (900 days after starting date)	0 days	Thu 3/3/22	Thu 3/3/22	NA	NA	0 days	266FF,270FF,301F	30FF	0%
46	SW5	Section 5 of Works (1,590 days after starting date)	0 days	Mon 22/1/24	Mon 22/1/24	NA	NA	0 days	338FF,336FF,337F	31FF	0%
47		Defect Liability Period, & Soft Landscape Establishment Works	0 days	Mon 20/1/25	Mon 20/1/25	NA	NA	2 days	340FF	32FF	0%
48		Planned time risk allowance	20 days	Wed 1/1/25	Mon 20/1/25	NA	NA	0 days	340FF		0%
49		**Submissions (cal. day)**	**1054 day**	**Mon 16/9/19**	**Thu 4/8/22**	**Mon 16/9/19**	**NA**	**20 days**			**57%**
50		**Subletting Package**	**536 days**	**Mon 16/9/19**	**Thu 4/3/21**	**Mon 16/9/19**	**NA**	**26 days**			**37%**
51		Prepare & Submit Subletting Procedures	1 day	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2	52	100%
52		PM Review & Accept Subletting Procedures	21 days	Mon 16/9/19	Mon 7/10/19	Mon 16/9/19	Mon 7/10/19	0 days	51	54,56,53,55	100%
53		Subletting for Preliminary Works (Instrumentation Monitoring etc.)	30 days	Mon 7/10/19	Wed 6/11/19	Mon 7/10/19	Wed 6/11/19	0 days	52	308	100%
54		Subletting for Drainage Diversion Works for UV System no.1& Effluent Pumping Station No.1	44 days	Tue 8/10/19	Wed 20/11/19	Tue 8/10/19	Wed 20/11/19	0 days	52	305	100%
55		Subletting for the Temporary Site accommodation (On hold)	8 days	Thu 14/11/19	Thu 21/11/19	Thu 14/11/19	NA	32 days	52	108	99%
56		Subletting for Pre-drilling Works	49 days	Sat 12/10/19	Fri 29/11/19	Sat 12/10/19	Fri 29/11/19	0 days	52	57SS+15 days,58	100%
57		Subletting for Pre-bored Socketed Steel H-Pile	45 days	Mon 18/11/19	Fri 17/1/20	Mon 18/11/19	NA	-17.02 days	56SS+15 days	352,147,188,204,	25%
58		Subletting for Contractor's Designer for Temporary Works	32 days	Fri 25/10/19	Wed 27/11/19	Fri 25/10/19	Wed 27/11/19	0 days	56SS+15 days	60,59,73,61,62,63	100%
59		Subletting for ELS Works	60 days	Fri 20/12/19	Mon 17/2/20	Fri 20/12/19	NA	111 days	58	124,151,157,163,	0%
60		Subletting for R.C Works	60 days	Mon 1/6/20	Thu 30/7/20	NA	NA	1 day	58	125,191,207,220,	0%
61		Subletting for ABWS & BS Works	60 days	Mon 4/1/21	Thu 4/3/21	NA	NA	26 days	58	139,181,198,210,	0%
62		Subletting for Pipeworks, Utilities, and Roadworks	60 days	Mon 2/3/20	Thu 30/4/20	NA	NA	160 days	58	333,330,331,332,	0%
63		Subletting for Hard Landscape, Soft Landscape, and others	60 days	Mon 8/6/20	Thu 6/8/20	NA	NA	0 days	58	336,337,338,340	0%
64		**Statutory Submission, Submission & Approval**	**1054 day**	**Mon 16/9/19**	**Thu 4/8/22**	**Mon 16/9/19**	**NA**	**20 days**			**83%**
65		Prepare and Submit Subcontractor Management Plan (SMP)	0 days	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	Mon 16/9/19	0 days	2		100%
66		Prepare and Submit Interface Management Plan	60 days	Mon 16/9/19	Thu 14/11/19	Mon 16/9/19	NA	0 days	2		58%
67		Prepare TTA Plan, submit & approve for footpath for Stage 1 - Drainage Diversion	51 days	Mon 16/9/19	Tue 5/11/19	Mon 16/9/19	Tue 5/11/19	0 days	2	305,69	100%
68		Prepare TTA Plan, submit & approve for carriageway at Chuk Wan Road for CLP 13kV substation	45 days	Mon 16/9/19	Wed 30/10/19	Mon 16/9/19	NA	0 days	2		78%
69		Excavation Permit Application	38 days	Mon 16/9/19	Fri 22/11/19	Mon 16/9/19	NA	-22 days	67	371FS+60 days,3	99%



Task Milestone ◆ Summary Critical

Revised Programme.(Status Date: 20/01/2020)

ID	KD	Task Name	Duration	Start	Finish	Actual Start	Actual Finish	Total Slack	Predecessors	Successors	% Complete
70		Approval for Lighting Removal at Portion C-1A of the Site from Hyd	68 days	Mon 16/9/19	Fri 22/11/19	Mon 16/9/19	Fri 22/11/19	0 days	2	117	100%
71		Prepare, submit & approve for commencement of Works near MTRCL protection zone at Sun Wan Road from MTRCL	43 days	Mon 16/9/19	Mon 28/10/19	Mon 16/9/19	Mon 28/10/19	0 days	2	350,347	100%
72		Prepare, submit & approve the layout plan of the Temporary Site accommodation (PPMI no.001) (On hold)	60 days	Fri 25/10/19	Mon 23/12/19	Fri 25/10/19	NA	0 days	2	108	50%
73		Prepare, submit & approve the ELS design for deep excavation	47 days	Thu 7/11/19	Mon 23/12/19	Thu 7/11/19	Mon 23/12/19	0 days	58	124,151,157,163,	100%
74		Prepare, submit & approve the Method Statement for Drainage Diversion Works	27 days	Mon 16/9/19	Sat 12/10/19	Mon 16/9/19	Sat 12/10/19	0 days	2	305,75	100%
75		PM approve the Method Statement for Drainage Diversion Works	14 days	Sun 20/10/19	Sat 2/11/19	Sun 20/10/19	NA	0 days	74		80%
76		Prepare, submit & approve for the FSD submissions for CLP 132kV Substation	60 days	Mon 6/6/22	Thu 4/8/22	NA	NA	20 days		368	0%
77		Environmental Aspect Submissions	113 days	Mon 16/9/19	Mon 6/1/20	Mon 16/9/19	Mon 6/1/20	0 days	2		100%
78		Prepare, submit & approve Site Management Plan for Trip Tricket System	58 days	Mon 16/9/19	Tue 12/11/19	Mon 16/9/19	Tue 12/11/19	0 days	2		100%
79		Prepare, submit & approve Waste Management Plan	57 days	Mon 16/9/19	Mon 11/11/19	Mon 16/9/19	Mon 11/11/19	0 days	2		100%
80		Prepare, submit & approve Environmental Management Plan	50 days	Mon 16/9/19	Mon 4/11/19	Mon 16/9/19	Mon 4/11/19	0 days	2		100%
81		Notification to EPD for Works Commencement	55.44 day	Wed 9/10/19	Mon 6/1/20	Wed 9/10/19	Mon 6/1/20	0 days		305FS-1 day,326	100%
82		**Procurement**	**548 days**	**Mon 16/9/19**	**Tue 16/3/21**	**Mon 16/9/19**	**NA**	**14 days**			**27%**
83		Prepare and submit the Procurement Procedure	34 days	Mon 16/9/19	Sat 19/10/19	Mon 16/9/19	Sat 19/10/19	0 days		84	100%
84		PM Review & Accept Procurement Procedure	0 days	Sat 19/10/19	Sat 19/10/19	Sat 19/10/19	Sat 19/10/19	0 days	83	85,86,87	100%
85		Prepare, submit and approve the pipe works material	45 days	Sun 20/10/19	Tue 3/12/19	Sun 20/10/19	NA	-25 days	84	302	80%
86		Prepare, submit and approve the water proofing material	30 days	Mon 15/6/20	Tue 14/7/20	NA	NA	24 days	84	125,191,207,220,	0%
87		Prepare, submit and approve the concrete mix	60 days	Sat 1/2/20	Tue 31/3/20	NA	NA	69 days	84	125,191,207,220,	0%
88		Prepare, submit and approve the rebar material	30 days	Mon 11/5/20	Tue 9/6/20	NA	NA	29 days	87	89,125,191,207,2	0%
89		Prepare, submit and approve the metal works material	30 days	Wed 10/6/20	Thu 9/7/20	NA	NA	29 days	88	90,125,191,207,2	0%
90		Prepare, submit and approve the ABWF works material	30 days	Mon 15/2/21	Tue 16/3/21	NA	NA	14 days	89	139,181,198,210,	0%
91		**Preparation of Cost Saving Design**	**166.8 day**	**Wed 18/9/19**	**Mon 2/3/20**	**Wed 18/9/19**	**NA**	**2.2 days**			**66%**
92		**Prepare, submit and approve CSD package no.1**	**86 days**	**Wed 18/9/19**	**Thu 12/12/19**	**Wed 18/9/19**	**NA**	**83 days**	**2**	**147,188**	**84%**
93		Prepare and submit CSD proposal	66 days	Wed 18/9/19	Fri 22/11/19	Wed 18/9/19	Fri 22/11/19	0 days	2	94	100%
94		PM review and approval of CSD	7 days	Sat 23/11/19	Fri 29/11/19	Sat 23/11/19	Fri 29/11/19	0 days	93	95	100%
95		Obtain AIP	0 days	Fri 29/11/19	Fri 29/11/19	Fri 29/11/19	Fri 29/11/19	0 days	94	96	100%
96		Obtain DDA	14 days	Fri 29/11/19	Thu 12/12/19	Fri 29/11/19	NA	83 days	95	147,188	0%
97		**Prepare, submit and approve CSD package no.2**	**166.8 day**	**Wed 18/9/19**	**Mon 2/3/20**	**Wed 18/9/19**	**NA**	**-5.8 days**	**2**	**122,217**	**56%**
98		Prepare and submit CSD proposal	95 days	Wed 18/9/19	Mon 23/12/19	Wed 18/9/19	NA	-5.8 days	2	99	98%
99		PM review and approval of CSD	35 days	Mon 23/12/19	Mon 27/1/20	NA	NA	-5.8 days	98	100	0%
100		Obtain AIP	21 days	Mon 27/1/20	Mon 17/2/20	NA	NA	-5.8 days	99	101	0%
101		Obtain DDA	14 days	Mon 17/2/20	Mon 2/3/20	NA	NA	-5.8 days	100	122,217	0%
102		**Site Preliminary Works**	**166 days**	**Mon 16/9/19**	**Fri 28/2/20**	**Mon 16/9/19**	**NA**	**0 days**			**68%**
103		Initial Tree survey and report submission	14 days	Thu 26/9/19	Wed 9/10/19	Thu 26/9/19	Wed 9/10/19	0 days	2	105	100%
104		Prepare and submit and approve the Method Statement of Tree felling & Prunning works	72 days	Mon 7/10/19	Tue 17/12/19	Mon 7/10/19	Tue 17/12/19	0 days	2	105	100%
105		Mobilization for Hoarding	0 days	Thu 21/11/19	Tue 26/11/19	Thu 21/11/19	Tue 26/11/19	0 days	2,113,103,104	106	100%
106		Hoarding Erection at Portion C	40 days	Wed 27/11/19	Wed 15/1/20	Wed 27/11/19	NA	0 days	105	118	70%
107		Utility applications and Connection	89 days	Mon 16/9/19	Thu 2/1/20	Mon 16/9/19	NA	46 days	2	108FF	75%
108		Construction of Site Accommodation in Works Area (On hold)	52 days	Tue 24/12/19	Fri 28/2/20	NA	NA	0 days	72,107FF,55		0%
109	*	**Construction Works of Portion C of the Site**	**1954 day**	**Mon 16/9/19**	**Mon 20/1/25**	**Mon 16/9/19**	**NA**	**0 days**			**1%**
110	*	**UV System No. 1 & Effluent Pumping Station No. 1**	**561 days**	**Mon 16/9/19**	**Fri 6/8/21**	**Mon 16/9/19**	**NA**	**-14 days**			**11%**
111		**Preliminary Works**	**80 days**	**Mon 16/9/19**	**Thu 19/12/19**	**Mon 16/9/19**	**NA**	**0 days**			**75%**
112		Site Clearance & Site Set Up	23 days	Mon 16/9/19	Mon 14/10/19	Mon 16/9/19	Mon 14/10/19	0 days	2	113,114,115	100%
113		Tree Felling Works	5 days	Tue 15/10/19	Sun 20/10/19	Tue 15/10/19	Sun 20/10/19	0 days	112	105	100%
114		Trial Pit Excavation & UU Detection Works	6 days	Tue 15/10/19	Mon 21/10/19	Tue 15/10/19	Mon 21/10/19	0 days	112		100%
115		Temporary Footpath Diversion	20 days	Mon 14/10/19	Tue 5/11/19	Mon 14/10/19	Tue 5/11/19	0 days	112	117FS-15 days,1	100%
116		Temporary diverted foorpath open to public	1 day	Tue 10/12/19	Tue 10/12/19	Tue 10/12/19	Tue 10/12/19	0 days	115	305	100%
117		Removal of Existing Street light and Provision of Temporary Street light	18 days	Sat 23/11/19	Fri 13/12/19	NA	NA	-2 days	70,115FS-15 days	305FS-5 days	0%
118		Predrilling Works (8no, 1rig, 4days/drillhole/rig)	0 days	Tue 3/12/19	Wed 11/12/19	Tue 3/12/19	Wed 11/12/19	0 days	305,328,327,56,10	119FS+14 days	100%
119		Installation of Monitoring Points	0 days	Thu 19/12/19	Thu 19/12/19	Thu 19/12/19	Thu 19/12/19	0 days	118FS+14 days	120	100%
120		Sheetpile Installation (FSP IV, 2200sq.m, 2 Rig, 50sqm/rig/day)	22 days	Thu 19/3/20	Fri 17/4/20	NA	NA	-46 days	119,305,326	121	0%
121		Setting up plant for pre-bored socked H-pile Installation	5 days	Sat 18/4/20	Thu 23/4/20	NA	NA	-46 days	120	122	0%
122		Pre-bored Socketed H-Pile Installation (34 Nos, 3 Rig, 5days/rig/pile)	60 days	Fri 24/4/20	Tue 7/7/20	NA	NA	-46 days	57,121,97,101	123	0%
123		Pile Loading Test	26 days	Wed 8/7/20	Sun 2/8/20	NA	NA	-56 days	122	124	0%
124		ELS Works (incl. Strut (4-layers) Installation & Excavation (3,700 cu.m)	45 days	Mon 3/8/20	Wed 23/9/20	NA	NA	-46 days	73,59,123	127	0%
125		**R.C. Structure (370sq.m)**	**166 days**	**Thu 24/9/20**	**Mon 19/4/21**	**NA**	**NA**	**-46 days**	**86,87,88,89,60**		**0%**
126		**Below Ground Level Stage no.1 @ -1.10mPD**	**54 days**	**Thu 24/9/20**	**Sat 28/11/20**	**NA**	**NA**	**-46 days**			**0%**
127		Base slab Construction (162 sq.m)	24 days	Thu 24/9/20	Fri 23/10/20	NA	NA	-46 days	124	128	0%
128		Walls and Slabs Construction @-1.10mPD to +2.50mPD	30 days	Sat 24/10/20	Sat 28/11/20	NA	NA	-46 days	127	130	0%
129		**Below Ground Level Stage no.2 @ +1.50mPD**	**40 days**	**Mon 30/11/20**	**Mon 18/1/21**	**NA**	**NA**	**-46 days**			**0%**
130		Base slab Construction (170sq.m)	20 days	Mon 30/11/20	Tue 22/12/20	NA	NA	-46 days	128	131	0%
131		Walls and Slabs Construction @+1.5mPD to +4.9mPD	20 days	Wed 23/12/20	Mon 18/1/21	NA	NA	-46 days	130	133	0%
132		**Below Ground Level Stage no.3 @ +3.80mPD**	**50 days**	**Tue 19/1/21**	**Sat 20/3/21**	**NA**	**NA**	**-46 days**			**0%**
133		Base slab Construction (15 sq.m + 40 sq.m)	16 days	Tue 19/1/21	Fri 5/2/21	NA	NA	-46 days	131	134	0%
134		Walls and Slabs Construction @+3.80mPD to +7.4mPD	20 days	Sat 6/2/21	Thu 4/3/21	NA	NA	-46 days	133	135,137	0%



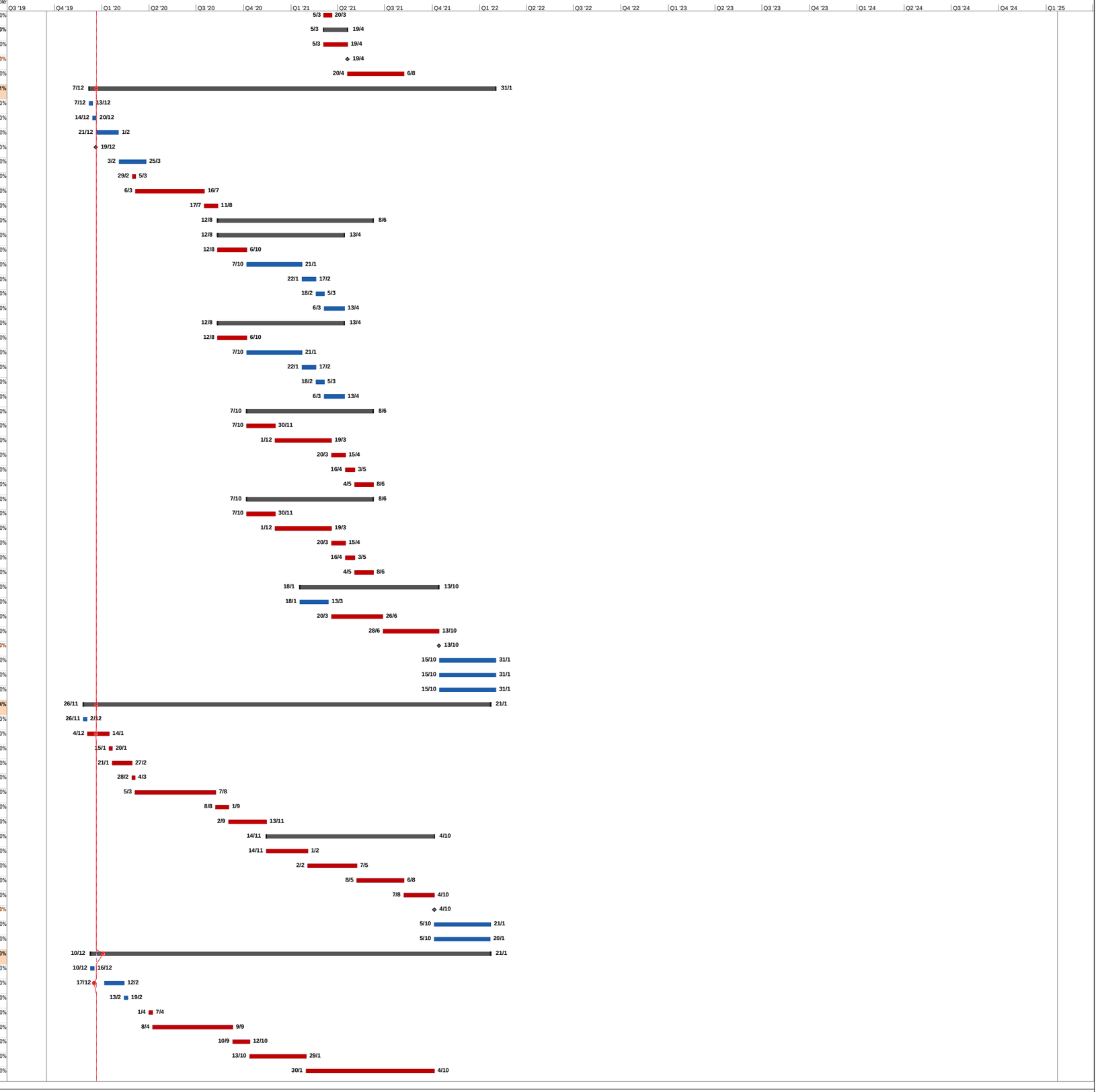
Task | Milestone ◆ | Summary | Critical

Contract No.: DC/2018/06
Contract Title: Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
- Civil Works for Sludge Treatment Facilities and CLP 132kV Primary Substation

Revised Programme.(Status Date: 20/01/2020)

群利－俊和聯營體
KL－CW JV

ID	KD	Task Name	Duration	Start	Finish	Actual Start	Actual Finish	Total Slack	Predecessors	Successors	% Comple
135		Extraction of Sheetpiles	14 days	Fri 5/3/21	Sat 20/3/21	NA	NA	-24 days	134	34FF	0%
136		**Above Ground Level @ +7.4mPD**	**36 days**	**Fri 5/3/21**	**Mon 19/4/21**	**NA**	**NA**	**-46 days**			**0%**
137	KD1A	Walls, Slabs and staircase Construction @+7.4mPD to 16.4mPD	36 days	Fri 5/3/21	Mon 19/4/21	NA	NA	-46 days	134	34FF,138,139,27I	0%
138		**Allow access to Contarctor DE/2018/06 for E&M Installation**	**0 days**	**Mon 19/4/21**	**Mon 19/4/21**	**NA**	**NA**	**76 days**	**137**	**42FF**	**0%**
139	SW1	ABWF Works + BS Works	90 days	Tue 20/4/21	Fri 6/8/21	NA	NA	-14 days	90,61,137	42FF	0%
140	*	**Sludge Digesters and Distribution Chamber**	**638 days**	**Sat 7/12/19**	**Mon 31/1/22**	**Sat 7/12/19**	**NA**	**201 days**			**1%**
141		Site Clearance & Site Set Up	6 days	Sat 7/12/19	Fri 13/12/19	Sat 7/12/19	Fri 13/12/19	0 days	142SF		100%
142		Trial Pit Excavation & UU Detection Works	6 days	Sat 14/12/19	Fri 20/12/19	Sat 14/12/19	Fri 20/12/19	0 days	143SF	141SF	100%
143		Predrilling Works (23no., 3rig, 4days/drillhole/rig)	31 days	Sat 21/12/19	Sat 1/2/20	Sat 21/12/19	NA	6 days	56FS+14 days	144,142SF,145	0%
144		Installation of Monitoring Points	0 days	Thu 19/12/19	Thu 19/12/19	Thu 19/12/19	Thu 19/12/19	0 days	143	147	100%
145		Sheet Pile Installation	45 days	Mon 3/2/20	Wed 25/3/20	NA	NA	6 days	143	147FS-23 days,1	0%
146		Setting up plant for pre-bored socked H-pile Installation	5 days	Sat 29/2/20	Thu 5/3/20	NA	NA	0 days		147	0%
147		Pre-bored Socketed H-Pile Installation (127nos, 6 Rig, 5days/rig/pile)	106 days	Fri 6/3/20	Thu 16/7/20	NA	NA	0 days	57,144,145FS-23 d	148,300	0%
148		Pile Load Test (2no.)	26 days	Fri 17/7/20	Tue 11/8/20	NA	NA	0 days	147	151,157,150,156,	0%
149		Construction of Digestors	244 days	Wed 12/8/20	Tue 8/6/21	NA	NA	0 days			0%
150		Digester No. 1	198 days	Wed 12/8/20	Tue 13/4/21	NA	NA	0 days	148		0%
151		ELS Works (ind. Strut (3-layers) Installation & Excavation (4,440 cu.m))	46 days	Wed 12/8/20	Tue 6/10/20	NA	NA	0 days	73,59,148	163,152	0%
152		Construction of Digesters	88 days	Wed 7/10/20	Thu 21/1/21	NA	NA	2 days	151	153,176,164FS-5	0%
153		Water Test	20 days	Fri 22/1/21	Wed 17/2/21	NA	NA	2 days	152	154	0%
154		Apply Internal Anti-corrosion Protective Lining	14 days	Thu 18/2/21	Fri 5/3/21	NA	NA	2 days	153	155	0%
155		Construction of Roof Slab	30 days	Sat 6/3/21	Tue 13/4/21	NA	NA	2 days	154	166	0%
156		Digester No. 2	198 days	Wed 12/8/20	Tue 13/4/21	NA	NA	0 days	148		0%
157		ELS Works (ind. Strut (3-layers) Installation & Excavation (4,440 cu.m))	46 days	Wed 12/8/20	Tue 6/10/20	NA	NA	0 days	73,59,148	169,158	0%
158		Construction of Digesters	88 days	Wed 7/10/20	Thu 21/1/21	NA	NA	2 days	157	159,176,170FS-5	0%
159		Water Test	20 days	Fri 22/1/21	Wed 17/2/21	NA	NA	2 days	158	160	0%
160		Apply Internal Anti-corrosion Protective Lining	14 days	Thu 18/2/21	Fri 5/3/21	NA	NA	2 days	159	161	0%
161		Construction of Roof Slab	30 days	Sat 6/3/21	Tue 13/4/21	NA	NA	2 days	160	172	0%
162		Digester No. 3	198 days	Wed 7/10/20	Tue 8/6/21	NA	NA	0 days	148		0%
163		ELS Works (ind. Strut (3-layers) Installation & Excavation (4,440 cu.m))	46 days	Wed 7/10/20	Mon 30/11/20	NA	NA	0 days	73,59,151	164,329FS-45 da	0%
164		Construction of Digesters	88 days	Tue 1/12/20	Fri 19/3/21	NA	NA	0 days	163,152FS-58 days	165,176	0%
165		Water Test	20 days	Sat 20/3/21	Thu 15/4/21	NA	NA	0 days	164	166	0%
166		Apply Internal Anti-corrosion Protective Lining	14 days	Fri 16/4/21	Mon 3/5/21	NA	NA	0 days	165,155	167	0%
167		Construction of Roof Slab	30 days	Tue 4/5/21	Tue 8/6/21	NA	NA	0 days	166		0%
168		Digester No. 4	198 days	Wed 7/10/20	Tue 8/6/21	NA	NA	0 days	148		0%
169		ELS Works (ind. Strut (3-layers) Installation & Excavation (4,440 cu.m))	46 days	Wed 7/10/20	Mon 30/11/20	NA	NA	0 days	73,59,157	170,329FS-45 da	0%
170		Construction of Digesters	88 days	Tue 1/12/20	Fri 19/3/21	NA	NA	0 days	169,158FS-58 days	171,176,177	0%
171		Water Test	20 days	Sat 20/3/21	Thu 15/4/21	NA	NA	0 days	170	172	0%
172		Apply Internal Anti-corrosion Protective Lining	14 days	Fri 16/4/21	Mon 3/5/21	NA	NA	0 days	171,161	173	0%
173		Construction of Roof Slab	30 days	Tue 4/5/21	Tue 8/6/21	NA	NA	0 days	172		0%
174		Construction of Distribution Chamber	219 days	Mon 18/1/21	Wed 13/10/21	NA	NA	0 days			0%
175	SP	Sheet Pile Installation	45 days	Mon 18/1/21	Sat 13/3/21	NA	NA	5 days	145	176	0%
176		ELS Works (incl. Strut (3-layers) Installation & Excavation (8,880 cu.m))	79 days	Sat 20/3/21	Sat 26/6/21	NA	NA	0 days	164,170,158,152,7	177,272	0%
177	KD3A	Construction of Distribution Chamber	90 days	Mon 28/6/21	Wed 13/10/21	NA	NA	0 days	176,170	181,178,36FF,18	0%
178	KD3A	**Allow access to Contarctor DE/2018/06 for E&M Installation**	**0 days**	**Wed 13/10/21**	**Wed 13/10/21**	**NA**	**NA**	**0 days**	**177**	**36FF**	**0%**
179		Drainage System (within Bldg/ Structure) Installation	90 days	Fri 15/10/21	Mon 31/1/22	NA	NA	201 days	177	44FF	0%
180		FRP Walkway & Miscellanous Installation	90 days	Fri 15/10/21	Mon 31/1/22	NA	NA	201 days	177	44FF	0%
181	SW3	ABWF Works & BS Works, incl. External Linning	90 days	Fri 15/10/21	Mon 31/1/22	NA	NA	201 days	177,90,61	44FF	0%
182	*	**Sludge Dewatering Building**	**640 days**	**Tue 26/11/19**	**Fri 21/1/22**	**Tue 26/11/19**	**NA**	**209 days**			**4%**
183		Site Clearance & Site Set Up	6 days	Tue 26/11/19	Mon 2/12/19	Tue 26/11/19	Mon 2/12/19	0 days	2	184	100%
184		Predrilling Works (39no.4rig, 4days/drillhole/rig))	33 days	Wed 4/12/19	Tue 14/1/20	Wed 4/12/19	NA	-76 days	56FS+14 days,183	185	70%
185		Installation of Monitoring Points	5 days	Wed 15/1/20	Mon 20/1/20	NA	NA	0 days	184	186	0%
186		Sheet Pile Installation	30 days	Tue 21/1/20	Thu 27/2/20	NA	NA	0 days	185	188,300,187	0%
187		Setting up plant for pre-bored socked H-pile Installation	5 days	Fri 28/2/20	Wed 4/3/20	NA	NA	0 days	186	188,299SS-14 da	0%
188		Pre-bored Socketed H-Pile Installation (202 Nos, 8 Rig, 5days/rig/pile)	126 days	Thu 5/3/20	Fri 7/8/20	NA	NA	0 days	186,57,187,92,96	216,189	0%
189		Pile Loading Test	25 days	Sat 8/8/20	Tue 1/9/20	NA	NA	0 days	188	190	0%
190		ELS Works (incl. Strut (3-layers) Installation & Excavation (25,000 cu.m))	60 days	Wed 2/9/20	Fri 13/11/20	NA	NA	0 days	73,59,189	191,192,329FS-4	0%
191		R.C. Structure	263 days	Sat 14/11/20	Mon 4/10/21	NA	NA	0 days	86,87,88,89,60,19	198,197,196	0%
192		Basement Consturction @	80 days	Sat 14/11/20	Mon 1/2/21	NA	NA	0 days	190	193	0%
193		Ground Floor Construction @ +7.55mpD	75 days	Tue 2/2/21	Fri 7/5/21	NA	NA	0 days	192	194	0%
194		1/F Construction @ +15.3m mPD	75 days	Sat 8/5/21	Fri 6/8/21	NA	NA	0 days	193	195	0%
195	KD3B	Roof Construction @ +25.65mPD	48 days	Sat 7/8/21	Mon 4/10/21	NA	NA	0 days	194	37FF,283	0%
196	KD3B	**Allow access to Contarctor DE/2018/06 for E&M Installation**	**0 days**	**Mon 4/10/21**	**Mon 4/10/21**	**NA**	**NA**	**0 days**	**191**	**37FF**	**0%**
197		Drainage System (within Bldg/ Structure) Installation	90 days	Tue 5/10/21	Fri 21/1/22	NA	NA	209 days	191	44FF	0%
198	SW5	ABWF Works & BS Works	89 days	Tue 5/10/21	Thu 20/1/22	NA	NA	210 days	191,90,61	44FF	0%
199	*	**Combined Heat Power Building**	**628 days**	**Tue 10/12/19**	**Fri 21/1/22**	**Tue 10/12/19**	**NA**	**209 days**			**3%**
200		Site Clearance & Site Set Up	6 days	Tue 10/12/19	Mon 16/12/19	Tue 10/12/19	Mon 16/12/19	0 days	2,201SF		100%
201		Predrilling Works (15no. 2rig, 4days/drillhole/rig)	30 days	Tue 17/12/19	Wed 12/2/20	Tue 17/12/19	NA	40 days	56FS+28 days	202,200SF	50%
202		Installation of Monitoring Points	6 days	Thu 13/2/20	Wed 19/2/20	NA	NA	40 days	201	204	0%
203		Setting up plant for pre-bored socked H-pile Installation	5 days	Wed 1/4/20	Tue 7/4/20	NA	NA	0 days		204	0%
204		Pre-bored Socketed H-Pile Installation (50 Nos, 2 Rig 5days/rig/pile)	126 days	Wed 8/4/20	Wed 9/9/20	NA	NA	0 days	57,202,203	241,205	0%
205		Pile Loading Test	26 days	Thu 10/9/20	Mon 12/10/20	NA	NA	0 days	204	206	0%
206		Excavation for Pile Cap (2,060 cu.m)	90 days	Tue 13/10/20	Fri 29/1/21	NA	NA	0 days	73,59,205	207	0%
207	KD3C	R.C. Structure	200 days	Sat 30/1/21	Mon 4/10/21	NA	NA	0 days	86,87,88,89,60,206	38FF,209,210,20	0%



Task | Milestone ◆ | Summary | Critical

Contract No.: DC/2018/06
Contract Title: Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
- Civil Works for Sludge Treatment Facilities and CLP 132kV Primary Substation

Revised Programme.(Status Date: 20/01/2020)

群利－俊和聯營體
KL－CW JV

ID	KD	Task Name	Duration	Start	Finish	Actual Start	Actual Finish	Total Slack	Predecessors	Successors	% Comple
208	KD3C	**Allow access to Contarctor DE/2018/06 for E&M Installation**	**0 days**	**Mon 4/10/21**	**Mon 4/10/21**	**NA**	**NA**	**0 days**	**207**	**38FF**	**0%**
209		Drainage System (within Bldg/ Structure) Installation	60 days	Tue 5/10/21	Tue 14/12/21	NA	NA	239 days	207	44FF	0%
210	SW3	ABWF Works & BS Works	90 days	Tue 5/10/21	Fri 21/1/22	NA	NA	209 days	207,90,61	44FF	0%
211	*	**Sewage Pumping Station**	**570 days**	**Mon 25/5/20**	**Mon 25/4/22**	**NA**	**NA**	**11 days**			**0%**
212		Site Clearance & Site Set Up	6 days	Mon 25/5/20	Sat 30/5/20	NA	NA	11 days	2	213	0%
213		Predrilling Works (4no.1rig, 4days/drillhole/rig)	16 days	Mon 1/6/20	Thu 18/6/20	NA	NA	11 days	56FS+14 days,212	214	0%
214		Installation of Monitoring Points	6 days	Fri 19/6/20	Fri 26/6/20	NA	NA	11 days	213	215	0%
215		Sheet Pile Installation	30 days	Sat 27/6/20	Sat 1/8/20	NA	NA	11 days	214	217	0%
216		Setting up plant for pre-bored socked H-pile Installation	5 days	Sat 8/8/20	Thu 13/8/20	NA	NA	1 day	188	217	0%
217		Pre-bored Socketed H-Pile Installation (22 Nos, 1 Rig, 5days/rig/pile)	110 days	Fri 14/8/20	Wed 23/12/20	NA	NA	1 day	57,215,216,97,101	218	0%
218		Pile Loading Test	26 days	Thu 24/12/20	Mon 18/1/21	NA	NA	3 days	217	219	0%
219		ELS Works (incl. Strut (3-layers) Installation & Excavation (1,440 cu.m))	80 days	Tue 19/1/21	Wed 28/4/21	NA	NA	3 days	73,59,218	220	0%
220	KD3E	R.C. Structure	200 days	Tue 4/5/21	Fri 31/12/21	NA	NA	0 days	86,87,88,89,60,245	40FF,221	0%
221	SW3	ABWF Works & BS Works	90 days	Mon 3/1/22	Mon 25/4/22	NA	NA	136 days	90,61,220	44FF	0%
222	*	**Workshop No. 2**	**494 days**	**Thu 2/1/20**	**Tue 31/8/21**	**NA**	**NA**	**5 days**			**0%**
223		Site Clearance & Site Set Up	6 days	Thu 2/1/20	Wed 8/1/20	NA	NA	5 days	2	224	0%
224		Predrilling Works (10no.1rig, 4days/drillhole/rig)	40 days	Thu 9/1/20	Thu 27/2/20	NA	NA	5 days	56,223	225	0%
225		Installation of Monitoring Points	2 days	Fri 28/2/20	Sat 29/2/20	NA	NA	5 days	224	227,226	0%
226		Setting up plant for pre-bored socked H-pile Installation	5 days	Mon 2/3/20	Fri 6/3/20	NA	NA	5 days	225	227	0%
227		Pre-bored Socketed H-Pile Installation (36 Nos, 2 Rig, 5days/rig/pile)	90 days	Sat 7/3/20	Sat 27/6/20	NA	NA	5 days	57,225,226	228	0%
228		Pile Loading Test	26 days	Sun 28/6/20	Thu 23/7/20	NA	NA	7 days	227	229	0%
229		Excavation for Pile Cap (1,800 cu.m)	20 days	Fri 24/7/20	Sat 15/8/20	NA	NA	6 days	73,59,228	231,329FS-45 da	0%
230		**R.C. Structure**	**220 days**	**Mon 17/8/20**	**Fri 14/5/21**	**NA**	**NA**	**6 days**			**0%**
231		Ground Floor Construction @ +6.30mpD	80 days	Mon 17/8/20	Fri 20/11/20	NA	NA	6 days	229	232	0%
232		First Floor Construction @ +13.50mpD	80 days	Sat 21/11/20	Mon 1/3/21	NA	NA	6 days	231	233	0%
233	KD3D	Roof Construction @+19.00mPD	60 days	Tue 2/3/21	Fri 14/5/21	NA	NA	6 days	232	235,236,39FF,23	0%
234	**KD3D**	**Allow access to Contarctor DE/2018/06 for E&M Installation**	**0 days**	**Fri 14/5/21**	**Fri 14/5/21**	**NA**	**NA**	**42 days**	**233**	**39FF**	**0%**
235		Drainage System (within Bldg/ Structure) Installation	60 days	Sat 15/5/21	Tue 27/7/21	NA	NA	356 days	233	44FF	0%
236	SW3	ABWF Works & BS Works	90 days	Sat 15/5/21	Tue 31/8/21	NA	NA	326 days	90,61,233	44FF	0%
237	*	**Thermal Hydrolysis Pretreatment**	**403 days**	**Thu 19/12/19**	**Mon 3/5/21**	**Thu 19/12/19**	**NA**	**0 days**			**0%**
238		Site Clearance & Site Set Up	6 days	Thu 19/12/19	Mon 30/12/19	Thu 19/12/19	NA	219.12 days	2	239	2%
239		Predrilling Works (3no.1rig, 4days/drillhole/rig)	12 days	Tue 31/12/19	Tue 14/1/20	NA	NA	219 days	56FS+24 days,238	240	0%
240		Installation of Monitoring Points	6 days	Wed 15/1/20	Tue 21/1/20	NA	NA	219 days	239	242	0%
241		Setting up plant for pre-bored socked H-pile Installation	5 days	Tue 13/10/20	Sat 17/10/20	NA	NA	0 days	204	242	0%
242		Pre-bored Socketed H-Pile Installation (15 Nos, 1 Rig, 5days/rig/pile)	80 days	Mon 19/10/20	Sat 23/1/21	NA	NA	0 days	57,240,241	243	0%
243		Pile Loading Test	25 days	Sun 24/1/21	Wed 17/2/21	NA	NA	0 days	242	244	0%
244		Excavation for Pile Cap (160 cu.m)	20 days	Thu 18/2/21	Fri 12/3/21	NA	NA	0 days	73,59,243	245	0%
245	KD3E	R.C. Plinth	40 days	Sat 13/3/21	Mon 3/5/21	NA	NA	0 days	244	40FF,220	0%
246	*	**Ferric Chloride Dosing Facilities**	**217 days**	**Sat 15/5/21**	**Sat 5/2/22**	**NA**	**NA**	**6 days**			**0%**
247		Excavation for Raft Footing (105 cu.m)	35 days	Sat 15/5/21	Sat 26/6/21	NA	NA	6 days	2,233	248	0%
248		Plate Load Test	18 days	Mon 28/6/21	Mon 19/7/21	NA	NA	6 days	247	249	0%
249		R.C. Structure	66 days	Tue 20/7/21	Wed 6/10/21	NA	NA	6 days	248,60	250	0%
250	KD3E	Steel Roof Structure (On-site Fabrication)	65 days	Thu 7/10/21	Wed 22/12/21	NA	NA	6 days	249	40FF,251	0%
251	SW3	ABWF Works & BS Works	45 days	Thu 23/12/21	Sat 5/2/22	NA	NA	246 days	250,90,61	44FF	0%
252	*	**Fire Hydrant and Booster Pump Room**	**190 days**	**Mon 19/7/21**	**Mon 7/3/22**	**NA**	**NA**	**11 days**			**0%**
253		Excavation for Raft Footing (160 cu.m)	10 days	Mon 19/7/21	Thu 29/7/21	NA	NA	11 days	2,258	254,291	0%
254		Plate Load Test	18 days	Fri 30/7/21	Thu 19/8/21	NA	NA	11 days	253	255	0%
255	KD3E	R.C. Structure	60 days	Fri 29/10/21	Mon 10/1/22	NA	NA	-46 days	254,60,260	256,40FF,293FS-	0%
256	SW3	ABWF Works & BS Works	45 days	Tue 11/1/22	Mon 7/3/22	NA	NA	174 days	255,90,61	44FF	0%
257	*	**Transformer and Switchroom**	**183 days**	**Fri 14/5/21**	**Mon 20/12/21**	**NA**	**NA**	**-6 days**			**0%**
258		Excavation for Raft Footing (310 cu.m)	20 days	Fri 14/5/21	Mon 7/6/21	NA	NA	-6 days	2,279	259,253	0%
259		Plate Load Test	18 days	Tue 8/6/21	Tue 29/6/21	NA	NA	-6 days	258	260	0%
260	KD3E	R.C. Structure	60 days	Tue 17/8/21	Thu 28/10/21	NA	NA	-46 days	259,60,281	261,40FF,255	0%
261	SW3	ABWF Works & BS Works	45 days	Fri 29/10/21	Mon 20/12/21	NA	NA	234 days	260,90,61	44FF	0%
262	*	**Water Meter Cabinet**	**73 days**	**Thu 16/9/21**	**Mon 13/12/21**	**NA**	**NA**	**0 days**			**0%**
263		Excavation for Raft Footing (6 cu.m)	10 days	Thu 16/9/21	Tue 28/9/21	NA	NA	0 days	2,301	264	0%
264		Plate Load Test	18 days	Wed 29/9/21	Thu 21/10/21	NA	NA	0 days	263	265	0%
265		R.C. Structure	30 days	Fri 22/10/21	Thu 25/11/21	NA	NA	0 days	264,60	266,268	0%
266	SW4	ABWF Works & BS Works	15 days	Fri 26/11/21	Mon 13/12/21	NA	NA	63 days	265,90,61	45FF	0%
267	*	**Guard House**	**78 days**	**Fri 26/11/21**	**Thu 3/3/22**	**NA**	**NA**	**0 days**			**0%**
268		Excavation to Formation	21 days	Fri 26/11/21	Thu 16/12/21	NA	NA	0 days	2,265	269	0%
269		R.C. Structure	30 days	Fri 17/12/21	Mon 24/1/22	NA	NA	0 days	60,268	270	0%
270	SW4	ABWF Works & BS Works	30 days	Tue 25/1/22	Thu 3/3/22	NA	NA	0 days	269,90,61	45FF	0%
271	*	**Coolers Pumping Station**	**100 days**	**Mon 28/6/21**	**Tue 26/10/21**	**NA**	**NA**	**0 days**			**0%**
272		Excavation for Raft Footing (185 cu.m)	40 days	Mon 28/6/21	Fri 13/8/21	NA	NA	0 days	2,176	273,287	0%
273	SW4	R.C. Structure	60 days	Sat 14/8/21	Tue 26/10/21	NA	NA	0 days	272,60	40FF,289	0%
274	*	**Waste Gas Buner**	**53 days**	**Tue 5/10/21**	**Mon 6/12/21**	**NA**	**NA**	**0 days**			**0%**
275		Excavation for Raft Rooting (75cu.m)	15 days	Tue 5/10/21	Fri 22/10/21	NA	NA	0 days	2,207	276,295	0%
276		Plate Load Test	18 days	Sat 23/10/21	Fri 12/11/21	NA	NA	0 days	275	277	0%
277	KD3E	R.C. Plinth	20 days	Sat 13/11/21	Mon 6/12/21	NA	NA	0 days	276,60	40FF,297	0%
278	*	**Plant Services Water System**	**98 days**	**Tue 20/4/21**	**Mon 16/8/21**	**NA**	**NA**	**-46 days**			**0%**
279		Excavation for Raft Footing (800 cu.m)	20 days	Tue 20/4/21	Thu 13/5/21	NA	NA	-46 days	2,137	280,258	0%
280		Plate Load Test	18 days	Fri 14/5/21	Fri 4/6/21	NA	NA	-46 days	279	281	0%

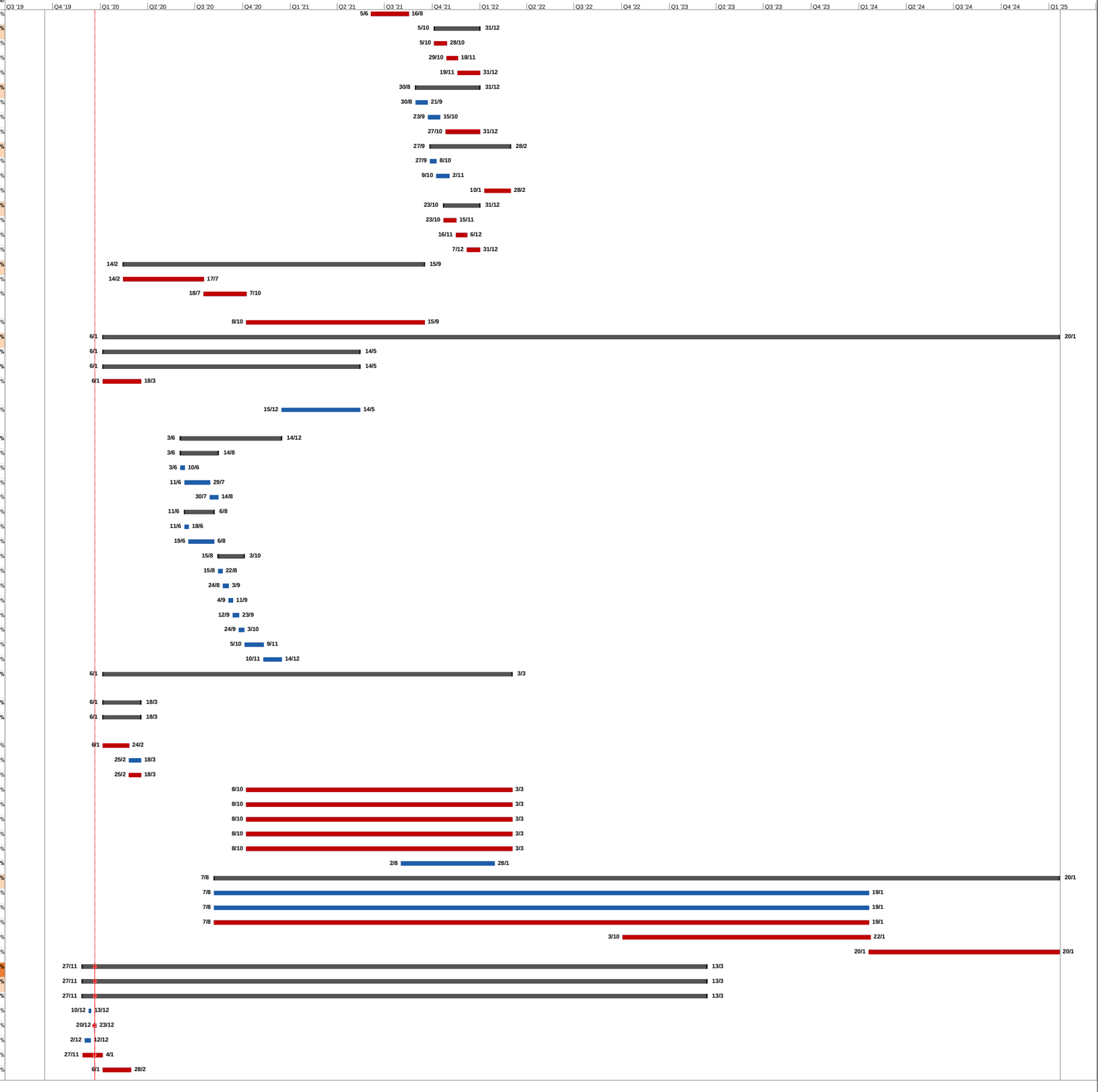
Task | Milestone ❖ | Summary | Critical

Contract No.: DC/2018/06
Contract Title: Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
- Civil Works for Sludge Treatment Facilities and CLP 132kV Primary Substation

Revised Programme.(Status Date: 20/01/2020)

群利－俊和聯營體
KL－CW JV

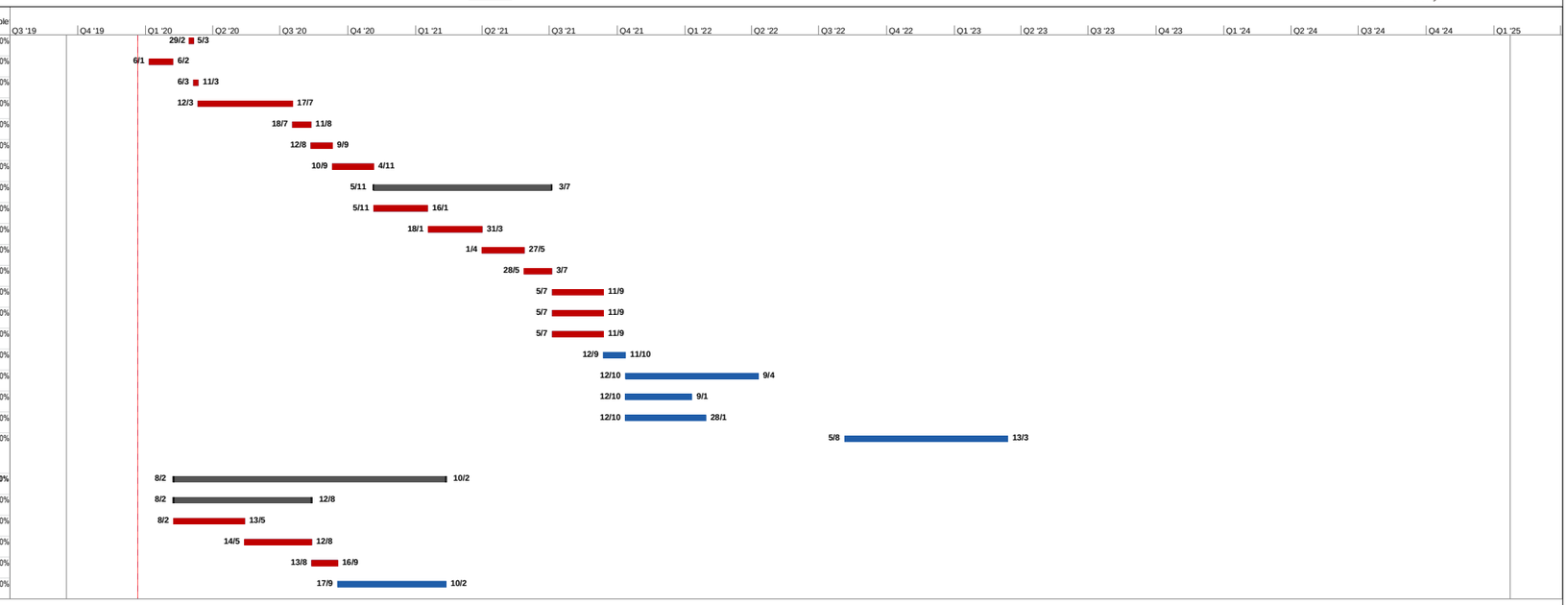
ID	KD	Task Name	Duration	Start	Finish	Actual Start	Actual Finish	Total Slack	Predecessors	Successors	% Comple
281	KD3E	Basement Construction @+1.20mPD	60 days	Sat 5/6/21	Mon 16/8/21	NA	NA	-46 days	280,60	40FF,260	0%
282	*	**Deodorization System No. 11**	**73 days**	**Tue 5/10/21**	**Fri 31/12/21**	**NA**	**NA**	**0 days**			**0%**
283		Excavation for Raft Footing (1,280 cu.m)	20 days	Tue 5/10/21	Thu 28/10/21	NA	NA	0 days	2,195	284	0%
284		Plate Load Test	18 days	Fri 29/10/21	Thu 18/11/21	NA	NA	0 days	283	285	0%
285	KD3E	R.C. Plinth	35 days	Fri 19/11/21	Fri 31/12/21	NA	NA	0 days	284,60	40FF	0%
286	*	**Biogas Holder**	**102 days**	**Mon 30/8/21**	**Fri 31/12/21**	**NA**	**NA**	**0 days**			**0%**
287		Excavation for Raft Footing (1,120 cu.m)	20 days	Mon 30/8/21	Tue 21/9/21	NA	NA	9 days	2,272	288	0%
288		Plate Load Test	18 days	Thu 23/9/21	Fri 15/10/21	NA	NA	9 days	287	289	0%
289	KD3E	R.C. Plinth	55 days	Wed 27/10/21	Fri 31/12/21	NA	NA	0 days	288,60,273	40FF	0%
290	*	**H2S Removal System**	**125 days**	**Mon 27/9/21**	**Mon 28/2/22**	**NA**	**NA**	**-46 days**			**0%**
291		Excavation for Raft Footing (396 cu.m)	10 days	Mon 27/9/21	Fri 8/10/21	NA	NA	9 days	2,253	292	0%
292		Plate Load Test	20 days	Sat 9/10/21	Tue 2/11/21	NA	NA	9 days	291	293	0%
293	KD3E	R.C. Plinth	40 days	Mon 10/1/22	Mon 28/2/22	NA	NA	-46 days	292,60,255FS-1 da	40FF	0%
294	*	**Deodorization System No. 12**	**58 days**	**Sat 23/10/21**	**Fri 31/12/21**	**NA**	**NA**	**0 days**			**0%**
295		Excavation to Formation	20 days	Sat 23/10/21	Mon 15/11/21	NA	NA	0 days	2,275	296	0%
296		Plate Load Test	18 days	Tue 16/11/21	Mon 6/12/21	NA	NA	0 days	295	297	0%
297	KD3E	R.C. Plinth	20 days	Tue 7/12/21	Fri 31/12/21	NA	NA	0 days	296,60,277	40FF	0%
298	*	**Underpass**	**473 days**	**Fri 14/2/20**	**Wed 15/9/21**	**NA**	**NA**	**0 days**			**0%**
299		Temporary Storage for H pile works and access for DSD	155 days	Fri 14/2/20	Fri 17/7/20	NA	NA	0 days	187SS-14 days	300	0%
300		Sheet Pile Installation + ELS Works (incl. Strut (2-layers) Installation & Excavation (300 cu.m))	68 days	Sat 18/7/20	Wed 7/10/20	NA	NA	0 days	15,186,147,299	301	0%
301	SW4	R.C. Structure	280 days	Thu 8/10/20	Wed 15/9/21	NA	NA	0 days	300,60	45FF,263	0%
302	*	**Pipe Works and Utility Installation**	**1842 day**	**Mon 6/1/20**	**Mon 20/1/25**	**NA**	**NA**	**-58 days**	**85**		**0%**
303		**Pipe Works At Chuk Wan Street**	**495 days**	**Mon 6/1/20**	**Fri 14/5/21**	**NA**	**NA**	**-58 days**			**0%**
304		**Drainage Diversion (Existing Drainage Culvert)**	**401 days**	**Mon 6/1/20**	**Fri 14/5/21**	**NA**	**NA**	**-46 days**			**0%**
305	KD1A	Stage 1 - Drainage Diversion of Drainage b/w Reconstructed Storm Water Manhole SMH1003177A and Reconstructed Storm Water Manhole MHD33	60 days	Mon 6/1/20	Wed 18/3/20	NA	NA	-23 days	67,54,74,117FS-5 days,81FS-1 day,116	118,326SS,120	0%
306	KD1A	Stage 2 - Drainage Diversion of Drainage b/w MHD26 and SMHH1003177A, to Abandon of Exisitng Drainage Culvert (1 Cell, 1000mm x 1150mm)	120 days	Tue 15/12/20	Fri 14/5/21	NA	NA	55 days	322	42FF	0%
307	KD1A	**Trencless Work for Pipe Installation**	**162 days**	**Wed 3/6/20**	**Mon 14/12/20**	**NA**	**NA**	**55 days**			**0%**
308		**Construction of Temporary Jacking Pit**	61 days	Wed 3/6/20	Fri 14/8/20	NA	NA	55 days	15,53		0%
309		Trial Pit Excavation & UU Detection Works	7 days	Wed 3/6/20	Wed 10/6/20	NA	NA	55 days	2FS+210 days	310,313	0%
310		Pit Construction (11m x 9m)	40 days	Thu 11/6/20	Wed 29/7/20	NA	NA	55 days	309	311	0%
311		Setting up of Entrance Ring and Gantry	14 days	Thu 30/7/20	Fri 14/8/20	NA	NA	55 days	310	316	0%
312		**Construction of Temporary Receiving Pit**	47 days	Thu 11/6/20	Thu 6/8/20	NA	NA	79 days			0%
313		Trial Pit Excavation & UU Detection Works	7 days	Thu 11/6/20	Thu 18/6/20	NA	NA	79 days	309	314	0%
314		Pit Construction (6m x 9m)	40 days	Fri 19/6/20	Thu 6/8/20	NA	NA	79 days	313	317FF	0%
315		**Pipe Jacking Operation**	41 days	Sat 15/8/20	Sat 3/10/20	NA	NA	55 days			0%
316		Setting Up of Trenchless Equipment	7 days	Sat 15/8/20	Sat 22/8/20	NA	NA	55 days	311	317	0%
317		Pipe Jacking Operation (30m, 3m/day)	10 days	Mon 24/8/20	Thu 3/9/20	NA	NA	55 days	316,314FF	318	0%
318		Installation of grouting pipe and rail	7 days	Fri 4/9/20	Fri 11/9/20	NA	NA	55 days	317	319	0%
319		Pipe Laying Works	10 days	Sat 12/9/20	Wed 23/9/20	NA	NA	55 days	318	320	0%
320		Formwork Erection and grouting works	7 days	Thu 24/9/20	Sat 3/10/20	NA	NA	55 days	319	321	0%
321		Reinstatement of Temporary Launching Pit	30 days	Mon 5/10/20	Mon 9/11/20	NA	NA	55 days	320	322	0%
322		Reinstatement of Temporary Receiving Pit	30 days	Tue 10/11/20	Mon 14/12/20	NA	NA	55 days	321	306	0%
323		**Process Pipeworks, All Sewerage, Utilities & Roadworks in Portion C of the Site**	**640 days**	**Mon 6/1/20**	**Thu 3/3/22**	**NA**	**NA**	**-26 days**			**0%**
324		**Process Pipeworks**	**60 days**	**Mon 6/1/20**	**Wed 18/3/20**	**NA**	**NA**	**-26 days**			**0%**
325	SW1	**Connection pipe at UV System no.1 & Effluent Pumping Station no.1**	**60 days**	**Mon 6/1/20**	**Wed 18/3/20**	**NA**	**NA**	**-26 days**			**0%**
326		Effluent Pipe (aprox. 70m, dia 300 - 1600)	40 days	Mon 6/1/20	Mon 24/2/20	NA	NA	-3 days	305SS,81FS-1 day	328,327,120	0%
327		Effluent Pipe Flowmeter Chamber (3.8mx3.95mx3.42m(D))	20 days	Tue 25/2/20	Wed 18/3/20	NA	NA	274 days	326	118	0%
328		Plant Services Water Pipe (approx. 15m, dia 150-350)	20 days	Tue 25/2/20	Wed 18/3/20	NA	NA	0 days	326	118	0%
329	SW4	Remaining Effluent Pipes	416 days	Thu 8/10/20	Thu 3/3/22	NA	NA	0 days	62,163FS-45 days,	45FF	0%
330	SW4	Stormdrain Pipeworks	416 days	Thu 8/10/20	Thu 3/3/22	NA	NA	0 days	62,163FS-45 days,	45FF	0%
331	SW4	Seawage Pipeworks	416 days	Thu 8/10/20	Thu 3/3/22	NA	NA	0 days	62,163FS-45 days,	45FF	0%
332	SW4	Watermain Pipeworks	416 days	Thu 8/10/20	Thu 3/3/22	NA	NA	0 days	62,163FS-45 days,	45FF	0%
333	SW4	Cable & Other Underground Utility Pipeworks	416 days	Thu 8/10/20	Thu 3/3/22	NA	NA	0 days	62,163FS-45 days,	45FF	0%
334	SW4	**Pipe Bridge No.1**	**180 days**	**Mon 2/8/21**	**Fri 28/1/22**	**NA**	**NA**	**34 days**	**2**	**45FF**	**0%**
335	*	**Remaining Pipe Works & Lanscape Works**	**1316 day**	**Fri 7/8/20**	**Mon 20/1/25**	**NA**	**NA**	**0 days**			**0%**
336	SW5	Irrigation System	1025 day	Fri 7/8/20	Fri 19/1/24	NA	NA	2 days	63,2FS+231 days	46FF	0%
337	SW5	Hard Landscape Works	1025 day	Fri 7/8/20	Fri 19/1/24	NA	NA	2 days	63,2FS+235 days	46FF	0%
338	SW5	Soft Landscape Works	1025 day	Fri 7/8/20	Fri 19/1/24	NA	NA	0 days	63,2FS+235 days	340,46FF	0%
339	SW5	Outfall and River Embankment works & Retaining Wall	388 days	Mon 3/10/22	Mon 22/1/24	NA	NA	0 days		46FF	0%
340		Establishment Works (365 Calendar Days)	291 days	Sat 20/1/24	Mon 20/1/25	NA	NA	0 days	338,63	47FF,48FF	0%
341	*	**Construction of Portion A of the Site**	**1203 day**	**Wed 27/11/19**	**Mon 13/3/23**	**Wed 27/11/19**	**NA**	**20 days**			**3%**
342	*	**CLP 132kV Substation**	**975 days**	**Wed 27/11/19**	**Mon 13/3/23**	**Wed 27/11/19**	**NA**	**17 days**			**3%**
343		**Internal Works**	**1203 day**	**Wed 27/11/19**	**Mon 13/3/23**	**Wed 27/11/19**	**NA**	**20 days**			**4%**
344		Site Clearance & Site Set Up	4 days	Tue 10/12/19	Fri 13/12/19	Tue 10/12/19	Fri 13/12/19	0 days	2	345	100%
345		Additional tree felling works (NCE no. xx)	4 days	Fri 20/12/19	Mon 23/12/19	Fri 20/12/19	Mon 23/12/19	0 days	344	347,346	100%
346		Trial Pit Excavation & UU Detection Works	10 days	Mon 2/12/19	Thu 12/12/19	Mon 2/12/19	Thu 12/12/19	0 days	345	348	100%
347		Additional demolition of existing warehouse structures (NCE no. xx)	30 days	Wed 27/11/19	Sat 4/1/20	Wed 27/11/19	NA	-58 days	71,345	350,348	90%
348		Predrilling Works (11no., 1rig, 4days/drillhole/rig)	44 days	Mon 6/1/20	Fri 28/2/20	NA	NA	-58 days	56,347,346	349	0%



Task Milestone ◆ Summary Critical

Revised Programme.(Status Date: 20/01/2020)

ID	KD	Task Name	Duration	Start	Finish	Actual Start	Actual Finish	Total Slack	Predecessors	Successors	% Comple
349		Instsallation of Monitoring Points	5 days	Sat 29/2/20	Thu 5/3/20	NA	NA	-58 days	348	351	0%
350		Demolition of Existing Boundary Wall for Temproary Access	25 days	Mon 6/1/20	Thu 6/2/20	NA	NA	-34 days	71,347	351	0%
351		Setting up plant for pre-bored socked H-pile Installation	5 days	Fri 6/3/20	Wed 11/3/20	NA	NA	-58 days	349,350	352	0%
352		Pre-bored Socketed H-Pile Installation (41 Nos, 2 Rig, 5days/rig/pile)	102 days	Thu 12/3/20	Fri 17/7/20	NA	NA	-58 days	57,351	353	0%
353		Pile Load Test	25 days	Sat 18/7/20	Tue 11/8/20	NA	NA	-70 days	352	354	0%
354		Additional Sheetpile Installation (NCE no.xx)	25 days	Wed 12/8/20	Wed 9/9/20	NA	NA	-58 days	353	355	0%
355		ELS Works (incl. Strut (3-layers) Installation & Excavation (NCE no.xx)	45 days	Thu 10/9/20	Wed 4/11/20	NA	NA	-58 days	354	356	0%
356		R.C. Structure (880 sq.m)	194 days	Thu 5/11/20	Sat 3/7/21	NA	NA	-58 days	86,87,88,89,60,373		0%
357		Basement	60 days	Thu 5/11/20	Sat 16/1/21	NA	NA	-58 days		358	0%
358		Ground Floor	60 days	Mon 18/1/21	Wed 31/3/21	NA	NA	-58 days	357	359	0%
359		First Floor	44 days	Thu 1/4/21	Thu 27/5/21	NA	NA	-58 days	358	360	0%
360		Roof Floor (461sq.m)	30 days	Fri 28/5/21	Sat 3/7/21	NA	NA	-58 days	359	361,363	0%
361		ABWF Works & BS Works	60 days	Mon 5/7/21	Sat 11/9/21	NA	NA	0 days	360,90,61	362SS	0%
362		Installation of telephone line/ direct link for FSD Inspection	60 days	Mon 5/7/21	Sat 11/9/21	NA	NA	0 days	361SS		0%
363	KD2A	Architectual Works	60 days	Mon 5/7/21	Sat 11/9/21	NA	NA	-58 days	360	364,35FF	0%
364		**Handover to CLP for Electrical System Installation**	30 days	Sun 12/9/21	Mon 11/10/21	NA	NA	317 days	363	365,367,368,366	0%
365		**E&M Installation, Testing & Commissioning by CLP**	180 days	Tue 12/10/21	Sat 9/4/22	NA	NA	358 days	364	43FF	0%
366		Testing & Commissioning of the E&M Works	90 days	Tue 12/10/21	Sun 9/1/22	NA	NA	448 days	364	43FF	0%
367		ABWF Works - External Finishing & BS Works	90 days	Tue 12/10/21	Fri 28/1/22	NA	NA	347 days	364,90,61	43FF	0%
368	SW2	Building Services Installation Works (incl. Fire Services, Plumbing, Drainage, etc.) & FS Inspection	180 days	Fri 5/8/22	Mon 13/3/23	NA	NA	17 days	364,76	43FF	0%
369		**External Works**	**302 days**	**Sat 8/2/20**	**Wed 10/2/21**	**NA**	**NA**	**-19 days**			**0%**
370		**Road Widening Works**	152 days	Sat 8/2/20	Wed 12/8/20	NA	NA	-19 days	69FS+60 days		0%
371		Drainage Works	76 days	Sat 8/2/20	Wed 13/5/20	NA	NA	-19 days	69FS+60 days	372	0%
372		Road Works	76 days	Thu 14/5/20	Wed 12/8/20	NA	NA	-19 days	371	373	0%
373		Temporary Site Access	30 days	Thu 13/8/20	Wed 16/9/20	NA	NA	-19 days	372	374,356	0%
374	SW2	Construction of New Boundary Wall	120 days	Thu 17/9/20	Wed 10/2/21	NA	NA	633 days	373	43FF	0%

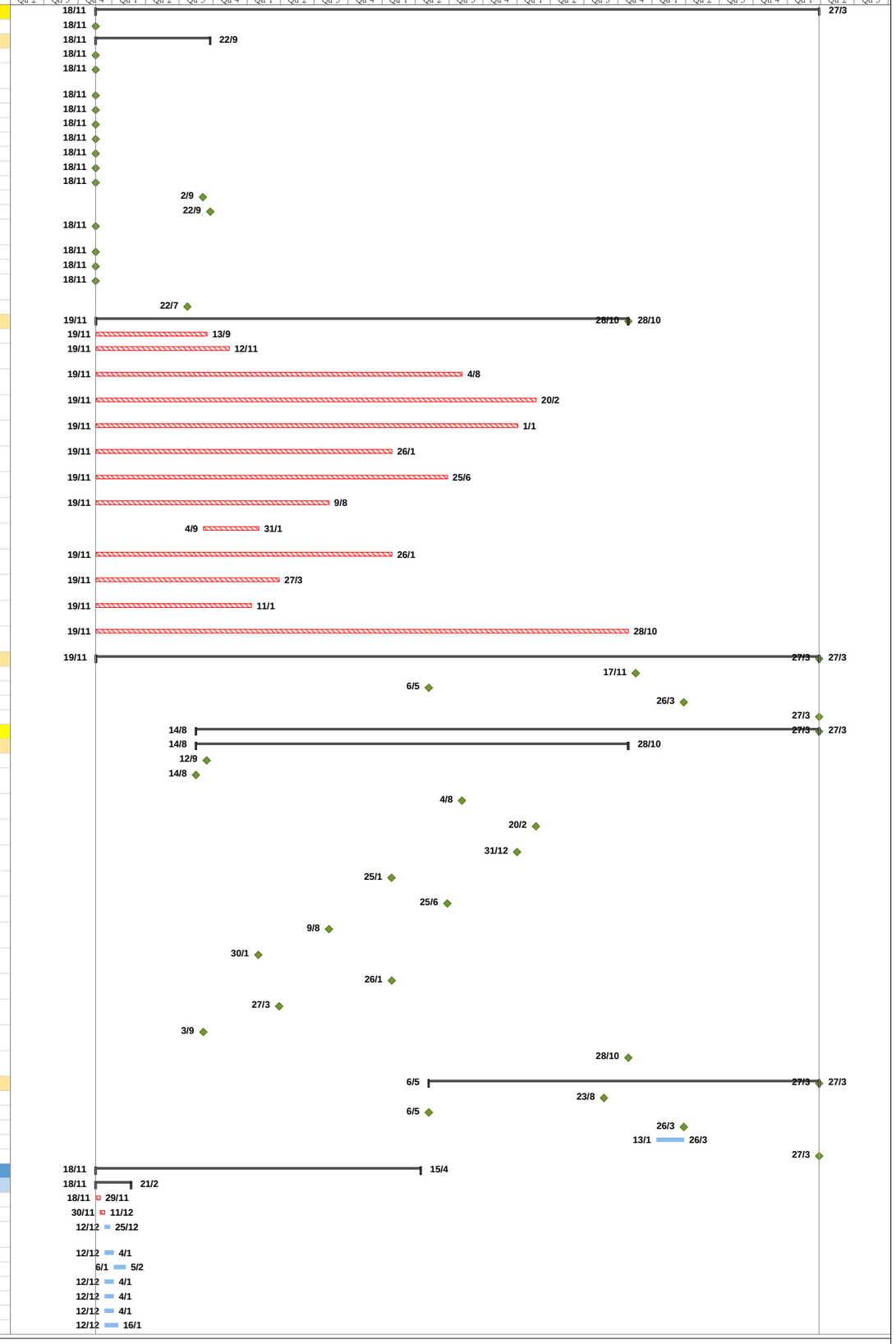


Task Milestone ❖ Summary Critical

Contract No. DC/2018/07
Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
Civil Works for Sewage Treatment Facilities

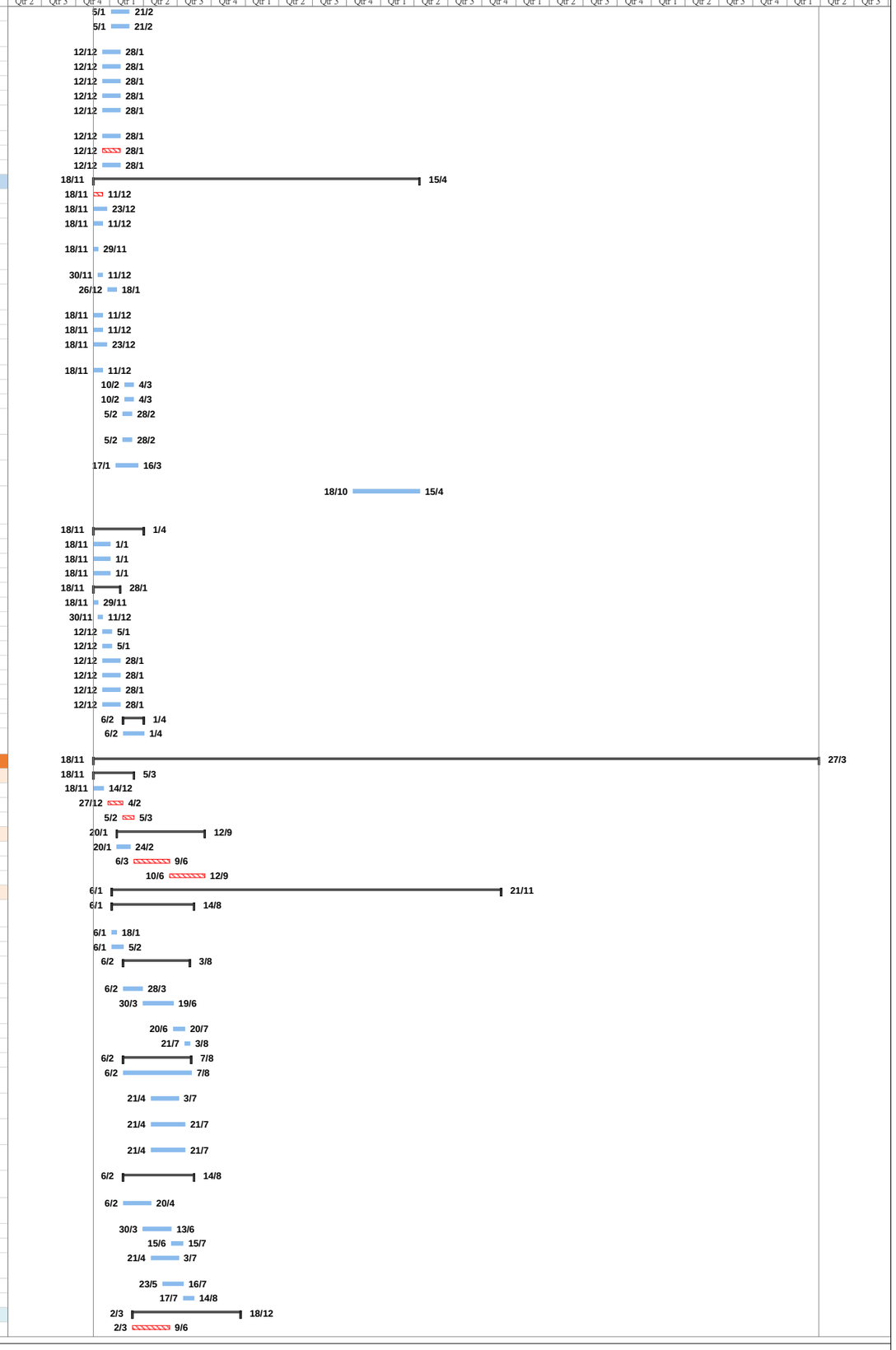
First Programme

ID	Key Date	Task Name	Duration	Start	Finish	Predecessors	Successors	Total Slack	Task Calendar	trade
1		**Contract Dates**	**1585 days**	**Mon 18/11/19**	**Thu 27/3/25**			**0 days**	**None**	
2		Starting Date	0 days	Mon 18/11/19	Mon 18/11/19		35FS+1 day,36FS+1 day,3	0 days	Calendar Day	
3		**Access Dates (cal. day)**	**310 days**	**Mon 18/11/19**	**Tue 22/9/20**			**0 days**	**Calendar Day**	
4		Portion B-1 (Access Road AR3)	0 days	Mon 18/11/19	Mon 18/11/19	2	118	77 days	Calendar Day	
5		Portion B-1A (Area for the works for Sidestream Treatment Facilities by Others	0 days	Mon 18/11/19	Mon 18/11/19	2		1957 days	Calendar Day	
6		Portion B-2 (Inlet Works No.1)	0 days	Mon 18/11/19	Mon 18/11/19	2	122,143,148	105 days	Calendar Day	
7		Portion B-2A (Area for the pipe-jacking works by others)	0 days	Mon 18/11/19	Mon 18/11/19	2		1957 days	Calendar Day	
8		Portion B-3 (Primary Sedimentation Tanks No. 1-4)	0 days	Mon 18/11/19	Mon 18/11/19	2	177	0 days	Calendar Day	
9		Portion B-4 (Bioreactor No. 2A & 2B)	0 days	Mon 18/11/19	Mon 18/11/19	2	189	0 days	Calendar Day	
10		Portion B-5 (Membrane Facilities Building No.2)	0 days	Mon 18/11/19	Mon 18/11/19	2	203	49 days	Calendar Day	
11		Portion B-6 (SAS Pumping Station)	0 days	Mon 18/11/19	Mon 18/11/19	2	224	184 days	Calendar Day	
12		Portion B-7 (Ancillary structures)	0 days	Mon 18/11/19	Mon 18/11/19	2	233	299 days	Calendar Day	
13		Portion B-7A (Alternation works for existing Power House)	0 days	Wed 2/9/20	Wed 2/9/20	2FS+290 days	280,29FS+1 day	0 days	Calendar Day	
14		Portion B-8 (Alternation for existing Membrane Facilities Building No.1)	0 days	Tue 22/9/20	Tue 22/9/20	2FS+310 days	281	838 days	Calendar Day	
15		Portion B-8A (Alternation of air supply main for existing Air Blower House No.2)	0 days	Mon 18/11/19	Mon 18/11/19	2	279	72 days	Calendar Day	
16		Portion B-9 (remainder works in Zone B)	0 days	Mon 18/11/19	Mon 18/11/19	2	282,290	98 days	Calendar Day	
17		Portion B-9A (Area for the pipe-jacking works by others)	0 days	Mon 18/11/19	Mon 18/11/19	2		1957 days	Calendar Day	
18		Portion B-9B (Area for underground pipework modification and connection works by others)	0 days	Mon 18/11/19	Mon 18/11/19	2		1957 days	Calendar Day	
19		Portion B-9C (Area for the works for pipeworks)	0 days	Wed 22/7/20	Wed 22/7/20	2FS+248 days		1709 days	Calendar Day	
20		**Key Dates (cal. day)**	**1440 days**	**Tue 19/11/19**	**Sat 28/10/23**			**0 days**	**Calendar Day**	
21	KD1A	KD1A completion of AR3 in Portion B-1 (300days after starting date)	300 days	Tue 19/11/19	Sun 13/9/20	2FS+1 day,41FF		0 days	Calendar Day	
22	KD1B	KD1B completion of utilities diversion for commencement of Inlet Works No.1 in Portion B-2 (360days after starting date)	360 days	Tue 19/11/19	Thu 12/11/20	2FS+1 day,42FF		0 days	Calendar Day	
23	KD1C	KD1C completion of civil and structural works of Inlet Works No.1 in Portion B-2 (990days after starting date)	990 days	Tue 19/11/19	Thu 4/8/22	2FS+1 day,43FF		0 days	Calendar Day	
24	KD1D	KD1D completion of civil and structural works of Primary Sedimentation Tanks in Portion B-3 (1190days after starting date)	1190 days	Tue 19/11/19	Mon 20/2/23	2FS+1 day,44FF		0 days	Calendar Day	
25	KD1E	KD1E completion of civil and structural works of Bioreactor in Portion B-4 (1,140days after starting date)	1140 days	Tue 19/11/19	Sun 1/1/23	2FS+1 day,45FF		0 days	Calendar Day	
26	KD1F	KD1F completion of civil and structural works of MFB from B2 floor to 1st floor level in Portion B-5 (800days after starting date)	800 days	Tue 19/11/19	Wed 26/1/22	2FS+1 day,46FF		0 days	Calendar Day	
27	KD1G	KD1G completion of civil and structural works of MFB in Portion B-5 (950days after starting date)	950 days	Tue 19/11/19	Sat 25/6/22	2FS+1 day,47FF		0 days	Calendar Day	
28	KD1H	KD1H completion of civil and structural works of SAS Pumping Station in Portion B-6 (630days after starting date)	630 days	Tue 19/11/19	Mon 9/8/21	2FS+1 day,48FF		0 days	Calendar Day	
29	KD1I	KD1I completion alternation works for existing Power House in Portion B-7A (150days after access date of B-7A)	150 days	Fri 4/9/20	Sun 31/1/21	13FS+1 day,49FF		0 days	Calendar Day	
30	KD1J	KD1J completion of auxiliary facilites in Portion B-7 (800days after starting date)	800 days	Tue 19/11/19	Wed 26/1/22	2FS+1 day,50FF		0 days	Calendar Day	
31	KD2A	KD2A completion of effluent pipes to UV system and connection to its downstream in Portion B-9 (495days after starting date)	495 days	Tue 19/11/19	Sat 27/3/21	2FS+1 day,51FF		0 days	Calendar Day	
32	KD2B	KD2B completion of air supply main alternation to existing air blower house No.2 in Portion B-8A (420days after starting date)	420 days	Tue 19/11/19	Mon 11/1/21	2FS+1 day,52FF		0 days	Calendar Day	
33	KD3A	KD3A completion of all utilities and road works (1440days after starting date)	1440 days	Tue 19/11/19	Sat 28/10/23	2FS+1 day,53FF		0 days	Calendar Day	
34		**Completion Date (cal. Day)**	**1956 days**	**Tue 19/11/19**	**Thu 27/3/25**			**0 days**	**Calendar Day**	
35	SW1	Section 1 of the Works (1,460 after starting date)	1460 days	Tue 19/11/19	Fri 17/11/23	2FS+1 day,55FF		0 days	Calendar Day	
36	SW2	Section 2 of the Works (900 after starting date)	900 days	Tue 19/11/19	Fri 6/5/22	2FS+1 day,56FF		0 days	Calendar Day	
37	SW3	Section 3 of the Works (1,590 after starting date)	1590 days	Tue 19/11/19	Tue 26/3/24	2FS+1 day,57FF	38FS+1 day	0 days	Calendar Day	
38	DLP	Defects Liability Period and Landscape Establishment Works	365 days	Thu 28/3/24	Thu 27/3/25	37FS+1 day,59F		0 days	Calendar Day	
39		**Planned Completion**	**1686 days**	**Fri 14/8/20**	**Thu 27/3/25**			**0 days**	**Calendar Day**	
40		**Planned Completion - Key Dates (cal. day)**	**1170 days**	**Fri 14/8/20**	**Sat 28/10/23**			**0 days**	**Calendar Day**	
41	KD1A	KD1A completion of AR3 in Portion B-1 (300days after starting date)	0 days	Sat 12/9/20	Sat 12/9/20	121FF	21FF	0 days	Calendar Day	
42	KD1B	KD1B completion of utilities diversion for commencement of Inlet Works No.1 in Portion B-2 (360days after starting date)	0 days	Fri 14/8/20	Fri 14/8/20	123FF	22FF	90 days	Calendar Day	
43	KD1C	KD1C completion of civil and structural works of Inlet Works No.1 in Portion B-2 (990days after starting date)	0 days	Thu 4/8/22	Thu 4/8/22	175FF,174FF	23FF	0 days	Calendar Day	
44	KD1D	KD1D completion of civil and structural works of Primary Sedimentation Tanks in Portion B-3 (1190days after starting date)	0 days	Mon 20/2/23	Mon 20/2/23	186FF,185FF	24FF	0 days	Calendar Day	
45	KD1E	KD1E completion of civil and structural works of Bioreactor in Portion B-4 (1,140days after starting date)	0 days	Sat 31/12/22	Sat 31/12/22	197FF,198FF	25FF	0 days	Calendar Day	
46	KD1F	KD1F completion of civil and structural works of MFB from B2 floor to 1st floor level in Portion B-5 (800days after starting date)	0 days	Tue 25/1/22	Tue 25/1/22	219FF,220FF	26FF	0 days	Calendar Day	
47	KD1G	KD1G completion of civil and structural works of MFB in Portion B-5 (950days after starting date)	0 days	Sat 25/6/22	Sat 25/6/22	221FF,222FF	27FF	0 days	Calendar Day	
48	KD1H	KD1H completion of civil and structural works of SAS Pumping Station in Portion B-6 (630days after starting date)	0 days	Mon 9/8/21	Mon 9/8/21	231FF,230FF	28FF	0 days	Calendar Day	
49	KD1I	KD1I completion alternation works for existing Power House in Portion B-7A (150days after access date of B-7A)	0 days	Sat 30/1/21	Sat 30/1/21	280FF	29FF	0 days	Calendar Day	
50	KD1J	KD1J completion of auxiliary facilites in Portion B-7 (800days after starting date)	0 days	Wed 26/1/22	Wed 26/1/22	276FF,275FF,27	30FF	0 days	Calendar Day	
51	KD2A	KD2A completion of effluent pipes to UV system and connection to its downstream in Portion B-9 (495days after starting date)	0 days	Sat 27/3/21	Sat 27/3/21	283FF	31FF	0 days	Calendar Day	
52	KD2B	KD2B completion of air supply main alternation to existing air blower house No.2 in Portion B-8A (420days after starting date)	0 days	Thu 3/9/20	Thu 3/9/20	279FF	32FF	130 days	Calendar Day	
53	KD3A	KD3A completion of all utilities and road works (1440days after starting date)	0 days	Sat 28/10/23	Sat 28/10/23	289FF	33FF	0 days	Calendar Day	
54		**Planned Completion Date (cal. Day)**	**1056 days**	**Fri 6/5/22**	**Thu 27/3/25**			**0 days**	**Calendar Day**	
55	SW1	Section 1 of the Works (1,460 after starting date)	0 days	Wed 23/8/23	Wed 23/8/23	277FF,271FF,2	35FF	86 days	Calendar Day	
56	SW2	Section 2 of the Works (900 after starting date)	0 days	Fri 6/5/22	Fri 6/5/22	284FF,287FF,2	36FF	0 days	Calendar Day	
57	SW3	Section 3 of the Works (1,590 after starting date)	0 days	Tue 26/3/24	Tue 26/3/24	281FF,291FF,2	37FF,58FF	0 days	Calendar Day	
58		Planned Time Risk Allowance (14days per 365day)	60 days	Sat 13/1/24	Tue 26/3/24	57FF		294 days	None	
59	DLP	Defects Liability Period and Landscape Establishment Works	0 days	Thu 27/3/25	Thu 27/3/25	294FF	38FF	0 days	Calendar Day	
60		**Submissions (cal.day)**	**880 days**	**Mon 18/11/19**	**Fri 15/4/22**			**0 days**	**Calendar Day**	
61		**Subletting Package**	**96 days**	**Mon 18/11/19**	**Fri 21/2/20**			**0 days**	**Calendar Day**	
62		Prepare & submit subletting procedure	12 days	Mon 18/11/19	Fri 29/11/19	2	63	0 days	Calendar Day	
63		PM review and accept subletting procedure	12 days	Sat 30/11/19	Wed 11/12/19	62	64,65,68,69,70,71,72,73,7	0 days	Calendar Day	
64		Subletting for Preliminary Works (surveying, condition survey, site clearacne etc)	14 days	Thu 12/12/19	Wed 25/12/19	63,82	87,116	1 day	Calendar Day	
65		Subletting for Contractor desinger for temporary works and ICE	24 days	Thu 12/12/19	Sat 4/1/20	63,82	71,72,66	212 days	Calendar Day	
66		Subletting for independent BIM consultant	24 days	Mon 6/1/20	Wed 5/2/20	65	112	1474 days	None	
67		Subletting for demolition works	24 days	Thu 12/12/19	Sat 4/1/20	82,63	179,191,234,143,204,207,2	1 day	Calendar Day	dem
68		Subletting for AR3 access road and UU diversion for Inlet Works No.1	24 days	Thu 12/12/19	Sat 4/1/20	63,82	119	29 days	Calendar Day	
69		Subletting for pre-drilling works	24 days	Thu 12/12/19	Sat 4/1/20	63,82	225,150,180,192,208	136 days	Calendar Day	pd
70		Subletting for pre-bored H pile works	36 days	Thu 12/12/19	Thu 16/1/20	63,82	151,181,193,209,226	143 days	Calendar Day	hp



Critical Task Milestone Summary

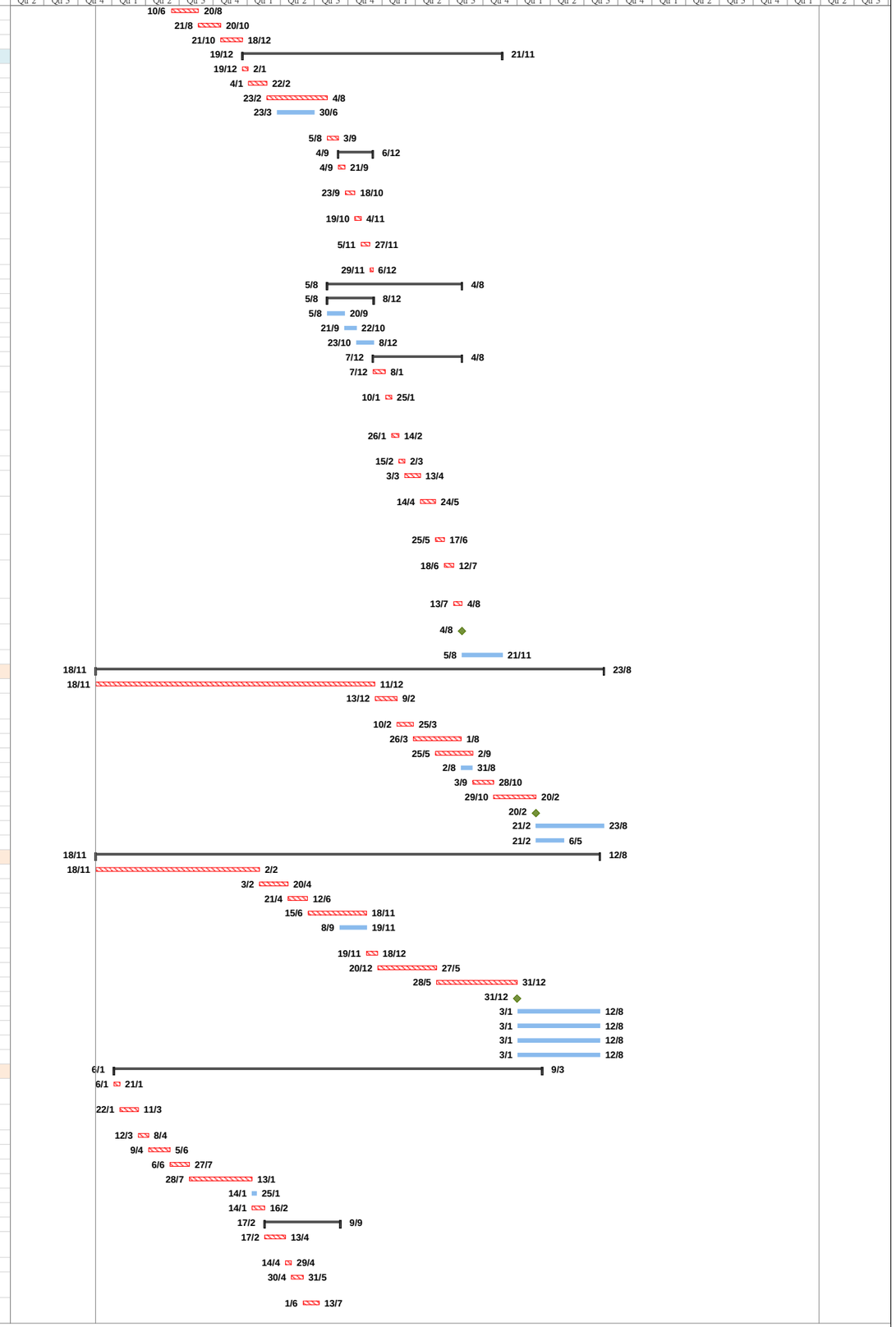
ID	Key Date	Task Name	Duration	Start	Finish	Predecessors	Successors	Total Slack	Task Calendar	trade
71		Subletting for ELS works for Inlet Works No.1	48 days	Sun 5/1/20	Fri 21/2/20	63,65,82	154	560 days	Calendar Day	ex
72		Subletting for ELS works for Membrance Facilities Building and other buildings	48 days	Sun 5/1/20	Fri 21/2/20	63,65,82	184,196,213,229	212 days	Calendar Day	ex
73		Subletting for structural works for Inlet Works Building	48 days	Thu 12/12/19	Tue 28/1/20	63,82	160	635 days	Calendar Day	rc
74		Subletting for structural works for Primary Sedimentation Tanks	48 days	Thu 12/12/19	Tue 28/1/20	63,82		1885 days	Calendar Day	rc
75		Subletting for structural works for Bioreactors	48 days	Thu 12/12/19	Tue 28/1/20	63,82	197	850 days	Calendar Day	rc
76		Subletting for structural works for Membrance Facilities Building	48 days	Thu 12/12/19	Tue 28/1/20	63,82	219	590 days	Calendar Day	rc
77		Subletting for structural works for SAS pumping house and ancillary structures	48 days	Thu 12/12/19	Tue 28/1/20	63,82	230	327 days	Calendar Day	rc
78		Subletting for ABWF works	48 days	Thu 12/12/19	Tue 28/1/20	63,82	176,187,202,223,232,240,2	1132 days	Calendar Day	abwf
79		Subletting for Process Pipeworks, Utilities and Roadworks	48 days	Thu 12/12/19	Tue 28/1/20	63,82	279,283FS+22 days	0 days	Calendar Day	uu
80		Subletting for Landscape Hardworks and Softworks	48 days	Thu 12/12/19	Tue 28/1/20	63,82	292,293,294	978 days	Calendar Day	land
81		**Statutory Submission, Submission and Approval**	**880 days**	**Mon 18/11/19**	**Fri 15/4/22**			**0 days**	**Calendar Day**	
82		Prepare and submit Subcontractor Management Plan (SMP)	24 days	Mon 18/11/19	Wed 11/12/19	2	64,65,67,68,69,70,71,72,7	0 days	Calendar Day	
83		Prepare and submit Interface Management Plan	36 days	Mon 18/11/19	Mon 23/12/19	2		1921 days	Calendar Day	
84		Prepare and submit the TTA plans inside Treatment Plant for UU diversion and buildings construction	24 days	Mon 18/11/19	Wed 11/12/19	2	118	53 days	Calendar Day	
85		Prepare and submit method statement for UU diversion for Inlet Works No.1	12 days	Mon 18/11/19	Fri 29/11/19	2	86	116 days	Calendar Day	
86		PM review and accept the method statement	12 days	Sat 30/11/19	Wed 11/12/19	85	124,125	116 days	Calendar Day	
87		Prepare and submit combine underground services drawing for PM's review the alignment	24 days	Thu 26/12/19	Sat 18/1/20	64	118	15 days	Calendar Day	
88		Prepare and submit method statement for demolition existing structures	24 days	Mon 18/11/19	Wed 11/12/19	2	204,179,191,234,143,207,2	25 days	Calendar Day	dem
89		Prepare and submit method statement for structural works for buildings	24 days	Mon 18/11/19	Wed 11/12/19	2		1933 days	Calendar Day	rc
90		Prepare and submit method statements to MTRC regarding the works within railing protection boundary	36 days	Mon 18/11/19	Mon 23/12/19	2	179,191,234,143,204,207,2	13 days	Calendar Day	dem
91		Prepare and submit & approve Safety Management Plan	24 days	Mon 18/11/19	Wed 11/12/19	2		1933 days	Calendar Day	
92		Prepare and submit Excavation and lateral support (ELS) proposal	24 days	Mon 10/2/20	Wed 4/3/20	2	206	7 days	Calendar Day	ex
93		Prepare and submit Dewatering proposal for basement construction	24 days	Mon 10/2/20	Wed 4/3/20	2	206	7 days	Calendar Day	ex
94		Prepare and submit Pre-construction condition survey of existing structures/ services	24 days	Wed 5/2/20	Fri 28/2/20	116		1854 days	Calendar Day	
95		Prepare and submit Settlement and movement monitoring proposal of existing structures/ services	24 days	Wed 5/2/20	Fri 28/2/20	116		1854 days	Calendar Day	
96		Prepare and submit design of structure elements of the temporary activated carbon deodourization unit	60 days	Fri 17/1/20	Mon 16/3/20	2FS+60 days		1837 days	Calendar Day	
97		Prepare of RSE and structural design for alternation and additional (A&A) works at Membrane Facilities Building No.1 and Main Power House	180 days	Mon 18/10/21	Fri 15/4/22		223	324 days	Calendar Day	
98		**Environmental Aspect Submissions**	**136 days**	**Mon 18/11/19**	**Wed 1/4/20**			**23 days**	**Calendar Day**	
99		Prepare, submit & approve Site Management Plan for Trip Tricket System	45 days	Mon 18/11/19	Wed 1/1/20	2		1912 days	Calendar Day	
100		Prepare, submit & approve Waste Management Plan	45 days	Mon 18/11/19	Wed 1/1/20	2		1912 days	Calendar Day	
101		Prepare, submit & approve Environmental Management Plan	45 days	Mon 18/11/19	Wed 1/1/20	2		1912 days	Calendar Day	
102		**Procurement**	**72 days**	**Mon 18/11/19**	**Tue 28/1/20**			**23 days**	**Calendar Day**	
103		Prepare and submit the Procurement Procedure	12 days	Mon 18/11/19	Fri 29/11/19	2	104	23 days	Calendar Day	
104		PM Review & Accept Procurement Procedure	12 days	Sat 30/11/19	Wed 11/12/19	103	105,106,107,108,109,110	23 days	Calendar Day	
105		Prepare, submit and approve the pipe works material	25 days	Thu 12/12/19	Sun 5/1/20	104	123,279,285,286,288,287,2	23 days	Calendar Day	uu
106		Prepare, submit and approve the pipe water proofing material	25 days	Thu 12/12/19	Sun 5/1/20	104	123,279,285,286,288,287,2	23 days	Calendar Day	uu
107		Prepare, submit and approve the concrete mix material	48 days	Thu 12/12/19	Tue 28/1/20	104	160,197,219,230	327 days	Calendar Day	rc
108		Prepare, submit and approve the rebar material	48 days	Thu 12/12/19	Tue 28/1/20	104	160,197,219,230	327 days	Calendar Day	rc
109		Prepare, submit and approve the metal works material	48 days	Thu 12/12/19	Tue 28/1/20	104		1885 days	Calendar Day	
110		Prepare, submit and approve the ABWF works material	48 days	Thu 12/12/19	Tue 28/1/20	104	176,187,202,223,232,240,2	1132 days	Calendar Day	abwf
111		**BIM**	**48 days**	**Thu 6/2/20**	**Wed 1/4/20**			**1474 days**	**None**	
112		Prepare, submit and approve the proposal of details of Common data environment (CDE)	48 days	Thu 6/2/20	Wed 1/4/20	66		1474 days	None	
113		Construction Works	1957 days	Mon 18/11/19	Thu 27/3/25			0 days	Calendar Day	
114		**Preliminary Works**	**109 days**	**Mon 18/11/19**	**Thu 5/3/20**			**0 days**	**Calendar Day**	
115		Initial Survey	24 days	Mon 18/11/19	Sat 14/12/19	2	116	8 days	Normal Working Hours	
116		Condition Survey	30 days	Fri 27/12/19	Tue 4/2/20	64,115	117,94,95	0 days	Normal Working Hours	
117		Installation of Monitoring Markers	26 days	Wed 5/2/20	Thu 5/3/20	116	120	0 days	Normal Working Hours	
118		**Access Road (AR3), B-1**	**193 days**	**Mon 20/1/20**	**Sat 12/9/20**	**4,84,87**		**0 days**	**Normal Working Hou**	
119		Site setup and clearance wroks	28 days	Mon 20/1/20	Mon 24/2/20	68	120	9 days	Normal Working Hours	
120		Drainage and Utilities Works	76 days	Fri 6/3/20	Tue 9/6/20	119,117	121	0 days	Normal Working Hours	
121	KD1A	Roadworks	80 days	Wed 10/6/20	Sat 12/9/20	120	41FF	0 days	Normal Working Hours	
122		**Inlet Works No.1, B-2**	**854 days**	**Mon 6/1/20**	**Mon 21/11/22**	**6**		**45 days**	**Normal Working Hou**	
123		**Diversion Works (1. Inlet Truck Sewer, Leachate Rising Mains, Sludge Pipes, Tank Drains and Pipelines near Primary Sludge Thinkeners)**	**180 days**	**Mon 6/1/20**	**Fri 14/8/20**	**105,106**	**42FF**	**74 days**	**Normal Working Hours_20190924**	
124		Utilities scanning to idenify existing UU arrangement	12 days	Mon 6/1/20	Sat 18/1/20	86	125SS	74 days	Normal Working Hours	
125		Trial pits to locate the collection points	24 days	Mon 6/1/20	Wed 5/2/20	86,124SS	127,133,137,134,135,132	74 days	Normal Working Hours	
126		**Diversion of Inlet Truck Sewer (approx. 40m 1800mm dia concrete pipe, 4 deep manholes and Inlet Reception Chamber)**	**146 days**	**Thu 6/2/20**	**Mon 3/8/20**			**84 days**	**Normal Working Hours_20190924**	
127		Trench Excavation for 1800mm dia pipeline and manholes	45 days	Thu 6/2/20	Sat 28/3/20	125	128	84 days	Normal Working Hours	uu
128		Construct M/H MHA01, MHA02, MHA03, MHA04 and Inlet Reception Chamber	65 days	Mon 30/3/20	Fri 19/6/20	127	129	84 days	Normal Working Hours_20190924	uu
129		Lay 1800mm dia concretre pipe	24 days	Sat 20/6/20	Mon 20/7/20	128	130	84 days	Normal Working Hours	uu
130		Collection to existing Inlet Chamber	12 days	Tue 21/7/20	Mon 3/8/20	129		84 days	Normal Working Hours	uu
131		**Diversion of Leachate Rising Main, Sludge Pipes and Tank Drain**	**150 days**	**Thu 6/2/20**	**Fri 7/8/20**			**80 days**	**Normal Working Hou**	
132		Diversion of tank drain, approx. 70m 675mm dia conrete pipe and 2 manholes MHD8.5 & MHD9.5)	150 days	Thu 6/2/20	Fri 7/8/20	125	135SS+60 days,134SS+60	80 days	Normal Working Hours_20190924	uu
133		Diversion of leachate rising main, CHLC, approx. 24m DN250 DI	60 days	Tue 21/4/20	Fri 3/7/20	125,132SS+60 days		110 days	Normal Working Hours_20190924	uu
134		Diversion of sludge pipe, CHES1 approx. 154m DN250 CI	75 days	Tue 21/4/20	Tue 21/7/20	125,132SS+60 days		95 days	Normal Working Hours_20190924	uu
135		Diversion of sludge pipe, CHES2 approx. 106m DN250 CI	75 days	Tue 21/4/20	Tue 21/7/20	125,132SS+60 days		95 days	Normal Working Hours_20190924	uu
136		**Diversion of pipelines near Primary Sludge Thickeners (approx. 180m long 150mm to 375mm concrete pipes)**	**156 days**	**Thu 6/2/20**	**Fri 14/8/20**			**74 days**	**Normal Working Hours_20190924**	**uu**
137		Trench Excavation from M/H MHD1E to MHD5 (approx. 90m long with M/Hs MHD1A, 1B, 1C, 1D & 1E)	60 days	Thu 6/2/20	Mon 20/4/20	125	138SS+45 days,140	74 days	Normal Working Hours_20190924	uu
138		Manholes construction and Pipe laying	60 days	Mon 30/3/20	Sat 13/6/20	137SS+45 days	139	100 days	Normal Working Hours	uu
139		Backfilling	25 days	Mon 15/6/20	Wed 15/7/20	138		100 days	Normal Working Hours	uu
140		Trench Excavation from MHD5 to MHD9.5 (approx. 90m long with M/Hs MHD5A & 5B)	60 days	Tue 21/4/20	Fri 3/7/20	137	141SS+26 days	74 days	Normal Working Hours_20190924	uu
141		Manholes construction and Pipe laying	45 days	Sat 23/5/20	Thu 16/7/20	140SS+26 days	142	74 days	Normal Working Hours	uu
142	KD1B	Backfilling	25 days	Fri 17/7/20	Fri 14/8/20	141		74 days	Normal Working Hours	uu
143		**Decommission and Demolition of Existing Faciliates and Structures**	**240 days**	**Mon 2/3/20**	**Fri 18/12/20**	**6,67,88,90**	**149**	**0 days**	**Normal Working Hou**	
144		Primary Sludge Thickening Tank No.1 and No.2	80 days	Mon 2/3/20	Tue 9/6/20		145	0 days	Normal Working Hours	dem



Critical Task Milestone Summary

First Programme

ID	Key Date	Task Name	Duration	Start	Finish	Predecessors	Successors	Total Slack	Task Calendar	trade
145		Primary Sludge Pump Pit	60 days	Wed 10/6/20	Thu 20/8/20	144	146	0 days	Normal Working Hours	dem
146		Septic Tank	50 days	Fri 21/8/20	Tue 20/10/20	145	147	0 days	Normal Working Hours	dem
147		Diesel Tank	50 days	Wed 21/10/20	Fri 18/12/20	146		0 days	Normal Working Hours	dem
148		**Inlet Works No.1 Building**	**569 days**	**Sat 19/12/20**	**Mon 21/11/22**	**6**		**0 days**	**Normal Working Hou**	
149		Excavate to +6.5mPD (1980sqm excavated soil)	10 days	Sat 19/12/20	Sat 2/1/21	143	150	0 days	Normal Working Hours	ex
150		Predrilling (59nrs, 6rigs, 4days/drillhole/rig)	40 days	Mon 4/1/21	Mon 22/2/21	149,69	151	0 days	Normal Working Hours	pd
151		Pre-bored H piles (186nos, 7rigs, 5days/rig/pile)	133 days	Tue 23/2/21	Wed 4/8/21	150,70	152SS+24 days,154,162,1	0 days	Normal Working Hours	hp
152		Sheetpile Installation (FSPIV, 3,840sq.m, 1rigs, 50sqm/rig/day) with toe grouting	80 days	Tue 23/3/21	Wed 30/6/21	151SS+24 days	154	55 days	Normal Working Hours_20190924	sp
153		Pile Load Test	26 days	Thu 5/8/21	Fri 3/9/21	151	154	0 days	Normal Working Hours	lt
154		ELS works (strutting 4 layers, excavate soil 7445cu.m)	77 days	Sat 4/9/21	Mon 6/12/21	152,151,71,153		0 days	Normal Working Hours	ex
155		Excavate to +5.0mPD and S1 wailing / strutting (960sqm excavated soil)	15 days	Sat 4/9/21	Tue 21/9/21		156	0 days	Normal Working Hours_20190924	ex
156		Excavate to +2.0mPD and S2 wailing / strutting (1920sqm excavated soil)	20 days	Thu 23/9/21	Mon 18/10/21	155	157	0 days	Normal Working Hours_20190924	ex
157		Excavate to +0.0mPD and S3 wailing / strutting (1280sqm excavated soil)	15 days	Tue 19/10/21	Thu 4/11/21	156	158	0 days	Normal Working Hours_20190924	ex
158		Excavate to -3.0mPD and S4 wailing / strutting (1920sqm excavated soil)	20 days	Fri 5/11/21	Sat 27/11/21	157	159	0 days	Normal Working Hours_20190924	ex
159		Excavate -7.4mPD (1365sqm excavated soil)	7 days	Mon 29/11/21	Mon 6/12/21	158	166	0 days	Normal Working Hours	ex
160		R.C. Structure works	296 days	Thu 5/8/21	Thu 4/8/22	73,107,108		0 days	Normal Working Hours	rc
161		Phase A (floor area 585 sqm)	105 days	Thu 5/8/21	Wed 8/12/21			66 days	Normal Working Hours	rc
162		Rebar fix and formwork and concreting for the pile cap (G/F)	40 days	Thu 5/8/21	Mon 20/9/21	151	163	66 days	Normal Working Hours	rc
163		Rebar fix and formwork and concreting upto +13.45mPD (1/F)	25 days	Tue 21/9/21	Fri 22/10/21	162	164	66 days	Normal Working Hours	rc
164		Rebar fix and formwork and concreting upto +25.80mPD (R/F)	40 days	Sat 23/10/21	Wed 8/12/21	163	170	66 days	Normal Working Hours	rc
165		Phase B (621 sqm) and Phase C (662 sqm)	193 days	Tue 7/12/21	Thu 4/8/22			0 days	Normal Working Hours	rc
166		Rebar fix and formwork and concreting for the Inlet Works structure upto level -3.0mPD and removal of S4 wailing/strutting	26 days	Tue 7/12/21	Sat 8/1/22	159	167	0 days	Normal Working Hours_20190924	rc
167		Rebar fix and formwork and concreting for the Inlet Works structure upto level +0.0mPD and removal of S3 and S2 wailing/strutting	14 days	Mon 10/1/22	Tue 25/1/22	166	168	0 days	Normal Working Hours_20190924	rc
168		Rebar fix and formwork and concreting for the Inlet Works structure upto level +5.0mPD and removal of S1 wailing/strutting	14 days	Wed 26/1/22	Mon 14/2/22	167	169	0 days	Normal Working Hours_20190924	rc
169		Apply waterproofing membrance and backfilling	14 days	Tue 15/2/22	Wed 2/3/22	168	170	0 days	Normal Working Hours	
170		Rebar fix and formwork and concreting for the Inlet Works structure of ground floor levels	35 days	Thu 3/3/22	Wed 13/4/22	169,164	171	0 days	Normal Working Hours_20190924	rc
171		Rebar fix and formwork and concreting for the Inlet Works structure of 1/F levels (Phase B +20.11mPD and Phase C +13.45mPD)	30 days	Thu 14/4/22	Tue 24/5/22	170	172	0 days	Normal Working Hours_20190924	rc
172		Rebar fix and formwork and concreting for the Inlet Works structure of double part levels (Phase B +21.31mPD)	20 days	Wed 25/5/22	Fri 17/6/22	171	173	0 days	Normal Working Hours_20190924	rc
173		Rebar fix and formwork and concreting for the Inlet Works structure of R/F levels (Phase B +27.50mPD and Phase C +25.80mPD)	20 days	Sat 18/6/22	Tue 12/7/22	172	174	0 days	Normal Working Hours_20190924	rc
174	KD1C	Rebar fix and formwork and concreting for the Inlet Works structure upto level +27.8mPD (upper roof floor level)	20 days	Wed 13/7/22	Thu 4/8/22	173	176,43FF,175	0 days	Normal Working Hours_20190924	rc
175	KD1C	Allow access to Contractor DE/2018/04 for E&M installation and T&C works	0 days	Thu 4/8/22	Thu 4/8/22	174	43FF	0 days	Normal Working Hours_20190924	
176	SW1	ABWF works	90 days	Fri 5/8/22	Mon 21/11/22	174,110,78	55FF	293 days	Normal Working Hours	abwf
177		**Primary Sedimentation Tanks, B-3**	**1115 days**	**Mon 18/11/19**	**Wed 23/8/23**	**8**		**0 days**	**Normal Working Hou**	
178		Operation of the Existing Primary sedimentation Tanks	615 days	Mon 18/11/19	Sat 11/12/21	2	179	0 days	None	
179		Decommission and Demolition of existing primary sedimentation tanks no. 1 & 2	45 days	Mon 13/12/21	Wed 9/2/22	67,88,90,178	180	0 days	Normal Working Hours_20190924	dem
180		Predrilling (68nrs, 7rigs, 4days/drillhole/rig)	38 days	Thu 10/2/22	Fri 25/3/22	179,69,225	181	0 days	Normal Working Hours	pd
181		Pre-bored H piles (205nos, 8rigs, 4days/pile/rig)	102 days	Sat 26/3/22	Mon 1/8/22	180,70,226	182SS+45 days,184,183	0 days	Normal Working Hours	hp
182		Sheetpile Installation (FSP-II, 3360sq.m) with toe grouting	85 days	Wed 25/5/22	Fri 2/9/22	181SS+45 days	184	0 days	Normal Working Hours	sp
183		Pile Load Test	26 days	Tue 2/8/22	Wed 31/8/22	181	184	2 days	Normal Working Hours	lt
184		ELS works (20000cu.m soil with 2 layers wailing / strutting)	45 days	Sat 3/9/22	Fri 28/10/22	181,72,183,182	185	0 days	Normal Working Hours	ex
185	KD1D	R.C. Structure works	92 days	Sat 29/10/22	Mon 20/2/23	184	186,187,44FF,188	0 days	Normal Working Hours	rc
186	KD1D	Allow access to Contractor DE/2018/04 for E&M installation and T&C works	0 days	Mon 20/2/23	Mon 20/2/23	185	44FF	0 days	Normal Working Hours	
187	SW1	ABWF works	150 days	Tue 21/2/23	Wed 23/8/23	185,110,78	55FF	71 days	Normal Working Hours	abwf
188	SW1	Flowmeter Chamber no.1	60 days	Tue 21/2/23	Sat 6/5/23	185	55FF	161 days	None	
189		**Bioreactors No.2A & 2B, B-4**	**1106 days**	**Mon 18/11/19**	**Sat 12/8/23**	**9**		**0 days**	**Normal Working Hou**	
190		Operation of 2no. Existing 800mm air mains over bioreactor no.2	360 days	Mon 18/11/19	Tue 2/2/21	2	191	0 days	None	
191		Decommission and Demolition of existing bioreactor no.2	60 days	Wed 3/2/21	Tue 20/4/21	67,88,90,190	192	0 days	Normal Working Hours	dem
192		Predrilling (76nrs, 7rigs, 4days/drillhole/rig)	44 days	Wed 21/4/21	Sat 12/6/21	191,69	193	0 days	Normal Working Hours	pd
193		Pre-bored H piles (157nos, 6rigs, 5days/pile/rig)	131 days	Tue 15/6/21	Thu 18/11/21	192,70,209	194SS+72 days,196,195	0 days	Normal Working Hours	hp
194		Sheetpile Installation (FSP-II, 3000sq.m, 50sqm/rig/day) with toe grouting	60 days	Wed 8/9/21	Fri 19/11/21	193SS+72 days	196	25 days	Normal Working Hours_20190924	sp
195		Pile Load Test	26 days	Fri 19/11/21	Sat 18/12/21	193	196	0 days	Normal Working Hours	lt
196		ELS works (18100cu.m soil with 4 layers wailing / strutting)	125 days	Mon 20/12/21	Fri 27/5/22	193,194,72,195	197	0 days	Normal Working Hours	ex
197	KD1E	R.C. Structure works	180 days	Sat 28/5/22	Sat 31/12/22	75,107,108,196	198,202,45FF,199,200,201	0 days	Normal Working Hours	rc
198	KD1E	Allow access to Contractor DE/2018/04 for E&M installation and T&C works	0 days	Sat 31/12/22	Sat 31/12/22	197	45FF	0 days	Normal Working Hours	
199	SW1	Flowmeter no. 2-4	180 days	Tue 3/1/23	Sat 12/8/23	197	55FF	80 days	None	
200	SW1	Gate Valve Chamber no.1-3	180 days	Tue 3/1/23	Sat 12/8/23	197	55FF	80 days	None	
201	SW1	Plug Vakve Chamber no.1-2	180 days	Tue 3/1/23	Sat 12/8/23	197	55FF	80 days	None	
202	SW1	ABWF works	180 days	Tue 3/1/23	Sat 12/8/23	197,110,78	55FF	80 days	Normal Working Hours	abwf
203		**Membrane Facilities Building, B-5**	**941 days**	**Mon 6/1/20**	**Thu 9/3/23**	**10**		**0 days**	**Normal Working Hou**	
204		Decommission and Demolition of existing final sedimentation tanks no. 3 & 4 (Partial)	14 days	Mon 6/1/20	Tue 21/1/20	88,67,90	205	0 days	Normal Working Hours_20190924	dem
205		Installation of sheetpile, FSP-IV 2460sq.m & FSP-II 1680sq.m (50sq.m/rig/day, 2rigs) with toe grout	40 days	Wed 22/1/20	Wed 11/3/20	204	206	0 days	Normal Working Hours_20190924	sp
206		Excavation to level +5.5mPD (5700cu.m soil, 250cu.m/day)	23 days	Thu 12/3/20	Wed 8/4/20	205,92,93	207	0 days	Normal Working Hours	ex
207		Demolition of remaining final sedimentation tanks	45 days	Thu 9/4/20	Fri 5/6/20	206,67,88,90	208	0 days	Normal Working Hours	dem
208		Predrilling (83nrs, 8rigs, 4days/drillhole/rig)	42 days	Sat 6/6/20	Mon 27/7/20	207,69	209	0 days	Normal Working Hours	pd
209		Pre-bored H piles (224nos, 8rigs, 5days/pile/rig)	140 days	Tue 28/7/20	Wed 13/1/21	208,70	211,210,193	0 days	Normal Working Hours	hp
210		Install S1 wailing / strutting	10 days	Thu 14/1/21	Mon 25/1/21	209	213	16 days	Normal Working Hours	ex
211		Pile Load Test	26 days	Thu 14/1/21	Tue 16/2/21	209	212	0 days	Normal Working Hours	lt
212		**ELS works**	**169 days**	**Wed 17/2/21**	**Thu 9/9/21**	**211**		**0 days**	**None**	
213		Excavate to level +2mPD and install S2 wailing / strutting (8090cu.m soil, 250cu.m/day)	45 days	Wed 17/2/21	Tue 13/4/21	210,72	214	0 days	Normal Working Hours_20190924	ex
214		Installation of sheetpile, FSP-IV 380sq.m (50sq.m/rig/day, 1rigs)	14 days	Wed 14/4/21	Thu 29/4/21	213	215	0 days	Normal Working Hours	sp
215		Excavate to level -1.5mPD and install S3 wailing / strutting (4000cu.m soil, 160cu.m/day)	25 days	Fri 30/4/21	Mon 31/5/21	214	216	0 days	Normal Working Hours_20190924	ex
216		Excavate to level -4.6mPD and install S4 wailing / strutting (5200cu.m soil, 160cu.m/day)	35 days	Tue 1/6/21	Tue 13/7/21	215	217	0 days	Normal Working Hours_20190924	ex

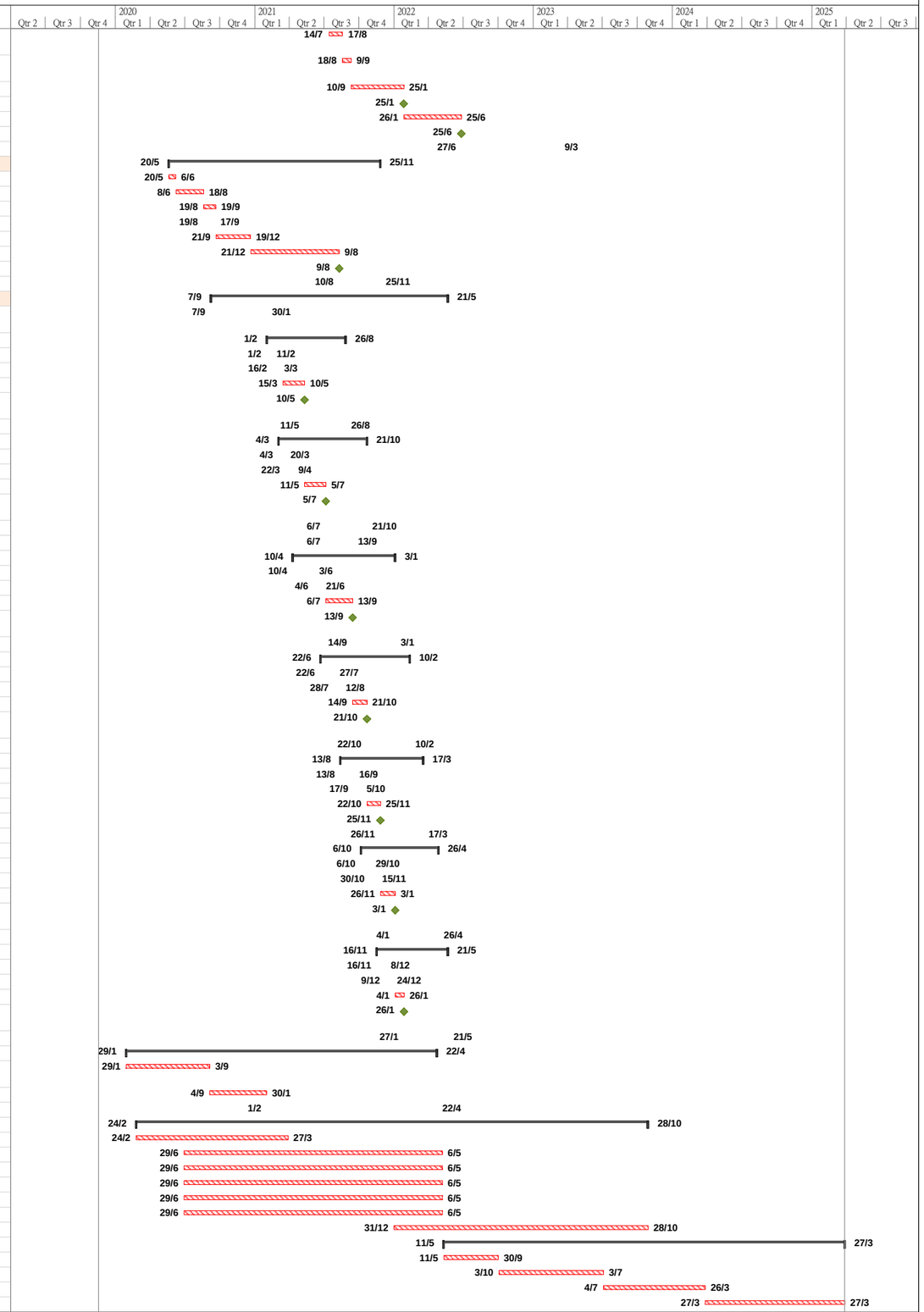


Critical Task Milestone Summary

Contract No. DC/2018/07
Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
Civil Works for Sewage Treatment Facilities

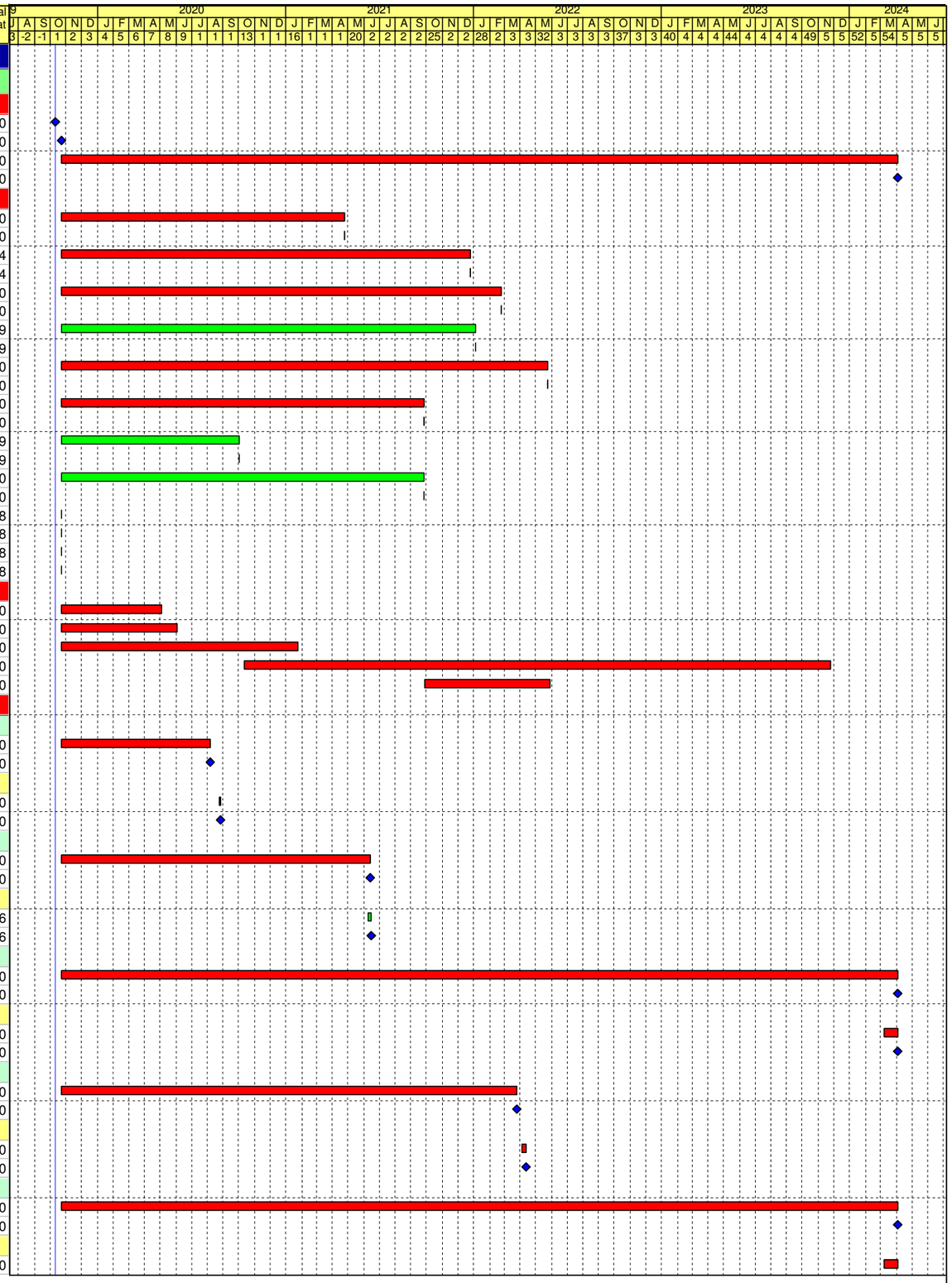
First Programme

ID	Key Date	Task Name	Duration	Start	Finish	Predecessors	Successors	Total Slack	Task Calendar	trade
217		Excavate to level -7.3mPD and install S5 wailing / strutting (4540cu.m soil, 160cu.m/day)	30 days	Wed 14/7/21	Tue 17/8/21	216	218	0 days	Normal Working Hours_20190924	ex
218		Excavate to final formation level -9.0mPD and install S5 wailing / strutting (2860cu.m soil, 160cu.m/day)	20 days	Wed 18/8/21	Thu 9/9/21	217	219	0 days	Normal Working Hours_20190924	ex
219	KD1F	R.C. Structure works (from B2 - Level 1)	112 days	Fri 10/9/21	Tue 25/1/22	76,107,108,230,	46FF,220,221	0 days	Normal Working Hours	rc
220	KD1F	Allow access to Contractor DE/2018/04 for E&M installation and T&C works	0 days	Tue 25/1/22	Tue 25/1/22	219	46FF	0 days	Normal Working Hours	
221	KD1G	R.C. Structure works (from Level 1 to Roof)	120 days	Wed 26/1/22	Sat 25/6/22	219	223,47FF,222	0 days	Normal Working Hours	rc
222	KD1G	Allow access to Contractor DE/2018/04 for E&M installation and T&C works	0 days	Sat 25/6/22	Sat 25/6/22	221	47FF	0 days	Normal Working Hours	
223	SW1	ABWF works	210 days	Mon 27/6/22	Thu 9/3/23	221,110,78,97	55FF	206 days	Normal Working Hours	abwf
224		**SAS Pumping Station, B-6**	**455 days**	**Wed 20/5/20**	**Thu 25/11/21**	**11**		**0 days**	**Normal Working Hou**	
225		Predrilling (4nrs, 1rig, 4days/drillhole/rig)	16 days	Wed 20/5/20	Sat 6/6/20	69	226,180	0 days	Normal Working Hours	pd
226		Pre-bored H piles (12nos, 1rigs, 5days/pile/rig)	60 days	Mon 8/6/20	Tue 18/8/20	225,70	227,181,228	0 days	Normal Working Hours	hp
227		Sheetpile Installation (FSP-II, 690sq.m, 50sqm/day) with toe grouting	28 days	Wed 19/8/20	Sat 19/9/20	226	229	0 days	Normal Working Hours	sp
228		Pile Load Test	26 days	Wed 19/8/20	Thu 17/9/20	226	229	2 days	Normal Working Hours	lt
229		ELS works (1300cu.m soil with 2 layers wailing / strutting)	75 days	Mon 21/9/20	Sat 19/12/20	227,72,228	230	0 days	Normal Working Hours	ex
230	KD1H	R.C. Structure works	186 days	Mon 21/12/20	Mon 9/8/21	77,107,108,229	231,232,48FF,219	0 days	Normal Working Hours	rc
231	KD1H	Allow access to Contractor DE/2018/03 for E&M installation and T&C works	0 days	Mon 9/8/21	Mon 9/8/21	230	48FF	0 days	Normal Working Hours	
232	SW1	ABWF works	90 days	Tue 10/8/21	Thu 25/11/21	230,110,78	55FF	585 days	Normal Working Hours	abwf
233		**Ancillary Structures, B-7**	**503 days**	**Mon 7/9/20**	**Sat 21/5/22**	**12**		**5 days**	**Normal Working Hou**	
234		Demolition of Existing Faciliates and Structures (leachate pump pit & pumping station)	120 days	Mon 7/9/20	Sat 30/1/21	67,88,90	235,241,248,254,260,266,2	5 days	Normal Working Hours_20190924	dem
235		**Chemical System No.1**	**168 days**	**Mon 1/2/21**	**Thu 26/8/21**	**234**		**5 days**	**Normal Working Hou**	
236		Excavation for Raft Footing (20cu.m)	10 days	Mon 1/2/21	Thu 11/2/21		237	5 days	Normal Working Hours	ex
237		Plate load test	14 days	Tue 16/2/21	Wed 3/3/21	236	238,242	5 days	Normal Working Hours	
238	KD1J	R.C. structure works	45 days	Mon 15/3/21	Mon 10/5/21	237	239,50FF,244,240	0 days	Normal Working Hours	rc
239	KD1J	Allow access to Contractor DE/2018/04 for E&M installation and T&C works	0 days	Mon 10/5/21	Mon 10/5/21	238	50FF	215 days	Normal Working Hours_20190924	
240	SW1	ABWF works + BS works	90 days	Tue 11/5/21	Thu 26/8/21	110,78,238	55FF	660 days	Normal Working Hours	abwf
241		**Chemical System No.2**	**189 days**	**Thu 4/3/21**	**Thu 21/10/21**	**234**		**5 days**	**Normal Working Hou**	
242		Excavation for Raft Footing (100cu.m)	15 days	Thu 4/3/21	Sat 20/3/21	237	243	5 days	Normal Working Hours	ex
243		Plate load test	14 days	Mon 22/3/21	Fri 9/4/21	242	244,249	5 days	Normal Working Hours	
244	KD1J	R.C. structure works	45 days	Tue 11/5/21	Mon 5/7/21	243,238	245,251,50FF,246,247	0 days	Normal Working Hours	rc
245	KD1J	Allow access to Contractor DE/2018/04 for E&M installation and T&C works	0 days	Mon 5/7/21	Mon 5/7/21	244	50FF	170 days	Normal Working Hours_20190924	
246	SW1	ABWF works + BS works	90 days	Tue 6/7/21	Thu 21/10/21	110,78,244	55FF	615 days	Normal Working Hours	abwf
247	SW1	Demolition of existing chemical room	60 days	Tue 6/7/21	Mon 13/9/21	244	55FF	645 days	Normal Working Hours	
248		**Fire Services Sprinkler Pumping Room**	**220 days**	**Sat 10/4/21**	**Mon 3/1/22**	**234**		**5 days**	**Normal Working Hou**	
249		Excavation for Raft Footing (800cu.m)	45 days	Sat 10/4/21	Thu 3/6/21	243	250	5 days	Normal Working Hours	ex
250		Plate load test	14 days	Fri 4/6/21	Mon 21/6/21	249	251,255	5 days	Normal Working Hours	
251	KD1J	R.C. structure works	60 days	Tue 6/7/21	Mon 13/9/21	250,244	253,257,252,50FF	0 days	Normal Working Hours	rc
252	KD1J	Allow access to Contractor DE/2018/04 for E&M installation and T&C works	0 days	Mon 13/9/21	Mon 13/9/21	251	50FF	110 days	Normal Working Hours_20190924	
253	SW1	ABWF works + BS works	90 days	Tue 14/9/21	Mon 3/1/22	110,78,251	55FF	555 days	Normal Working Hours	abwf
254		**Temporary Chemical Dosing System**	**191 days**	**Tue 22/6/21**	**Thu 10/2/22**	**234**		**5 days**	**Normal Working Hou**	
255		Excavation for Raft Footing (300cu.m)	30 days	Tue 22/6/21	Tue 27/7/21	250	256	5 days	Normal Working Hours	ex
256		Plate load test	14 days	Wed 28/7/21	Thu 12/8/21	255	257,261	5 days	Normal Working Hours	
257	KD1J	R.C. structure works	30 days	Tue 14/9/21	Thu 21/10/21	256,251	258,50FF,263,259	0 days	Normal Working Hours	rc
258	KD1J	Allow access to Contractor DE/2018/04 for E&M installation and T&C works	0 days	Thu 21/10/21	Thu 21/10/21	257	50FF	80 days	Normal Working Hours_20190924	
259	SW1	ABWF works + BS works	90 days	Fri 22/10/21	Thu 10/2/22	110,78,257	55FF	525 days	Normal Working Hours	abwf
260		**Fire Hydrant and Booster Pump Room**	**177 days**	**Fri 13/8/21**	**Thu 17/3/22**	**234**		**5 days**	**Normal Working Hou**	
261		Excavation for Raft Footing (200cu.m)	30 days	Fri 13/8/21	Thu 16/9/21	256	262	5 days	Normal Working Hours	ex
262		Plate load test	14 days	Fri 17/9/21	Tue 5/10/21	261	263,267	5 days	Normal Working Hours	
263	KD1J	R.C. structure works	30 days	Fri 22/10/21	Thu 25/11/21	262,257	264,265,50FF,269	0 days	Normal Working Hours	rc
264	KD1J	Allow access to Contractor DE/2018/04 for E&M installation and T&C works	0 days	Thu 25/11/21	Thu 25/11/21	263	50FF	50 days	Normal Working Hours	
265	SW1	ABWF works + BS works	90 days	Fri 26/11/21	Thu 17/3/22	263,110,78	55FF	495 days	Normal Working Hours	abwf
266		**Emergency Generator House**	**163 days**	**Wed 6/10/21**	**Tue 26/4/22**	**234**		**5 days**	**Normal Working Hou**	
267		Excavation for Raft Footing (100cu.m)	20 days	Wed 6/10/21	Fri 29/10/21	262	268	5 days	Normal Working Hours	ex
268		Plate load test	14 days	Sat 30/10/21	Mon 15/11/21	267	269,273	5 days	Normal Working Hours	
269	KD1J	R.C. structure works	30 days	Fri 26/11/21	Mon 3/1/22	268,263	270,50FF,271,275	0 days	Normal Working Hours	rc
270	KD1J	Allow access to Contractor DE/2018/04 for E&M installation and T&C works	0 days	Mon 3/1/22	Mon 3/1/22	269	50FF	20 days	Normal Working Hours_20190924	
271	SW1	ABWF works + BS works	90 days	Tue 4/1/22	Tue 26/4/22	110,78,269	55FF	465 days	Normal Working Hours	abwf
272		**Deodorization System No.1 and No.3A**	**149 days**	**Tue 16/11/21**	**Sat 21/5/22**	**234**		**5 days**	**Normal Working Hou**	
273		Excavation for Raft Footing (400cu.m)	20 days	Tue 16/11/21	Wed 8/12/21	268	274	5 days	Normal Working Hours	ex
274		Plate load test	14 days	Thu 9/12/21	Fri 24/12/21	273	275	5 days	Normal Working Hours	
275	KD1J	R.C. structure works	20 days	Tue 4/1/22	Wed 26/1/22	274,269	276,277,50FF	0 days	Normal Working Hours	rc
276	KD1J	Allow access to Contractor DE/2018/04 for E&M installation and T&C works	0 days	Wed 26/1/22	Wed 26/1/22	275	50FF	0 days	Normal Working Hours_20190924	
277	SW1	ABWF works + BS works	90 days	Thu 27/1/22	Sat 21/5/22	275	55FF	445 days	Normal Working Hours	
278		**Additional and Alternation Works for Existing Facilities (B-7A, B-8, B-8A)**	**662 days**	**Wed 29/1/20**	**Fri 22/4/22**			**0 days**	**Normal Working Hou**	
279	KD2B	B-8A Alternation works for existing Air Blower House No.2 (Pipeline CHTA, approx. 133m DN800 D.I.)	180 days	Wed 29/1/20	Thu 3/9/20	15,79,105,106	52FF,280	0 days	Normal Working Hours_20190924	uu
280	KD1I	B7-A Alternation works for exisiting Power House	122 days	Fri 4/9/20	Sat 30/1/21	13,67,88,90,279	49FF,281	0 days	Normal Working Hours	dem
281	SW3	Alternation works for existing Membrane Facilities Building No.1	360 days	Mon 1/2/21	Fri 22/4/22	14,280	57FF	573 days	Normal Working Hours	
282		**External Underground Service, Utilities, Road/Drain**	**1091 days**	**Mon 24/2/20**	**Sat 28/10/23**	**16**		**0 days**	**Normal Working Hou**	
283	KD2A	Process Pipes CHR and CHS (approx. 100m twin DN900 D.I.)	325 days	Mon 24/2/20	Sat 27/3/21	105,106,79FS+2	289,288SS+101 days,286S	0 days	Normal Working Hours	uu
284	SW2	Process Pipes, exclude CHR and CHS	550 days	Mon 29/6/20	Fri 6/5/22	283SS+101 days	289FS-100 days,56FF	0 days	Normal Working Hours	uu
285	SW2	Drainage	550 days	Mon 29/6/20	Fri 6/5/22	283SS+101 days	289FS-100 days,56FF	0 days	Normal Working Hours	uu
286	SW2	Sewerage	550 days	Mon 29/6/20	Fri 6/5/22	283SS+101 days	289FS-100 days,56FF	0 days	Normal Working Hours	uu
287	SW2	Waterworks	550 days	Mon 29/6/20	Fri 6/5/22	283SS+101 days	291FS+2 days,56FF	0 days	Normal Working Hours	uu
288	SW2	Cable Ducts	550 days	Mon 29/6/20	Fri 6/5/22	283SS+101 days	289FS-100 days,56FF	0 days	Normal Working Hours	uu
289	KD3A	Roadworks	540 days	Fri 31/12/21	Sat 28/10/23	285FS-100 days	53FF	0 days	Normal Working Hours	
290		**Landscaping Works**	**854 days**	**Wed 11/5/22**	**Thu 27/3/25**	**16**		**0 days**	**Normal Working Hou**	
291	SW3	Irrigation System	120 days	Wed 11/5/22	Fri 30/9/22	287FS+2 days,1	292,57FF	0 days	Normal Working Hours	uu
292	SW3	Hard Landscaping Works	220 days	Mon 3/10/22	Mon 3/7/23	291,80	293,57FF	0 days	Normal Working Hours	land
293	SW3	Soft Landscaping Works	220 days	Tue 4/7/23	Tue 26/3/24	292,80	294,57FF	0 days	Normal Working Hours	land
294	DLP	Establishment Works (365 days)	294 days	Wed 27/3/24	Thu 27/3/25	293,80	59FF	0 days	Normal Working Hours	

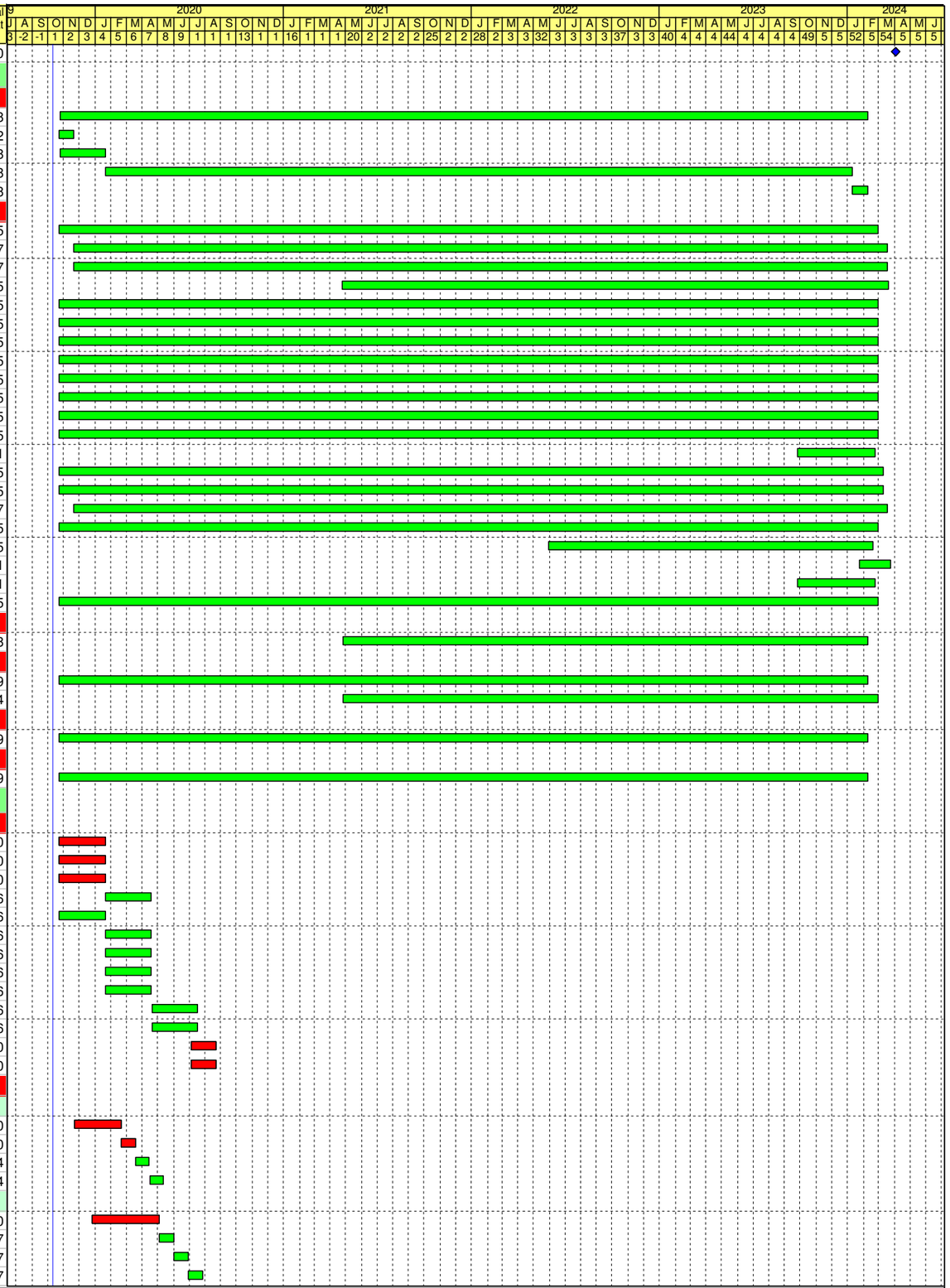


Critical Task Milestone Summary

Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float
SWH - Main Works Stage 1 Sidestream Treatment Facilities & E&M Works for Sludge Treatment Facilities							
Contract Data							
Starting Date & Completion Date							
AS000010	Contract Date (LOA)	0	11-Oct-19		11-Oct-19		0
AS000020	Starting Date	0	23-Oct-19		23-Oct-19		0
AS000110	Whole Contract Period	1625	23-Oct-19	03-Apr-24	23-Oct-19	03-Apr-24	0
AS000220	Completion Date for the whole of the Works	0		03-Apr-24		03-Apr-24	0
Access Date							
AS001100	Portion C-1A (within 480 to 550 days from starting date)	550	23-Oct-19	24-Apr-21	23-Oct-19	24-Apr-21	0
AS001120	Planned Access Date for Portion C-1A	1	25-Apr-21	25-Apr-21	25-Apr-21	25-Apr-21	0
AS001200	Portion C-2A (within 705 to 765 days from starting date)	795	23-Oct-19	25-Dec-21	27-Oct-19	29-Dec-21	4
AS001220	Planned Access Date for Portion C-2A	1	25-Dec-21	25-Dec-21	29-Dec-21	29-Dec-21	4
AS001300	Portion C-2B (within 765 to 855days from starting date)	855	23-Oct-19	23-Feb-22	23-Oct-19	23-Feb-22	0
AS001320	Planned Access Date for Portion C-2B	1	23-Feb-22	23-Feb-22	23-Feb-22	23-Feb-22	0
AS001400	Portion C-2C (within 715 to 805 days from starting date)	805	23-Oct-19	04-Jan-22	01-Nov-19	13-Jan-22	9
AS001420	Planned Access Date for Portion C2-C	1	04-Jan-22	04-Jan-22	13-Jan-22	13-Jan-22	9
AS001500	Portion C-2D (within 825 to 945 days from starting date)	945	23-Oct-19	24-May-22	23-Oct-19	24-May-22	0
AS001520	Planned Access Date for Portion C-2D	1	24-May-22	24-May-22	24-May-22	24-May-22	0
AS001600	Portion C-3 (within 615 to 705 days from starting date)	705	23-Oct-19	26-Sep-21	23-Oct-19	26-Sep-21	0
AS001620	Planned Access Date for Portion C-3	1	26-Sep-21	26-Sep-21	26-Sep-21	26-Sep-21	0
AS001700	Portion B-1 (within 285 to 345 days from starting date)	345	23-Oct-19	01-Oct-20	01-Nov-19	10-Oct-20	9
AS001720	Planned Access Date for Portion B-1	1	01-Oct-20	01-Oct-20	10-Oct-20	10-Oct-20	9
AS001800	Portion B-2 (within 615 to 705 days from starting date)	705	23-Oct-19	26-Sep-21	12-Nov-19	16-Oct-21	20
AS001820	Planned Access Date for Portion B-2	1	26-Sep-21	26-Sep-21	16-Oct-21	16-Oct-21	20
AS001900	Works Area WA1-B (starting date)	1	23-Oct-19	23-Oct-19	20-Nov-19	20-Nov-19	28
AS001910	Planned Access Date for Works Area WA1-B	1	23-Oct-19	23-Oct-19	20-Nov-19	20-Nov-19	28
AS001920	Works Area WA3 (starting date)	1	23-Oct-19	23-Oct-19	20-Nov-19	20-Nov-19	28
AS001930	Planned Access Date for Works Area WA3	1	23-Oct-19	23-Oct-19	20-Nov-19	20-Nov-19	28
Key Dates							
AS002010	KD1A Submission of Civil Requirement Dwgs, Elec. Schematic Dwgs of UV System No.1 and El	195	23-Oct-19	04-May-20	23-Oct-19	04-May-20	0
AS002020	KD2A Submission of Civil Requirement Dwgs, Elec. Schematic Dwgs of SD Bldg, SD & DC, CHI	225	23-Oct-19	03-Jun-20	23-Oct-19	03-Jun-20	0
AS002040	KD2B Submission of Remaining Civil Requirement Dwgs, Elec. Schematic Dwgs of SD Bldg, SI	460	23-Oct-19	24-Jan-21	23-Oct-19	24-Jan-21	0
AS002050	KD3A Completion of Phase 1 Commissioning of Sidestream Treatment Facilities (1140d after P	1140	11-Oct-20	24-Nov-23	11-Oct-20	24-Nov-23	0
AS002060	KD5A - Completion of the BS Fittings Installation at CLP Sub-Station at Workshop No. 2 (245d a	245	27-Sep-21	29-May-22	27-Sep-21	29-May-22	0
Completion Date							
Section 1							
AS003100	Contract Duration of Section 1	290	23-Oct-19	07-Aug-20	23-Oct-19	07-Aug-20	0
AS003110	Completion date - Section 1 (290 days from starting date)	0		07-Aug-20		07-Aug-20	0
Time Risk Allowance and Planned Completion							
AS003105	Time Risk Allowance for Section 1	3	24-Aug-20	26-Aug-20	24-Aug-20	26-Aug-20	0
AS003130	Planned Completion for Section 1	0		26-Aug-20		26-Aug-20	0
Section 2							
AS003200	Contract Duration of Section 2	600	23-Oct-19	13-Jun-21	23-Oct-19	13-Jun-21	0
AS003210	Completion date - Section 2 (600 days from starting date)	0		13-Jun-21		13-Jun-21	0
Time Risk Allowance and Planned Completion							
AS003220	Time Risk Allowance for Section 2	7	10-Jun-21	16-Jun-21	26-Jun-21	02-Jul-21	16
AS003230	Planned Completion for Section 2	0		16-Jun-21		02-Jul-21	16
Section 3							
AS003300	Contract Duration of Section 3	1625	23-Oct-19	03-Apr-24	23-Oct-19	03-Apr-24	0
AS003310	Completion date - Section 3 (1625 days from starting date)	0		03-Apr-24		03-Apr-24	0
Time Risk Allowance and Planned Completion							
AS003320	Time Risk Allowance for Section 3	26	09-Mar-24	03-Apr-24	09-Mar-24	03-Apr-24	0
AS003330	Planned Completion for Section 3	0		03-Apr-24		03-Apr-24	0
Section 4							
AS003400	Contract Duration of Section 4	885	23-Oct-19	25-Mar-22	23-Oct-19	25-Mar-22	0
AS003410	Completion date - Section 4 (885 days from starting date)	0		25-Mar-22		25-Mar-22	0
Time Risk Allowance and Planned Completion							
AS003420	Time Risk Allowance for Section 4	10	04-Apr-22	13-Apr-22	04-Apr-22	13-Apr-22	0
AS003430	Planned Completion for Section 4	0		13-Apr-22		13-Apr-22	0
Section 5							
AS003500	Contract Duration of Section 5	1625	23-Oct-19	03-Apr-24	23-Oct-19	03-Apr-24	0
AS003510	Completion date - Section 5 (1625 days from starting date)	0		03-Apr-24		03-Apr-24	0
Time Risk Allowance and Planned Completion							
AS003520	Time Risk Allowance for Section 5	26	09-Mar-24	03-Apr-24	09-Mar-24	03-Apr-24	0



Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float
AS003530	Planned Completion for Section 5	0		03-Apr-24		03-Apr-24	0
Preliminaries							
Mobilisation							
AS010100	Temporary Accommodation for the PM	1570	24-Oct-19	09-Feb-24	21-Nov-19	08-Mar-24	28
AS010200	Mobilisation	28	23-Oct-19	19-Nov-19	04-Nov-19	01-Dec-19	12
AS010210	Construction of Contractor's Site Office & Storage	90	24-Oct-19	21-Jan-20	21-Nov-19	18-Feb-20	28
AS010220	Maintain Contractor's Site Office & Storage	1450	22-Jan-20	10-Jan-24	19-Feb-20	07-Feb-24	28
AS010240	Removal of Site Office, Store & Relevant Facilities	30	11-Jan-24	09-Feb-24	08-Feb-24	08-Mar-24	28
Site Preliminaries							
AS010300	Provision of Insurance, Third Party Insurances & PII	1590	23-Oct-19	28-Feb-24	27-Nov-19	03-Apr-24	35
AS010400	Provision of Transport for the Use of the PM & Supervisor	1580	20-Nov-19	17-Mar-24	07-Dec-19	03-Apr-24	17
AS010500	Provision of Electronic Document Management System fot the PM	1580	20-Nov-19	17-Mar-24	07-Dec-19	03-Apr-24	17
AS010600	Provision of Photographs	1060	25-Apr-21	19-Mar-24	10-May-21	03-Apr-24	15
AS010700	Provision of Environmental Mitigation Measures	1590	23-Oct-19	28-Feb-24	27-Nov-19	03-Apr-24	35
AS010800	Provision of Air Pollution Abatment	1590	23-Oct-19	28-Feb-24	27-Nov-19	03-Apr-24	35
AS010900	Provision of Noise Pollution Abatment	1590	23-Oct-19	28-Feb-24	27-Nov-19	03-Apr-24	35
AS011000	Provision of Wastewater Pollution Abatement	1590	23-Oct-19	28-Feb-24	27-Nov-19	03-Apr-24	35
AS011100	Provision of Wastement Management	1590	23-Oct-19	28-Feb-24	27-Nov-19	03-Apr-24	35
AS011200	Provision of Monitoring the Use of Ultra Low Sulphur Diesel	1590	23-Oct-19	28-Feb-24	27-Nov-19	03-Apr-24	35
AS011300	Provision of Environmental Management	1590	23-Oct-19	28-Feb-24	27-Nov-19	03-Apr-24	35
AS011400	Provision of Site Management Plan for Trip Ticket System	1590	23-Oct-19	28-Feb-24	27-Nov-19	03-Apr-24	35
AS011500	Provision of As-constructed Drawings	150	26-Sep-23	22-Feb-24	06-Nov-23	03-Apr-24	41
AS011600	Provision of Systematic Risk Management	1600	23-Oct-19	09-Mar-24	17-Nov-19	03-Apr-24	25
AS011700	Provision of Site Liaison Group & Community Liaison Group	1600	23-Oct-19	09-Mar-24	17-Nov-19	03-Apr-24	25
AS011800	Provision of 24-Hour Telephone Line	1580	20-Nov-19	17-Mar-24	07-Dec-19	03-Apr-24	17
AS011900	Provision of BIM Modelling	1590	23-Oct-19	28-Feb-24	27-Nov-19	03-Apr-24	35
AS012000	Provision of Upkeeping and Protection of Completed Works	630	30-May-22	18-Feb-24	14-Jul-22	03-Apr-24	45
AS012100	Provision of Provide Training for Employer's Staff	60	24-Jan-24	23-Mar-24	04-Feb-24	03-Apr-24	11
AS012300	Submit Operation and Management Manual	150	26-Sep-23	22-Feb-24	06-Nov-23	03-Apr-24	41
AS012400	Provision of ICE for Certification of the Design, Cal, Dwgs, Plans and all relevant Doc and Proce	1590	23-Oct-19	28-Feb-24	27-Nov-19	03-Apr-24	35
Site Clearance							
AS013100	General Site Clearance of the Site	1020	26-Apr-21	09-Feb-24	24-May-21	08-Mar-24	28
Safety and Environmental Management							
AS013200	Construction Health and Safety Plan	1570	23-Oct-19	08-Feb-24	21-Nov-19	08-Mar-24	29
AS013300	Site Traffic Safety Management Plan	1040	26-Apr-21	29-Feb-24	30-May-21	03-Apr-24	34
Compliance with BEAM Requirements							
AS013400	BEAM Plus	1570	23-Oct-19	08-Feb-24	21-Nov-19	08-Mar-24	29
Contractor's Other Cost							
AS013500	Contractor's Other Cost	1570	23-Oct-19	08-Feb-24	21-Nov-19	08-Mar-24	29
Section 1 - Design for UV System No. 1 & Effluent Pumping Station No.1							
Major Plant & Materials Procurement							
AS103100	Procurement & PO for UV Disinfection System (S10)	90	23-Oct-19	20-Jan-20	23-Oct-19	20-Jan-20	0
AS103120	Procurement & PO for Lift-up Pumps (S11)	90	23-Oct-19	20-Jan-20	23-Oct-19	20-Jan-20	0
AS103140	Procurement & PO for Transfer Pumps (S13)	90	23-Oct-19	20-Jan-20	23-Oct-19	20-Jan-20	0
AS103160	Procurement & PO for FRP Cover (S11)	90	21-Jan-20	19-Apr-20	26-May-20	23-Aug-20	126
AS103180	Procurement & PO for EOT Cranes (2T & 5T) (S19)	90	23-Oct-19	20-Jan-20	26-May-20	23-Aug-20	216
AS103200	Procurement & PO for Stoplogs (S21)	90	21-Jan-20	19-Apr-20	26-May-20	23-Aug-20	126
AS103220	Procurement & PO for Penstocks (S21)	90	21-Jan-20	19-Apr-20	26-Feb-20	25-May-20	36
AS103240	Procurement & PO for Transfomers (Tx 07 & 08) (S17)	90	21-Jan-20	19-Apr-20	26-May-20	23-Aug-20	126
AS103260	Procurement & PO for LVSB (S17)	90	21-Jan-20	19-Apr-20	26-May-20	23-Aug-20	126
AS103280	Procurement & PO for Control & Monitoring System (S18)	90	20-Apr-20	18-Jul-20	26-May-20	23-Aug-20	36
AS103300	Procurement & PO for Pipeworks & Associated Valves	90	20-Apr-20	18-Jul-20	26-May-20	23-Aug-20	36
AS103320	Procurement & PO for Elec. Materials	50	05-Jul-20	23-Aug-20	05-Jul-20	23-Aug-20	0
AS510020	Procurement & PO for FS System (S20)	50	05-Jul-20	23-Aug-20	05-Jul-20	23-Aug-20	0
Design & Submission							
General Arrangement Drawings							
AS101100	Prepare & Submit General Arrangement Drawings	90	22-Nov-19	19-Feb-20	22-Nov-19	19-Feb-20	0
AS101110	Review & Comment on General Arrangement Drawings by PM	28	20-Feb-20	18-Mar-20	20-Feb-20	18-Mar-20	0
AS101120	Revise & Re-submit General Arrangement Drawings	28	19-Mar-20	15-Apr-20	12-Apr-20	09-May-20	24
AS101130	Review & Accept of General Arrangement Drawings by PM	28	16-Apr-20	13-May-20	10-May-20	06-Jun-20	24
Civil & Dimensional / Tolerance Requirement Drawings							
AS102100	Prepare & Submit Civil Requirment Drawings	130	27-Dec-19	04-May-20	27-Dec-19	04-May-20	0
AS102110	Review & Comment on Civil Requirment Drawings by PM	28	05-May-20	01-Jun-20	01-Jun-20	28-Jun-20	27
AS102120	Revise & Re-submit Civil Requirment Drawings	28	02-Jun-20	29-Jun-20	29-Jun-20	26-Jul-20	27
AS102130	Review & Accept of Civil Requirment Drawings by PM	28	30-Jun-20	27-Jul-20	27-Jul-20	23-Aug-20	27

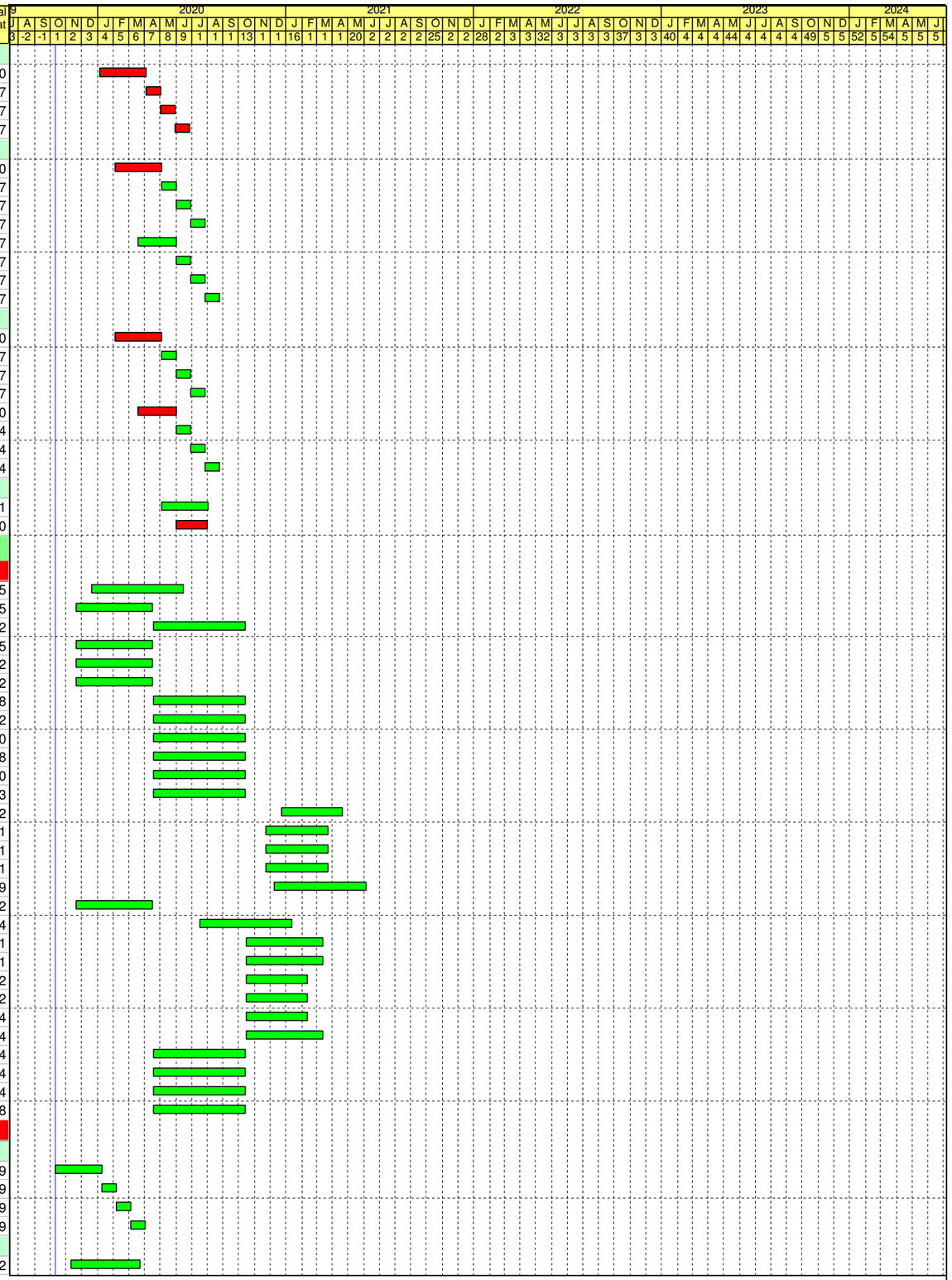


Remaining Work
Critical Activity
Milestone
Actual Progress

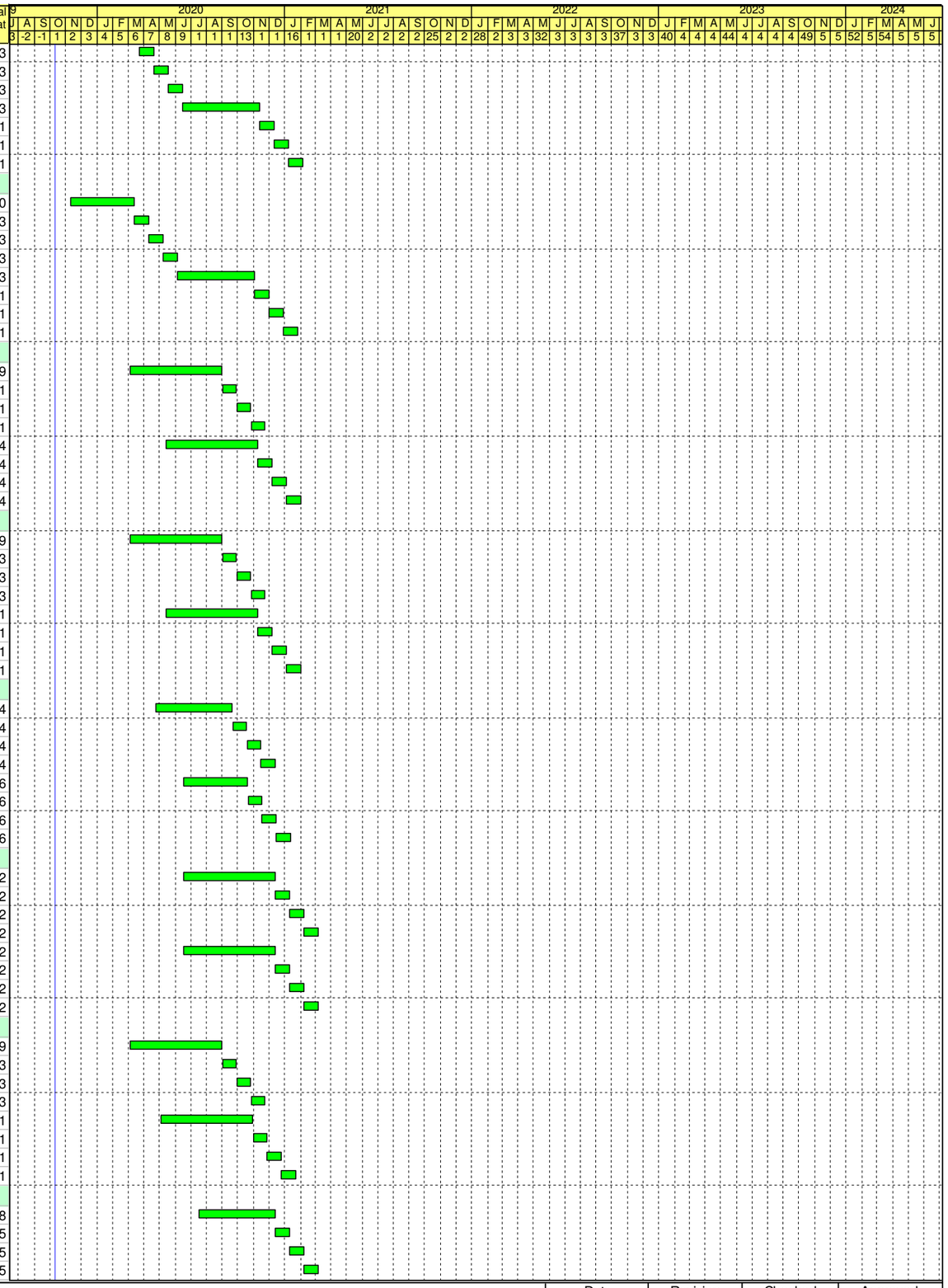
Contract No. DE/2018/03
Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
Sidestream Treatment Facilities and E&M Works for Sluge Treatment Faciliteis
Master Programme

Date	Revision	Checked	Approved
24-Oct-19	Rev.0	AI	KM

Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float
Electrical Schematic Drawings							
AS102150	Prepare & Submit Elec. Schematic Drawings	90	06-Jan-20	04-Apr-20	06-Jan-20	04-Apr-20	0
AS102160	Review & Comment on Elec. Schematic Drawings by PM	28	05-Apr-20	02-May-20	12-Apr-20	09-May-20	7
AS102170	Revise & Re-submit Elec. Schematic Drawings	28	03-May-20	30-May-20	10-May-20	06-Jun-20	7
AS102180	Review & Accept of Elec. Schematic Drawings by PM	28	31-May-20	27-Jun-20	07-Jun-20	04-Jul-20	7
UV System No. 1							
AS102200	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	90	05-Feb-20	04-May-20	05-Feb-20	04-May-20	0
AS102210	Review & Comment on Wiring Dwgs, Cable Schedule & Design Cal.	28	05-May-20	01-Jun-20	01-Jun-20	28-Jun-20	27
AS102220	Revise & Re-submit Wiring Dwgs, Cable Schedule & Design Cal.	28	02-Jun-20	29-Jun-20	29-Jun-20	26-Jul-20	27
AS102230	Review & Accept of Wiring Dwgs, Cable Schedule & Design Cal.	28	30-Jun-20	27-Jul-20	27-Jul-20	23-Aug-20	27
AS102300	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	75	19-Mar-20	01-Jun-20	04-Jun-20	17-Aug-20	77
AS102310	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	28	02-Jun-20	29-Jun-20	18-Aug-20	14-Sep-20	77
AS102320	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	28	30-Jun-20	27-Jul-20	15-Sep-20	12-Oct-20	77
AS102330	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	28	28-Jul-20	24-Aug-20	13-Oct-20	09-Nov-20	77
Effluent Pumping Station No. 1							
AS112200	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	90	05-Feb-20	04-May-20	05-Feb-20	04-May-20	0
AS112210	Review & Comment on Wiring Dwgs, Cable Schedule & Design Cal.	28	05-May-20	01-Jun-20	01-Jun-20	28-Jun-20	27
AS112220	Revise & Re-submit Wiring Dwgs, Cable Schedule & Design Cal.	28	02-Jun-20	29-Jun-20	29-Jun-20	26-Jul-20	27
AS112230	Review & Accept of Wiring Dwgs, Cable Schedule & Design Cal.	28	30-Jun-20	27-Jul-20	27-Jul-20	23-Aug-20	27
AS112300	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	75	19-Mar-20	01-Jun-20	19-Mar-20	01-Jun-20	0
AS112310	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	28	02-Jun-20	29-Jun-20	06-Jul-20	02-Aug-20	34
AS112320	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	28	30-Jun-20	27-Jul-20	03-Aug-20	30-Aug-20	34
AS112330	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	28	28-Jul-20	24-Aug-20	31-Aug-20	27-Sep-20	34
Building Services							
AS113100	Prepare & Submit BS Works Design & Dwgs UV System No.1 & Effluent Pumping Station No.1	90	05-May-20	02-Aug-20	26-May-20	23-Aug-20	21
AS113200	Prepare & Submit FS Works Design & Dwgs UV System No.1 & Effluent Pumping Station No.1	60	02-Jun-20	31-Jul-20	02-Jun-20	31-Jul-20	0
Section 2 - Design for Sludge Digesters & Distribution Chamber, SD Bldg, CHP Bldg, ...etc							
Major Plant & Materials Procurement							
AS023100	Procurement & PO for Sludge Screening System (S2)	180	20-Dec-19	16-Jun-20	24-Jan-20	21-Jul-20	35
AS023120	Procurement & PO for Sludge Thickening System (S3)	150	20-Nov-19	17-Apr-20	24-Jan-20	21-Jun-20	65
AS023140	Procurement & PO for Sludge Digestion System (S5)	180	18-Apr-20	14-Oct-20	30-Apr-20	26-Oct-20	12
AS023160	Procurement & PO for Sludge Dewatering System (S6)	150	20-Nov-19	17-Apr-20	23-Feb-20	21-Jul-20	95
AS023180	Procurement & PO for THP System (S4)	150	20-Nov-19	17-Apr-20	12-Dec-19	09-May-20	22
AS023200	Procurement & PO for Biogas Storage & Pre-Treatment (S7)	150	20-Nov-19	17-Apr-20	02-Dec-19	29-Apr-20	12
AS023210	Procurement & PO for H2S Removal System (S7)	180	18-Apr-20	14-Oct-20	26-May-20	21-Nov-20	38
AS023220	Procurement & PO for CHP System (S8)	180	18-Apr-20	14-Oct-20	10-May-20	05-Nov-20	22
AS023240	Procurement & PO for Waste Gas Burning System (S9)	180	18-Apr-20	14-Oct-20	07-Jul-20	02-Jan-21	80
AS023260	Procurement & PO for Plant Service Water System (S12)	180	18-Apr-20	14-Oct-20	25-Jun-20	21-Dec-20	68
AS023270	Procurement & PO for Reclaimed Water Utilisation (S13)	180	18-Apr-20	14-Oct-20	07-Jul-20	02-Jan-21	80
AS023280	Procurement & PO for SAS Pumping System (S14)	180	18-Apr-20	14-Oct-20	01-May-20	27-Oct-20	13
AS023290	Procurement & PO for Pipeworks & Associated Valves	120	23-Dec-20	21-Apr-21	03-Feb-21	02-Jun-21	42
AS023300	Procurement & PO for Transfomers (S17)	120	24-Nov-20	23-Mar-21	25-Dec-20	23-Apr-21	31
AS023320	Procurement & PO for 11 kV Switchboard (S17)	120	24-Nov-20	23-Mar-21	25-Dec-20	23-Apr-21	31
AS023340	Procurement & PO for 380V Switchboard (S17)	120	24-Nov-20	23-Mar-21	25-Dec-20	23-Apr-21	31
AS023380	Procurement & PO for Control & Monitoring System (S18)	180	09-Dec-20	06-Jun-21	28-Dec-20	25-Jun-21	19
AS023400	Procurement & PO for Lifting Appliances (S19)	150	20-Nov-19	17-Apr-20	01-Jan-20	29-May-20	42
AS023420	Procurement & PO for DO System (S21)	180	17-Jul-20	12-Jan-21	28-Dec-20	25-Jun-21	164
AS023440	Procurement & PO for Stoplog (S21)	150	15-Oct-20	13-Mar-21	04-Jan-21	02-Jun-21	81
AS023460	Procurement & PO for Penstock (S21)	150	15-Oct-20	13-Mar-21	04-Jan-21	02-Jun-21	81
AS023480	Procurement & PO for Sewage Pump (S21)	120	15-Oct-20	11-Feb-21	16-Nov-20	15-Mar-21	32
AS023500	Procurement & PO for Process Water Pump (S21)	120	15-Oct-20	11-Feb-21	16-Nov-20	15-Mar-21	32
AS023520	Procurement & PO for External Sludge Transfer Pump (S21)	120	15-Oct-20	11-Feb-21	26-Feb-21	25-Jun-21	134
AS023540	Procurement & PO for THP Cooling Pump (S21)	150	15-Oct-20	13-Mar-21	27-Jan-21	25-Jun-21	104
AS023560	Procurement & PO for Ferric Chloride Storage Tank (S21)	180	18-Apr-20	14-Oct-20	28-Dec-20	25-Jun-21	254
AS023580	Procurement & PO for Ferric Chloride Dosing Pump (S21)	180	18-Apr-20	14-Oct-20	28-Dec-20	25-Jun-21	254
AS023600	Procurement & PO for Temporary Primary Sludge Pump (S21)	180	18-Apr-20	14-Oct-20	28-Dec-20	25-Jun-21	254
AS023620	Procurement & PO for Elec. Materials	180	18-Apr-20	14-Oct-20	03-Sep-20	01-Mar-21	138
Design & Submission							
General Arrangement Drawings							
AS020100	Prepare & Submit General Arrangement Drawings	90	11-Oct-19	08-Jan-20	30-Oct-19	27-Jan-20	19
AS020110	Review & Comment on General Arrangement Drawings by PM	28	09-Jan-20	05-Feb-20	28-Jan-20	24-Feb-20	19
AS020120	Revise & Re-submit General Arrangement Drawings	28	06-Feb-20	04-Mar-20	25-Feb-20	23-Mar-20	19
AS020130	Review & Accept of General Arrangement Drawings by PM	28	05-Mar-20	01-Apr-20	24-Mar-20	20-Apr-20	19
Civil & Dimensional / Tolerance Requirement Drawings							
AS020200	Prepare & Submit Civil Requirement Drawings (from formation level up to +8mPD) -KD2A	135	10-Nov-19	23-Mar-20	21-Jan-20	03-Jun-20	72



Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float
AS020210	Review & Comment on Civil Requirement Drawings by PM (from formation level up to +8mPD)	28	24-Mar-20	20-Apr-20	05-Jun-20	02-Jul-20	73
AS020220	Revise & Re-submit Civil Requirement Drawings (from formation level up to +8mPD)	28	21-Apr-20	18-May-20	03-Jul-20	30-Jul-20	73
AS020230	Review & Accept of Civil Requirement Drawings by PM (from formation level up to +8mPD)	28	19-May-20	15-Jun-20	31-Jul-20	27-Aug-20	73
AS020300	Prepare & Submit Civil Requirement Drawings (remaining) -KD2B	150	16-Jun-20	12-Nov-20	28-Aug-20	24-Jan-21	73
AS020310	Review & Comment on Civil Requirement Drawings by PM (remaining)	28	13-Nov-20	10-Dec-20	03-Apr-21	30-Apr-21	141
AS020320	Revise & Re-submit Civil Requirement Drawings (remaining)	28	11-Dec-20	07-Jan-21	01-May-21	28-May-21	141
AS020330	Review & Accept of Civil Requirement Drawings by PM (remaining)	28	08-Jan-21	04-Feb-21	29-May-21	25-Jun-21	141
Electrical Schematic Drawings							
AS021200	Prepare & Elec. Schematic Drawings (from formation level up to +8mPD) -KD2A	125	10-Nov-19	13-Mar-20	20-Dec-19	22-Apr-20	40
AS021210	Review & Comment on Elec. Schematic Drawings by PM (from formation level up to +8mPD)	28	14-Mar-20	10-Apr-20	05-Jun-20	02-Jul-20	83
AS021220	Revise & Re-submit Elec. Schematic Drawings (from formation level up to +8mPD)	28	11-Apr-20	08-May-20	03-Jul-20	30-Jul-20	83
AS021230	Review & Accept of Elec. Schematic Drawings by PM (from formation level up to +8mPD)	28	09-May-20	05-Jun-20	31-Jul-20	27-Aug-20	83
AS021300	Prepare & Submit Elec. Schematic Drawings (remaining) -KD2B	150	06-Jun-20	02-Nov-20	28-Aug-20	24-Jan-21	83
AS021310	Review & Comment on Elec. Schematic Drawings by PM (remaining)	28	03-Nov-20	30-Nov-20	03-Apr-21	30-Apr-21	151
AS021320	Revise & Re-submit Elec. Schematic Drawings (remaining)	28	01-Dec-20	28-Dec-20	01-May-21	28-May-21	151
AS021330	Review & Accept of Elec. Schematic Drawings by PM (remaining)	28	29-Dec-20	25-Jan-21	29-May-21	25-Jun-21	151
Sludge Screening (SSc)							
AS022200	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	180	05-Mar-20	31-Aug-20	24-Mar-20	19-Sep-20	19
AS022210	Review & Comment on Wiring Dwgs, Cable Schedule & Design Cal.	28	01-Sep-20	28-Sep-20	02-Oct-20	29-Oct-20	31
AS022220	Revise & Re-submit Wiring Dwgs, Cable Schedule & Design Cal.	28	29-Sep-20	26-Oct-20	30-Oct-20	26-Nov-20	31
AS022230	Review & Accept of Wiring Dwgs, Cable Schedule & Design Cal.	28	27-Oct-20	23-Nov-20	27-Nov-20	24-Dec-20	31
AS022300	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	180	14-May-20	09-Nov-20	05-Oct-20	02-Apr-21	144
AS022310	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	28	10-Nov-20	07-Dec-20	03-Apr-21	30-Apr-21	144
AS022320	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	28	08-Dec-20	04-Jan-21	01-May-21	28-May-21	144
AS022330	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	28	05-Jan-21	01-Feb-21	29-May-21	25-Jun-21	144
Sludge Thickening (STh)							
AS032200	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	180	05-Mar-20	31-Aug-20	24-Mar-20	19-Sep-20	19
AS032210	Review & Comment on Wiring Dwgs, Cable Schedule & Design Cal.	28	01-Sep-20	28-Sep-20	02-Apr-21	29-Apr-21	213
AS032220	Revise & Re-submit Wiring Dwgs, Cable Schedule & Design Cal.	28	29-Sep-20	26-Oct-20	30-Apr-21	27-May-21	213
AS032230	Review & Accept of Wiring Dwgs, Cable Schedule & Design Cal.	28	27-Oct-20	23-Nov-20	28-May-21	24-Jun-21	213
AS032300	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	180	14-May-20	09-Nov-20	01-Nov-20	29-Apr-21	171
AS032310	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	28	10-Nov-20	07-Dec-20	30-Apr-21	27-May-21	171
AS032320	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	28	08-Dec-20	04-Jan-21	28-May-21	24-Jun-21	171
AS032330	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	28	05-Jan-21	01-Feb-21	25-Jun-21	22-Jul-21	171
Thermal Hydrolysis Process (THP)							
AS042200	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	150	24-Apr-20	20-Sep-20	04-Nov-20	02-Apr-21	194
AS042210	Review & Comment on Wiring Dwgs, Cable Schedule & Design Cal.	28	21-Sep-20	18-Oct-20	03-Apr-21	30-Apr-21	194
AS042220	Revise & Re-submit Wiring Dwgs, Cable Schedule & Design Cal.	28	19-Oct-20	15-Nov-20	01-May-21	28-May-21	194
AS042230	Review & Accept of Wiring Dwgs, Cable Schedule & Design Cal.	28	16-Nov-20	13-Dec-20	29-May-21	25-Jun-21	194
AS042300	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	125	18-Jun-20	20-Oct-20	10-Apr-21	12-Aug-21	296
AS042310	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	28	21-Oct-20	17-Nov-20	13-Aug-21	09-Sep-21	296
AS042320	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	28	18-Nov-20	15-Dec-20	10-Sep-21	07-Oct-21	296
AS042330	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	28	16-Dec-20	12-Jan-21	08-Oct-21	04-Nov-21	296
Sludge Digestion (SDi)							
AS052200	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	180	17-Jun-20	13-Dec-20	29-Jun-20	25-Dec-20	12
AS052210	Review & Comment on Wiring Dwgs, Cable Schedule & Design Cal.	28	14-Dec-20	10-Jan-21	26-Dec-20	22-Jan-21	12
AS052220	Revise & Re-submit Wiring Dwgs, Cable Schedule & Design Cal.	28	11-Jan-21	07-Feb-21	23-Jan-21	19-Feb-21	12
AS052230	Review & Accept of Wiring Dwgs, Cable Schedule & Design Cal.	28	08-Feb-21	07-Mar-21	20-Feb-21	19-Mar-21	12
AS052300	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	180	17-Jun-20	13-Dec-20	29-Jun-20	25-Dec-20	12
AS052310	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	28	14-Dec-20	10-Jan-21	26-Dec-20	22-Jan-21	12
AS052320	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	28	11-Jan-21	07-Feb-21	23-Jan-21	19-Feb-21	12
AS052330	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	28	08-Feb-21	07-Mar-21	20-Feb-21	19-Mar-21	12
Sludge Dewatering (SDe)							
AS062200	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	180	05-Mar-20	31-Aug-20	24-Mar-20	19-Sep-20	19
AS062210	Review & Comment on Wiring Dwgs, Cable Schedule & Design Cal.	28	01-Sep-20	28-Sep-20	13-Dec-20	09-Jan-21	103
AS062220	Revise & Re-submit Wiring Dwgs, Cable Schedule & Design Cal.	28	29-Sep-20	26-Oct-20	10-Jan-21	06-Feb-21	103
AS062230	Review & Accept of Wiring Dwgs, Cable Schedule & Design Cal.	28	27-Oct-20	23-Nov-20	07-Feb-21	06-Mar-21	103
AS062300	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	180	04-May-20	30-Oct-20	14-Jul-20	09-Jan-21	71
AS062310	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	28	31-Oct-20	27-Nov-20	10-Jan-21	06-Feb-21	71
AS062320	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	28	28-Nov-20	25-Dec-20	07-Feb-21	06-Mar-21	71
AS062330	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	28	26-Dec-20	22-Jan-21	07-Mar-21	03-Apr-21	71
Biogas Storage & Pre-Treatment (BSPT)							
AS072200	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	150	17-Jul-20	13-Dec-20	24-Aug-20	20-Jan-21	38
AS072210	Review & Comment on Wiring Dwgs, Cable Schedule & Design Cal.	28	14-Dec-20	10-Jan-21	07-Feb-21	06-Mar-21	55
AS072220	Revise & Re-submit Wiring Dwgs, Cable Schedule & Design Cal.	28	11-Jan-21	07-Feb-21	07-Mar-21	03-Apr-21	55
AS072230	Review & Accept of Wiring Dwgs, Cable Schedule & Design Cal.	28	08-Feb-21	07-Mar-21	04-Apr-21	01-May-21	55



JEC

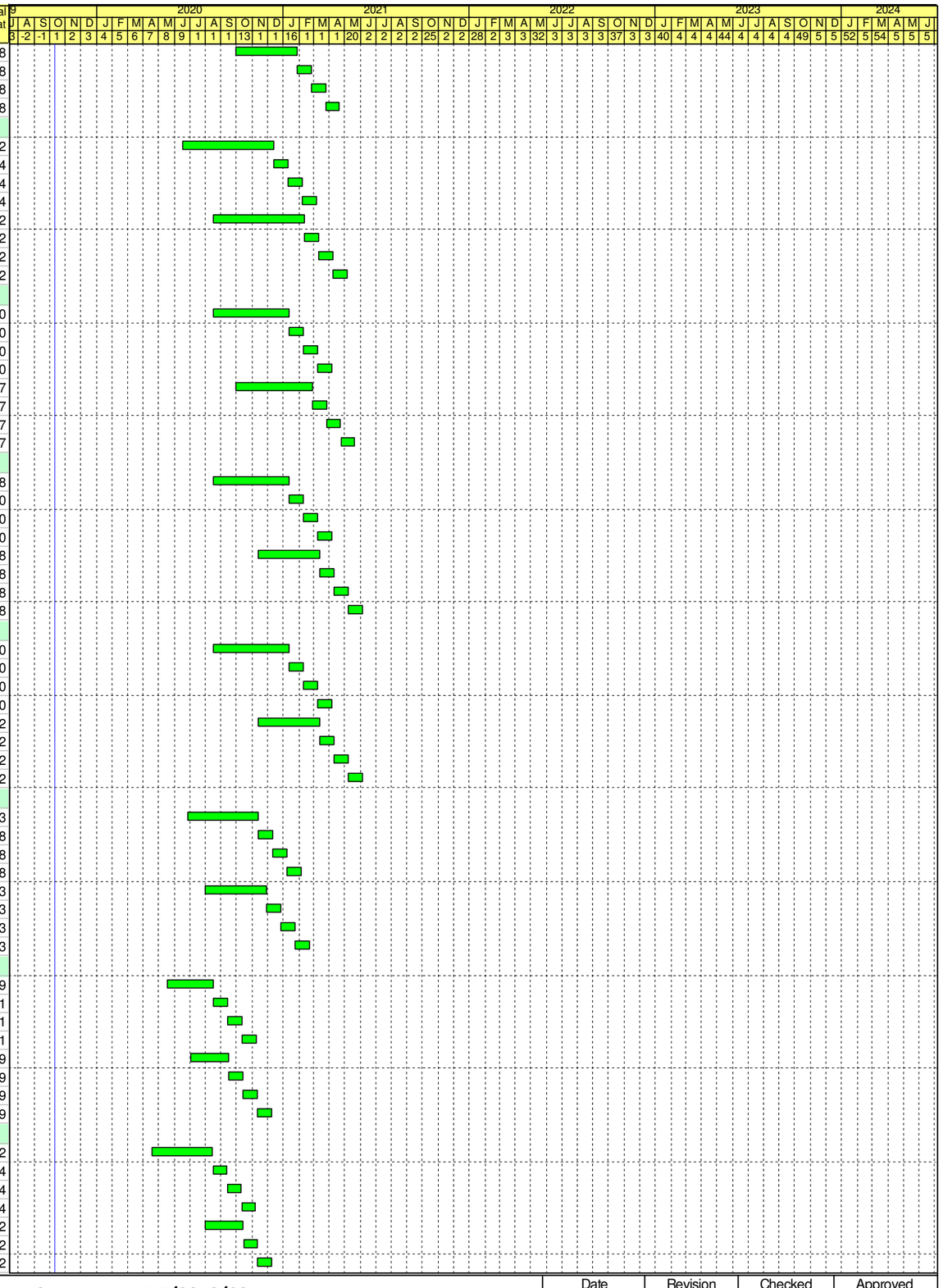
File Name: DE/2018/03 R0
Layout: DE1803 (R0) - WBS
TASK filter: All Activities

Remaining Work
Critical Activity
Milestone
Actual Progress

Contract No. DE/2018/03
Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
Sidestream Treatment Facilities and E&M Works for Sluge Treatment Faciliteis
Master Programme

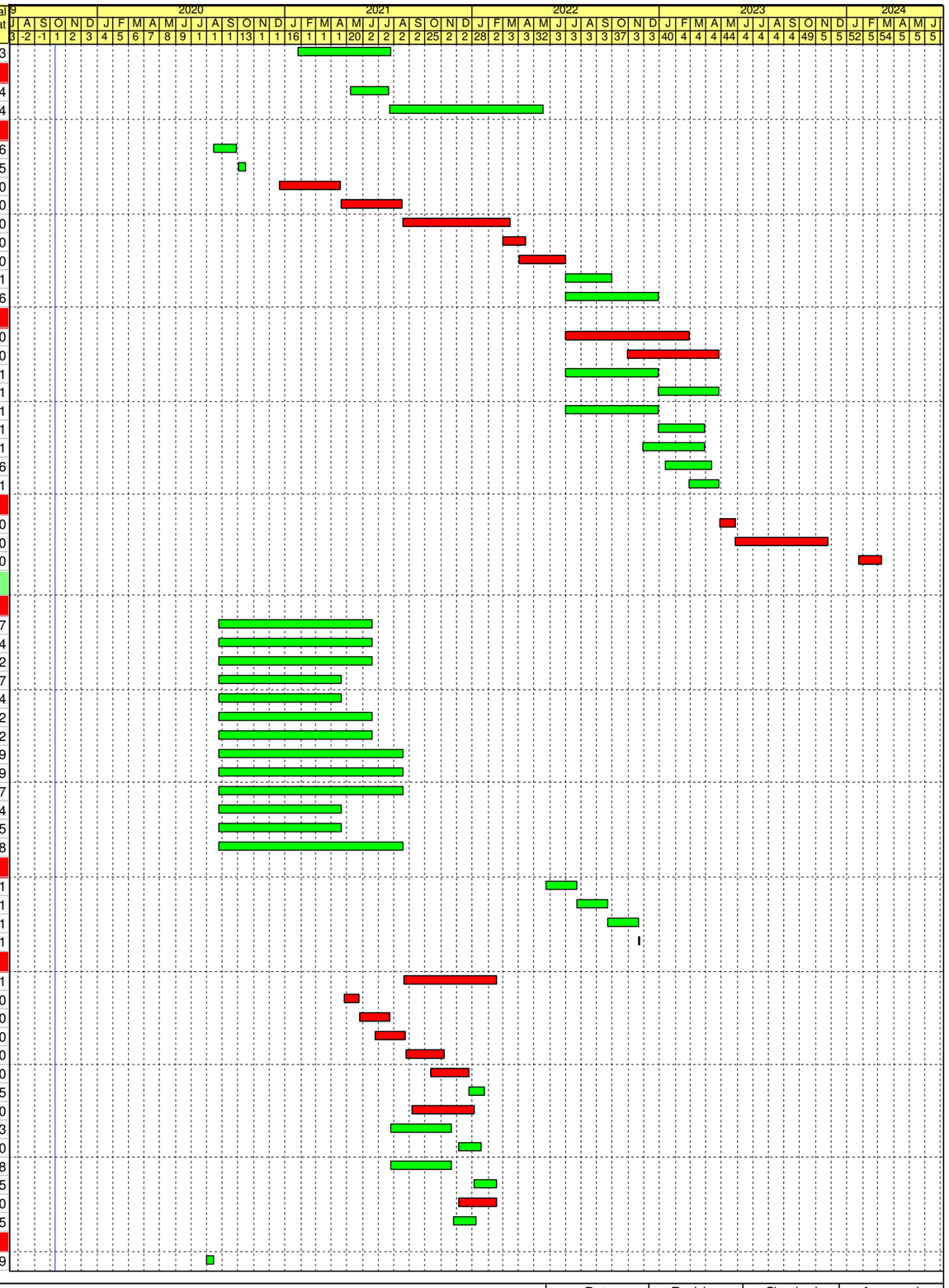
Date	Revision	Checked	Approved
24-Oct-19	Rev.0	AI	KM

Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float
AS072300	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	120	30-Sep-20	27-Jan-21	07-Nov-20	06-Mar-21	38
AS072310	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	28	28-Jan-21	24-Feb-21	07-Mar-21	03-Apr-21	38
AS072320	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	28	25-Feb-21	24-Mar-21	04-Apr-21	01-May-21	38
AS072330	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	28	25-Mar-21	21-Apr-21	02-May-21	29-May-21	38
Combined Heat & Power Generation (CHP)							
AS082200	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	180	17-Jun-20	13-Dec-20	09-Jul-20	04-Jan-21	22
AS082210	Review & Comment on Wiring Dwgs, Cable Schedule & Design Cal.	28	14-Dec-20	10-Jan-21	27-Jan-21	23-Feb-21	44
AS082220	Revise & Re-submit Wiring Dwgs, Cable Schedule & Design Cal.	28	11-Jan-21	07-Feb-21	06-Mar-21	02-Apr-21	54
AS082230	Review & Accept of Wiring Dwgs, Cable Schedule & Design Cal.	28	08-Feb-21	07-Mar-21	03-Apr-21	30-Apr-21	54
AS082300	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	180	16-Aug-20	11-Feb-21	07-Sep-20	05-Mar-21	22
AS082310	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	28	12-Feb-21	11-Mar-21	06-Mar-21	02-Apr-21	22
AS082320	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	28	12-Mar-21	08-Apr-21	03-Apr-21	30-Apr-21	22
AS082330	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	28	09-Apr-21	06-May-21	01-May-21	28-May-21	22
Waste Gas Burning System (WGB)							
AS092200	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	150	16-Aug-20	12-Jan-21	04-Nov-20	02-Apr-21	80
AS092210	Review & Comment on Wiring Dwgs, Cable Schedule & Design Cal.	28	13-Jan-21	09-Feb-21	03-Apr-21	30-Apr-21	80
AS092220	Revise & Re-submit Wiring Dwgs, Cable Schedule & Design Cal.	28	10-Feb-21	09-Mar-21	01-May-21	28-May-21	80
AS092230	Review & Accept of Wiring Dwgs, Cable Schedule & Design Cal.	28	10-Mar-21	06-Apr-21	29-May-21	25-Jun-21	80
AS092300	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	150	30-Sep-20	26-Feb-21	15-Apr-21	11-Sep-21	197
AS092310	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	28	27-Feb-21	26-Mar-21	12-Sep-21	09-Oct-21	197
AS092320	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	28	27-Mar-21	23-Apr-21	10-Oct-21	06-Nov-21	197
AS092330	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	28	24-Apr-21	21-May-21	07-Nov-21	04-Dec-21	197
Plant Service Water System (PSW)							
AS122200	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	150	16-Aug-20	12-Jan-21	23-Oct-20	21-Mar-21	68
AS122210	Review & Comment on Wiring Dwgs, Cable Schedule & Design Cal.	28	13-Jan-21	09-Feb-21	03-Apr-21	30-Apr-21	80
AS122220	Revise & Re-submit Wiring Dwgs, Cable Schedule & Design Cal.	28	10-Feb-21	09-Mar-21	01-May-21	28-May-21	80
AS122230	Review & Accept of Wiring Dwgs, Cable Schedule & Design Cal.	28	10-Mar-21	06-Apr-21	29-May-21	25-Jun-21	80
AS122300	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	120	14-Nov-20	13-Mar-21	21-Jan-21	20-May-21	68
AS122310	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	28	14-Mar-21	10-Apr-21	21-May-21	17-Jun-21	68
AS122320	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	28	11-Apr-21	08-May-21	18-Jun-21	15-Jul-21	68
AS122330	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	28	09-May-21	05-Jun-21	16-Jul-21	12-Aug-21	68
Reclaimed Water Utilisation (RWU)							
AS132200	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	150	16-Aug-20	12-Jan-21	04-Nov-20	02-Apr-21	80
AS132210	Review & Comment on Wiring Dwgs, Cable Schedule & Design Cal.	28	13-Jan-21	09-Feb-21	03-Apr-21	30-Apr-21	80
AS132220	Revise & Re-submit Wiring Dwgs, Cable Schedule & Design Cal.	28	10-Feb-21	09-Mar-21	01-May-21	28-May-21	80
AS132230	Review & Accept of Wiring Dwgs, Cable Schedule & Design Cal.	28	10-Mar-21	06-Apr-21	29-May-21	25-Jun-21	80
AS132300	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	120	14-Nov-20	13-Mar-21	15-Apr-21	12-Aug-21	152
AS132310	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	28	14-Mar-21	10-Apr-21	13-Aug-21	09-Sep-21	152
AS132320	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	28	11-Apr-21	08-May-21	10-Sep-21	07-Oct-21	152
AS132330	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	28	09-May-21	05-Jun-21	08-Oct-21	04-Nov-21	152
Surplus Activated Sludge Pumping Station (SAS)							
AS142200	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	140	27-Jun-20	13-Nov-20	10-Jul-20	26-Nov-20	13
AS142210	Review & Comment on Wiring Dwgs, Cable Schedule & Design Cal.	28	14-Nov-20	11-Dec-20	12-Dec-20	08-Jan-21	28
AS142220	Revise & Re-submit Wiring Dwgs, Cable Schedule & Design Cal.	28	12-Dec-20	08-Jan-21	09-Jan-21	05-Feb-21	28
AS142230	Review & Accept of Wiring Dwgs, Cable Schedule & Design Cal.	28	09-Jan-21	05-Feb-21	06-Feb-21	05-Mar-21	28
AS142300	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	120	01-Aug-20	28-Nov-20	14-Aug-20	11-Dec-20	13
AS142310	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	28	29-Nov-20	26-Dec-20	12-Dec-20	08-Jan-21	13
AS142320	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	28	27-Dec-20	23-Jan-21	09-Jan-21	05-Feb-21	13
AS142330	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	28	24-Jan-21	20-Feb-21	06-Feb-21	05-Mar-21	13
Control and Monitoring System							
AS182200	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	90	19-May-20	16-Aug-20	07-Jun-20	04-Sep-20	19
AS182210	Review & Comment on Wiring Dwgs, Cable Schedule & Design Cal.	28	17-Aug-20	13-Sep-20	07-Sep-20	04-Oct-20	21
AS182220	Revise & Re-submit Wiring Dwgs, Cable Schedule & Design Cal.	28	14-Sep-20	11-Oct-20	05-Oct-20	01-Nov-20	21
AS182230	Review & Accept of Wiring Dwgs, Cable Schedule & Design Cal.	28	12-Oct-20	08-Nov-20	02-Nov-20	29-Nov-20	21
AS182300	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	75	03-Jul-20	15-Sep-20	22-Jul-20	04-Oct-20	19
AS182310	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	28	16-Sep-20	13-Oct-20	05-Oct-20	01-Nov-20	19
AS182320	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	28	14-Oct-20	10-Nov-20	02-Nov-20	29-Nov-20	19
AS182330	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	28	11-Nov-20	08-Dec-20	30-Nov-20	27-Dec-20	19
Lifting Appliances							
AS192200	Prepare & Submit Wiring Dwgs, Cable Schedule & Design Cal.	120	18-Apr-20	15-Aug-20	30-May-20	26-Sep-20	42
AS192210	Review & Comment on Wiring Dwgs, Cable Schedule & Design Cal.	28	16-Aug-20	12-Sep-20	29-Oct-20	25-Nov-20	74
AS192220	Revise & Re-submit Wiring Dwgs, Cable Schedule & Design Cal.	28	13-Sep-20	10-Oct-20	26-Nov-20	23-Dec-20	74
AS192230	Review & Accept of Wiring Dwgs, Cable Schedule & Design Cal.	28	11-Oct-20	07-Nov-20	24-Dec-20	20-Jan-21	74
AS192300	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	75	01-Aug-20	14-Oct-20	12-Sep-20	25-Nov-20	42
AS192310	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	28	15-Oct-20	11-Nov-20	26-Nov-20	23-Dec-20	42
AS192320	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	28	12-Nov-20	09-Dec-20	24-Dec-20	20-Jan-21	42



Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float
AS192330	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	28	10-Dec-20	06-Jan-21	21-Jan-21	17-Feb-21	42
Building Services							
AS201100	Submit & Accept BS Works Design & Dwgs for Sludge Dewatering Building	150	01-Sep-20	28-Jan-21	27-Jan-21	25-Jun-21	148
AS201200	Submit & Accept BS Works Design & Dwgs for CHP Building	150	14-Dec-20	12-May-21	27-Jan-21	25-Jun-21	44
AS201300	Submit & Accept BS Works Design & Dwgs for Sludge Digester & Distribution Chamber	150	11-Jan-21	09-Jun-21	27-Jan-21	25-Jun-21	16
AS201500	Submit & Accept BS Works Design & Dwgs for Workshop No. 2	150	05-Mar-20	01-Aug-20	30-Aug-20	26-Jan-21	178
AS201700	Submit & Accept BS Works Design & Dwgs for Other Facilities	150	02-Aug-20	29-Dec-20	27-Jan-21	25-Jun-21	178
AS201800	Submit & Accept BS Works Design & Dwgs for FS Installation	180	05-Mar-20	31-Aug-20	15-Aug-20	10-Feb-21	163
AS201900	Submit & Accept BS Works Design & Dwgs for Outdoor Lighting Installation	90	01-Oct-20	29-Dec-20	28-Mar-21	25-Jun-21	178
Miscellaneous							
AS211100	Submit & Accept Design & Dwgs for DO System	180	13-Jan-21	11-Jul-21	06-Sep-21	04-Mar-22	236
AS211200	Submit & Accept Design & Dwgs for Sewage Pumping Station	120	12-Feb-21	11-Jun-21	23-Jul-21	19-Nov-21	161
AS211300	Submit & Accept Design & Dwgs for Process Water Pumping System	90	12-Feb-21	12-May-21	16-Mar-21	13-Jun-21	32
AS211400	Submit & Accept Design & Dwgs for External Sludge Transfer Pumping System	90	13-Apr-21	11-Jul-21	04-Jan-22	03-Apr-22	266
AS211500	Submit & Accept Design & Dwgs for THP Cooling Water Pumping Station	90	13-Apr-21	11-Jul-21	04-Jan-22	03-Apr-22	266
AS211600	Submit & Accept Design & Dwgs for Ferric Chloride Dosing System	120	12-Feb-21	11-Jun-21	21-Sep-21	18-Jan-22	221
AS211700	Submit & Accept Design & Dwgs for Temporary Primary Sludge Pumping Facility	90	14-Mar-21	11-Jun-21	04-Jan-22	03-Apr-22	296
AS211800	Submit & Accept Design & Dwgs for Gas Detection System	180	15-Sep-20	13-Mar-21	28-Dec-20	25-Jun-21	104
AS211900	Submit & Accept Design & Dwgs for CCTV System	180	15-Sep-20	13-Mar-21	28-Dec-20	25-Jun-21	104
Section 3 - Sidestream Treatment System							
Major Subcontractor / Supplier Procurement							
AS510000	Procurement for Deammonification Sidestream Treatment Facilities	180	23-Oct-19	19-Apr-20	23-Oct-19	19-Apr-20	0
Design & Submission							
Civil Works Design							
AS160100	Prepare & Submit General Layout Plan	60	20-Apr-20	18-Jun-20	20-Apr-20	18-Jun-20	0
AS160110	Review & Comment on General Layout Plan by PM	28	19-Jun-20	16-Jul-20	19-Jun-20	16-Jul-20	0
AS160120	Revise & Re-submit General Layout Plan	28	17-Jul-20	13-Aug-20	17-Jul-20	13-Aug-20	0
AS160130	Review & Accept of General Layout Plan by PM	28	14-Aug-20	10-Sep-20	07-Mar-24	03-Apr-24	1301
AS160200	Prepare & Submit Architectural Design / Drawings	90	20-May-20	17-Aug-20	04-Jun-20	01-Sep-20	15
AS160210	Review & Comment on Architectural Design / Drawings by PM	28	18-Aug-20	14-Sep-20	02-Sep-20	29-Sep-20	15
AS160220	Revise & Re-submit Architectural Design / Drawings	28	15-Sep-20	12-Oct-20	30-Sep-20	27-Oct-20	15
AS160230	Review & Accept of Architectural Design / Drawings by PM	28	13-Oct-20	09-Nov-20	28-Oct-20	24-Nov-20	15
AS160300	Prepare & Submit Foundation Design / Drawings	60	30-Jul-20	27-Sep-20	30-Jul-20	27-Sep-20	0
AS160310	Review & Comment on Foundation Design / Drawings by PM	28	28-Sep-20	25-Oct-20	28-Sep-20	25-Oct-20	0
AS160320	Revise & Re-submit Foundation Design / Drawings	28	26-Oct-20	22-Nov-20	26-Oct-20	22-Nov-20	0
AS160330	Review & Accept of Foundation Design / Drawings by PM	28	23-Nov-20	20-Dec-20	23-Nov-20	20-Dec-20	0
AS160400	Prepare & Submit Structural & Civil Design / Drawings	90	15-Sep-20	13-Dec-20	28-Oct-20	25-Jan-21	43
AS160410	Review & Comment on Structural & Civil Design / Drawingsby PM	28	14-Dec-20	10-Jan-21	26-Jan-21	22-Feb-21	43
AS160420	Revise & Re-submit Structural & Civil Design / Drawings	28	11-Jan-21	07-Feb-21	23-Feb-21	22-Mar-21	43
AS160430	Review & Accept of Structural & Civil Design / Drawings by PM	28	08-Feb-21	07-Mar-21	23-Mar-21	19-Apr-21	43
AS160500	Prepare & Submit Builder's Works Drawings	90	13-Oct-20	10-Jan-21	28-Oct-20	25-Jan-21	15
AS160510	Review & Comment on Builder's Works Drawings by PM	28	11-Jan-21	07-Feb-21	26-Jan-21	22-Feb-21	15
AS160520	Revise & Re-submit Builder's Works Drawings	28	08-Feb-21	07-Mar-21	23-Feb-21	22-Mar-21	15
AS160530	Review & Accept of Builder's Works Drawings by PM	28	08-Mar-21	04-Apr-21	23-Mar-21	19-Apr-21	15
E&M Design							
AS151100	Prepare & Submit General Arrangement Drawings	60	20-Apr-20	18-Jun-20	01-May-20	29-Jun-20	11
AS151110	Review & Comment on General Arrangement Drawings by PM	28	19-Jun-20	16-Jul-20	05-Aug-20	01-Sep-20	47
AS151120	Revise & Re-submit General Arrangement Drawings	28	17-Jul-20	13-Aug-20	02-Sep-20	29-Sep-20	47
AS151130	Review & Accept of General Arrangement Drawings by PM	28	14-Aug-20	10-Sep-20	30-Sep-20	27-Oct-20	47
AS152100	Prepare & Submit Civil Requirment Drawings	60	20-May-20	18-Jul-20	31-May-20	29-Jul-20	11
AS152110	Review & Comment on Civil Requirment Drawings by PM	28	19-Jul-20	15-Aug-20	31-Aug-20	27-Sep-20	43
AS152120	Revise & Re-submit Civil Requirment Drawings	28	16-Aug-20	12-Sep-20	28-Sep-20	25-Oct-20	43
AS152130	Review & Accept of Civil Requirment Drawings by PM	28	13-Sep-20	10-Oct-20	26-Oct-20	22-Nov-20	43
AS152200	Prepare & Submit Ele. Schematic Dwgs, Wiring Dwgs, Cable Schedule & Design Cal.	180	19-Jun-20	15-Dec-20	02-Aug-20	28-Jan-21	44
AS152210	Review & Comment on Ele. Schematic Dwgs, Wiring Dwgs, Cable Schedule & Design Cal.	28	16-Dec-20	12-Jan-21	30-Mar-21	26-Apr-21	104
AS152220	Revise & Re-submit Ele. Schematic Dwgs, Wiring Dwgs, Cable Schedule & Design Cal.	28	13-Jan-21	09-Feb-21	27-Apr-21	24-May-21	104
AS152230	Review & Accept of Ele. Schematic Dwgs, Wiring Dwgs, Cable Schedule & Design Cal.	28	10-Feb-21	09-Mar-21	25-May-21	21-Jun-21	104
AS152300	Prepare & Submit the Schedule, Design Cal. & Fixing Details of Equipment	150	17-Sep-20	13-Feb-21	31-Oct-20	29-Mar-21	44
AS152310	Review & Comment on the Schedule, Design Cal. & Fixing Details of Equipment	28	14-Feb-21	13-Mar-21	30-Mar-21	26-Apr-21	44
AS152320	Revise & Re-submit the Schedule, Design Cal. & Fixing Details of Equipment	28	14-Mar-21	10-Apr-21	27-Apr-21	24-May-21	44
AS152330	Review & Accept of the Schedule, Design Cal. & Fixing Details of Equipment	28	11-Apr-21	08-May-21	25-May-21	21-Jun-21	44
Building Services							
AS201400	Prepare & Submit BS Works Design & Dwgs for Sidestream Treatment Facilities	180	13-Oct-20	10-Apr-21	19-Feb-21	17-Aug-21	129
AS201420	Prepare & Submit FS Works Design & Dwgs for Sidestream Treatment Facilities	120	15-Sep-20	12-Jan-21	08-Oct-20	04-Feb-21	23
AS201440	Prepare & Submit Stage I FSI/314 for FSD approval	14	13-Jan-21	26-Jan-21	05-Feb-21	18-Feb-21	23

Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float
AS201460	FSD Comment / Approval	180	27-Jan-21	25-Jul-21	19-Feb-21	17-Aug-21	23
Major Plant & Materials Procurement							
AS153100	Procurement & PO for Deammonification Sidestream Treatment Facilities	75	09-May-21	22-Jul-21	22-Jun-21	04-Sep-21	44
AS153120	Fabrication & Delivery of Deammonification Sidestream Treatment Facilities	300	23-Jul-21	18-May-22	05-Sep-21	01-Jul-22	44
Civil Works Construction							
AS161100	Ground Investigation	45	14-Aug-20	27-Sep-20	09-Oct-20	22-Nov-20	56
AS161120	Site Clearance	15	02-Oct-20	16-Oct-20	06-Dec-20	20-Dec-20	65
AS161140	Foundation / Pilings	120	21-Dec-20	19-Apr-21	21-Dec-20	19-Apr-21	0
AS161160	ELS / Substructure	120	20-Apr-21	17-Aug-21	20-Apr-21	17-Aug-21	0
AS161180	Superstructure	210	18-Aug-21	15-Mar-22	18-Aug-21	15-Mar-22	0
AS161200	Waterproofing	45	01-Mar-22	14-Apr-22	01-Mar-22	14-Apr-22	0
AS161220	External & Internal Finishes - 1st Fix	90	03-Apr-22	01-Jul-22	03-Apr-22	01-Jul-22	0
AS161240	External & Internal Finishes - 2nd Fix	90	02-Jul-22	29-Sep-22	28-Feb-23	28-May-23	241
AS161260	Landscaping & Establishment Works	180	02-Jul-22	28-Dec-22	11-Sep-23	08-Mar-24	436
E&M Installation							
AS154100	E&M Installation of Deammonification Sidestream Treatment Facilities	240	02-Jul-22	26-Feb-23	02-Jul-22	26-Feb-23	0
AS154120	Installation of Electrical Supply Systems	180	30-Oct-22	27-Apr-23	30-Oct-22	27-Apr-23	0
AS154160	FS Installation - Conduits, Trunking, & Pipeworks	180	02-Jul-22	28-Dec-22	02-Aug-22	28-Jan-23	31
AS154180	FS Installation - Cable Laying, Termination, Associated Fitting & Field Devices	120	29-Dec-22	27-Apr-23	29-Jan-23	28-May-23	31
AS154200	BS Fitting Installation - Conduits, Trunking, & Ductworks	180	02-Jul-22	28-Dec-22	01-Sep-22	27-Feb-23	61
AS154220	BS Fitting Installation - Cable Laying, Termination, Associated Fitting & Field Devices	90	29-Dec-22	28-Mar-23	28-Feb-23	28-May-23	61
AS154240	Installation of Control & Monitoring System	120	29-Nov-22	28-Mar-23	30-Dec-22	28-Apr-23	31
AS154260	Installation of CCTV System	90	13-Jan-23	12-Apr-23	28-Feb-23	28-May-23	46
AS154280	Installation of Gas Detection System	60	27-Feb-23	27-Apr-23	30-Mar-23	28-May-23	31
Testing & Commissioning							
AS155100	SAT for Deammonification Sidestream Treatment Facilities	30	29-Apr-23	28-May-23	29-Apr-23	28-May-23	0
AS155200	Phase 1 Commissioning Tests	180	29-May-23	24-Nov-23	29-May-23	24-Nov-23	0
AS155300	Phase 2 Commissioning Tests	45	24-Jan-24	08-Mar-24	24-Jan-24	08-Mar-24	0
Section 4 - UV System No. 1 & Effluent Transfer Pumping Station No. 1							
Major Plant & Materials Fabrication & Delivery							
AS104100	Fabrication & Delivery of UV Disinfection System (S10)	300	25-Aug-20	20-Jun-21	10-Nov-20	05-Sep-21	77
AS104120	Fabrication & Delivery of Lift-up Pumps (S11)	300	25-Aug-20	20-Jun-21	28-Oct-20	23-Aug-21	64
AS104140	Fabrication & Delivery of Transfer Pumps (S13)	300	25-Aug-20	20-Jun-21	15-Dec-20	10-Oct-21	112
AS104160	Fabrication & Delivery of FRP Cover (S11)	240	25-Aug-20	21-Apr-21	09-Jan-21	05-Sep-21	137
AS104180	Fabrication & Delivery of EOT Cranes (2T & 5T) (S19)	240	25-Aug-20	21-Apr-21	28-Sep-20	25-May-21	34
AS104200	Fabrication & Delivery of Stoplogs (S21)	300	25-Aug-20	20-Jun-21	25-Mar-21	18-Jan-22	212
AS104220	Fabrication & Delivery of Penstocks (S21)	300	25-Aug-20	20-Jun-21	25-Mar-21	18-Jan-22	212
AS104240	Fabrication & Delivery of Transfomers (Tx 07 & 08) (S17)	360	25-Aug-20	19-Aug-21	12-Nov-22	06-Nov-23	809
AS104260	Fabrication & Delivery of LVSB (S17)	360	25-Aug-20	19-Aug-21	11-Jan-23	05-Jan-24	869
AS104280	Fabrication & Delivery of Control & Monitoring System (S18)	360	25-Aug-20	19-Aug-21	10-Dec-20	04-Dec-21	107
AS104300	Fabrication & Delivery of Pipeworks & Associated Valves	240	25-Aug-20	21-Apr-21	27-Dec-20	23-Aug-21	124
AS104320	Fabrication & Delivery of Elec. Materials	240	24-Aug-20	20-Apr-21	28-Sep-20	25-May-21	35
AS510040	Fabrication & Delivery of FS System (S20)	360	24-Aug-20	18-Aug-21	09-Jan-21	03-Jan-22	138
Tx Rm & LV Switchroom (Under Section 5)							
AS105120	BS Fitting Intallation (at Tx Rm & LV Switchroom)	60	25-May-22	23-Jul-22	08-Sep-23	06-Nov-23	471
AS105140	E&M Installation of Transfomers in Tx Rm	60	24-Jul-22	21-Sep-22	07-Nov-23	05-Jan-24	471
AS105160	E&M Installation of LVSB	60	22-Sep-22	20-Nov-22	06-Jan-24	05-Mar-24	471
AS105180	Ready for Permanet Power Energisation	3	21-Nov-22	23-Nov-22	06-Mar-24	08-Mar-24	471
E&M Installation							
AS105100	Provision of Temporary Power for UV System No.1 & Effluent Transfer Pumping Station	180	21-Aug-21	16-Feb-22	22-Aug-21	17-Feb-22	1
AS106100	Mobilisation	30	26-Apr-21	25-May-21	26-Apr-21	25-May-21	0
AS106120	E&M Installation of EOT Cranes (5T)	60	26-May-21	24-Jul-21	26-May-21	24-Jul-21	0
AS106140	E&M Installation of EOT Cranes (2T)	60	25-Jun-21	23-Aug-21	25-Jun-21	23-Aug-21	0
AS106160	E&M Installation of Lift-up Pumps & Associated Pipeworks / Valves	75	24-Aug-21	06-Nov-21	24-Aug-21	06-Nov-21	0
AS106180	E&M Installation of Transfer Pumps & Associated Pipeworks / Valves	75	11-Oct-21	24-Dec-21	11-Oct-21	24-Dec-21	0
AS106200	E&M Installation of Penstocks & Stoplogs	30	25-Dec-21	23-Jan-22	19-Jan-22	17-Feb-22	25
AS106210	E&M Installation of UV System	120	06-Sep-21	03-Jan-22	06-Sep-21	03-Jan-22	0
AS106220	FS Installation - Conduits, Trunking, & Pipeworks	120	25-Jul-21	21-Nov-21	06-Sep-21	03-Jan-22	43
AS106240	FS Installation - Cable Laying, Termination, Associated Fitting & Field Devices	45	05-Dec-21	18-Jan-22	04-Jan-22	17-Feb-22	30
AS106260	BS Fitting Installation - Conduits, Trunking, & Ductworks	120	25-Jul-21	21-Nov-21	21-Sep-21	18-Jan-22	58
AS106280	BS Fitting Installation - Cable Laying, Termination, Associated Fitting & Field Devices	45	04-Jan-22	17-Feb-22	19-Jan-22	04-Mar-22	15
AS106300	Installation of Control & Monitoring System	75	05-Dec-21	17-Feb-22	05-Dec-21	17-Feb-22	0
AS106320	Installation of CCTV System	45	25-Nov-21	08-Jan-22	19-Jan-22	04-Mar-22	55
Statutory Submission / Inspection (FSD)							
AS107050	Prepare & Submit Stage I FSI/314 for FSD approval	14	01-Aug-20	14-Aug-20	10-Aug-20	23-Aug-20	9

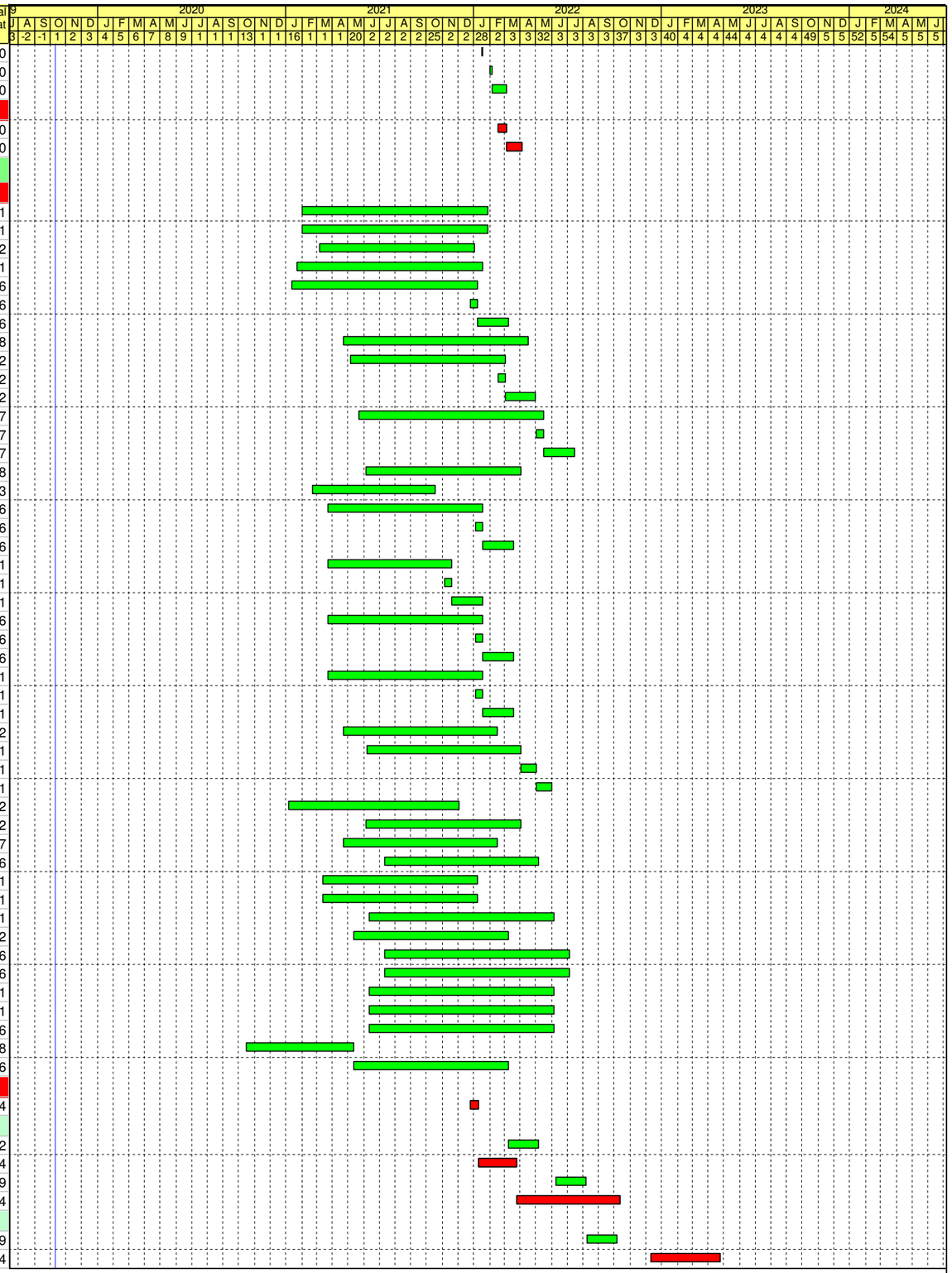


Remaining Work
Critical Activity
Milestone
Actual Progress

Contract No. DE/2018/03
Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
Sidestream Treatment Facilities and E&M Works for Sluge Treatment Faciliteis
Master Programme

Date	Revision	Checked	Approved
24-Oct-19	Rev. 0	AI	KM

Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float
AS107100	Prepare & Submit Stage II FSI/314 & FSI/501	3	16-Jan-22	18-Jan-22	15-Feb-22	17-Feb-22	30
AS107200	F.S. Inspection	3	02-Feb-22	04-Feb-22	04-Mar-22	06-Mar-22	30
AS107300	Issuance of Acceptance Letter	28	05-Feb-22	04-Mar-22	07-Mar-22	03-Apr-22	30
Testing & Commissioning							
AS107400	SAT for UV System No. 1 & Effluent Transfer Pumping Station No. 1	15	18-Feb-22	04-Mar-22	18-Feb-22	04-Mar-22	0
AS107500	System Commissioning Tests	30	05-Mar-22	03-Apr-22	05-Mar-22	03-Apr-22	0
Section 5							
Fabrication, FAT & Delivery of Major Plant & Materials							
AS501100	Fabrication & Delivery of Sludge Screening System (S2)	360	02-Feb-21	27-Jan-22	20-Dec-21	14-Dec-22	321
AS501120	Fabrication & Delivery of Sludge Thickening System (S3)	360	02-Feb-21	27-Jan-22	23-Jul-21	17-Jul-22	171
AS501140	Fabrication & Delivery of Sludge Digestion System (S5)	300	08-Mar-21	01-Jan-22	20-Mar-21	13-Jan-22	12
AS501160	Fabrication & Delivery of Sludge Dewatering System (S6)	360	23-Jan-21	17-Jan-22	04-Apr-21	29-Mar-22	71
AS501180	Fabrication of THP System (S4)	360	13-Jan-21	07-Jan-22	05-Nov-21	30-Oct-22	296
AS501200	FAT for THP System (S4)	14	25-Dec-21	07-Jan-22	17-Oct-22	30-Oct-22	296
AS501220	Delivery of THP System (S4)	60	08-Jan-22	08-Mar-22	31-Oct-22	29-Dec-22	296
AS501240	Fabrication & Delivery of Biogas Storage & Pre-Treatment (S7)	360	22-Apr-21	16-Apr-22	30-May-21	24-May-22	38
AS501260	Fabrication of CHP System (S8)	300	07-May-21	02-Mar-22	29-May-21	24-Mar-22	22
AS501280	FAT for CHP Generators (S8)	14	17-Feb-22	02-Mar-22	11-Mar-22	24-Mar-22	22
AS501300	Delivery of CHP Generators (S8)	60	03-Mar-22	01-May-22	25-Mar-22	23-May-22	22
AS501320	Fabrication of Waste Gas Burning System (S9)	360	22-May-21	16-May-22	05-Dec-21	29-Nov-22	197
AS501340	FAT for Waste Gas Steam Generation Boiler (S9)	14	03-May-22	16-May-22	16-Nov-22	29-Nov-22	197
AS501360	Delivery of Waste Gas Burning System (S9)	60	17-May-22	15-Jul-22	30-Nov-22	28-Jan-23	197
AS501380	Fabrication & Delivery of Plant Service Water System (S12)	300	06-Jun-21	01-Apr-22	13-Aug-21	08-Jun-22	68
AS501400	Fabrication & Delivery of SAS Pumping System (S14)	240	21-Feb-21	18-Oct-21	06-Mar-21	31-Oct-21	13
AS501420	Fabrication of 11kV Transfomers (S17)	300	24-Mar-21	17-Jan-22	05-Dec-21	30-Sep-22	256
AS501440	FAT for 11kV Transfomers (S17)	14	04-Jan-22	17-Jan-22	17-Sep-22	30-Sep-22	256
AS501460	Delivery of 11kV Transfomers (S17)	60	18-Jan-22	18-Mar-22	01-Oct-22	29-Nov-22	256
AS501480	Fabrication of 380V Transfomers (S17)	240	24-Mar-21	18-Nov-21	28-Feb-22	25-Oct-22	341
AS501500	FAT for 380V Transfomers (S17)	14	05-Nov-21	18-Nov-21	12-Oct-22	25-Oct-22	341
AS501520	Delivery of 380V Transfomers (S17)	60	19-Nov-21	17-Jan-22	26-Oct-22	24-Dec-22	341
AS501540	Fabrication of 11 kV Switchboard (S17)	300	24-Mar-21	17-Jan-22	03-Feb-22	29-Nov-22	316
AS501560	FAT for 11 kV Switchboard (S17)	14	04-Jan-22	17-Jan-22	16-Nov-22	29-Nov-22	316
AS501580	Delivery of 11 kV Switchboard (S17)	60	18-Jan-22	18-Mar-22	30-Nov-22	28-Jan-23	316
AS501600	Fabrication of 380V Switchboard (S17)	300	24-Mar-21	17-Jan-22	24-Apr-21	17-Feb-22	31
AS501620	FAT for 380V Switchboard (S17)	14	04-Jan-22	17-Jan-22	04-Feb-22	17-Feb-22	31
AS501640	Delivery of 380V Switchboard (S17)	60	18-Jan-22	18-Mar-22	18-Feb-22	18-Apr-22	31
AS501660	Fabrication & Delivery of Pipeworks & Associated Valves	300	22-Apr-21	15-Feb-22	03-Jun-21	29-Mar-22	42
AS501680	Fabrication of Control & Monitoring System (S18)	300	07-Jun-21	02-Apr-22	03-Feb-22	29-Nov-22	241
AS501700	FAT fro SCADA System (S18)	30	03-Apr-22	02-May-22	30-Nov-22	29-Dec-22	241
AS501720	Delivery of SCADA System (S18)	30	03-May-22	01-Jun-22	30-Dec-22	28-Jan-23	241
AS501740	Fabrication & Delivery of Lifting Appliances (S19)	330	07-Jan-21	02-Dec-21	18-Feb-21	13-Jan-22	42
AS501760	Fabrication & Delivery of Reclaimed Water Utilisation (S13)	300	06-Jun-21	01-Apr-22	05-Nov-21	31-Aug-22	152
AS501780	Fabrication & Delivery of H2S Removal System (S7)	300	22-Apr-21	15-Feb-22	15-Dec-21	10-Oct-22	237
AS501800	Fabrication & Delivery of DO System (S21)	300	12-Jul-21	07-May-22	05-Mar-22	29-Dec-22	236
AS501820	Fabrication & Delivery of Stoplog (S21)	300	14-Mar-21	07-Jan-22	03-Jun-21	29-Mar-22	81
AS501840	Fabrication & Delivery of Penstock (S21)	300	14-Mar-21	07-Jan-22	03-Jun-21	29-Mar-22	81
AS501860	Fabrication & Delivery of Sewage Pump (S21)	360	12-Jun-21	06-Jun-22	20-Nov-21	14-Nov-22	161
AS501880	Fabrication & Delivery of Process Water Pump (S21)	300	13-May-21	08-Mar-22	14-Jun-21	09-Apr-22	32
AS501900	Fabrication & Delivery of External Sludge Transfer Pump (S21)	360	12-Jul-21	06-Jul-22	04-May-22	28-Apr-23	296
AS501920	Fabrication & Delivery of THP Cooling Pump (S21)	360	12-Jul-21	06-Jul-22	04-Apr-22	29-Mar-23	266
AS501940	Fabrication & Delivery of Ferric Chloride Storage Tank (S21)	360	12-Jun-21	06-Jun-22	19-Jan-22	13-Jan-23	221
AS501960	Fabrication & Delivery of Ferric Chloride Dosing Pump (S21)	360	12-Jun-21	06-Jun-22	18-Feb-22	12-Feb-23	251
AS501980	Fabrication & Delivery of Temporary Primary Sludge Pump (S21)	360	12-Jun-21	06-Jun-22	04-Apr-22	29-Mar-23	296
AS510060	Fabrication & Delivery of Elec. Materials	210	15-Oct-20	12-May-21	02-Mar-21	27-Sep-21	138
AS510080	Fabrication & Delivery of Gas Detection System	300	13-May-21	08-Mar-22	04-May-22	27-Feb-23	356
Sludge Dewatering Building							
AS502100	Mobilisation	15	26-Dec-21	09-Jan-22	30-Dec-21	13-Jan-22	4
Sludge Dewatering (SDe)							
AS502120	E&M Installation of Process Water Pump (S21)	60	09-Mar-22	07-May-22	10-Apr-22	08-Jun-22	32
AS502140	E&M Installation of EOT Crane LA-01-02	75	10-Jan-22	25-Mar-22	14-Jan-22	29-Mar-22	4
AS502150	E&M Installation of Monorail LA-01-04	60	09-Jun-22	07-Aug-22	17-Aug-22	15-Oct-22	69
AS502160	E&M Installation of Sludge Dewatering System (S6)	200	26-Mar-22	11-Oct-22	30-Mar-22	15-Oct-22	4
Sludge Screening (SSc)							
AS502180	E&M Installation of Monorail LA-01-01	60	08-Aug-22	06-Oct-22	16-Oct-22	14-Dec-22	69
AS502200	E&M Installation of Sludge Screening System (S2)	135	11-Dec-22	24-Apr-23	15-Dec-22	28-Apr-23	4



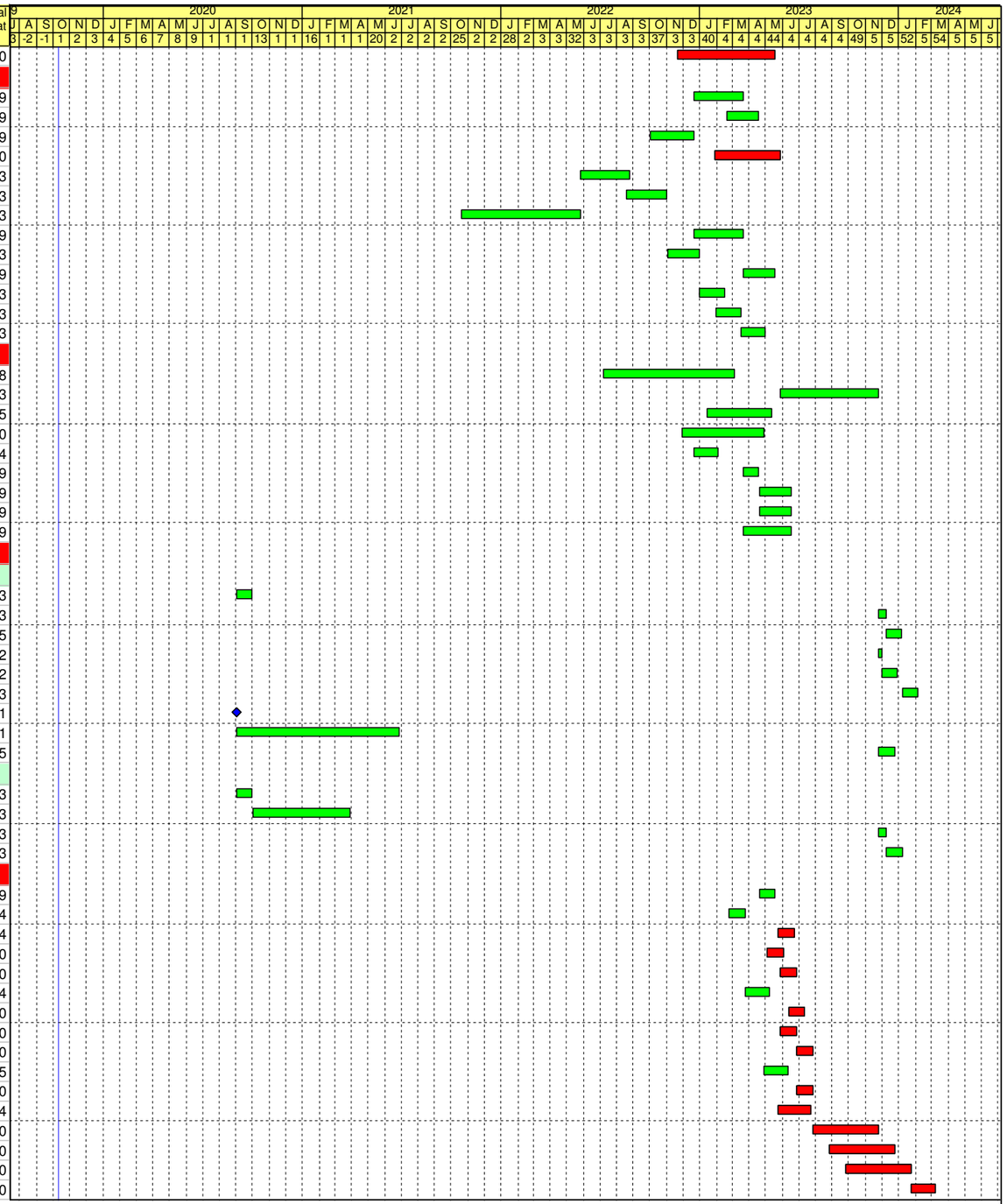
Remaining Work
Critical Activity
Milestone
Actual Progress

Contract No. DE/2018/03
Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
Sidestream Treatment Facilities and E&M Works for Sluge Treatment Faciliteis
Master Programme

Date	Revision	Checked	Approved
24-Oct-19	Rev. 0	AI	KM

Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float
AS502220	E&M Installation of External Sludge Transfer Pump (S21)	30	25-Apr-23	24-May-23	29-Apr-23	28-May-23	4
Sludge Thickening (STh)							
AS502260	E&M Installation of EOT Crane LA-01-03	90	11-Mar-22	08-Jun-22	19-Apr-22	17-Jul-22	39
AS502280	E&M Installation of Sludge Thickening System (S3)	180	14-Jul-22	09-Jan-23	18-Jul-22	13-Jan-23	4
Building Services							
AS502300	FS Installation - Conduits, Trunking, & Pipeworks	240	24-Jan-22	20-Sep-22	02-Jan-23	29-Aug-23	343
AS502320	FS Installation - Cable Laying, Termination, Associated Fitting & Field Devices	120	12-Oct-22	08-Feb-23	30-Aug-23	27-Dec-23	322
AS502340	BS Fitting Installation - Conduits, Trunking, & Ductworks	240	10-Jan-22	06-Sep-22	04-May-22	29-Dec-22	114
AS502360	BS Fitting Installation - Cable Laying, Termination, Associated Fitting & Field Devices	90	26-Nov-22	23-Feb-23	30-Dec-22	29-Mar-23	34
AS502380	Installation of Control & Monitoring System	120	25-Jan-23	24-May-23	29-Jan-23	28-May-23	4
AS502400	Installation of CCTV System	120	10-Jan-23	09-May-23	29-Jan-23	28-May-23	19
AS502410	Installation of Gas Detection System	60	24-Feb-23	24-Apr-23	30-Mar-23	28-May-23	34
Tx Rm							
AS502420	BS Fitting Intallation	90	09-Feb-22	09-May-22	26-Sep-22	24-Dec-22	229
AS502440	E&M Installation of 380V Transformers (S17)	90	16-Aug-22	13-Nov-22	25-Dec-22	24-Mar-23	131
LV Switchroom							
AS502460	BS Fitting Intallation	75	10-Jan-22	25-Mar-22	18-Feb-22	03-May-22	39
AS502480	E&M Installation of LVSB at G/F (S17)	90	19-Mar-22	16-Jun-22	19-Apr-22	17-Jul-22	31
AS502500	E&M Installation of LVSB at 1/F (S17)	90	18-May-22	15-Aug-22	18-Jun-22	15-Sep-22	31
AS502520	Ready for Energisation	5	14-Nov-22	18-Nov-22	25-Mar-23	29-Mar-23	131
Combined Heat & Power Building							
Combined Heat & Power Generation (CHP)							
AS503100	Mobilisation	14	24-Feb-22	09-Mar-22	24-Feb-22	09-Mar-22	0
AS503120	E&M Installation of EOT Crane No. 1	75	10-Mar-22	23-May-22	10-Mar-22	23-May-22	0
AS503140	E&M Installation of EOT Crane No. 2	75	24-Apr-22	07-Jul-22	18-Jun-22	31-Aug-22	55
AS503160	E&M Installation of CHP System (S8)	250	24-May-22	28-Jan-23	24-May-22	28-Jan-23	0
Building Services							
AS503180	FS Installation - Conduits, Trunking, & Pipeworks	120	10-Mar-22	07-Jul-22	06-Jul-22	02-Nov-22	118
AS503200	FS Installation - Cable Laying, Termination, Associated Fitting & Field Devices	90	28-Feb-23	28-May-23	02-Apr-23	30-Jun-23	33
AS503220	BS Fitting Installation - Conduits, Trunking, & Ductworks	180	10-Mar-22	05-Sep-22	03-Jul-22	29-Dec-22	115
AS503240	BS Fitting Installation - Cable Laying, Termination, Associated Fitting & Field Devices	90	30-Nov-22	27-Feb-23	30-Dec-22	29-Mar-23	30
AS503260	Installation of Control & Monitoring System	120	30-Dec-22	28-Apr-23	14-Jan-23	13-May-23	15
AS503280	Installation of CCTV System	90	30-Dec-22	29-Mar-23	29-Jan-23	28-Apr-23	30
AS503290	Installation of Gas Detection System	75	29-Jan-23	13-Apr-23	28-Feb-23	13-May-23	30
11kV Switchroom							
AS503300	BS Fitting Installation	60	24-Jul-22	21-Sep-22	30-Nov-22	28-Jan-23	129
AS503320	E&M Installation of 11kV Switchboard (S17)	75	29-Dec-22	13-Mar-23	29-Jan-23	13-Apr-23	31
AS503340	Main Cables Laying between 11kV SwitchRoom of CHP Bldg to Tx Rm of Workshop No.2	45	27-Feb-23	12-Apr-23	30-Mar-23	13-May-23	31
Tx Rm							
AS503360	BS Fitting Installation	60	26-Mar-22	24-May-22	19-May-22	17-Jul-22	54
AS503380	E&M Installation of 11kV Transfomers (S17)	60	30-Oct-22	28-Dec-22	30-Nov-22	28-Jan-23	31
LV Switchroom							
AS503400	BS Fitting Intallation	60	25-May-22	23-Jul-22	18-Jul-22	15-Sep-22	54
AS503420	E&M Installation of LVSB at 1/F (S17)	90	16-Aug-22	13-Nov-22	16-Sep-22	14-Dec-22	31
AS503440	Ready for Energisation	3	14-Mar-23	16-Mar-23	26-Apr-23	28-Apr-23	43
Sludge Digesters & Distribution Chamber							
Sludge Digestion (SDi)							
AS503500	FRP Walkway / Cover Installation	120	05-Jan-22	04-May-22	14-Jan-22	13-May-22	9
AS503600	E&M Installation of Sludge Digestion System (S5)	230	05-May-22	20-Dec-22	14-May-22	29-Dec-22	9
Workshop No. 2							
CLP Substation							
AS504000	Mobilisation	15	27-Sep-21	11-Oct-21	28-Sep-21	12-Oct-21	1
AS504100	BS Fitting Intallation (at CLP Sub-station in Workshop No.2)	30	12-Oct-21	10-Nov-21	13-Oct-21	11-Nov-21	1
AS509940	Inspection & H/O to CLP	7	11-Nov-21	17-Nov-21	12-Nov-21	18-Nov-21	1
AS509960	E&M Installation of HV Transformer (By CLP)	90	18-Nov-21	15-Feb-22	19-Nov-21	16-Feb-22	1
AS509980	Energisation (By CLP)	1	16-Feb-22	16-Feb-22	17-Feb-22	17-Feb-22	1
11kV HV Switchroom							
AS504200	BS Fitting Intallation	60	12-Oct-21	10-Dec-21	18-Feb-22	18-Apr-22	129
AS504240	E&M Installation of 11kV HVSB (at Workshop No.2)	60	11-Dec-21	08-Feb-22	19-Apr-22	17-Jun-22	129
AS504260	Main Cables Laying between Workshop No.2 & Tx Rm for UV System No.1	45	09-Feb-22	25-Mar-22	18-Jun-22	01-Aug-22	129
AS504280	Main Cables Laying between Workshop No.2 & Tx Rm for Sludge Dewatering Bldg	60	26-Mar-22	24-May-22	02-Aug-22	30-Sep-22	129
AS504300	Main Cables Laying between Workshop No.2 & Tx Rm for CHP Bldg	60	25-May-22	23-Jul-22	01-Oct-22	29-Nov-22	129
Biogas Storage & Pre-Treatment (BSPT)							
AS504500	E&M Installation of Biogas Storage Tank 1	210	25-May-22	20-Dec-22	25-May-22	20-Dec-22	0
AS504520	E&M Installation of Biogas Storage Tank 2	210	24-Jul-22	18-Feb-23	24-Jul-22	18-Feb-23	0

Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float
AS504540	E&M Installation of Biogas Storage Tank 3	180	21-Nov-22	19-May-23	21-Nov-22	19-May-23	0
Miscellaneous							
AS505000	E&M Installation of THP System (S4)	90	21-Dec-22	20-Mar-23	30-Dec-22	29-Mar-23	9
AS505100	E&M Installation of Thickened Sludge Feed Pipe to THP System	60	19-Feb-23	19-Apr-23	28-Feb-23	28-Apr-23	9
AS505200	E&M Installation of H2S Removal System (S7)	80	02-Oct-22	20-Dec-22	11-Oct-22	29-Dec-22	9
AS505300	E&M Installation of Gas Burning System (S9)	120	29-Jan-23	28-May-23	29-Jan-23	28-May-23	0
AS505400	E&M Installation of Plant Service Water System (S12)	90	27-May-22	24-Aug-22	09-Jun-22	06-Sep-22	13
AS505500	E&M Installation of Reclaimed Water Utilisation (S13)	75	19-Aug-22	01-Nov-22	01-Sep-22	14-Nov-22	13
AS505600	E&M Installation of SAS Pumping System (S14)	220	19-Oct-21	26-May-22	01-Nov-21	08-Jun-22	13
AS505700	E&M Installation of DO System (S21)	90	21-Dec-22	20-Mar-23	30-Dec-22	29-Mar-23	9
AS506000	E&M Installation of Sewage Pump (S21)	60	02-Nov-22	31-Dec-22	15-Nov-22	13-Jan-23	13
AS506100	E&M Installation of THP Cooling Pump (S21)	60	21-Mar-23	19-May-23	30-Mar-23	28-May-23	9
AS506200	E&M Installation of Ferric Chloride Storage Tank (S21)	45	01-Jan-23	14-Feb-23	14-Jan-23	27-Feb-23	13
AS506300	E&M Installation of Ferric Chloride Dosing Pump (S21)	45	31-Jan-23	16-Mar-23	13-Feb-23	29-Mar-23	13
AS506400	E&M Installation of Temporary Primary Sludge Pump (S21)	45	17-Mar-23	30-Apr-23	30-Mar-23	13-May-23	13
Building Services							
AS507000	FS Installation - Conduits, Trunking, & Pipeworks	240	08-Jul-22	04-Mar-23	03-Nov-22	30-Jun-23	118
AS507100	FS Installation - Cable Laying, Termination, Associated Fitting & Field Devices	180	29-May-23	24-Nov-23	01-Jul-23	27-Dec-23	33
AS507200	Installation of Control & Monitoring System	120	14-Jan-23	13-May-23	29-Jan-23	28-May-23	15
AS507300	Installation of CCTV System	150	30-Nov-22	28-Apr-23	30-Dec-22	28-May-23	30
AS507700	BS Installation for Sludge Digester	45	21-Dec-22	03-Feb-23	15-Mar-23	28-Apr-23	84
AS507800	BS Installation for THP Facilities	30	21-Mar-23	19-Apr-23	29-May-23	27-Jun-23	69
AS507900	BS Installation for Biogas Holding Tanks	60	20-Apr-23	18-Jun-23	29-Apr-23	27-Jun-23	9
AS508000	BS Installation for Sewage Pumping Station	60	20-Apr-23	18-Jun-23	29-Apr-23	27-Jun-23	9
AS508100	BS Installation for Other Facilities	90	21-Mar-23	18-Jun-23	30-Mar-23	27-Jun-23	9
Statutory Submission / Inspection							
Statutory Submission / Inspection (FSD)							
AS509100	Prepare & Submit Stage I FSI/314 for FSD approval	30	01-Sep-20	30-Sep-20	11-Feb-21	12-Mar-21	163
AS509120	Prepare & Submit Stage II FSI/314 & FSI/501	14	25-Nov-23	08-Dec-23	28-Dec-23	10-Jan-24	33
AS509140	F.S. Inspection	28	09-Dec-23	05-Jan-24	13-Jan-24	09-Feb-24	35
AS509160	Report of Completion on Ventilation System	7	25-Nov-23	01-Dec-23	06-Jan-24	12-Jan-24	42
AS509180	VAC Inspection	28	02-Dec-23	29-Dec-23	13-Jan-24	09-Feb-24	42
AS509200	Issuance of Acceptance Letter	28	08-Jan-24	04-Feb-24	10-Feb-24	08-Mar-24	33
AS509220	Application of D.G. Licence	0	01-Sep-20		29-Jul-21		331
AS509240	Processing of D.G. Licence Application	300	01-Sep-20	27-Jun-21	29-Jul-21	24-May-22	331
AS509260	D.G. Inspection & Issue D.G. Licence	30	25-Nov-23	24-Dec-23	08-Feb-24	08-Mar-24	75
Statutory Submission / Inspection (WSD)							
AS509300	Submit WWO46 Pt. I & II to WSD (FS)	30	01-Sep-20	30-Sep-20	11-Feb-21	12-Mar-21	163
AS509320	Approval of WWO46 Pt. I & II by WSD (FS)	180	01-Oct-20	29-Mar-21	13-Mar-21	08-Sep-21	163
AS509340	Submit WWO46 Pt. IV to WSD (FS)	14	25-Nov-23	08-Dec-23	28-Dec-23	10-Jan-24	33
AS509360	WSD Inspection (FS)	30	09-Dec-23	07-Jan-24	11-Jan-24	09-Feb-24	33
Testing & Commissioning							
AS509500	SAT of THP System	30	20-Apr-23	19-May-23	29-Apr-23	28-May-23	9
AS509560	SAT for Sludge Dewatering System	30	24-Feb-23	25-Mar-23	30-Mar-23	28-Apr-23	34
AS509580	System Commissioning Tests for Sludge Dewatering System	30	25-May-23	23-Jun-23	29-May-23	27-Jun-23	4
AS509585	SAT for Biogas Storage System	30	05-May-23	03-Jun-23	05-May-23	03-Jun-23	0
AS509586	System Commissioning Tests for Biogas Storage System	30	29-May-23	27-Jun-23	29-May-23	27-Jun-23	0
AS509590	SAT for Sludge Digestion System	45	26-Mar-23	09-May-23	29-Apr-23	12-Jun-23	34
AS509595	System Commissioning Tests for Sludge Digestion System	30	13-Jun-23	12-Jul-23	13-Jun-23	12-Jul-23	0
AS509598	SAT for Gas Burning System	30	29-May-23	27-Jun-23	29-May-23	27-Jun-23	0
AS509599	System Commissioning Tests for Gas Burning System	30	28-Jun-23	27-Jul-23	28-Jun-23	27-Jul-23	0
AS509600	SAT for CHP System	45	29-Apr-23	12-Jun-23	14-May-23	27-Jun-23	15
AS509620	System Commissioning Tests for CHP System	30	28-Jun-23	27-Jul-23	28-Jun-23	27-Jul-23	0
AS509720	SAT & System Commissioning Tests for Other Facilities	60	25-May-23	23-Jul-23	29-May-23	27-Jul-23	4
AS509800	Process Start Up - Digestion Tank 1	120	28-Jul-23	24-Nov-23	28-Jul-23	24-Nov-23	0
AS509820	Process Start Up - Digestion Tank 2	120	27-Aug-23	24-Dec-23	27-Aug-23	24-Dec-23	0
AS509840	Process Start Up - Digestion Tank 3	120	26-Sep-23	23-Jan-24	26-Sep-23	23-Jan-24	0
AS509900	Plant Commissioning Tests	45	24-Jan-24	08-Mar-24	24-Jan-24	08-Mar-24	0

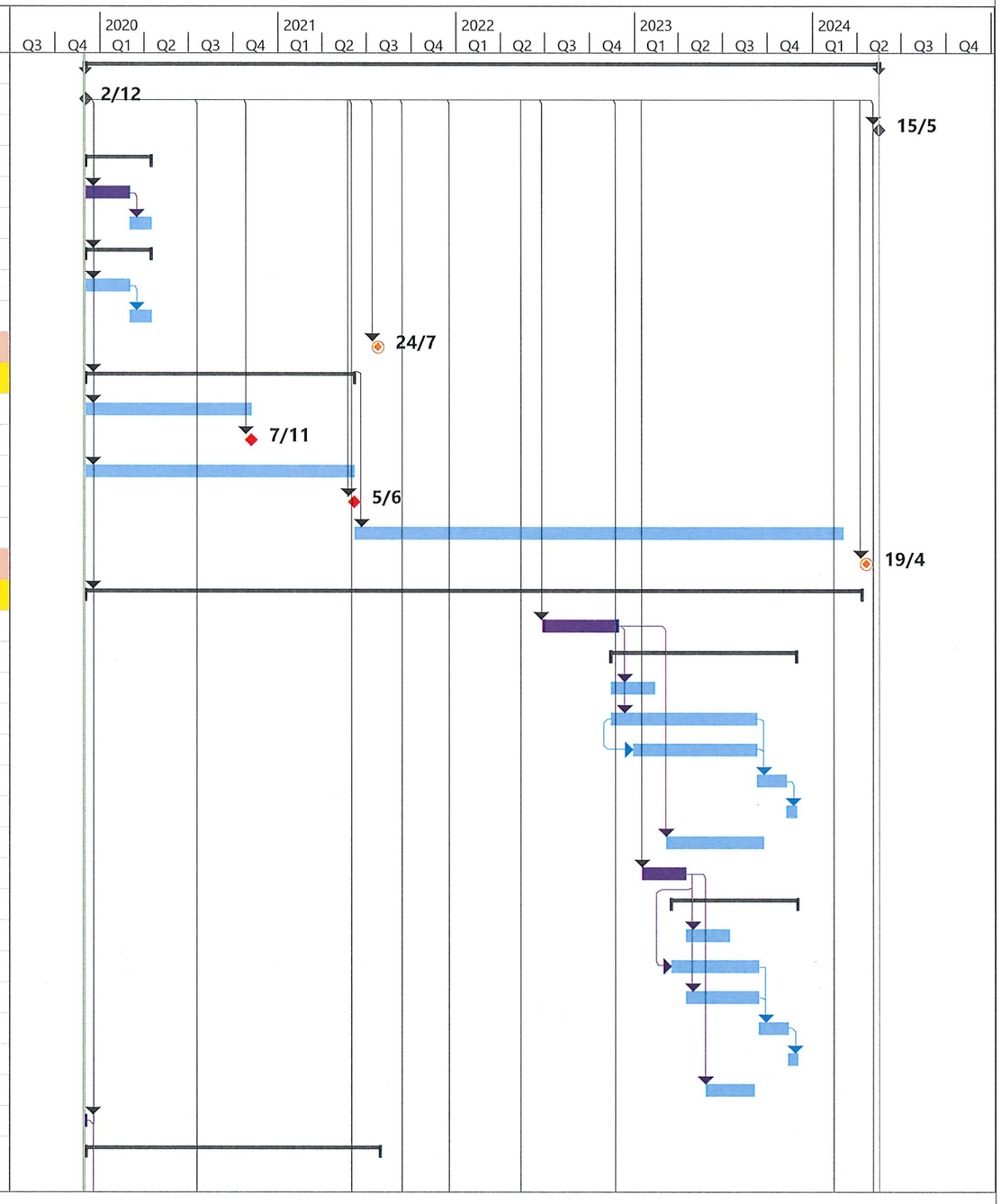


Drainage Services Department
The Government of the Hong Kong Special Administrative Region

Work Programme for DE/2018/04
Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 E&M Works for Sewage Treatment Facilities

AECOM

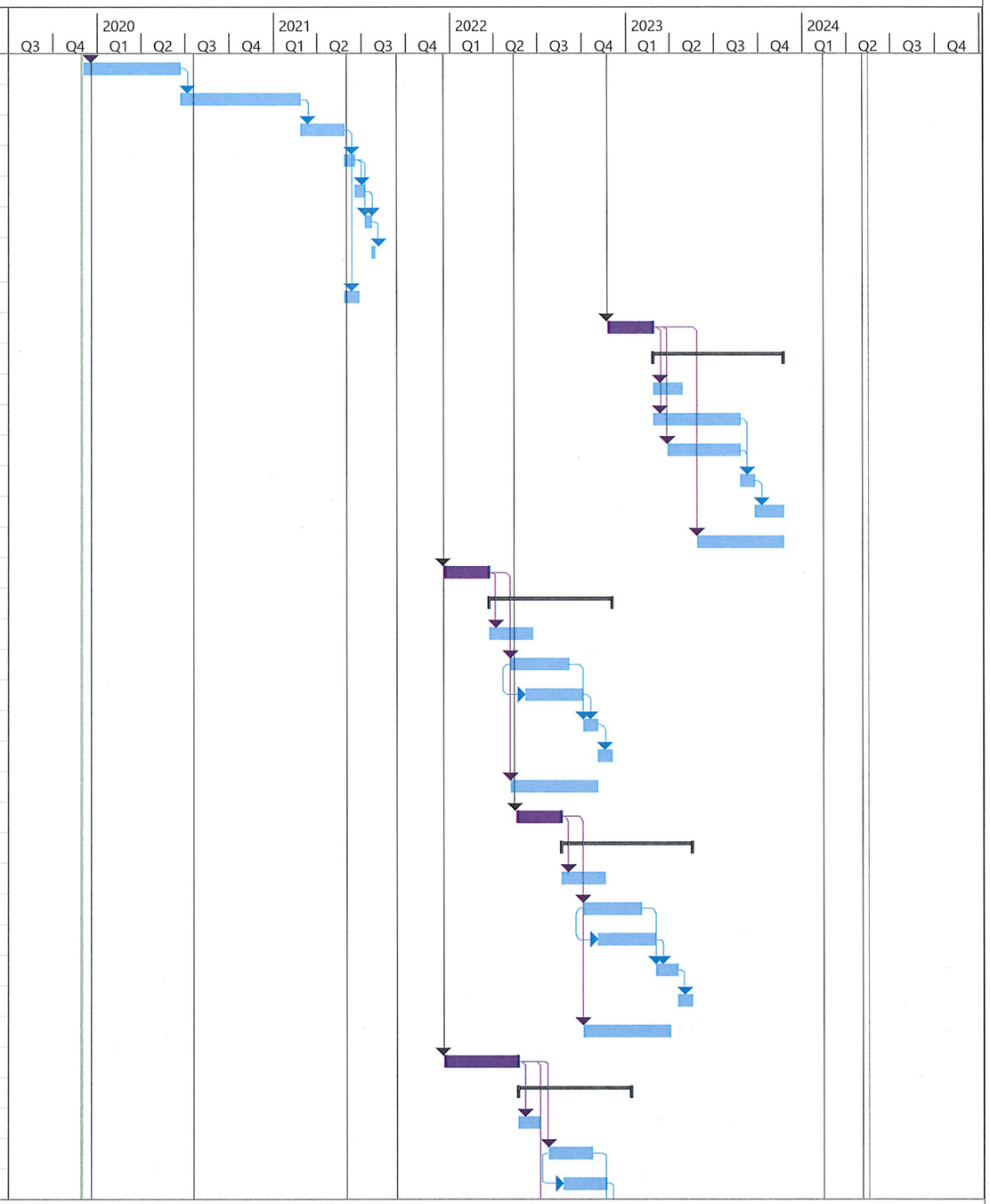
ID	Task Name	Duration	Start	Finish
1	**DE/2018/04 - Master Programme**	**1163 days**	**Mon 2/12/19**	**Wed 15/5/24**
2	Anticipated Starting Date	1 day	Mon 2/12/19	Mon 2/12/19
3	Anticipated End Sate	1 day	Wed 15/5/24	Wed 15/5/24
4	**Works Area WA1-C**	97 days	Mon 2/12/19	Wed 15/4/20
5	**Access date for Works Area WA1-C**	**90 edays**	**Mon 2/12/19**	**Sun 1/3/20**
6	Erection of Contractor's Site Accomodations	45 edays	Sun 1/3/20	Wed 15/4/20
7	**Works Area WA2-C**	97 days	Mon 2/12/19	Wed 15/4/20
8	**Access date for Works Area WA2-C**	**90 edays**	**Mon 2/12/19**	**Sun 1/3/20**
9	Erection of Contractor's Storage Area	45 edays	Sun 1/3/20	Wed 15/4/20
10	Section 1 - Latest Completion Date	600 edays	Mon 2/12/19	Sat 24/7/21
11	**Section 1 - Completion of the design of E&M Works for all works**	**394 days**	**Mon 2/12/19**	**Sat 5/6/21**
12	Document Submissions for design work from formation level up to +8.0 mPD	340 edays	Mon 2/12/19	Fri 6/11/20
13	Key Date KD1A, document submissions Part 1	1 eday	Fri 6/11/20	Sat 7/11/20
14	Document Submissions for design work above level +8.0 mPD	550 edays	Mon 2/12/19	Fri 4/6/21
15	Key Date KD1B, document submissions Part 2	1 eday	Fri 4/6/21	Sat 5/6/21
16	Procurement of E&M Equipment and Materials	1000 edays	Sat 5/6/21	Fri 1/3/24
17	Section 2 - Latest Completion Date	1600 edays	Mon 2/12/19	Fri 19/4/24
18	**Section 2 - Completion of all works for Inlet Works, PST No. 1~4, BR No. 2A & 2B**	**1137 days**	**Mon 2/12/19**	**Wed 10/4/24**
19	**Access Date for Portion B-2, Inlet Works No. 1**	**150 edays**	**Wed 29/6/22**	**Sat 26/11/22**
20	**Commencement of E&M Installation at Inlet Works No. 1**	**272 days**	**Sat 12/11/22**	**Tue 28/11/23**
21	Installation of Lifting Appliances at Inlet Works No. 1	90 edays	Sat 12/11/22	Fri 10/2/23
22	Mechanical Installations for Inlet Works No. 1	300 edays	Sat 12/11/22	Fri 8/9/23
23	Electrical Installations for Inlet Works No. 1	255 edays	Tue 27/12/22	Fri 8/9/23
24	Site Acceptance Test for E&M Equip at Inlet Works No. 1	60 edays	Fri 8/9/23	Tue 7/11/23
25	System Commissioning for E&M Equip at Inlet Works No. 1	21 edays	Tue 7/11/23	Tue 28/11/23
26	Building Services Installations for Inlet Works No. 1	200 edays	Mon 6/3/23	Fri 22/9/23
27	**Access Date for Portion B-3, PST No. 1~4**	**90 edays**	**Sun 15/1/23**	**Sat 15/4/23**
28	**Commencement of E&M Installation at PST No. 1~4**	**186 days**	**Thu 16/3/23**	**Fri 1/12/23**
29	Installation of Lifting Appliances at PST No. 1~4	90 edays	Sat 15/4/23	Fri 14/7/23
30	Mechanical Installations at PST No. 1~4	180 edays	Thu 16/3/23	Tue 12/9/23
31	Electrical Installations for PST No. 1~4	150 edays	Sat 15/4/23	Tue 12/9/23
32	Site Acceptance Test for E&M Equip at PST No. 1~4	60 edays	Tue 12/9/23	Sat 11/11/23
33	System Commissioning for E&M Equip at PST No, 1~4	20 edays	Sat 11/11/23	Fri 1/12/23
34	Building Services Installations for E&M Equip at PST No. 1~4	100 edays	Fri 26/5/23	Sun 3/9/23
35	**Access Date for Portion B-3B, Temporary Filtrate Lifting Well and Eq. Tank**	**1 eday**	**Mon 2/12/19**	**Tue 3/12/19**
36	**Commencement of E&M Installation at Temporary Filtrate Lifting Well and Equalization Tank**	**431 days**	**Tue 3/12/19**	**Wed 28/7/21**



Bestwise
Ref: P431-PG-001
Date: Sat 30/11/19

Task	Project Summary	Manual Task	Start-only	Manual Progress
Split	Inactive Task	Duration-only	Finish-only	
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	
Summary	Inactive Summary	Manual Summary	Progress	

ID	Task Name	Duration	Start	Finish
37	Preparation Work	200 edays	Tue 3/12/19	Sat 20/6/20
38	Civil Construction Work	250 edays	Sat 20/6/20	Thu 25/2/21
39	Installation of Lifting Appliances	90 edays	Thu 25/2/21	Wed 26/5/21
40	Mechanical Installations for Temp. Filtrate Lifting Well and Eq. Tank	21 edays	Wed 26/5/21	Wed 16/6/21
41	Electrical Installations for Temp. Filtrate Lifting Well and Eq. Tank	21 edays	Wed 16/6/21	Wed 7/7/21
42	Site Acceptance Test for E&M Equip at Filtrate Lifting Well and Eq. Tank	14 edays	Wed 7/7/21	Wed 21/7/21
43	System Commissioning for E&M Equip at Temp. Filtrate Lifting Well and Eq. Tank	7 edays	Wed 21/7/21	Wed 28/7/21
44	Building Services Installations for Inlet Works No. 1	30 edays	Wed 26/5/21	Fri 25/6/21
45	**Access Date for Portion B-4, BR 2A & 2B**	**90 edays**	**Sat 26/11/22**	**Fri 24/2/23**
46	**Commencement of E&M Installation at Bioreactor No. 2A & 2B**	**192 days**	**Fri 24/2/23**	**Tue 21/11/23**
47	Installation of Lifting Appliances	60 edays	Fri 24/2/23	Tue 25/4/23
48	Mechanical Installations for E&M Equip at BR 2A & 2B	180 edays	Fri 24/2/23	Wed 23/8/23
49	Electrical Installations for E&M Equip at BR 2A & 2B	150 edays	Sun 26/3/23	Wed 23/8/23
50	Site Acceptance Test for E&M Equip at BR 2A & 2B	30 edays	Wed 23/8/23	Fri 22/9/23
51	System Commissioning for E&M Equip at BR 2A & 2B	60 edays	Fri 22/9/23	Tue 21/11/23
52	Building Services Installations for BR 2A & 2B	180 edays	Thu 25/5/23	Tue 21/11/23
53	**Access Date for Portion B-5A, MFB No. 2 below 1st floor level**	**90 edays**	**Tue 21/12/21**	**Mon 21/3/22**
54	**Commencement of E&M Installation at MFB No. 2 Lower Part**	**183 days**	**Mon 21/3/22**	**Thu 1/12/22**
55	Installation of Lifting Appliances	90 edays	Mon 21/3/22	Sun 19/6/22
56	Mechanical Installations for E&M Equip. at MFB No. 2 Lower Part	120 edays	Thu 5/5/22	Fri 2/9/22
57	Electrical Installations for E&M Equip. at MFB No. 2 Lower Part	120 edays	Sat 4/6/22	Sun 2/10/22
58	Site Acceptance Test for E&M Equip. at MFB No. 2 Lower Part	30 edays	Sun 2/10/22	Tue 1/11/22
59	System Commissioning for E&M Equip at MFB No. 2 Lower Part	30 edays	Tue 1/11/22	Thu 1/12/22
60	Building Services Installations for MFB No. 2 Lower Part	180 edays	Thu 5/5/22	Tue 1/11/22
61	**Access Date for Portion B-5B, MFB No. 2 remaining portion**	**90 edays**	**Fri 20/5/22**	**Thu 18/8/22**
62	**Commencement of E&M Installation at MFB No. 2 Upper Part**	**192 days**	**Thu 18/8/22**	**Mon 15/5/23**
63	Installation of Lifting Appliances	90 edays	Thu 18/8/22	Wed 16/11/22
64	Mechanical Installations for E&M Equip. at MFB No. 2 Upper Part	120 edays	Sun 2/10/22	Mon 30/1/23
65	Electrical Installations for E&M Equip. at MFB No. 2 Upper Part	120 edays	Tue 1/11/22	Wed 1/3/23
66	Site Acceptance Test for E&M Equip at MFB No. 2 Upper Part	45 edays	Wed 1/3/23	Sat 15/4/23
67	System Commissioning for E&M Equip at MFB No. 2 Upper Part	30 edays	Sat 15/4/23	Mon 15/5/23
68	Building Services Installations for MFB No. 2 Upper Part	180 edays	Sun 2/10/22	Fri 31/3/23
69	**Access Date for Portion B-7 & 7B, Chemical Dosing, DO, FS, Chambers**	**150 edays**	**Tue 21/12/21**	**Fri 20/5/22**
70	**Commencement of E&M Installation at Chemial Dosing System**	**166 days**	**Fri 20/5/22**	**Mon 9/1/23**
71	Installation of Lifting Appliances	45 edays	Fri 20/5/22	Mon 4/7/22
72	Mechanical Installations for E&M Equip. for Chemical Dosing System	90 edays	Fri 22/7/22	Thu 20/10/22
73	Electrical Installations for E&M Equip. for Chemical Dosing System	90 edays	Sun 21/8/22	Sat 19/11/22



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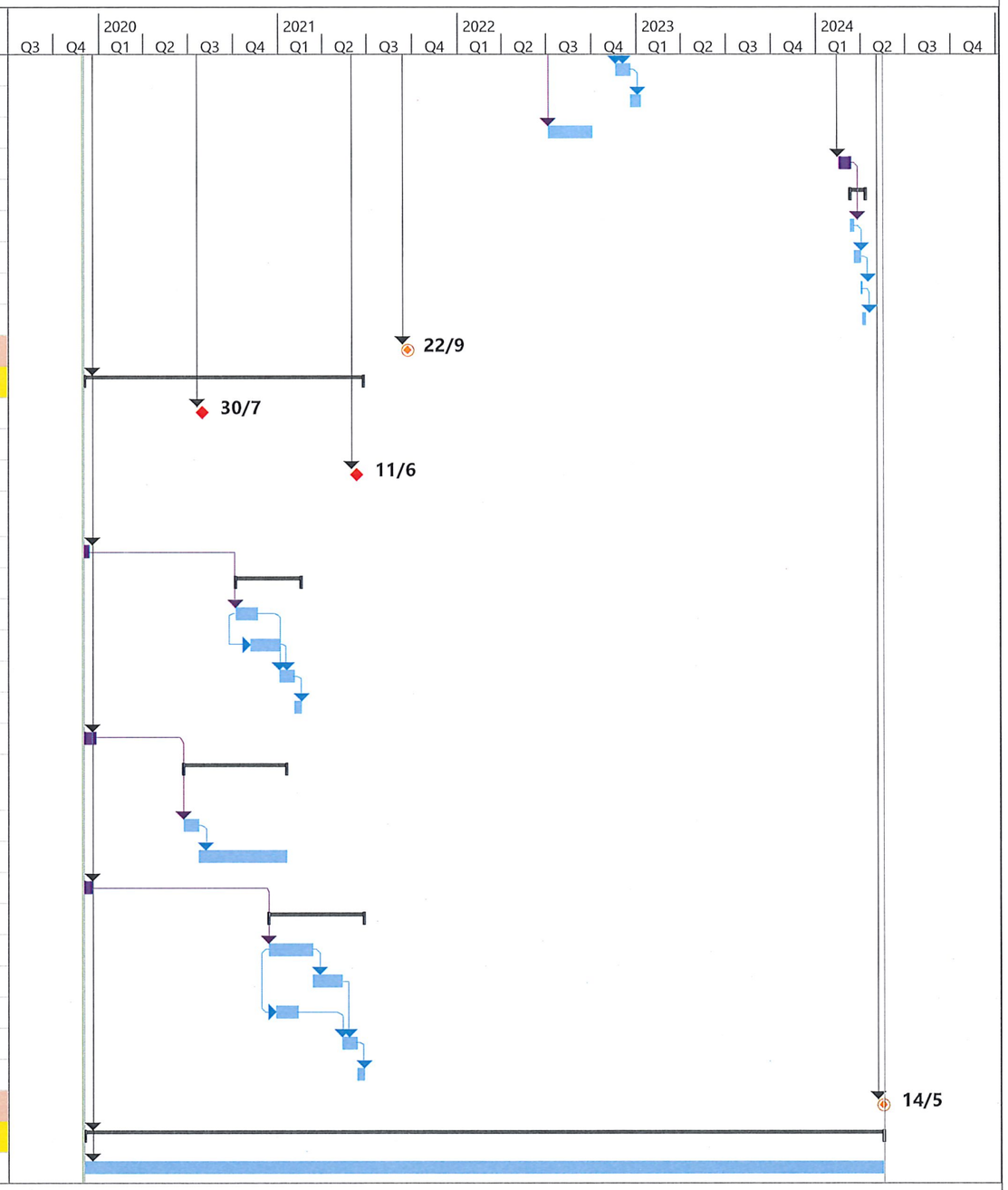
Task	Project Summary	Manual Task	Start-only	Manual Progress
Split	Inactive Task	Duration-only	Finish-only	
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	
Summary	Inactive Summary	Manual Summary	Progress	

ID	Task Name	Duration	Start	Finish
74	Site Acceptance Test for E&M Equip for Chemical Dosing System	30 edays	Sat 19/11/22	Mon 19/12/22
75	System Commissioning for E&M Equip for Chemical Dosing System	21 edays	Mon 19/12/22	Mon 9/1/23
76	Building Services Installations at Chemical Dosing System areas	90 edays	Mon 4/7/22	Sun 2/10/22
77	**Access Date for Portion B-9B, underground pipework**	**20 edays**	**Mon 19/2/24**	**Sun 10/3/24**
78	**Commencement of underground pipework modification and connection work**	**23 days**	**Sun 10/3/24**	**Wed 10/4/24**
79	Road Excavation	7 edays	Sun 10/3/24	Sun 17/3/24
80	Pipe Laying and connection works	14 edays	Sun 17/3/24	Sun 31/3/24
81	Pressure Tests	3 edays	Sun 31/3/24	Wed 3/4/24
82	Make Good	7 edays	Wed 3/4/24	Wed 10/4/24
83	Section 3 - Latest Completion Date	660 edays	Mon 2/12/19	Wed 22/9/21
84	**Section 3 - Completion of all works for retrofitting of the existing PST...etc**	**407 days**	**Mon 2/12/19**	**Wed 23/6/21**
85	Key Date KD3A, E&M Installation works of existing power house	1 eday	Wed 29/7/20	Thu 30/7/20
86	Completion of E&M Installation works of existing power house			
87	Key Date KD3B, E&M work for provision of the existing PSTs	1 eday	Thu 10/6/21	Fri 11/6/21
88	Competion of all work for provision of the existing PST and associated systems			
89	**Access Date for Portion B-3A, Existing PST No. 4 and No. 6**	**7 edays**	**Mon 2/12/19**	**Mon 9/12/19**
90	**Commencement of retrofitting the existing PST No. 4 and No. 6**	**96 days**	**Sun 4/10/20**	**Mon 15/2/21**
91	Mechanical Installations for existing PST No. 4 and No. 6	45 edays	Sun 4/10/20	Wed 18/11/20
92	Electrical Installations for existing PST No. 4 and No. 6	60 edays	Tue 3/11/20	Sat 2/1/21
93	Site Acceptance Test for E&M Equip at existing PST No. 4 and No. 6	30 edays	Sat 2/1/21	Mon 1/2/21
94	System Commissioning for E&M Equip at existing PST No. 4 and No. 6	14 edays	Mon 1/2/21	Mon 15/2/21
95	**Access Date for Portion B-7A & 7B**	**21 edays**	**Mon 2/12/19**	**Mon 23/12/19**
96	**Commencement of Modification of existing emergency generator Electrical Works**	**150 days**	**Sat 20/6/20**	**Sat 16/1/21**
97	Installation of Lifting Appliances	30 edays	Sat 20/6/20	Mon 20/7/20
98	Modification of existing emergency generator electrical works	180 edays	Mon 20/7/20	Sat 16/1/21
99	**Access Date for B-10, existing sludge thickening building**	**14 edays**	**Mon 2/12/19**	**Mon 16/12/19**
100	**Commencement of E&M Installation at Existing Filter Press**	**139 days**	**Thu 10/12/20**	**Wed 23/6/21**
101	Installation of Lifting Appliances	90 edays	Thu 10/12/20	Wed 10/3/21
102	Mechanical Installations for E&M Equip. at Existing Filter Press House	60 edays	Wed 10/3/21	Sun 9/5/21
103	Electrical Installation for E&M Equip. at Existing Filter Press House	45 edays	Fri 25/12/20	Mon 8/2/21
104	Site Acceptance Test for E&M Equip. at Existing Filter Press House	30 edays	Sun 9/5/21	Tue 8/6/21
105	System Commissioning Test for E&M Equip. at Existing Filter Press House	15 edays	Tue 8/6/21	Wed 23/6/21
106	Section 4 - Latest Completion Date	1625 edays	Mon 2/12/19	Tue 14/5/24
107	**Section 4**	**1161 days**	**Mon 2/12/19**	**Tue 14/5/24**
108	Remaining E&M Installations and Testing & Commissioning Work	1625 edays	Mon 2/12/19	Tue 14/5/24



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Task | Project Summary | Manual Task | Start-only | Manual Progress
Split | Inactive Task | Duration-only | Finish-only
Milestone | Inactive Milestone | Manual Summary Rollup | External Tasks
Summary | Inactive Summary | Manual Summary | Progress