



**CONTRACT NO. SPW 12/2021**  
**ENVIRONMENTAL TEAM (2021 – 2024) FOR**  
**SHEK WU HUI EFFLUENT POLISHING PLANT – MAIN WORK**  
**UNDER FURTHER ENVIRONMENTAL PERMIT NO. FEP-**  
**02/474/2013**  
**MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT**  
**OCTOBER 2021**

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**DATE:**

11 November 2021

Meinhardt Infrastructure and Environment Limited

**Contract No. SPW 12/2021**  
**Shek Wu Hui Effluent Polishing Plant –**  
**Main Work**

Monthly EM&A Report  
(1 October 2021 – 31 October 2021)

(November 2021)

Verified by: W. K. Chiu 

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Date: 11 November 2021

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## EXECUTIVE SUMMARY

- i. This is the Environmental Monitoring and Audit (EM&A) Monthly Report – **October 2021** of Shek Wu Hui Effluent Polishing Plant – Main Work under Further Environmental Permit no. FEP-02/474/2013 (Hereafter as “the Project”). This is the **2<sup>nd</sup>** EM&A report prepared by Environmental Team under Contract No. SPW 12/2021, presenting the environmental monitoring findings and information recorded during the period of **01 October 2021 to 31 October 2021**. The cut-off date of reporting is at the end of each reporting month.
- ii. In the reporting month, the principal work activities of individual contracts are conducted as follows:

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

- RC works
- Excavation works
- Sewerage and drainage works
- Pipe laying
- Backfilling
- Removal of Layer Struct and Waling

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

- ELS works
- R.C. Structure works
- Pre-bored H piles
- Sheetpile Installation
- Demolition works
- Excavation
- E&M installation and T&C works
- ABWF works & BS works

Contract No. DE/2018/03 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 – Sidestream Treatment Facilities and EM&M Works for Sludge Treatment Facilities

- Excavation of Trial Pit
- (Sidestream Treatment Facilities)
- Installation of EOT at UVP
- Penstock and Stoplog Installation
- Effluent Pump Installation
- AFA and MFA System Installation

Contract No. DE/2018/04 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 –  
E&M Works for Sewage Treatment Facilities

- Testing and Commission of Temporary Filtrate Equalisation Tank.
- Installation of FRP platform & Testing and Commission of Temporary Primary Sludge Thickener and its accessories.
- Testing and Commission of Existing Primary Sedimentation Tank No. 4 & 6.
- Testing and Commission of Existing Emergency Generator Electrical Works.

Air Quality Monitoring

- iii. 1-hour and 24-hour Total Suspended Particulates (TSP) monitoring was conducted at two monitoring station. 24-hour TSP shall be sampled at least once in every 6 days, while sampling for 1-hour TSP shall be at least 3 times in every 6 day in the reporting month.
- iv. [No action or limit level exceedance was recorded in this reporting period.](#)

Noise Monitoring

- v. Noise monitoring was conducted at one noise monitoring station once per week in the reporting month.
- vi. [No action or limit level exceedance was recorded in this reporting period.](#)

Ecological Monitoring

- vii. Ecological monitoring 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.
- viii. [No action or limit level exceedance was recorded in this reporting period](#)

Site Inspections and Audit

- ix. The [Environmental Team \(ET\)](#) conducted weekly site inspections on 4, 11, 12, 19 and 26 October 2021 and biweekly landscape inspection on 4 and 19 October 2021. IEC attended the joint site inspection on 26 October 2021. No non-compliance was found during the site inspection while reminders on environmental measures were recommended.

Complaints, Notifications of Summons and Successful Prosecutions

- x. No environmental complaint, notification of summons and successful prosecution regarding the construction works was recorded in the reporting period.

Reporting Changes

- xi. There are no particular reporting changes.

Future Key Issues

- xii. In coming reporting month, the principal work activities of individual contracts are anticipated as follows:

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

- RC works
- Excavation works
- Cable trench works
- Pipe laying
- Backfilling
- Removal of layer struct and waling

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

- ELS works
- R.C. Structure works
- Pre-bored H piles
- Sheetpile Installation
- Demolition works
- Excavation
- E&M installation and T&C works
- ABWF works & BS works

Contract No. DE/2018/03 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 – Sidestream Treatment Facilities and EM&M Works for Sludge Treatment Facilities

- Excavation of Trial Pit
- (Sidestream Treatment Facilities)
- Installation of EOT at UVP
- AFA and MFA System Installation
- Penstock and Stoplog Installation
- Effluent Pump Installation



- UV System Installation
- Delivery and Installation of Temporary Container LV Switch Room for UV and Effluent Pumping Station

Contract No. DE/2018/04 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 –  
E&M Works for Sewage Treatment Facilities

- Testing and Commission of Temporary Filtrate Equalisation Tank.
- Testing and Commission of Temporary Primary Sludge Thickener and its accessories.
- Testing and Commission of Existing Primary Sedimentation Tank No. 4 & 6.

## 1 Introduction

### 1.1 Scope of the Report

1.1.1. Lam Environmental Services Limited (LES) has been appointed to work as the Environmental Team (ET) under Environmental Permit (EP) No. FEP-02/474/2013 to implement the Environmental Monitoring and Audit (EM&A) programme as stipulated in the EM&A Manual of the approved Environmental Impact Assessment (EIA) Report for North East New Territories New Development Areas (Register No.: AEIAR-175/2013).

1.1.2. In accordance with Clause 3.4 stated in FEP-02/474/2013, 3 hard copies and 2 electronic copies of Monthly EM&A Report shall be submitted to the Director within 10 working days after the end of each reporting month throughout the entire construction period.

1.1.3. According to Section 9.4.1.1 of the Project EM&A Manual, the Monthly EM&A Report should be submitted within 10 working days at the end of each reporting month, with the first report due in the month after construction commences.

### 1.2 Structure of the Report

**Section 1**     **Introduction** – details the scope and structure of the report.

**Section 2**     **Project Background** – summarizes background and scope of the project, site description, project organization and contact details of key personnel during the reporting period.

**Section 3**     **Status of Regulatory Compliance** – summarizes the status of valid Environmental Permits / Licenses during the reporting period.

**Section 4**     **Monitoring Requirements** – summarizes all monitoring parameters, monitoring methodology and equipment, monitoring locations, monitoring frequency, criteria and respective event and action plan and monitoring programmes.

**Section 5**     **Monitoring Results** – summarizes the monitoring results obtained in the reporting period.

**Section 6**     **Compliance Audit** – summarizes the auditing of monitoring results, all exceedances environmental parameters.

**Section 7**     **Environmental Site Audit** – summarizes the findings of weekly site inspections undertaken within the reporting period, with a review of any



relevant follow-up actions within the reporting period.

**Section 8**      ***Complaints, Notification of summons and Prosecution*** – summarizes the cumulative statistics on complaints, notification of summons and prosecution

**Section 9**      ***Conclusion***



## 2 Project Background

### 2.1 Background

2.1.1. The existing Shek Wu Hui Sewage Treatment Works (SWHSTW) has been operating and maintaining for 30 years 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 years. In 1984, Stage I of SWHSTW was commissioned with design capacity of 60,000 cubic meters per day ( $\text{m}^3$  /day) at Average Dry Weather Flow (ADWF). In 2001, Stage II of SWHSTW was completed with design capacity enhanced to 80,000  $\text{m}^3$  /day at ADWF. In 2009, the expansion of SWHSTW was completed and its design capacity was increased to 93,000 $\text{m}^3$  /day at ADWF.

2.1.2. Further expansion of SWHSTW has been planned to be carried out in order to cope with the forecast increase in flow from Fanling North and Kwu Tong North New Development Area (NDA) and other NDAs and developments in three phases, namely Phase 1A, 1B and 2, which are later revised to Main Works Stage 1, Stage 2 and Stage 3 respectively. The EIA study report (Register No.: AEIAR-175/2013) for the NENT NDAs Study covered the assessment for the Further Expansion of SWHSTW, which is a designated project under item F.1 and F.2 of Part 1, Schedule 2 of the EIA Ordinance. The location of the project site is shown in [Figure 2.1](#).

A Further EP was applied on 18 January 2018 to assume the responsibility for constructing and operating the SWHEPP Project up to a capacity of 190,000  $\text{m}^3$ /day. The Further EP No. FEP-02/474/2013 was issued to DSD as permit holder on 15 February 2018. Due to overlapping of scope with the Further EP currently in force, the Further EP No. FEP-01/474/2013 was subsequently surrendered on 15 August 2018.

### 2.2 Project Organization and Contact Personnel

2.2.1 Drainage Service Department (DSD) is the overall project controllers for the Project. For the construction phase of the Project, Engineer's Representative, Contractor(s), Environmental Team and Independent Environmental Checker are appointed to manage and control environmental issues.

2.2.2 The project organization and lines of communication with respect to environmental protection works are shown in [Figure 2.2](#). Key personnel and contact particulars are summarized in [Table 2.1](#).

**Table 2.1 Contact Details of Key Personnel**

Party	Role	Post	Name	Contact No.
Drainage Services Department (DSD)	Permit Holder	Engineer	Ms. Konica Cheung	2594 7463
AECOM	Supervisor Representative	Resident Engineer	Ms. Bianca Choi	3907 6141
Kwan Lee - Chun Wo Joint Venture	Contractor (DC/2018/06)	Environmental Engineer	Ms. Ruby Hui	6218 6408
		Assistant Environmental Engineer	Mr. Eric Chan	6432 2581
	Contractor (DC/2018/07)	Environmental Engineer	Ms. Tiffany Choi	9789 1027
JEC	Contractor (DE/2018/03)	Environmental Officer	Ms. Juliet Ting	6826 7319
Bestwise	Contractor (DE/2018/04)	Environmental Officer	Mr. Albus Cheung	9731 0831
Meinhardt Infrastructure and Environment Ltd.	Independent Environmental Checker (IEC)	Independent Environmental Checker (IEC)	Mr. W.K. Chiu	2859 5881
Lam Environmental Services Limited	Environmental Team (ET)	Environmental Team Leader (ETL)	Mr. Raymond Dai	2882 3939

**2.3 Construction Activities**

2.3.1 In the reporting month, the principal work activities conducted of individual contracts are as follow.

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

- RC works
- Excavation works
- Sewerage and drainage works
- Pipe laying
- Backfilling
- Removal of Layer Struct and Waling

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

- ELS works
- R.C. Structure works
- Pre-bored H piles
- Sheetpile Installation
- Demolition works
- Excavation
- E&M installation and T&C works
- ABWF works & BS works

Contract No. DE/2018/03 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 –  
Sidestream Treatment Facilities and EM&M Works for Sludge Treatment Facilities

- Ground Investigation

Contract No. DE/2018/04 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 –  
E&M Works for Sewage Treatment Facilities

- Testing and Commission of Temporary Filtrate Equalisation Tank.
- Installation of FRP platform & Testing and Commission of Temporary Primary Sludge Thickener and its accessories.
- Testing and Commission of Existing Primary Sedimentation Tank No. 4 & 6.
- Testing and Commission of Existing Emergency Generator Electrical Works.

2.3.2 In coming reporting month, the scheduled construction activities of individual contracts are listed as follows:

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

- RC works
- Excavation works
- Cable trench works
- Pipe laying
- Backfilling
- Removal of layer struct and waling

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

- ELS works
- R.C. Structure works

- Pre-bored H piles
- Sheetpile Installation
- Demolition works
- Excavation
- E&M installation and T&C works
- ABWF works & BS works

Contract No. DE/2018/03 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 –  
Sidestream Treatment Facilities and EM&M Works for Sludge Treatment Facilities

- Excavation of Trial Pit
- (Sidestream Treatment Facilities)
- Installation of EOT at UVP
- Penstock and Stoplog Installation
- Effluent Pump Installation
- AFA and MFA System Installation

Contract No. DE/2018/04 – Shek Wu Hui Effluent Polishing Plant – Main Works Stage 1 –  
E&M Works for Sewage Treatment Facilities

- Testing and Commission of Temporary Filtrate Equalisation Tank.
- Testing and Commission of Temporary Primary Sludge Thickener and its accessories.
- Testing and Commission of Existing Primary Sedimentation Tank No. 4 & 6.

### 3 Status of Regulatory Compliance

#### 3.1 Status of Environmental Licensing and Permitting under the Project

3.1.1. A summary of the current status on licences and/or permits on environmental protection pertinent to the Project is shown in **Table 3.1 to 3.4**.

**Table 3.1 Summary of the current status on licences and/or permits on environmental protection pertinent to the Project under Contract No. DC/2018/06**

Permits and/or Licences	Permit. No. / Account No.	Valid From	Expiry Date	Status
Notification pursuant to Air Pollution Control (Construction Dust) Regulation	449210 (Portion A & C)	23 Sep 2019	N/A	Valid
	449211 (WM1)	23 Sep 2019	N/A	Valid
Environmental Permit	FEP-02/474/2013	15 Feb 2018	N/A	Valid
Water Pollution Ordinance Licence	WT00035431-2019 (Portion C)	27 Jul 2020	31 Jan 2025	Valid
	WT00035718-2020 (Portion A)	02 Apr 2020	30 Apr 2025	Valid
Billing Account for Disposal of Construction Waste	7035390	11 Oct 2019	N/A	Valid
Registration as a Chemical Waste Producer	5213-624-K3371-01	14 Nov 2019	N/A	Valid
Construction Noise Permit	GW-RN0610-21	01 Sep 2021	28 Feb 2022	Valid
	GW-RN0734-21	05 Oct 2021	31 Mar 2022	Valid

**Table 3.2 Summary of the current status on licences and/or permits on environmental protection pertinent to the Project under Contract No. DC/2018/07**

Permits and/or Licences	Permit. No. / Account No.	Valid From	Expiry Date	Status
Notification pursuant to Air Pollution Control (Construction Dust) Regulation	451031	19 Nov 2019	N/A	Valid
Environmental Permit	FEP-02/474/2013	15 Feb 2018	N/A	Valid
Water Pollution Ordinance Licence	WT00035727-2020	01 Apr 2020	30 Apr 2025	Valid
Billing Account for Disposal of Construction Waste	7035985	9 Dec 2019	N/A	Valid
Registration as a Chemical Waste Producer	5213-624-K3371-02	6 Jan 2020	N/A	Valid
Construction Noise Permit	GW-RN0610-21	01 Sep 2021	28 Feb 2022	Valid
Admission Ticket for Special Waste	16527	12 Oct 2021	16 Feb 2022	Valid

**Table 3.3 Summary of the current status on licences and/or permits on environmental protection pertinent to the Project under Contract No. DE/2018/03**

Permits and/or Licences	Permit. No. / Account No.	Valid From	Expiry Date	Status
Notification pursuant to Air Pollution Control (Construction Dust) Regulation	455843 (WA3)	6 May 2020	N/A	Valid
	457212 (WA1-B)	15 Jun 2020	N/A	Valid
	460065 (Sidestream)	16 Sep 2020	N/A	Valid
Environmental Permit	FEP-02/474/2013	15 Feb 2018	N/A	Valid
Water Pollution Ordinance Licence	WT00037220-2020	16 Mar 2021	31 Jan 2026	Valid
Billing Account for Disposal of Construction Waste	7035700	6 Nov 2019	N/A	Valid
Registration as a Chemical Waste Producer	5213-624-T3861-01	14 Apr 2020	N/A	Valid
Construction Noise Permit	GW-RN0484-21	6 Jul 2021	27 Jan 2022	Valid

**Table 3.4 Summary of the current status on licences and/or permits on environmental protection pertinent to the Project under Contract No. DE/2018/04**

Permits and/or Licences	Permit. No. / Account No.	Valid From	Expiry Date	Status
Notification pursuant to Air Pollution Control (Construction Dust) Regulation	460181	17/09/2020	N/A	Valid
Environmental Permit	FEP-02/474/2013	15 Feb 2018	N/A	Valid
Billing Account for Disposal of Construction Waste	703621912	02 Jan 2020	N/A	Valid
Registration as a Chemical Waste Producer	5213-624-B2592-01	07 Jul 2020	N/A	Valid

3.1.2. Implementation status of the recommended mitigation measures during this report month is presented in [Appendix 3.1](#).

## 4 Monitoring Requirements

### 4.1 Noise Monitoring

#### NOISE MONITORING STATIONS

- 4.1.1. The noise monitoring stations for the Project are listed and shown in **Table 4.1** and **Figure 4.1**. **Appendix 4.1** shows the established Action/Limit Levels for the monitoring works.

**Table 4.1 Noise Monitoring Station**

Monitoring Station ID	Location
NM1	Wai Loi Tsuen
NM2	Fu Tei Au
NM3	Man Kok Village

#### NOISE MONITORING PARAMETERS, FREQUENCY AND DURATION

- 4.1.2. The monitoring parameters, frequency and duration of noise monitoring are summarized in **Table 4.2**.

**Table 4.2 Noise Monitoring Parameters, Frequency and Duration**

Monitoring Period	Duration	Sampling Parameter	Sampling Period <sup>(1)</sup>	Frequency
Impact Monitoring	Throughout the construction phase	1 set of Leq (30 min)	between 0700-1900 hours on normal weekdays;	on a per week basis when noise generating activities are underway

Remark (1): Additional weekly impact monitoring shall be carried out during evening and night-time works if construction works are extended to include works during the hours of 1900-0700

#### MONITORING EQUIPMENT

- 4.1.3. Noise monitoring was performed using sound level meter at the designated monitoring locations. The sound level meters shall comply with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator shall be deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in **Table 4.3**.

**Table 4.3 Noise Monitoring Equipment**

Equipment	Brand and Model	Series Number
Integrated Sound Level Meter	LxT1	0004797
Acoustic Calibrator	HLES-02	2019612870

4.1.4. The calibration certificates of the noise monitoring equipment are attached in [Appendix 4.2](#).

SAMPLING PROCEDURE AND MONITORING EQUIPMENT

4.1.5. Monitoring Procedure

- (a) Noise measurements shall not be made in fog, rain, wind with a steady speed exceeding 5 m/s or wind with gusts exceeding 10 m/s. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m/s
- (b) The monitoring station shall normally be at a point 1 m from the exterior of the sensitive receiver building facade and be at a position 1.2 m above the ground. If there is problem with access to the normal monitoring position, an alternative position may be chosen, and a correction to the measurements shall be made. For reference, a correction of +3 dB(A) shall be made to the free field measurements.
- (c) The battery condition was checked to ensure the correct functioning of the meter.
- (d) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - Frequency weighting: A
  - Time weighting: Fast
  - Time measurement: Leq (30min) for noise monitoring
- (e) 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 recalibration or repair of the equipment.
- (f) The wind speed was checked with the portable wind meter before noise monitoring.
- (g) At the end of the monitoring period, the Leq, L90 and L10 were recorded. In addition, site conditions and noise sources were recorded on a record sheet.

4.1.6. Maintenance and Calibration

- (a) The microphone head of the sound level and calibrator would be cleaned with soft cloth regularly.
- (B) The noise monitoring equipment shall be calibrated annually.



CONSTRUCTION NOISE LEVEL

4.1.7. The construction noise level refers the corrected noise level based on the calculated difference between SPL of the Measured Noise Level and the SPL of the Baseline Noise Level. In the event of the Baseline Noise Level exceeds the Measured Noise Level, no correction would be applied and the Construction Noise Level would be indicated as below baseline noise level (<BL).

EVENT AND ACTION PLAN

4.1.8. Noise Standards for Daytime Construction Activities are specified under EIAO-TM. The Action and Limit levels for construction noise are defined in **Table 4.4** and [Appendix 4.1](#). Should non-compliance of the criteria occurs, action in accordance with the Event and Action Plan in [Appendix 6.1](#) shall be carried out.

**Table 4.4 Action and Limit Level for Noise Monitoring**

Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB

**4.2 Air Monitoring**

AIR QUALITY MONITORING STATIONS

4.2.1. The air monitoring stations for the Project are listed and shown in **Table 4.5** and [Figure 4.2](#).

**Table 4.5 Air Monitoring Station**

Monitoring Station ID	Location	Measurement
AMS1	House No. 15, Wai Loi Tsuen	1-hour TSP
AMS2	Fu Tei Au	1-hour TSP
AM1a	Site boundary of the Shek Wu Hui STW (East)	24-hour TSP
AM2a	Site boundary of the Shek Wu Hui STW (North)	24-hour TSP

AIR MONITORING PARAMETERS, FREQUENCY AND DURATION

- 4.2.2. 24-hour TSP shall be sampled at least once in every 6 days, while sampling for 1-hour TSP shall be at least 3 times in every 6 days when the highest dust impact takes place.
- 4.2.3. One-hour and 24-hour TSP levels should be measured to indicate the impacts of construction dust on air quality.

SAMPLING PROCEDURE AND MONITORING EQUIPMENT

- 4.2.4. 24-hour TSP Measuring Installation (HVS)
- (a) 0.6 – 1.7 m<sup>3</sup> per minute adjustable flow range
  - (b) Equipped with a timing / control device with +/- 5 minutes accuracy for 24 hours operation;
  - (c) Installed with elapsed-time meter with +/- 2 minutes accuracy for 24 hours operation;
  - (d) Capable of providing a minimum exposed area of 406 cm<sup>2</sup>;
  - (e) Flow control accuracy: +/- 2.5% deviation over 24-hour sampling period;
  - (f) Equipped with a shelter to protect the filter and sampler;
  - (g) Incorporated with an electronic mass flow rate controller or other equivalent devices;
  - (h) Equipped with a flow recorder for continuous monitoring;
  - (i) Provided with a peaked roof inlet;
  - (j) Incorporated with a manometer;
  - (k) Able to hold and seal the filter paper to the sampler housing at horizontal position;
  - (l) Easily changeable filter; and

(m) Capable of operating continuously for a 24-hour period

Initial calibration of dust monitoring equipment shall be conducted upon installation and thereafter at bi-monthly intervals. The transfer standard shall be traceable to the internationally recognized primary standard and be calibrated annually. All the data should be converted into standard temperature and pressure condition.

#### 24-hour Measuring Procedures

- (a) Check the power supply to ensure the sampler works properly.
- (b) Remove the filter hold down by loosening the four nuts and carefully centre a new filter, with stamped number upward, on a supporting screen.
- (c) Properly align the filter on the screen so that the gasket will form an airtight seal on the outer edges of the filter.
- (d) Fasten the filter hold down frame to the filter holder with swing bolts. The pressure applied should be sufficient to avoid air leakage at the edges.
- (e) Close shelter lid and secure catch with the aluminum strip.
- (f) Record the flow indicator reading and determine the sampler flow rate. If it is outside the acceptable range, adjust the sampler flow rate.
- (g) Set the programmable timer and record the starting sampling time, weather condition and the filter identification number.
- (h) At the end of sampling, the filter was transferred from the filter holder of the HVS to a filter bag and sent to the accredited laboratory for weighing. The elapsed time was also recorded

#### 4.2.5. 1-hour Measuring Procedures

Portable dust meter will be proposed and sufficient information will be submitted to IC (E) to prove that the instrument is capable of achieving a comparable result as that of the HVS and used for 1-hour sampling

- (a) Slide the power switch to turn the power on
- (b) Select the period of measurement to 60mins
- (c) Check and set the correct time
- (d) Select the appropriate unit display for the equipment
- (e) Collected the sampled data for analysis

The portable dust meter is calibrated at 2-years interval and checked with HVS yearly to determine the accuracy and validity of the results measured. The checking of portable dust meter will be carried out in order to determine the conversion factor between the portable dust meter and the standard equipment, HVS.

The calibration check is to be considered valid if the calculated correlation coefficient is >0.90.

#### 4.2.6. Maintenance and Calibration

- (a) The direct reading dust meter was calibrated at 2-years interval and checked with High Volume Sampler (HVS) yearly to determine the accuracy and validity of the results measured.
- (b) Checking of direct reading dust meter will be carried out in order to determine the conversion factor between the direct reading dust meter and the standard equipment, HVS. The comparison check is to be considered valid based on correlation coefficient checked by HOKLAS laboratory

#### 4.2.7. Laboratory measurement / analysis

- (a) A clean laboratory with constant temperature and humidity control, and equipped with necessary measuring and conditioning instruments to handle the dust samples collected, shall be available for sample analysis, and equipment calibration and maintenance. The laboratory should be HOKLAS accredited.
- (b) Filter paper of size 8" x 10" shall be labelled before sampling. It shall be a clean filter paper with no pinholes, and shall be conditioned in a humidity-controlled chamber for over 24 hours and be pre-weighed before use for the sampling.
- (c) After sampling, the filter paper loaded with dust shall be kept in a clean and tightly sealed plastic bag. The filter paper shall then be returned to the laboratory for reconditioning in the humidity-controlled chamber followed by accurate weighing by an electronic balance with readout down to 0.1 mg. The balance shall be regularly calibrated against a traceable standard.

4.2.8. High Volume Sampler (HVS – Model TE-5025A) completed with the appropriate sampling inlets were installed for the 24-hour TSP sampling. 1-hour TSP air quality monitoring was performed by using portable direct reading dust meters at each designated monitoring station. The brand and model of the equipment are given in **Table 4.6**.

**Table 4.6 Air Quality Monitoring Equipment**

Equipment	Brand and model	Series Number
Portable direct reading dust meter	Met One BT- 645 / Met One 831	R22586 X19297 Y23154 R14332 W15449
High Volume Sampler	Tisch Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler TE-5025A	HVS001 HVS003
Wind Anemometer	YiGu	YGY-FSXY1

4.2.9. The calibration certificates of the air quality monitoring equipment are attached in [Appendix 4.2](#).

WIND DATA

4.2.10. Hong Wind data monitoring equipment was set up at roof floor (about 4/F) of the SWHSTW control room 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 sections of 22.5 degrees each. The wind data obtained from the on-site wind station during the reporting period is provided in [Appendix 4.3](#).

EVENT AND ACTION PLAN

4.2.11. The Action and Limit Levels for construction air quality are defined in **Table 4.7** and [Appendix 4.1](#). Should non-compliance of the air quality criteria occur, action in accordance with the Event and Action Plan in Appendix 6.1 shall be carried out.

**Table 4.7 Action and Limit Level for Air Quality Monitoring**

Parameter	Monitoring Station	Action Level ( $\mu\text{gm}^{-3}$ )	Limit Level ( $\mu\text{gm}^{-3}$ )
24-hour TSP Level	Site boundary of the Shek Wu Hui STW (East)	189	260.0
	Site boundary of the Shek Wu Hui STW (North)	187	
1-hour TSP Level	House No. 15, Wai Loi Tsuen	320	500.0
	Fu Tei Au	322	

**4.3. Ecological Monitoring**

- 4.3.8. According to the Updated EM&A Manual, weekly transect at both high and low tides shall be undertaken 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. [Appendix 4.1](#) shows the established Action/Limit Levels for ecological monitoring works.
- 4.3.9. The monitoring should be conducted by the ET and supervised by a qualified ecologist who will be a member of the ET.

MONITORING LOCATIONS

- 4.3.10. 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 4.3](#) and summarized in [Table 4.8](#) The photo of each transect is provided in [Appendix 5.6](#).

**Table 4.8 Ecological Monitoring Stations**

Monitoring Stations	Descriptions	Influenced by Tidal Action
Transect T1	Along Ng Tung River	No
Point Count Location P1		
Point Count Location P2		
Transect T2		Yes
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

4.3.11. 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 5.1](#).

MONITORING METHODOLOGY

4.3.12. 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.

4.3.13. 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.

4.3.14. 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).

4.3.15. 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

4.3.16. The number and species of waterbirds utilizing the rivers fluctuate every day naturally. Therefore, the survey data were collectively analyzed 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 4.9**.

**Table 4.9 Representative Waterbirds**

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

4.3.17. 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.

4.3.18. 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

## 5 Monitoring Results

- 5.0.1 The environmental monitoring will be implemented based on the division of works areas of each designed projects. Overall layout showing work areas and monitoring stations is shown in [Figure 2.1](#) and [Figure 4.1 – 4.3](#) respectively.
- 5.0.2 The environment monitoring schedules for reporting month and coming month are presented in [Appendix 5.1](#).

### 5.1 Noise Monitoring Results

- 5.1.1 Noise monitoring results measured in this reporting period are reviewed and summarized. Details of noise monitoring results and graphical presentation can be referred in [Appendix 5.2](#).
- 5.1.2 Noise monitoring scheduled on 8 Oct was cancelled due to adverse weather conditions.
- 5.1.3 No action or limit level exceedance was recorded in this reporting month.

### 5.2 Air Monitoring Results

- 5.2.1 Air quality monitoring results measured in this reporting period are reviewed and summarized. Details of air monitoring results and graphical presentation can be referred in [Appendix 5.3](#).
- 5.2.2 No action or limit level exceedance was recorded in this reporting month.

### 5.3 Ecology Monitoring Results

- 5.3.1 During the special weather conditions (such as typhoon signal No. 8), the survey on 8 October 2021 was re-scheduled to 11 October 2021.
- 5.3.2 Details of ecological Monitoring results in the reporting month are provided in [Appendix 5.4](#).
- 5.3.3 No Action Level and Limit Level was triggered for ecological monitoring in the reporting month.
- 5.3.4 No Breeding behaviour observed during ecological monitoring in reporting month.

### 5.4 Waste Management

- 4.4.1 The quantities of waste for disposal in the Reporting Period are summarized in **Table 5.1 to 5.4**. The Monthly Summary Waste Flow Table is shown in [Appendix 5.7](#). Whenever possible, materials were reused on-site as far as practicable.

**Table 5.1 Summary of Quantities of Inert C&D Materials and C&D Wastes for Contract No. DC/2018/06**

Waste Type	Quantity (Previous month)	Quantity (Reporting month)	Annual Cumulative Quantity (2021)
Hard Rock and Large Broken Concrete (Inert) (in '000m <sup>3</sup> )	0	0	0
Reused in this Contract (Inert) (in '000m <sup>3</sup> )	0	0	0.263
Reused in other Projects (Inert) (in '000m <sup>3</sup> )	0	0	13.317
Disposal as Public Fill (Inert) (in '000m <sup>3</sup> )	0.184	0.23	7.512
Metals (in '000kg)	0	0.001	10.334
Paper / Cardboard Packing (in '000kg)	0	0.003	0.022
Plastics (in '000kg)	0	0.008	0.049
Chemical Wastes (in '000kg)	0	0	0
General Refuses (in '000m <sup>3</sup> )	0.037	0.055	0.502

**Table 5.2 Summary of Quantities of Inert C&D Materials and C&D Wastes for Contract No. DC/2018/07**

Waste Type	Quantity (Previous month)	Quantity (Reporting month)	Annual Cumulative Quantity (2021)
Hard Rock and Large Broken Concrete (Inert) (in '000m <sup>3</sup> )	0	0	0
Reused in this Contract (Inert) (in '000m <sup>3</sup> )	0	0	0
Reused in other Projects (Inert) (in '000m <sup>3</sup> )	0	0.064	0.391
Disposal as Public Fill (Inert) (in '000m <sup>3</sup> )	4.093	1.349	18.284

Waste Type	Quantity (Previous month)	Quantity (Reporting month)	Annual Cumulative Quantity (2021)
Metals (in '000kg)	38.4	0	126.13
Paper / Cardboard Packing (in '000kg)	0	0.006	0.029
Plastics (in '000kg)	0	0.008	0.052
Chemical Wastes (in '000kg)	0	0	0
General Refuses (in '000m <sup>3</sup> )	0.009	0.014	0.107

*Table 5.3 Summary of Quantities of Inert C&D Materials and C&D Wastes for Contract No. DE/2018/03*

Waste Type	Quantity (Previous month)	Quantity (Reporting month)	Annual Cumulative Quantity (2021)
Hard Rock and Large Broken Concrete (Inert) (in '000kg)	0	0	0
Reused in this Contract (Inert) (in '000kg)	0	0	0
Reused in other Projects (Inert) (in '000kg)	0	0	0
Disposal as Public Fill (Inert) (in '000kg)	19.29	0	1037.19
Metals (in '000kg)	0	0	0
Paper / Cardboard Packing (in '000kg)	0	0	0.241
Plastics (in '000kg)	0	0	0.007
Chemical Wastes (in '000kg)	0	0	0
General Refuses (in '000kg)	0	0	6.13

**Table 5.4 Summary of Quantities of Inert C&D Materials and C&D Wastes for Contract No. DE/2018/04**

Waste Type	Quantity (Previous month)	Quantity (Reporting month)	Annual Cumulative Quantity (2021)
Hard Rock and Large Broken Concrete (Inert) (in '000kg)	0	0	0
Reused in this Contract (Inert) (in '000kg)	0	0	100
Reused in other Projects (Inert) (in '000m <sup>3</sup> )	0	0	0
Disposal as Public Fill (Inert) (in '000m <sup>3</sup> )	4.24	0	322.36
Metals (in '000kg)	0	0	0
Paper / Cardboard Packing (in '000kg)	0	0	0
Plastics (in '000kg)	0	0	0
Chemical Wastes (in '000kg)	0	0	0
General Refuses (in '000m <sup>3</sup> )	0	0	18.56

## 6 Compliance Audit

6.1.1 The Event Action Plan for construction noise, air quality and ecological monitoring are presented in [Appendix 6.1](#).

6.1.2 The summary of exceedance is presented in [Appendix 6.2](#).

### 6.2 Noise Monitoring

6.2.1 Noise monitoring scheduled on 8 Oct was cancelled due to adverse weather conditions.

6.2.2 No action or limit level exceedance was recorded in this reporting period.

### 6.3 Air Quality Monitoring

6.3.1 No action or limit level exceedance was recorded in this reporting period.

### 6.4 Ecological Monitoring

6.4.1 No Action Level and Limit Level was triggered for ecological monitoring in the reporting month.

### 6.5 Review of the Reasons for and the Implications of Non-compliance

6.5.1 No environmental non-compliance was recorded in the reporting month.

### 6.6 Summary of action taken in the event of and follow-up on non-compliance

6.6.1 There was no particular action taken since no non-compliance was recorded in the reporting period.

**7 Environmental Site Audit**

- 7.0.1. Within this reporting month, weekly environmental site audits were conducted on [4, 11, 12, 19 and 26 October 2021](#). Biweekly landscape site audits were conducted on [4 and 19 October 2021](#). IEC attended the joint site inspection on [26 October 2021](#).
- 7.0.2. No non-compliance was found during the environmental site inspection while reminders on environmental measures were recommended. Results and findings of these inspections in this reporting month are listed below in **Table 7.1 to 7.4**.

**Table 7.1 Summary of Environmental Inspections of Contract No. DC/2018/06**

Item	Date	Reminder(s)/ Observation(s)	Action taken by Contractor	Outcome
20211026_1	26 Oct 2021	The Contractor (DC/2018/06) was reminded to store the chemical containers properly	As observed on 2 Nov, the containers were stored in a suitable location	Completion as observed

**Table 7.2 Summary of Environmental Inspections of Contract No. DC/2018/07**

Item	Date	Reminder(s)/ Observation(s)	Action taken by Contractor	Outcome
20211004_2	4 Oct 2021	The Contractor (DC/2018/07) is reminded to fix the damaged pipe that was connecting to the treatment tank	As observed on 11 Oct 2021, the pipe was fixed.	Completion as observed
20210928_2	19 Oct 2021	The Contractor (DC/2018/07) is reminded to replace the faded colour NRMM label of a generator	As observed on 26 Oct, faded NRMM label was replaced.	Completion as observed

**Table 7.3 Summary of Environmental Inspections of Contract No. DE/2018/03**

Item	Date	Reminder(s)/ Observation(s)	Action taken by Contractor	Outcome
-	-	-	-	-

**Table 7.4 Summary of Environmental Inspections of Contract No. DE/2018/04**

Item	Date	Reminder(s)/ Observation(s)	Action taken by Contractor	Outcome
-	-	-	-	-

**8. Complaints, Notification of Summons and Prosecution**

- 8.0.1. No environmental complaint, notification of summons and successful prosecution regarding construction works was recorded in the reporting period.
- 8.0.2. The details environmental complaints for the Project are summarized by complaint log in [Appendix 8.1](#).
- 8.0.3. Cumulative statistics on complaints and successful prosecutions are summarized in **Table 8.1** and **Table 8.2** respectively.

**Table 8.1 Cumulative Statistics on Complaints in the Reporting Month**

Reporting Period	No. of Complaints
Commencement works (Feb 2018) to last reporting month	3
October 2021	0
<b>Total</b>	<b>3</b>

**Table 8.2 Cumulative Statistics on Successful Prosecutions**

Environmental Parameters	Cumulative no. Brought Forward	No. of Successful Prosecutions this month (Offence Date)	Cumulative No. Project-to-Date
Air	-	0	0
Noise	-	0	0
Water	-	0	0
Waste	-	0	0
<b>Total</b>	<b>-</b>	<b>0</b>	<b>0</b>



**9. Conclusion**

- 9.0.1. The EM&A programme was carried out in accordance with the EM&A Manual requirements, minor alterations to the programme proposed were made in response to changing circumstances.
- 9.0.2. Mitigation measures according to the environmental mitigation implementation schedule and the EIA were generally implemented by the Contractor. Hence, the EM&A programme was considered effective and shall be maintained.
- 9.0.3. The scheduled construction activities and the recommended mitigation measures for the coming 3 months are listed in **Table 9.1**. The construction programmes of individual activities are provided in [Appendix 9.1](#).

**Table 9.1 Construction Activities and Recommended Mitigation Measures in Coming Reporting 3 Months**

Contract No.	Key Construction Works	Recommended Mitigation Measures
DC/2018/06	<ul style="list-style-type: none"> <li>• RC works</li> <li>• Excavation works</li> <li>• Sewerage and drainage works</li> <li>• Pipe laying</li> <li>• Backfilling</li> <li>• Removal of Layer Struct and Waling</li> </ul>	<ul style="list-style-type: none"> <li>• Implement proper dust mitigation measures on dusty surface and stockpiles</li> <li>• Implement proper measures to prevent excavated material, silt or debris being deposited or washed into existing drainage systems and waterbodies</li> <li>• Implement proper noise mitigation measures to prevent potential noise nuisances to nearby sensitive receivers</li> <li>• Provision of protection to ensure no runoff out of site area or direct discharge into public drainage system</li> <li>• Good site practices should be adopted to check for any accumulation of waste materials on site and dispose waste materials at designated areas.</li> <li>• Segregate and store different types of waste to enhance reuse or recycling of materials and their proper disposal</li> </ul>
DC/2018/07	<ul style="list-style-type: none"> <li>• ELS works</li> <li>• R.C. Structure works</li> <li>• Pre-bored H piles</li> </ul>	<ul style="list-style-type: none"> <li>• Implement proper dust mitigation measures on dusty surface and stockpiles</li> <li>• Implement proper measures to prevent</li> </ul>

Contract No.	Key Construction Works	Recommended Mitigation Measures
	<ul style="list-style-type: none"> <li>• Sheetpile Installation</li> <li>• Demolition works</li> <li>• Excavation</li> <li>• E&amp;M installation and T&amp;C works</li> <li>• ABWF works &amp; BS works</li> </ul>	<p>excavated material, silt or debris being deposited or washed into existing drainage systems and waterbodies</p> <ul style="list-style-type: none"> <li>• Implement proper noise mitigation measures to prevent potential noise nuisances to nearby sensitive receivers</li> <li>• Provision of protection to ensure no runoff out of site area or direct discharge into public drainage system</li> <li>• Good site practices should be adopted to check for any accumulation of waste materials on site and dispose waste materials at designated areas.</li> <li>• Segregate and store different types of waste to enhance reuse or recycling of materials and their proper disposal</li> </ul>
DE/2018/03	<ul style="list-style-type: none"> <li>• Excavation of Trial Pit (Sidestream Treatment Facilities)</li> <li>• Installation of EOT at UVP</li> <li>• Penstock and Stoplog Installation</li> <li>• Effluent Pump Installation</li> <li>• AFA and MFA System Installation</li> </ul>	<ul style="list-style-type: none"> <li>• Implement proper dust mitigation measures on dusty surface and stockpiles</li> <li>• Implement proper noise mitigation measures to prevent potential noise nuisances to nearby sensitive receivers</li> <li>• Good site practices should be adopted to check for any accumulation of waste materials on site and dispose waste materials at designated areas.</li> <li>• Segregate and store different types of waste to enhance reuse or recycling of materials and their proper disposal</li> </ul>
DE/2018/04	<ul style="list-style-type: none"> <li>• Testing and Commission of Temporary Filtrate Equalisation Tank.</li> <li>• Testing and Commission of Temporary Primary Sludge Thickener and its accessories.</li> </ul>	<ul style="list-style-type: none"> <li>• Good site practices should be adopted to check for any accumulation of waste materials on site and dispose waste materials at designated areas.</li> <li>• Segregate and store different types of waste to enhance reuse or recycling of materials and their proper disposal.</li> </ul>

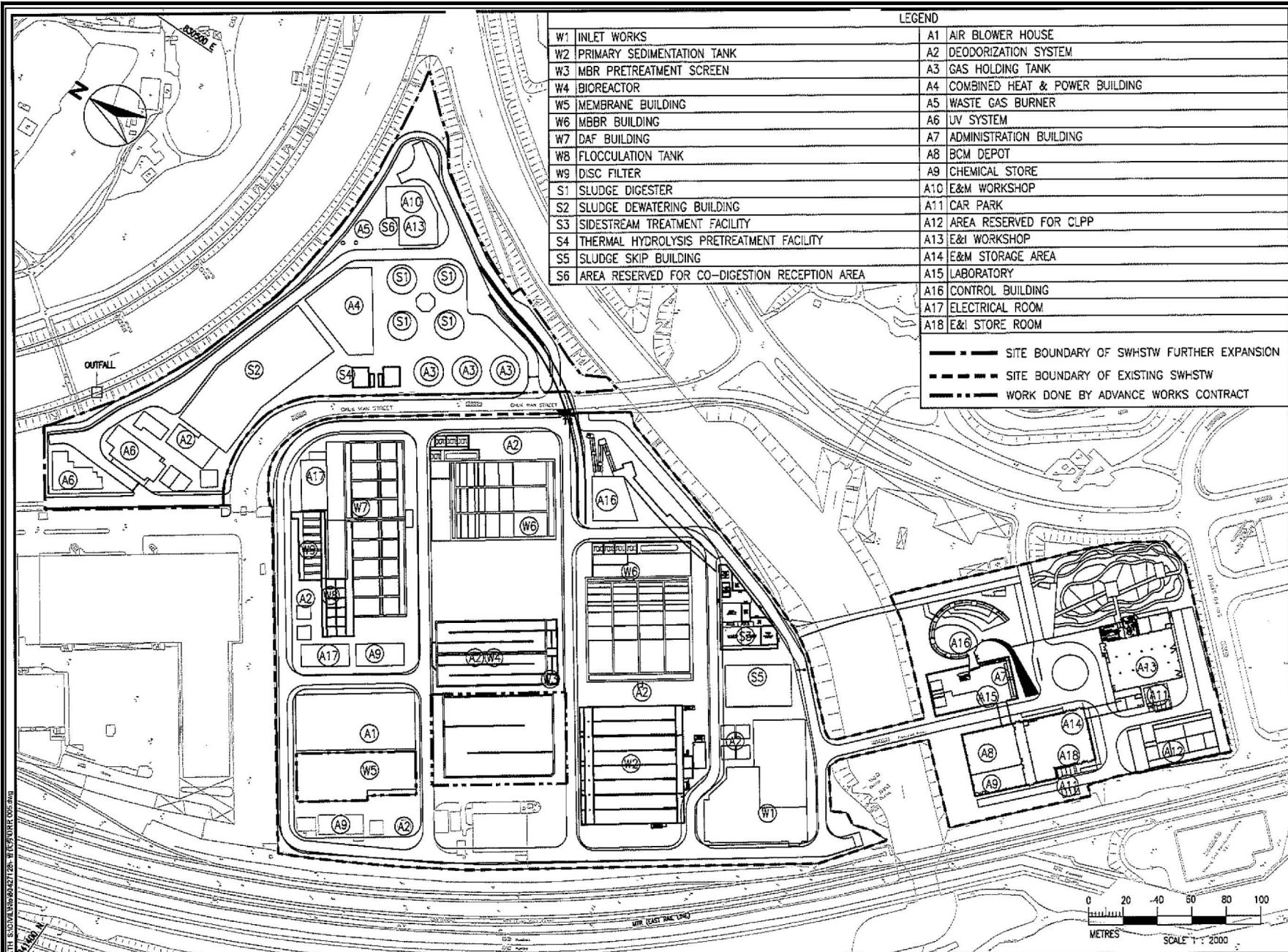


Contract No.	Key Construction Works	Recommended Mitigation Measures
	<ul style="list-style-type: none"><li data-bbox="507 309 884 472">• Testing and Commission of Existing Primary Sedimentation Tank No. 4 &amp; 6.</li></ul>	



## ***Figure 2.1***

# ***Project Layout***



LEGEND			
W1	INLET WORKS	A1	AIR BLOWER HOUSE
W2	PRIMARY SEDIMENTATION TANK	A2	DEODORIZATION SYSTEM
W3	MBR PRETREATMENT SCREEN	A3	GAS HOLDING TANK
W4	BIOREACTOR	A4	COMBINED HEAT & POWER BUILDING
W5	MEMBRANE BUILDING	A5	WASTE GAS BURNER
W6	MBBR BUILDING	A6	UV SYSTEM
W7	DAF BUILDING	A7	ADMINISTRATION BUILDING
W8	FLOCCULATION TANK	A8	BCM DEPOT
W9	DISC FILTER	A9	CHEMICAL STORE
S1	SLUDGE DIGESTER	A10	E&M WORKSHOP
S2	SLUDGE DEWATERING BUILDING	A11	CAR PARK
S3	SIDESTREAM TREATMENT FACILITY	A12	AREA RESERVED FOR CLPP
S4	THERMAL HYDROLYSIS PRETREATMENT FACILITY	A13	E&I WORKSHOP
S5	SLUDGE SKIP BUILDING	A14	E&M STORAGE AREA
S6	AREA RESERVED FOR CO-DIGESTION RECEPTION AREA	A15	LABORATORY
		A16	CONTROL BUILDING
		A17	ELECTRICAL ROOM
		A18	E&I STORE ROOM
		- - - - - SITE BOUNDARY OF SWHSTW FURTHER EXPANSION - - - - - SITE BOUNDARY OF EXISTING SWHSTW - - - - - WORK DONE BY ADVANCE WORKS CONTRACT	

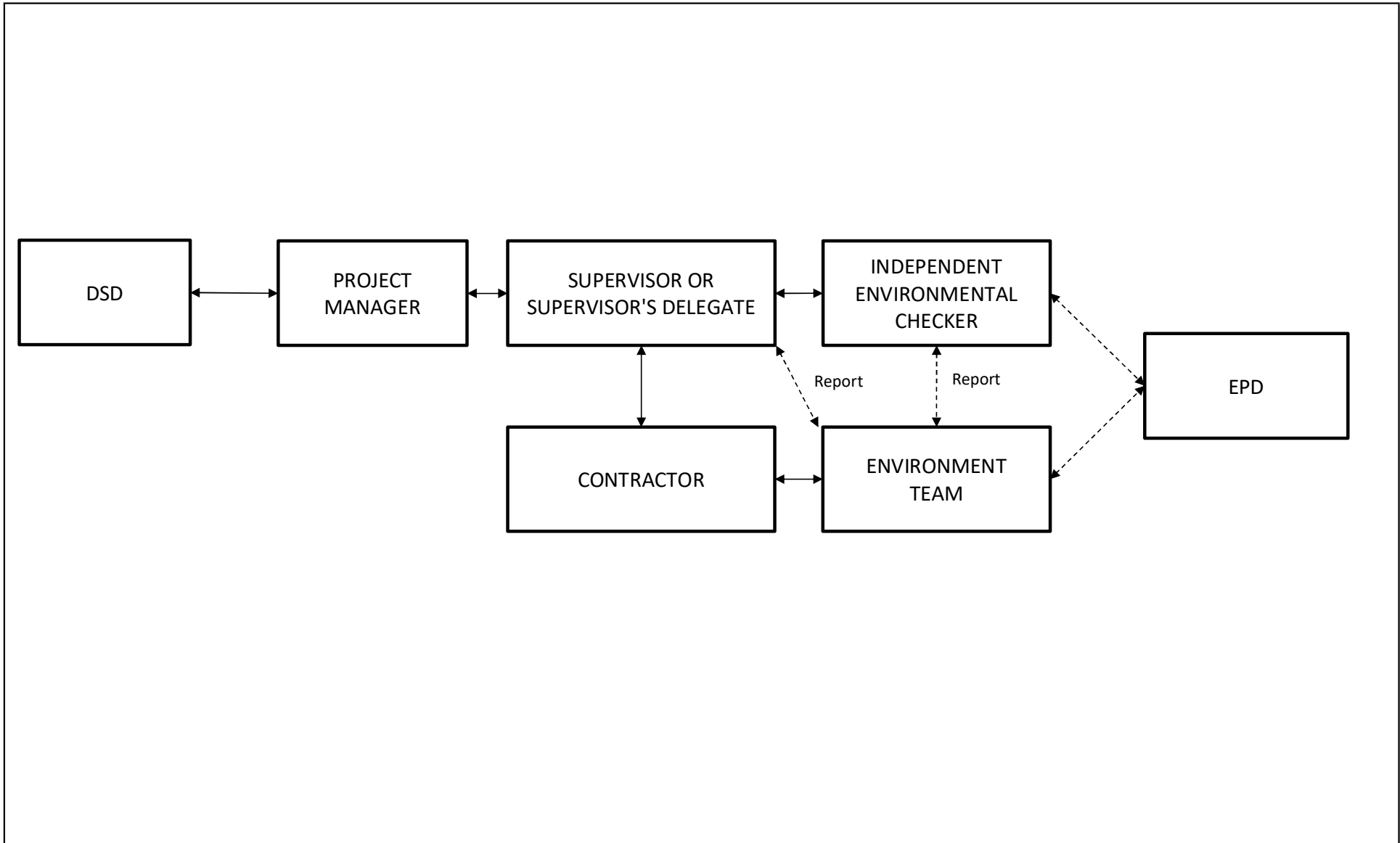
Shek Wu Hui Effluent Polishing Plant  
General Site Layout Of SWHEPP

SCALE	As Shown	DATE	SEP 2019
CHECK	JM	DRAWN	SY
JOB No.		FIGURE NO.	1.1
		REV	-



## ***Figure 2.2***

# ***Project Organization Chart***

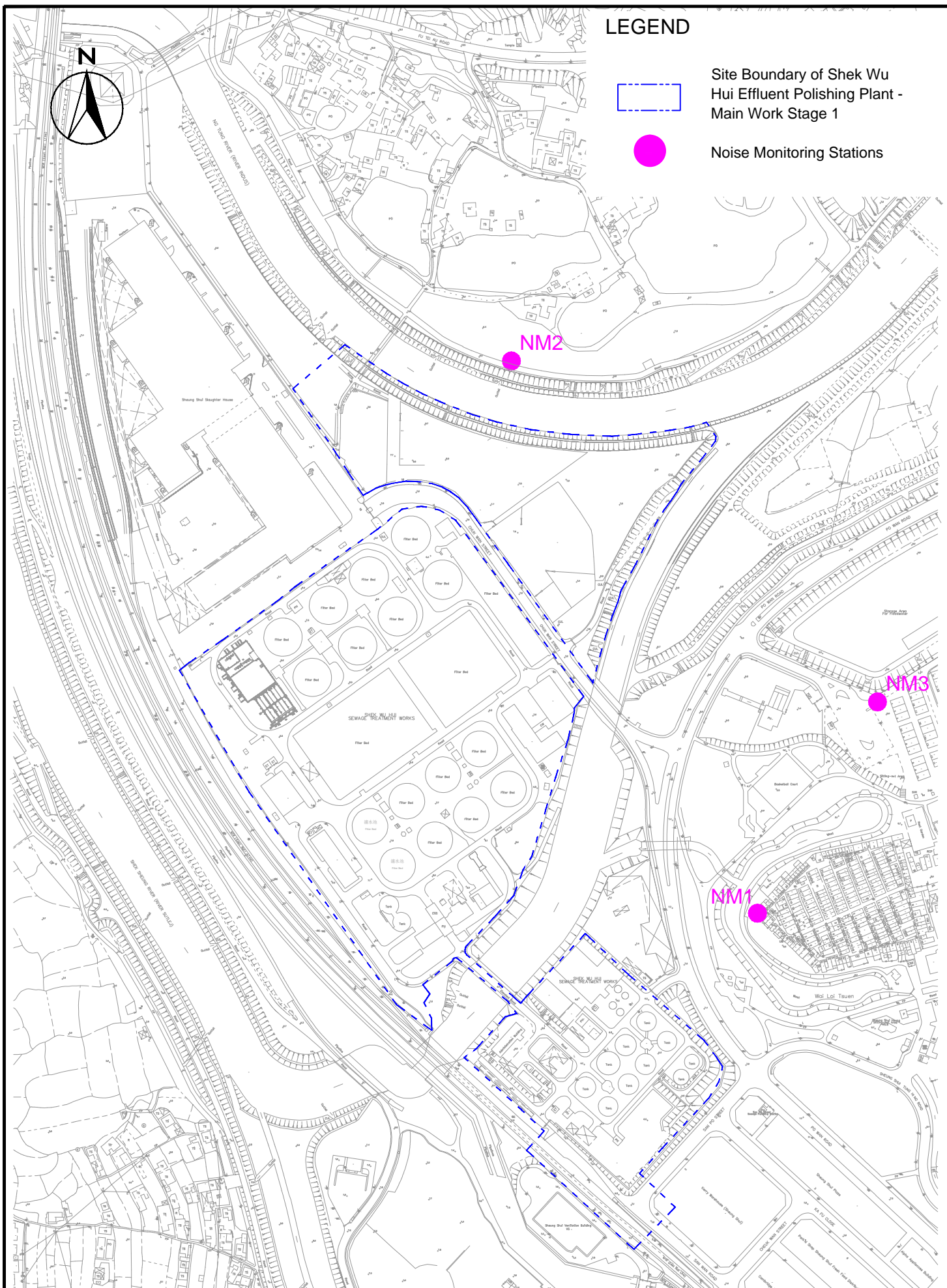


Shek Wu Hui Effluent Polishing Plant - <b>Project Organisation For Environmental Monitoring and Audit</b>	<b>SCALE</b>	N.T.S.	<b>DATE</b>	Sep 2019
	<b>CHECK</b>	JW	<b>DRAWN</b>	SY
	<b>JOB NO.</b>		<b>FIGURE NO.</b>	1.2

## ***Figure 4.1***

# ***Locations of Noise Monitoring Stations***





**LEGEND**



Site Boundary of Shek Wu Hui Effluent Polishing Plant - Main Work Stage 1



Noise Monitoring Stations

NM2

NM3

NM1

Shek Wu Hui Effluent Polishing Plant

Location of Noise Monitoring Stations

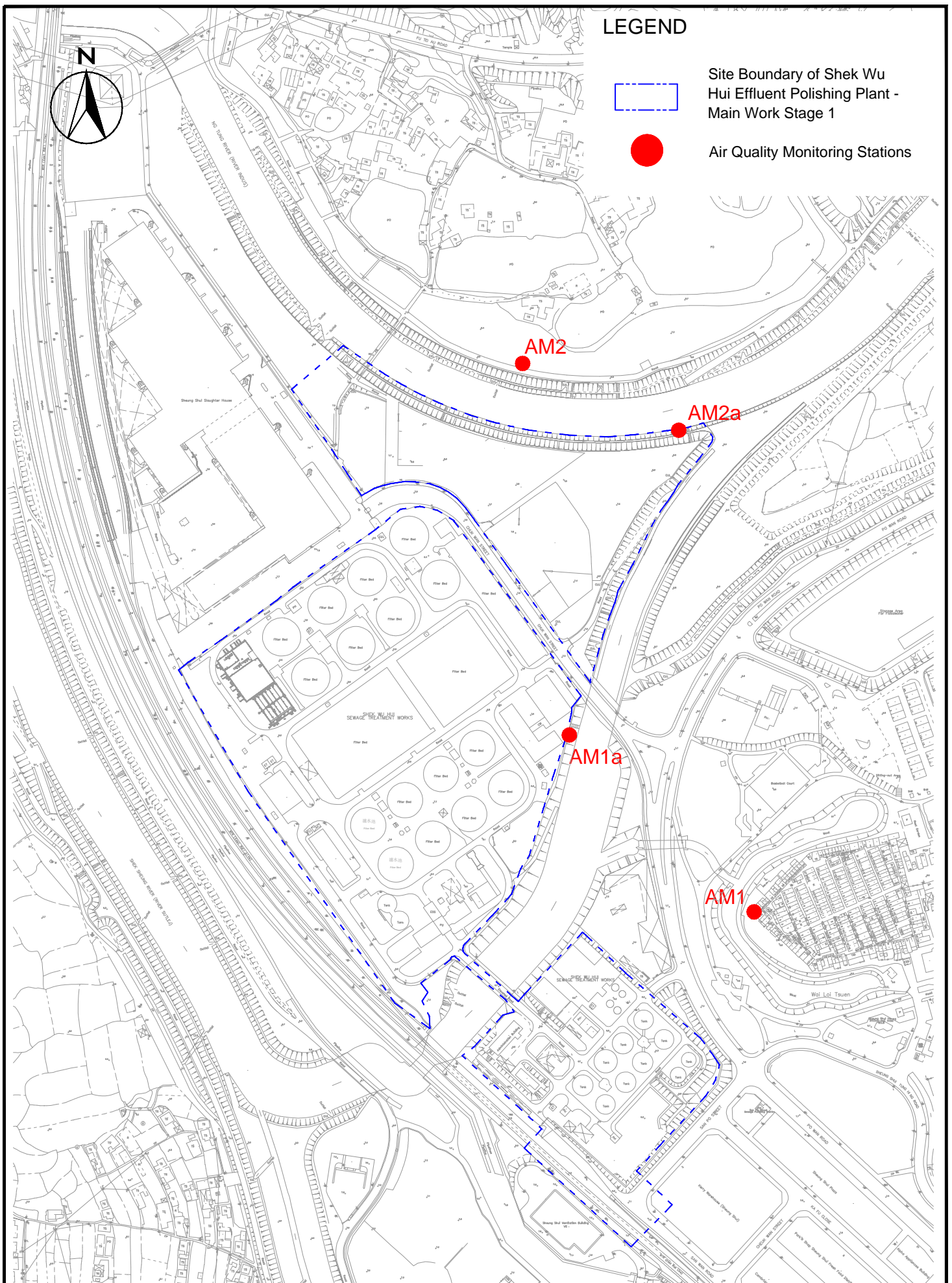
SCALE	1:4000@A4	DATE	SEP 2019	
CHECK	JM	DRAWN	SY	
JOB No.	MA19019	FIGURE NO.	3	REV
				-



## ***Figure 4.2***

# ***Locations of Air Quality Monitoring Stations***

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Shek Wu Hui Effluent Polishing Plant -  
Location of Air Quality Monitoring Stations

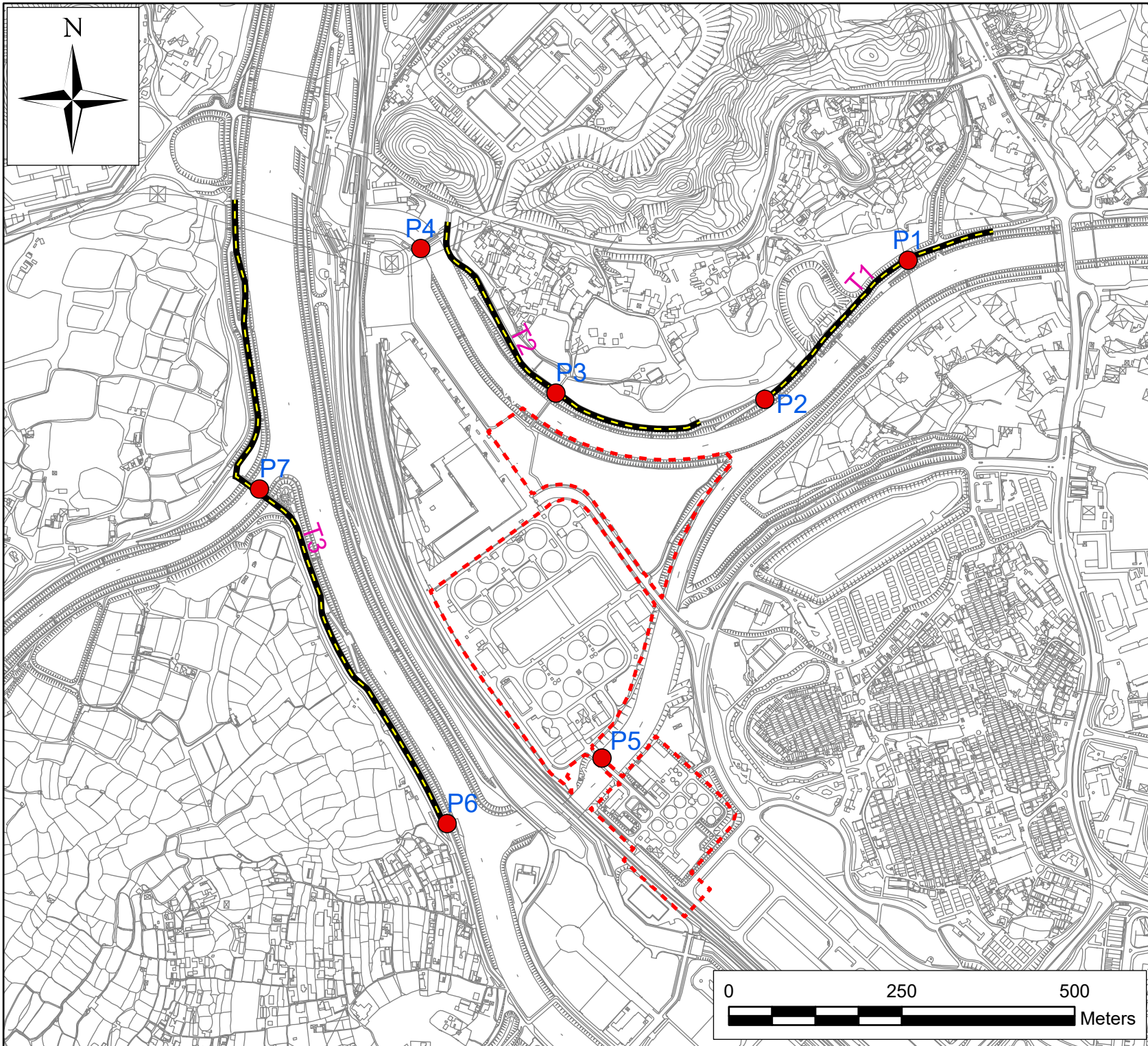
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CHECK	JM	DRAWN	SY	
JOB No.		FIGURE NO.	2	REV
				-

## ***Figure 4.3***

# ***Locations of Ecological Monitoring Stations***

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- Legend**
- - - Project Site Boundary
  - - - Walk Transects
  - Point Count Locations

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**CONTRACT NO.**  
**SPW 12/2021**

**PROJECT TITLE**  
**Shek Wu Hui Effluent Polishing  
 Plant - Main Works  
 Survey Location for Ecological  
 Monitoring**

SCALE <b>1:7500@A4</b>	DATE <b>Sept 2021</b>
DRAWN BY <b>AL</b>	CHECK BY <b>MC</b>
FIGURE NO. <b>1</b>	REVISION NO. <b>-</b>



## ***Appendix 3.1***

# ***Environmental Mitigation Implementation Schedule***

### Appendix 3.1 Environmental Mitigation Implementation Schedule

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	Remark
<b>Air Quality Monitoring</b>							
S2.4.1.3	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices:						
	<ul style="list-style-type: none"> <li>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;</li> </ul>	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)	^
	<ul style="list-style-type: none"> <li>Any dusty material remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> </ul>						^
	<ul style="list-style-type: none"> <li>A stockpile of dusty material should not be extended beyond the pedestrian barriers, fencing or traffic cones;</li> </ul>						^
	<ul style="list-style-type: none"> <li>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;</li> </ul>						^
	<ul style="list-style-type: none"> <li>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;</li> </ul>						

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	Remark
	<ul style="list-style-type: none"> <li>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.</li> </ul>						^
	<ul style="list-style-type: none"> <li>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;</li> </ul>						^
	<ul style="list-style-type: none"> <li>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;</li> </ul>						^
	<ul style="list-style-type: none"> <li>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;</li> </ul>						^
	<ul style="list-style-type: none"> <li>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;</li> </ul>						^
	<ul style="list-style-type: none"> <li>Any skip hoist for material transport should be totally enclosed by impervious sheeting;</li> </ul>						^
	<ul style="list-style-type: none"> <li>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;</li> </ul>						^
	<ul style="list-style-type: none"> <li>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;</li> </ul>						^



	<ul style="list-style-type: none"> <li>• 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</li> </ul>						^
	<ul style="list-style-type: none"> <li>• 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</li> </ul>						^

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	Remark
<b>Noise Impact</b>							
S3.4.1.1	Use of movable barrier, enclosure, acoustic mat and quiet plant. Use of wooden frames barrier with a small-cantilevered upper portion of superficial density not less than 14kg/m <sup>2</sup> 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)	^
S3.4.1.2	<p>Good Site Practice:</p> <ul style="list-style-type: none"> <li>• Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.</li> <li>• Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program.</li> <li>• Mobile plant, if any, should be sited as far away from NSRs as possible.</li> <li>• 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.</li> <li>• 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.</li> <li>• Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.</li> </ul>	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	^ * ^ ^ ^ ^

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	Remark
<b>Ecological Impact</b>							
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 and operation 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	The following measures to avoid, minimise and mitigate impact on water quality during construction phase shall be implemented						
	<ul style="list-style-type: none"> <li>Temporary sewerage and drainage to be designed and installed to collect wastewater and prevent it from entering water bodies;</li> </ul>	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	^
	<ul style="list-style-type: none"> <li>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;</li> </ul>						^
	<ul style="list-style-type: none"> <li>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;</li> </ul>						^

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	Remark
	<ul style="list-style-type: none"> <li>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;</li> </ul>						^
	<ul style="list-style-type: none"> <li>Proper locations for discharge outlets of temporary wastewater treatment facilities well away from sensitive receivers should be identified;</li> </ul>						^
	<ul style="list-style-type: none"> <li>Adequate lateral support should be erected where necessary in order to prevent soil/mud from slipping into water bodies;</li> </ul>						^
	<ul style="list-style-type: none"> <li>Site boundaries should be clearly marked and any works beyond the boundary strictly prohibited;</li> </ul>						^
	<ul style="list-style-type: none"> <li>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;</li> </ul>						^
	<ul style="list-style-type: none"> <li>Excavation profiles should be properly designed and executed with attention to the relevant requirements for environment, health and safety;</li> </ul>						^
	<ul style="list-style-type: none"> <li>Where soil to be excavated is situated beneath the groundwater table, it may be necessary to lower the groundwater table by installing well points or similar means; Stockpiling sites should be lined with impermeable sheeting and 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</li> </ul>						^
	<ul style="list-style-type: none"> <li>contaminated soil to minimize contaminated runoff and construction materials should be properly covered and located away from nearby water bodies; and</li> </ul>						^
	<ul style="list-style-type: none"> <li>Supply of suitable clean backfill material after excavation, if required.</li> </ul>						^

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	Remark
	<ul style="list-style-type: none"> <li>• 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;</li> </ul>						^
	<ul style="list-style-type: none"> <li>• Speed control for the trucks carrying contaminated materials should be enforced;</li> </ul>						^
	<ul style="list-style-type: none"> <li>• Vehicle wheel washing facilities at construction sites' exit points should be established and used, where necessary; and</li> </ul>						^
	<ul style="list-style-type: none"> <li>• Other measures as detailed in this schedule.</li> </ul>						^

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	Remark
<b>Water Quality Impact</b>							
S5.2.2.1	<b>Construction Site Runoff</b> 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	<b>Sewage from Workforce</b> <ul style="list-style-type: none"> <li>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;</li> <li>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</li> </ul>	Handling of site sewage	Contractors	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM, WPCO, EIAO	^  ^

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	Remark
<b>Waste Management</b>							
S6.2.2.1	<p><b>Good Site Practices and Waste Reduction Measures</b></p> <ul style="list-style-type: none"> <li>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;</li> <li>Training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling;</li> <li>Provision of sufficient waste disposal points and regular collection for disposal;</li> <li>Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;</li> <li>Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;</li> <li>An Environmental Management Plan (EMP) should be prepared by the contractor and submitted to the Supervisor for approval.</li> </ul>	Minimize waste generation during construction	Contractors	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	Waste Disposal Ordinance (WDO)	*  ^  ^  ^  ^  ^
S6.2.3.1	<p><b>Waste Reduction Measures</b></p> <ul style="list-style-type: none"> <li>Segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal;</li> <li>Proper storage and site practices to minimize the potential for damage and contamination of construction materials;</li> <li>Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste;</li> <li>Sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc.); and</li> <li>Provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.</li> </ul>	Reduce waste generation	Contractors	Work Sites	Prior to the commencement of construction of Main Works Stage 1, Stage 2 and Stage 3	WDO	^  ^  ^  ^  ^

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	Remark
S6.2.4.1	Storage, Collection and Transportation of Waste Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include:	Minimize waste impacts arising from waste storage	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	WDO	^
	<ul style="list-style-type: none"> <li>Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution;</li> </ul>						^
	<ul style="list-style-type: none"> <li>Stockpiling area should be provided with covers and water spraying system to prevent materials from windblown or being washed away; and</li> </ul>						^
	<ul style="list-style-type: none"> <li>Different locations should be designated to stockpile each material to enhance reuse.</li> </ul>						^
S6.2.4.2	Storage, Collection and Transportation of Waste (con't)	Minimize waste impacts arising from waste storage	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	WDO	^
	<ul style="list-style-type: none"> <li>Remove waste in timely manner;</li> </ul>						^
	<ul style="list-style-type: none"> <li>Employ the trucks with cover or enclosed containers for waste transportation;</li> </ul>						^
	<ul style="list-style-type: none"> <li>Obtain relevant waste disposal permits from the appropriate authorities; and</li> </ul>						^
S6.2.5.2	C&D Materials from Site Formation	Minimize waste impacts arising from waste storage	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	^
	<ul style="list-style-type: none"> <li>Maintain temporary stockpiles and reuse excavated fill material for backfilling;</li> </ul>						^
	<ul style="list-style-type: none"> <li>Carry out on-site sorting;</li> </ul>						^
	<ul style="list-style-type: none"> <li>Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate;</li> </ul>						^
	<ul style="list-style-type: none"> <li>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</li> </ul>						^
S6.2.5.3	C&D Material from Buildings Demolition and New Building Construction						



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	Remark
	<ul style="list-style-type: none"> <li>The Contractor should recycle as much as possible of the C&amp;DM on-site. Public fill and C&amp;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.</li> <li>The use of wooden hoardings shall not be allowed. An alternative material, such as metal, aluminium or alloy etc, could be used.</li> <li>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.</li> <li>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&amp;D material arising from demolition works, selective demolition method should be adopted.</li> </ul>	Minimize waste impacts arising from waste storage	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	^
							^
							^
							^
S6.2.5.4	Chemical Waste						
	<ul style="list-style-type: none"> <li>If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producers.</li> <li>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.</li> </ul>	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	^
							*
S6.2.5.5	General Refuse						

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	Remark
	<ul style="list-style-type: none"> <li>• General refuse should be stored in enclosed bins separately from construction and chemical wastes.</li> <li>• Recycling bins should also be placed to encourage recycling.</li> <li>• 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.</li> <li>• A reputable waste collector should be employed to remove general refuse on a daily basis.</li> </ul>	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	^ ^ ^ ^

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	Remark
<b>Landscape and Visual</b>							
S7.3.1.1	<p>Good Site Practices Measures</p> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	Minimize the impact to the landscape and visual	Contractor	Work Sites	Prior to construction and construction phase		N/A
							N/A
S7.3.2.1	<p>MM4 - Tree Protection &amp; Preservation</p> <ul style="list-style-type: none"> <li>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.</li> </ul>	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	^

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	Remark
S7.3.2.1	<p>MM5 - Tree Transplantation</p> <ul style="list-style-type: none"> <li>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.</li> </ul>	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	<p>MM6 - Slope Landscaping</p> <ul style="list-style-type: none"> <li>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 resources and character. Woodland tree seedlings and/or shrubs should be planted where slope gradient and site conditions allow.</li> <li>In addition, landscape planting should be provided for the retaining structures associated with modified slopes where conditions allow. All slope landscaping</li> </ul>	To avoid substantial slope cutting and fill slopes. To prevent erosion and subsequent loss of landscape resources and character. To ensure manmade 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
S7.3.2.1	MM7 - Compensatory Planting						

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	Remark
	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>Compensatory planting for shrubs should be considered in suitable locations. Native species such as <i>Melastoma malabathricum</i>, <i>Diospyros vaccinioides</i>, <i>Gardenia jasminoides</i>, <i>Ixora chinensis</i>, <i>Ligustrum sinense</i>, <i>Litsea rotundifolia</i>, <i>Melastoma dodecandrum</i>, <i>Atalantia buxifolia</i>, <i>Rhodomyrtus tomentosa</i>, <i>Rhaphiolepis indica</i>, and <i>Rhododendron simsii</i> are suggested.</li> </ul>	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
							N/A
							N/A
S7.3.2.1	<b>MM9 - Vertical Greening</b> <ul style="list-style-type: none"> <li>Planting of climbers to grow up vertical surfaces were appropriate.</li> </ul>	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	<b>MM10 - Green Roof</b> <ul style="list-style-type: none"> <li>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.</li> </ul>	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	Remark
S7.3.2.1	MM11 - Screen Planting <ul style="list-style-type: none"> <li>Tall screen/buffer trees and shrubs should be planted. This measure may additionally form part of the compensatory planting.</li> </ul>	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 <ul style="list-style-type: none"> <li>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. Details can refer to the ecological impact assessment. [Chapter 13 of the EIA Report of NENT NDAs (Register No. AEIAR-175- 2013)]</li> </ul>	To screen undesirable views of the works site.	Designer	Work Sites	Construction phase		N/A
S7.3.2.1	MM17 - Light Control <ul style="list-style-type: none"> <li>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.</li> </ul>	To minimize glare impact to adjacent VSRs.	Designer / Contractor	Work Sites and/or the Plant	Construction phase and operation phase		N/A

Remarks:

- ^ Implemented
- \* To be followed-up by Contractor
- # Not Implemented
- N/A Not Applicable



## ***Appendix 4.1***

### ***Action and Limit Level***

## Action and Limit Levels

### Air Quality Monitoring

Monitoring Station	1-hour TSP Level in $\mu\text{g}/\text{m}^3$		24-hour TSP Level in $\mu\text{g}/\text{m}^3$	
	Action Level	Limit Level	Action Level	Limit Level
AM1	320	500	189	260
AM2	322	500	187	260

### Noise Monitoring

Monitoring Stations	Leq(30min),dB(A)	
	Action Level (dB(A))	Limit Level (dB(A))
NM1	When one documented complaint is received	75*
NM2		
NM3		

\*Notes: (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 should be followed.

(2) The limit level shall be 70 dB(A) and 65 dB(A) for educational institute during normal teaching periods and school examination periods, respectively.

### Ecological Monitoring of 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 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 data.





## ***Appendix 4.2***

### ***Copies of Calibration Certificates***



# Certificate of Calibration

Calibration Certification Information			
Cal. Date: August 3, 2021	Rootsmeter S/N: 438320	Ta: 295	°K
Operator: Jim Tisch		Pa: 750.3	mm Hg
Calibration Model #: TE-5025A	Calibrator S/N: <b>3166</b>		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.3610	3.2	2.00
2	3	4	1	0.9540	6.4	4.00
3	5	6	1	0.8460	7.9	5.00
4	7	8	1	0.8070	8.7	5.50
5	9	10	1	0.6630	12.7	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)	$\sqrt{\Delta H \left( \frac{Ta}{Pa} \right)}$ (y-axis)
0.9930	0.7296	1.4123	0.9957	0.7316	0.8868
0.9888	1.0365	1.9973	0.9915	1.0393	1.2541
0.9868	1.1664	2.2330	0.9895	1.1696	1.4021
0.9857	1.2215	2.3420	0.9884	1.2248	1.4705
0.9804	1.4788	2.8246	0.9831	1.4828	1.7735
<b>QSTD</b>	m=	<b>1.88375</b>	<b>QA</b>	m=	<b>1.17957</b>
	b=	<b>0.03970</b>		b=	<b>0.02493</b>
	r=	<b>0.99998</b>		r=	<b>0.99998</b>

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

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



Lam Environmental Services Limited

**Calibration Data for High Volume Sampler (TSP Sampler)**

Location : AM1a  
 Equipment no. : HVS001

Calibration Date : 31-Aug-21  
 Calibration Due Date : 31-Oct-21

**CALIBRATION OF CONTINUOUS FLOW RECORDER**

Ambient Condition			
Temperature, T <sub>a</sub>	1011.1	Kelvin	Pressure, P <sub>a</sub>
			27 mmHg

Orifice Transfer Standard Information					
Equipment No.	3166	Slope, m <sub>c</sub>	1.88375	Intercept, b <sub>c</sub>	0.03970
Last Calibration Date	3-Aug-21	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	3-Aug-22				

Calibration of TSP						
Calibration Point	Manometer Reading			Q <sub>std</sub> (m <sup>3</sup> / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31) Y-axis
	(up)	(down)	(difference)			
1	1.2	1.2	2.4	0.0522	22	1.9604
2	2.3	2.3	4.6	0.0804	34	3.0297
3	3.5	3.5	7.0	0.1041	42	3.7426
4	4.6	4.6	9.2	0.1224	54	4.8119
5	5.7	5.7	11.4	0.1386	57	5.0792

By Linear Regression of Y on X						
Slope, m	=	37.3367	Intercept, b	=	0.0081	
Correlation Coefficient*	=	0.9932				
Calibration Accepted	=	Yes/No**				

\* if Correlation Coefficient &lt; 0.990, check and recalibration again.

\*\* Delete as appropriate.

Remarks : \_\_\_\_\_

Calibrated by : Alan Ng  
 Date : 31-Aug-21

Checked by : James Chu  
 Date : 31-Aug-21



Lam Environmental Services Limited

**Calibration Data for High Volume Sampler (TSP Sampler)**

Location : AM2a Calibration Date : 31-Aug-21  
 Equipment no. : HVS003 Calibration Due Date : 31-Oct-21

**CALIBRATION OF CONTINUOUS FLOW RECORDER**

Ambient Condition			
Temperature, T <sub>a</sub>	1011.1	Kelvin	Pressure, P <sub>a</sub>
			27 mmHg

Orifice Transfer Standard Information					
Equipment No.	3166	Slope, m <sub>c</sub>	1.88375	Intercept, b <sub>c</sub>	0.03970
Last Calibration Date	3-Aug-21	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	3-Aug-22				

Calibration of TSP						
Calibration Point	Manometer Reading			Q <sub>std</sub> (m <sup>3</sup> / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31) Y-axis
	(up)	(down)	(difference)			
1	1.1	1.1	2.2	0.0491	24	2.1386
2	2.2	2.2	4.4	0.0782	35	3.1188
3	3.6	3.6	7.2	0.1059	46	4.0990
4	4.5	4.5	9.0	0.1208	52	4.6337
5	5.4	5.4	10.8	0.1344	58	5.1683

By Linear Regression of Y on X

Slope, m = 35.3755 Intercept, b = 0.3768  
 Correlation Coefficient\* = 0.9997  
 Calibration Accepted = Yes/No\*\*

\* if Correlation Coefficient &lt; 0.990, check and recalibration again.

\*\* Delete as appropriate.

Remarks : \_\_\_\_\_

Calibrated by : Alan Ng Checked by : James Chu  
 Date : 31-Aug-21 Date : 31-Aug-21




Met One Instruments, Inc.  
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# Certificate of Calibration

BT-645  
 Particulate Monitor

*Recommended calibration interval is 24 months from first day of use.*

<b>Unit Info</b>	<b>Model:</b>	<u>BT-645</u>	<b>81865 Firmware Rev:</b>	<u>R1.1.0</u>
	<b>Serial Number:</b>	<u>X19297</u>	<b>81113</b>	<u>R0.2.4</u>
	<b>Calibrated By:</b>	<u>Alice M.</u>	<b>Cal. Date:</b>	<u>Jan 9, 2020</u>
	<b>Quality Inspector:</b>	<u></u>	<b>Date:</b>	<u>FEB 11 2020</u>
	<b>Calibration Hz/μg/m<sup>3</sup>:</b>	<u>6.60</u>		

<b>Final Test</b>	<b>Flow (2.0 L/min):</b>	<u>Pass</u>	<b>Ambient Temp (C):</b>	<u>23.5</u>
	<b>Serial Communication:</b>	<u>Pass</u>	<b>RH (%):</b>	<u>31.3%</u>
	<b>Concentration:</b>	<u>401</u>	<b>Standard:</b>	<u>403</u>

**Calibration Standards**

Standards	Manufacturer	Model	SN	Cal Due
RMS Multimeter	Fluke	289 Multimeter	23740018	5/17/2020
RH & TEMPERATURE	Met One Instruments	083E-1-6	R20313	9/19/2020
Primary Flow Meter	BIOS	Defender-530+	170092	1/30/2020
Digital Dust Indicator	SIBATA	LD-3B	6X7759	12/14/2019

*The standards used for this calibration have accuracy equal to or greater than the instrument tested. These standards are on record and traceable to NIST to the extent allowed by the institute's calibration facility. Unless otherwise stated, all instruments are calibrated to meet the manufacturer's published specifications. The Calibration system complies with MIL-STD-45662A.*



# Certificate of Calibration

*BT-645  
 Particulate Monitor*

*Recommended calibration interval is 24 months from first day of use.*

<b>Unit Info</b>	<b>Model:</b>	<u>BT-645</u>	<b>81865</b>	<b>Firmware Rev:</b>	<u>1.2.0</u>
	<b>Serial Number:</b>	<u>R22586</u>		<b>81113</b>	<u>0.2.5</u>
	<b>Calibrated By:</b>	<u>J. Chester</u> <i>AT1</i>		<b>Cal. Date:</b>	<u>04/13/2021</u>
	<b>Quality Inspector:</b>	<u><i>AT6</i></u>		<b>Date:</b>	<u>APR 15 2021</u>
	<b>Calibration Hz/<math>\mu</math>g/m<sup>3</sup>:</b>	<u>6.06</u>			

<b>Final Test</b>	<b>Flow (2.0 L/min):</b>	<u>Pass</u>	<b>Ambient Temp (C):</b>	<u>23</u>
	<b>Serial Communication:</b>	<u>Pass</u>	<b>RH (%):</b>	<u>24</u>
	<b>Concentration:</b>	<u>370</u>	<b>Standard:</b>	<u>372</u>

**Calibration Standards**

Standards	Manufacturer	Model	SN	Cal Due Date
DMM	Fluke	189	92130180	10/26/2021
Temp/Humidity	Met One Instruments	083E-1-6	R20313	09/17/21
Flow Meter	TSI	4000	40419545007	11/21/2021
LD-3B	SIBATA	LD-3B	476795	06/29/2021

*The standards used for this calibration have accuracy equal to or greater than the instrument tested. These standards are on record and traceable to NIST to the extent allowed by the institute's calibration facility. Unless otherwise stated, all instruments are calibrated to meet the manufacturer's published specifications. The Calibration system complies with MIL-STD-45662A.*



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# Certificate of Calibration

*BT-645  
 Particulate Monitor*

*Recommended calibration interval is 24 months from first day of use.*

**Unit Info**

**Model:** BT-645 81865 **Firmware Rev:** R1.1.0  
**Serial Number:** X19295 81113 R0.2.4  
**Calibrated By:** Alice M. **Cal. Date:** Jan 9, 2020  
**Quality Inspector:** ATB **Date:** FEB 11 2020  
**Calibration Hz/μg/m<sup>3</sup>:** 5.295

**Final Test**

**Flow (2.0 L/min):** Pass **Ambient Temp (C):** 23.5  
**Serial Communication:** Pass **RH (%):** 31.3%  
**Concentration:** 398 **Standard:** 398

**Calibration Standards**

Standards	Manufacturer	Model	SN	Cal Due
RMS Multimeter	Fluke	289 Multimeter	23740018	5/17/2020
RH & TEMPERATURE	Met One Instruments	083E-1-6	R20313	9/19/2020
Primary Flow Meter	BIOS	Defender-530+	170092	1/30/2020
Digital Dust Indicator	SIBATA	LD-3B	6X7759	12/14/2019

*The standards used for this calibration have accuracy equal to or greater than the instrument tested. These standards are on record and traceable to NIST to the extent allowed by the institute's calibration facility. Unless otherwise stated, all instruments are calibrated to meet the manufacturer's published specifications. The Calibration system complies with MIL-STD-45662A.*



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 Instruments**

# Calibration Certificate

The calibration results on this report certify that this instrument complies with the product specifications at the time of calibration. Calibration was performed according to accepted industry methods using equipment, procedures, and standards that are traceable to NIST and ISO.

Recommended calibration interval is 12 months from the first day of use.

Instrument Model# 831 Instrument Serial# R14332

Date of Calibration 2/18/2021 Sensor # 12228

J. Chester AT1 AT14 MAR 02 2021

Calibration Technician Quality Check

Temperature 30 °C Relative Humidity 33 %

Test Procedure: **831-6100**

PSL Size (µm)	Test Results	Test Spec.	Lot# NIST	Expiration
0.5	Pass	± 10%	219480	11/30/2022
0.7	Pass	± 10%	229561	08/31/2023
1.0	Pass	± 10%	229294	8/31/2023
2.5	Pass	± 10%	REF	NA
4.0	Pass	± 10%	REF	NA
5.0	Pass	± 10%	REF	NA
7.0	Pass	± 10%	REF	NA
10.0	Pass	± 10%	REF	NA

Standards	Model	SN	Cal Due
Flowmeter	DCL-M	103751	3/14/2021
DMM	189 Multimeter	92130180	10/26/2021
RH/TEMP SENSOR	083E-1-6	R20313	9/17/2021
Particle Counter	GT-526	M1760	5/19/2021

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# Calibration Certificate

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Recommended calibration interval is 12 months from the first day of use.

Instrument Model# Aerocet 831 Instrument Serial# W15449  
 Date of Calibration 4/29/2021 Sensor # 16439

Jason Gist

**AT14**

**AT5**

Calibration Technician

Quality Check

Temperature 23 °C

Relative Humidity 35 %

Test Procedure: **Aerocet 831-6100**

PSL Size (µm)	Test Results	Test Spec.	Lot# NIST	Expiration
0.3	Pass	± 10%	223077	04/30/2023
0.5	Pass	± 10%	219480	11/30/2022
1.0	Pass	± 10%	229294	8/31/2023
2.5	Pass	± 10%	REF	NA
4.0	Pass	± 10%	REF	NA
5.0	Pass	± 10%	REF	NA
7.0	Pass	± 10%	REF	NA
10.0	Pass	± 10%	REF	NA

Standards	Model	SN	Cal Due
Dry Cal	Defender 530+	170092	2/9/2022
DMM	289	27720071	7/31/2021
RH/TEMP SENSOR	083E-1-6	R20313	9/17/2021
Particle Counter	GT-526	M1761	8/26/2021

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# Calibration Certificate

As Received

This certificate documents the as received condition of your instrument. Calibration was verified using accepted industry methods, equipment, procedures and standards that are traceable to NIST and ISO.

Instrument Model# Aerocet 831 Instrument Serial# W15449

Date of comparison against standard 4-27-2021 Sensor # 16439

Quality Control Technician Jason Gist AT14

Temperature 23 °C Relative Humidity 32 %

Test Procedure: Aerocet 831-6100

As Received	Value	Range	Condition
Zero Count	0	Less than 5 particles in 5 min.	PASS
Air Flow	.08916	.092 to .108 CFM	FAIL

PSL Size Micron	LOT# NIST	As Received PSL Count Comparison	Allowable PSL Count Comparison	Allowable Size Accuracy	As Received Condition
0.3	223077	48.87	10% to 90%	+/- 10 %	PASS
0.5	219480	48.71	10% to 90%	+/- 10 %	PASS
1.0	229294	48.09	10% to 90%	+/- 10 %	PASS

Standards	Model	SN	Cal Due
Dry Cal	Defender 530+	170092	2/9/2022
DMM	289	23700150	5/4/2021
RH/TEMP SENSOR	083E-1-6	R20313	9/17/2021
Particle Counter	GT-526	M1761	8/26/2021

*Calibration was performed by direct comparison to a count standard.*



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# Calibration Certificate

The calibration results on this report certify that this instrument complies with the product specifications at the time of calibration. Calibration was performed according to accepted industry methods using equipment, procedures, and standards that are traceable to NIST and ISO.

Recommended calibration interval is 12 months from the first day of use.

Instrument Model# Aerocet 831 Instrument Serial# Y23154  
 Date of Calibration 12/3/2020 Sensor # 19494  
Jason Gist AT14 AT21 DEC 07 2020  
 Calibration Technician Quality Check  
 Temperature 23 °C Relative Humidity 28 %

Test Procedure: **Aerocet 831-6100**

PSL Size (µm)	Test Results	Test Spec.	Lot# NIST	Expiration
0.3	Pass	± 10%	223077	04/30/2023
0.5	Pass	± 10%	219480	11/30/2022
1.0	Pass	± 10%	193291	1/31/2021
2.5	Pass	± 10%	REF	NA
4.0	Pass	± 10%	REF	NA
5.0	Pass	± 10%	REF	NA
7.0	Pass	± 10%	REF	NA
10.0	Pass	± 10%	REF	NA

Standards	Model	SN	Cal Due
Dry Cal	Defender 530+	170092	1/28/2021
DMM	289	23700150	5/4/2021
RH/TEMP SENSOR	083E-1-6	R20313	9/17/2021
Particle Counter	GT-526S	X17420	12/20/2020

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# Calibration Certificate

As Received

This certificate documents the as received condition of your instrument. Calibration was verified using accepted industry methods, equipment, procedures and standards that are traceable to NIST and ISO.

Instrument Model# Aerocet 831 Instrument Serial# Y23154  
 Date of comparison against standard 12-2-2020 Sensor # 19494  
 Quality Control Technician Jason Gist *AT14*  
 Temperature 23 °C Relative Humidity 29 %

Test Procedure: **Aerocet 831-6100**

As Received	Value	Range	Condition
Zero Count	0	Less than 5 particles in 5 min.	PASS
Air Flow	.08784	.092 to .108 CFM	FAIL

PSL Size Micron	LOT# NIST	As Received PSL Count Comparison	Allowable PSL Count Comparison	Allowable Size Accuracy	As Received Condition
0.3	223077	54.38	10% to 90%	+/- 10 %	PASS
0.5	219480	28.50	10% to 90%	+/- 10 %	PASS
1.0	193291	13.39	10% to 90%	+/- 10 %	PASS

Standards	Model	SN	Cal Due
Dry Cal	Defender 530+	170092	1/28/2021
DMM	289	23700150	5/4/2021
RH/TEMP SENSOR	083E-1-6	R20313	9/17/2021
Particle Counter	GT-526S	X17420	12/20/2020

*Calibration was performed by direct comparison to a count standard.*



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# Calibration Certificate

The calibration results on this report certify that this instrument complies with the product specifications at the time of calibration. Calibration was performed according to accepted industry methods using equipment, procedures, and standards that are traceable to NIST and ISO.

Recommended calibration interval is 12 months from the first day of use.

Instrument Model# Aerocet 831 Instrument Serial# Y23160  
 Date of Calibration 12/3/2020 Sensor # 19500  
Jason Gist AT14 AT21 DEC 07 2020  
 Calibration Technician Quality Check  
 Temperature 23 °C Relative Humidity 28 %

Test Procedure: **Aerocet 831-6100**

PSL Size (µm)	Test Results	Test Spec.	Lot# NIST	Expiration
0.3	Pass	± 10%	223077	04/30/2023
0.5	Pass	± 10%	219480	11/30/2022
1.0	Pass	± 10%	193291	1/31/2021
2.5	Pass	± 10%	REF	NA
4.0	Pass	± 10%	REF	NA
5.0	Pass	± 10%	REF	NA
7.0	Pass	± 10%	REF	NA
10.0	Pass	± 10%	REF	NA

Standards	Model	SN	Cal Due
Dry Cal	Defender 530+	170092	1/28/2021
DMM	289	23700150	5/4/2021
RH/TEMP SENSOR	083E-1-6	R20313	9/17/2021
Particle Counter	GT-526S	X17420	12/20/2020

*This calibration certificate shall not be reproduced except in full, without the written approval of Met One Instruments Inc.*



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 Grants Pass, OR 97526  
 (541) 471-7111  
 (541) 471-7116 (Fax)  
 Service@metone.com

**Met One  
 Instruments**

# Calibration Certificate

As Received

This certificate documents the as received condition of your instrument. Calibration was verified using accepted industry methods, equipment, procedures and standards that are traceable to NIST and ISO.

Instrument Model# Aerocet 831 Instrument Serial# Y23160  
 Date of comparison against standard 12-2-2020 Sensor # 19500  
 Quality Control Technician Jason Gist AT14  
 Temperature 23 °C Relative Humidity 29 %

Test Procedure: **Aerocet 831-6100**

As Received	Value	Range	Condition
Zero Count	0	Less than 5 particles in 5 min.	PASS
Air Flow	.09579	.092 to .108 CFM	PASS

PSL Size Micron	LOT# NIST	As Received PSL Count Comparison	Allowable PSL Count Comparison	Allowable Size Accuracy	As Received Condition
0.3	223077	41.05	10% to 90%	+/- 10 %	PASS
0.5	219480	14.29	10% to 90%	+/- 10 %	PASS
1.0	193291	15.89	10% to 90%	+/- 10 %	PASS

Standards	Model	SN	Cal Due
Dry Cal	Defender 530+	170092	1/28/2021
DMM	289	23700150	5/4/2021
RH/TEMP SENSOR	083E-1-6	R20313	9/17/2021
Particle Counter	GT-526S	X17420	12/20/2020

*Calibration was performed by direct comparison to a count standard.*

# 出厂检验报告

产品名称：在线式风速风向仪

产品型号：YGY-FSXY1

被检产品 SN 号：YG 21071630T0924

武汉辰云科技有限公司

2021 年 8 月 9 日



## 1. 检验类别

### 一、在线式风速风向仪

检验项目	检测要求	检测结果
外观检查	1. 要求成品外观无破损，各部件完整，无掉漆，无凹陷变形； 2. 采集仪内部无日视可见灰尘杂物油污，布局整洁美观； 3. 芯线，航插完整，保护皮无破损，无油污；	
结构检查	1. 内部电路板固定牢固可靠，无挤压，无晃动； 2. 检查防尘防水措施是否到位，密封是否严密，端子与外壳缝隙不宜过大，以不透光为原则；	

### 二、风速风向传感器示值校准结果

实际风速 (m/s)	指示风速 (m/s)
0.5	启动
1	0.8
5	4.8
10	9.9
15	14.8
20	20.2
25	25.2
30	29.7

实际风向 (°)	指示风向 (°)
45	44
90	89
135	136
200	202
235	234
275	275
315	313
359	0



## 2. 备注 NOTE

数据采集仪数据显示风速、风向值正常，通过 RJ45 通讯与电脑连接，  
仪器软件数据显示正常。

## 3. 检验结论：

各项检测和实验结果表明：

\_\_\_\_\_在线式风速风向仪\_\_\_\_\_仪器全部测试通过，系统硬件测试符合工厂  
( 武汉易谷科技有限公司检验标准 ) 测试标准。符合技术文件的要求，检  
验合格，准予出厂。

## 4. 校准的环境条件：

环境条件： 温度：27.5，相对湿度：61.0%RH，大气压力：1013.3hpa

测试员： 李元华

检验员： 吴肖

测试日期：2021年8月9日





## CERTIFICATE OF CALIBRATION

Certificate No.: 21CA0526 02-01 Page 1 of 2

### Item tested

Description:	Sound Level Meter (Type 1)	Microphone	Preamp
Manufacturer:	Larson Davis	PCB	PCB
Type/Model No.:	LxT1	377B02	PRMLxT1L
Serial/Equipment No.:	0004797	163704	042622
Adaptors used:	-	-	-

### Item submitted by

Customer Name: Lam Environmental Services Limited.  
Address of Customer: -  
Request No.: -  
Date of receipt: 26-May-2021

Date of test: 27-May-2021

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2021	CIGISMEC
Signal generator	DS 360	61227	31-Dec-2021	CEPREI

### Ambient conditions

Temperature: 22 ± 1 °C  
Relative humidity: 55 ± 10 %  
Air pressure: 1005 ± 5 hPa

### Test specifications

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- 2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsiveness of the Sound Level Meter.

### Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:

Feng Junqi

Date: 28-May-2021

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.



## CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 21CA0526 02-01 Page 2 of 2

### 1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	2.1
	C	Pass	0.8	
	Lin	Pass	1.6	
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	2.2
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	A	Pass	0.3	
	C	Pass	0.3	
Frequency weightings	Lin	Pass	0.3	
	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100µs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 <sup>3</sup> at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 <sup>4</sup> at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

### 2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

### 3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by:

Fung Chi Yip

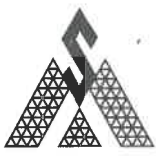
Date: 27-May-2021

Checked by:

Chan Yuk Yiu

Date: 28-May-2021

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



Test Data for Sound Level Meter

Sound level meter type:	LxT1	Serial No.	0004797	Date	27-May-2021
Microphone type:	377B02	Serial No.	163704		
Preamp type:	PRMLxT1L	Serial No.	042622	Report:	21CA0526 02-01

**SELF GENERATED NOISE TEST**

The noise test is performed in the most sensitive range of the SLM with the microphone replaced by an equivalent impedance.

Noise level in A weighting	10.6	dB
Noise level in C weighting	14.8	dB
Noise level in Lin	22.3	dB

**LINEARITY TEST**

The linearity is tested relative to the reference sound pressure level using a continuous sinusoidal signal of frequency 4 kHz. The measurement is made on the reference range for indications at 5 dB intervals starting from the 94 dB reference sound pressure level. And until within 5 dB of the upper and lower limits of the reference range, the measurements shall be made at 1 dB intervals.(SLM set to LEQ/SPL)

Reference/Expected level	Actual level		Tolerance	Deviation	
	non-integrated	integrated		non-integrated	integrated
dB	dB	dB	+/- dB	dB	dB
94.0	94.0	94.0	0.7	0.0	0.0
99.0	99.0	99.0	0.7	0.0	0.0
104.0	104.0	104.0	0.7	0.0	0.0
109.0	109.0	109.0	0.7	0.0	0.0
114.0	114.0	114.0	0.7	0.0	0.0
115.0	115.0	115.0	0.7	0.0	0.0
116.0	116.0	116.0	0.7	0.0	0.0
117.0	117.0	117.0	0.7	0.0	0.0
118.0	118.0	118.0	0.7	0.0	0.0
119.0	119.0	119.0	0.7	0.0	0.0
120.0	120.0	120.0	0.7	0.0	0.0
89.0	89.0	89.0	0.7	0.0	0.0
84.0	84.0	84.0	0.7	0.0	0.0
79.0	79.0	79.0	0.7	0.0	0.0
74.0	73.9	73.9	0.7	-0.1	-0.1
69.0	68.9	68.9	0.7	-0.1	-0.1
64.0	63.9	63.9	0.7	-0.1	-0.1
59.0	58.9	58.9	0.7	-0.1	-0.1
54.0	53.9	53.9	0.7	-0.1	-0.1
49.0	48.9	48.9	0.7	-0.1	-0.1
44.0	43.9	43.9	0.7	-0.1	-0.1
39.0	38.9	38.9	0.7	-0.1	-0.1
34.0	33.9	33.9	0.7	-0.1	-0.1
33.0	32.9	32.9	0.7	-0.1	-0.1



Test Data for Sound Level Meter

Page 2 of 5

Sound level meter type: LxT1 Serial No. 0004797 Date 27-May-2021  
Microphone type: 377B02 Serial No. 163704  
Preamp type: PRMLxT1L Serial No. 042622 Report: 21CA0526 02-01

32.0	31.9	31.9	0.7	-0.1	-0.1
31.0	30.9	30.9	0.7	-0.1	-0.1
30.0	29.9	29.9	0.7	-0.1	-0.1

Measurements for an indication of the reference SPL on all other ranges which include it

Other ranges	Expected level	Actual level	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
20-120	94.0	94.0	0.7	0.0

Measurements on all level ranges for indications 2 dB below the upper limit and 2 dB above the lower limit

Ranges	Reference/Expected level	Actual level	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
20-120	30.0	29.9	0.7	-0.1
	118.0	118.0	0.7	0.0

## FREQUENCY WEIGHTING TEST

The frequency response of the weighting networks are tested at octave intervals over the frequency ranges 31.5 Hz to 12500 Hz. The signal level at 1000 Hz is set to give an indication of the reference SPL.

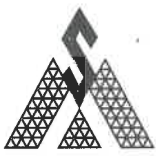
Frequency weighting A:

Frequency	Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
				+	-	
Hz	dB	dB	dB			dB
1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	54.6	54.5	1.5	1.5	-0.1
63.1	94.0	67.8	67.8	1.5	1.5	0.0
125.9	94.0	77.9	77.9	1.0	1.0	0.0
251.2	94.0	85.4	85.3	1.0	1.0	-0.1
501.2	94.0	90.8	90.7	1.0	1.0	-0.1
1995.0	94.0	95.2	95.2	1.0	1.0	0.0
3981.0	94.0	95.0	95.0	1.0	1.0	0.0
7943.0	94.0	92.9	92.9	1.5	3.0	0.0
12590.0	94.0	89.7	89.7	3.0	6.0	0.0

Frequency weighting C:

Frequency	Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
				+	-	
Hz	dB	dB	dB			dB
1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	91.0	91.0	1.5	1.5	0.0
63.1	94.0	93.2	93.1	1.5	1.5	-0.1
125.9	94.0	93.8	93.8	1.0	1.0	0.0
251.2	94.0	94.0	94.0	1.0	1.0	0.0
501.2	94.0	94.0	94.0	1.0	1.0	0.0





Test Data for Sound Level Meter

Page 3 of 5

Sound level meter type: LxT1 Serial No. 0004797 Date 27-May-2021  
Microphone type: 377B02 Serial No. 163704  
Preamp type: PRMLxT1L Serial No. 042622 Report: 21CA0526 02-01

1995.0	94.0	93.8	93.8	1.0	1.0	0.0
3981.0	94.0	93.2	93.2	1.0	1.0	0.0
7943.0	94.0	91.0	91.0	1.5	3.0	0.0
12590.0	94.0	87.8	87.7	3.0	6.0	-0.1

Frequency weighting Lin:

Frequency Hz	Ref. level dB	Expected level dB	Actual level dB	Tolerance(dB)		Deviation dB
				+	-	
1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	94.0	93.9	1.5	1.5	-0.1
63.1	94.0	94.0	93.9	1.5	1.5	-0.1
125.9	94.0	94.0	94.0	1.0	1.0	0.0
251.2	94.0	94.0	94.0	1.0	1.0	0.0
501.2	94.0	94.0	94.0	1.0	1.0	0.0
1995.0	94.0	94.0	94.0	1.0	1.0	0.0
3981.0	94.0	94.0	94.0	1.0	1.0	0.0
7943.0	94.0	94.0	94.0	1.5	3.0	0.0
12590.0	94.0	94.0	94.0	3.0	6.0	0.0

TIME WEIGHTING FAST TEST

Time weighting F is tested on the reference range with a single sinusoidal burst of duration 200 ms at a frequency 2000 Hz and an amplitude which produces an indication 4 dB below the upper limit of the primary indicator range when the signal is continuous. (Weight A, Maximum hold)

Ref. level dB	Expected level dB	Actual level dB	Tolerance(dB)		Deviation dB
			+	-	
116.0	115.0	114.9	1.0	1.0	-0.1

TIME WEIGHTING SLOW TEST

Time weighting S is tested on the reference range with a single sinusoidal burst of duration 500 ms at a frequency 2000 Hz and an amplitude which produces an indication 4 dB below the upper limit of the primary indicator range when the signal is continuous. (Weight A, Maximum hold)

Ref. level dB	Expected level dB	Actual level dB	Tolerance(dB)		Deviation dB
			+	-	
116.0	111.9	111.8	1.0	1.0	-0.1

PEAK RESPONSE TEST

The onset time of the peak detector is tested on the reference range by comparing the response to a 100 us rectangular test pulse with the response to a 10 ms reference pulse of the same amplitude. The amplitude of the 10 ms reference pulse is such as to produce an indication 1 dB below the upper limit of the primary indicator range.

Positive polarities: (Weighting Z, set the generator signal to single, Lzpeak)

Ref. level dB	Response to 10 ms dB	Response to 100 us dB	Tolerance +/- dB	Deviation dB



Test Data for Sound Level Meter

Page 4 of 5

Sound level meter type: LxT1 Serial No. 0004797 Date 27-May-2021  
Microphone type: 377B02 Serial No. 163704  
Preamp type: PRMLxT1L Serial No. 042622 Report: 21CA0526 02-01

Negative polarities:

Ref. level	Response to 10 ms	Response to 100 us	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
119.0	119.0	118.7	2.0	-0.3

RMS ACCURACY TEST

The RMS detector accuracy is tested on the reference range for a crest factor of 3.

Test frequency: 2000 Hz  
Amplitude: 2 dB below the upper limit of the primary indicator range.  
Burst repetition frequency: 40 Hz  
Tone burst signal: 11 cycles of a sine wave of frequency 2000 Hz. (Set to INT)

Time weighting	Ref. Level	Expected level	Tone burst signal	Tolerance	Deviation
	dB	dB	indication(dB)	+/- dB	dB
Slow	114.0+6.6	114.0	113.9	0.5	-0.1

TIME WEIGHTING IMPULSE TEST

Time weighting I is tested on the reference range (Set the SLM to LAImax)

Test frequency: 2000 Hz  
Amplitude: The upper limit of the primary indicator range.

Single sinusoidal burst of duration 5 ms:

Ref. Level	Single burst indication		Tolerance	Deviation
	Expected (dB)	Actual (dB)		
dB			+/- dB	dB
120.0	111.2	111.1	2.0	-0.1

Repeated at 100 Hz

Ref. Level	Repeated burst indication		Tolerance	Deviation
	Expected (dB)	Actual (dB)		
dB			+/- dB	dB
120.0	117.3	117.1	1.0	-0.2

TIME AVERAGING TEST

This test compares the SLM reading for continuous sine signals with readings obtained from a sine tone burst sequence having the same RMS level. The test level is 30 dB below the upper limit of the linearity range and repeated for Type 1 SLM with 40 dB below the upper limit of the linearity.

Frequency of tone burst: 4000 Hz

Duration of tone burst: 1 ms

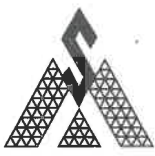
Repetition Time	Level of tone burst	Expected Leq	Actual Leq	Tolerance	Deviation	Remarks
msec	dB	dB	dB	+/- dB	dB	
1000	90.0	90.0	89.9	1.0	-0.1	60s integ.
10000	80.0	80.0	79.9	1.0	-0.1	6min. integ.

PULSE RANGE AND SOUND EXPOSURE LEVEL TEST

The test tone burst signal is superimposed on a baseline signal corresponding to the lower limit of reference range

Test frequency: 4000 Hz

Integration time: 10 sec



Test Data for Sound Level Meter

Page 5 of 5

Sound level meter type: LxT1 Serial No. 0004797 Date 27-May-2021  
Microphone type: 377B02 Serial No. 163704  
Preamp type: PRMLxT1L Serial No. 042622 Report: 21CA0526 02-01

The integrating sound level meter set to Leq:

Duration	Rms level of	Expected	Actual	Tolerance	Deviation
msec	tone burst (dB)	dB	dB	+/- dB	dB
10	88.0	58.0	58.0	1.7	0.0

The integrating sound level meter set to SEL:

Duration	Rms level of	Expected	Actual	Tolerance	Deviation
msec	tone burst (dB)	dB	dB	+/- dB	dB
10.0	88.0	68.0	68.0	1.7	0.0

OVERLOAD INDICATION TEST

For SLM capable of operating in a non-integrating mode.

Test frequency: 2000 Hz  
Amplitude: 2 dB below the upper limit of the primary indicator range.  
Burst repetition frequency: 40 Hz  
Tone burst signal: 11 cycles of a sine wave of frequency 2000 Hz.

Level	Level reduced by	Further reduced	Difference	Tolerance	Deviation
at overload (dB)	1 dB	3 dB	dB	dB	dB
113.4	112.4	109.4	3.0	1.0	0.0

For integrating SLM, with the instrument indicating Leq.

For integrating SLM, with the instrument indicating Leq and set to the reference range. The test signal as following:  
The test tone burst signal is superimposed on a baseline signal corresponding to the lower limit of reference range  
Test frequency: 4000 Hz  
Integration time: 10 sec  
Single burst duration: 1 msec

Rms level	Level reduced by	Expected level	Actual level	Tolerance	Deviation
at overload (dB)	1 dB	dB	dB	dB	dB
120.2	119.2	79.2	79.2	2.2	0.0

ACOUSTIC TEST

The acoustic test of the complete SLM is tested at the frequency 125 Hz and 8000 Hz using a B&K type 4226 Multifunction Acoustic Calibrator. The test is performed in A weighting.

Frequency	Expected level	Actual level	Tolerance (dB)		Deviation
			+	-	
Hz	dB	Measured (dB)			dB
1000	94.0	94.0	0.0	0.0	0.0
125	77.9	78.1	1.0	1.0	0.2
8000	92.9	91.2	1.5	3.0	-1.7

-----END-----





## CERTIFICATE OF CALIBRATION

Certificate No.: 21CA0120 03

Page: 1 of 2

### Item tested

Description: Acoustical Calibrator (Class 1)  
Manufacturer: Honglim Co., Ltd.  
Type/Model No.: HLES-02  
Serial/Equipment No.: 2019612870  
Adaptors used: -

### Item submitted by

Customer: Lam Environmental Services Limited.  
Address of Customer: -  
Request No.: -  
Date of receipt: 20-Jan-2021

Date of test: 24-Jan-2021

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	11-May-2021	SCL
Preamplifier	B&K 2673	2743150	03-Jun-2021	CEPREI
Measuring amplifier	B&K 2610	2346941	03-Jun-2021	CEPREI
Signal generator	DS 360	33873	19-May-2021	CEPREI
Digital multi-meter	34401A	US36087050	19-May-2021	CEPREI
Audio analyzer	8903B	GB41300350	18-May-2021	CEPREI
Universal counter	53132A	MY40003662	18-May-2021	CEPREI

### Ambient conditions

Temperature:  $21 \pm 1$  °C  
Relative humidity:  $55 \pm 10$  %  
Air pressure:  $1000 \pm 5$  hPa

### Test specifications


- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

### Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on page 2 of this certificate.

Approved Signatory:

  
Feng Junqi

Date: 25-Jan-2021

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.





## ***Appendix 4.3***

### ***Wind Data***



**Wind Speed and Wind Direction**

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
1-Oct-21	00:00	0.7	147(SSE)
	01:00	0.0	143(SE)
	02:00	0.0	240(WSW)
	03:00	0.0	193(SSW)
	04:00	0.0	27(NNE)
	05:00	0.0	164(SSE)
	06:00	0.0	158(SSE)
	07:00	0.0	302(WNW)
	08:00	0.0	211(SSW)
	09:00	0.0	169(S)
	10:00	0.0	172(S)
	11:00	1.1	161(SSE)
	12:00	1.9	169(S)
	13:00	1.5	83(E)
	14:00	0.7	146(SE)
	15:00	0.0	119(ESE)
	16:00	0.0	204(SSW)
	17:00	0.0	140(SE)
	18:00	0.0	8(N)
	19:00	0.0	286(WNW)
	20:00	0.0	146(SE)
	21:00	0.0	48(NE)
	22:00	0.0	44(NE)
	23:00	0.0	143(SE)



## Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
2-Oct-21	00:00	0.0	120(ESE)
	01:00	0.0	346(NNW)
	02:00	0.7	288(WNW)
	03:00	0.0	101(E)
	04:00	0.0	109(ESE)
	05:00	0.0	320(NW)
	06:00	0.0	257(WSW)
	07:00	0.0	127(SE)
	08:00	0.0	108(ESE)
	09:00	1.1	270(W)
	10:00	0.0	138(SE)
	11:00	0.7	184(S)
	12:00	1.1	233(SW)
	13:00	0.9	141(SE)
	14:00	1.1	203(SSW)
	15:00	1.7	123(ESE)
	16:00	0.9	168(SSE)
	17:00	0.9	84(E)
	18:00	0.9	185(S)
	19:00	1.1	295(WNW)
	20:00	1.7	219(SW)
	21:00	1.1	170(S)
	22:00	0.7	66(ENE)
23:00	0.9	175(S)	
3-Oct-21	00:00	1.3	254(WSW)
	01:00	0.9	163(SSE)
	02:00	0.9	165(SSE)
	03:00	0.7	123(ESE)
	04:00	0.0	129(SE)
	05:00	0.0	132(SE)
	06:00	0.9	300(WNW)
	07:00	0.5	187(S)
	08:00	0.0	142(SE)
	09:00	0.7	158(SSE)
	10:00	0.7	317(NW)
	11:00	0.5	63(ENE)
	12:00	0.7	39(NE)
	13:00	0.7	234(SW)
	14:00	0.7	258(WSW)
	15:00	0.0	185(S)
	16:00	0.0	183(S)
	17:00	0.9	332(NNW)
	18:00	1.5	148(SSE)
	19:00	1.9	148(SSE)
	20:00	0.7	309(NW)
	21:00	0.9	170(S)
	22:00	0.0	154(SSE)
23:00	0.7	77(ENE)	



## Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
4-Oct-21	00:00	1.3	259(W)
	01:00	0.9	234(SW)
	02:00	0.7	313(NW)
	03:00	0.5	110(ESE)
	04:00	0.7	301(WNW)
	05:00	1.1	313(NW)
	06:00	0.0	141(SE)
	07:00	0.9	170(S)
	08:00	0.0	170(S)
	09:00	0.5	105(ESE)
	10:00	0.9	173(S)
	11:00	2.9	194(SSW)
	12:00	2.5	303(WNW)
	13:00	1.3	90(E)
	14:00	0.9	87(E)
	15:00	1.9	70(ENE)
	16:00	1.1	266(W)
	17:00	0.9	154(SSE)
	18:00	1.5	186(S)
	19:00	0.9	203(SSW)
	20:00	1.1	174(S)
	21:00	0.7	168(SSE)
	22:00	1.1	119(ESE)
23:00	1.7	86(E)	
5-Oct-21	00:00	0.9	163(SSE)
	01:00	0.0	138(SE)
	02:00	0.7	166(SSE)
	03:00	0.7	155(SSE)
	04:00	0.9	118(ESE)
	05:00	0.9	85(E)
	06:00	0.0	118(ESE)
	07:00	1.1	190(S)
	08:00	0.9	188(S)
	09:00	1.7	159(SSE)
	10:00	1.3	190(S)
	11:00	0.9	285(WNW)
	12:00	1.9	110(ESE)
	13:00	0.7	151(SSE)
	14:00	0.9	193(SSW)
	15:00	0.0	157(SSE)
	16:00	1.9	211(SSW)
	17:00	0.7	152(SSE)
	18:00	0.7	143(SE)
	19:00	1.1	143(SE)
	20:00	0.5	274(W)
	21:00	0.9	135(SE)
	22:00	1.1	207(SSW)
23:00	0.9	290(WNW)	



## Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
6-Oct-21	00:00	1.5	80(E)
	01:00	2.1	203(SSW)
	02:00	0.9	92(E)
	03:00	0.5	213(SSW)
	04:00	0.9	55(NE)
	05:00	1.5	152(SSE)
	06:00	0.7	300(WNW)
	07:00	1.1	144(SE)
	08:00	1.1	255(WSW)
	09:00	0.9	154(SSE)
	10:00	0.7	102(ESE)
	11:00	1.5	254(WSW)
	12:00	1.5	200(SSW)
	13:00	1.3	99(E)
	14:00	1.9	183(S)
	15:00	1.3	128(SE)
	16:00	0.7	33(NNE)
	17:00	0.9	172(S)
	18:00	0.7	68(ENE)
	19:00	0.9	324(NW)
	20:00	0.7	271(W)
	21:00	0.0	268(W)
	22:00	0.7	127(SE)
23:00	1.1	358(N)	
7-Oct-21	00:00	0.7	127(SE)
	01:00	1.1	50(NE)
	02:00	0.7	161(SSE)
	03:00	1.1	261(W)
	04:00	1.5	265(W)
	05:00	1.1	92(E)
	06:00	0.7	128(SE)
	07:00	1.7	140(SE)
	08:00	0.7	55(NE)
	09:00	1.7	161(SSE)
	10:00	2.1	273(W)
	11:00	1.5	228(SW)
	12:00	0.7	92(E)
	13:00	0.9	164(SSE)
	14:00	0.9	297(WNW)
	15:00	1.5	189(S)
	16:00	0.5	260(W)
	17:00	1.7	165(SSE)
	18:00	2.1	153(SSE)
	19:00	0.5	149(SSE)
	20:00	0.0	167(SSE)
	21:00	0.9	281(W)
	22:00	0.5	262(W)
23:00	2.1	179(S)	



## Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
8-Oct-21	00:00	0.9	280(W)
	01:00	0.9	221(SW)
	02:00	0.7	250(WSW)
	03:00	0.0	271(W)
	04:00	0.5	286(WNW)
	05:00	0.0	262(W)
	06:00	0.0	223(SW)
	07:00	0.7	225(SW)
	08:00	0.0	259(W)
	09:00	2.1	173(S)
	10:00	0.9	166(SSE)
	11:00	0.0	257(WSW)
	12:00	1.9	230(SW)
	13:00	0.7	274(W)
	14:00	0.0	263(W)
	15:00	0.7	332(NNW)
	16:00	0.5	272(W)
	17:00	0.0	261(W)
	18:00	0.0	268(W)
	19:00	0.0	280(W)
	20:00	0.0	289(WNW)
	21:00	1.9	134(SE)
	22:00	0.0	268(W)
23:00	1.3	309(NW)	
9-Oct-21	00:00	0.9	247(WSW)
	01:00	0.5	249(WSW)
	02:00	1.3	142(SE)
	03:00	3.1	143(SE)
	04:00	0.9	240(WSW)
	05:00	1.7	189(S)
	06:00	0.0	269(W)
	07:00	1.9	157(SSE)
	08:00	1.1	273(W)
	09:00	1.5	275(W)
	10:00	3.1	294(WNW)
	11:00	3.1	113(ESE)
	12:00	0.7	209(SSW)
	13:00	0.0	172(S)
	14:00	2.3	145(SE)
	15:00	0.0	223(SW)
	16:00	2.7	172(S)
	17:00	0.5	229(SW)
	18:00	0.5	253(WSW)
	19:00	0.0	289(WNW)
	20:00	0.5	256(WSW)
	21:00	1.9	250(WSW)
	22:00	1.7	242(WSW)
23:00	1.3	220(SW)	





## Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
10-Oct-21	00:00	0.7	288(WNW)
	01:00	0.7	188(S)
	02:00	0.5	227(SW)
	03:00	2.5	181(S)
	04:00	0.7	297(WNW)
	05:00	1.1	218(SW)
	06:00	0.0	190(S)
	07:00	0.5	188(S)
	08:00	1.7	201(SSW)
	09:00	0.0	157(SSE)
	10:00	1.9	194(SSW)
	11:00	1.9	125(SE)
	12:00	1.1	115(ESE)
	13:00	1.1	48(NE)
	14:00	0.5	134(SE)
	15:00	0.0	155(SSE)
	16:00	0.0	131(SE)
	17:00	0.7	121(ESE)
	18:00	0.0	116(ESE)
	19:00	1.1	187(S)
	20:00	0.0	140(SE)
	21:00	0.5	74(ENE)
	22:00	0.0	112(ESE)
23:00	0.0	117(ESE)	
11-Oct-21	00:00	0.0	109(ESE)
	01:00	0.0	109(ESE)
	02:00	0.0	115(ESE)
	03:00	0.0	123(ESE)
	04:00	0.0	112(ESE)
	05:00	0.0	112(ESE)
	06:00	0.0	109(ESE)
	07:00	0.0	132(SE)
	08:00	0.0	148(SSE)
	09:00	0.0	114(ESE)
	10:00	0.0	142(SE)
	11:00	0.5	177(S)
	12:00	1.1	201(SSW)
	13:00	1.5	154(SSE)
	14:00	0.9	116(ESE)
	15:00	1.3	31(NNE)
	16:00	3.7	114(ESE)
	17:00	1.5	66(ENE)
	18:00	5.5	134(SE)
	19:00	2.7	170(S)
	20:00	1.1	37(NE)
	21:00	1.5	172(S)
	22:00	1.9	187(S)
23:00	3.5	158(SSE)	



## Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
12-Oct-21	00:00	4.3	129(SE)
	01:00	3.1	105(ESE)
	02:00	2.7	133(SE)
	03:00	0.7	83(E)
	04:00	4.9	115(ESE)
	05:00	5.9	97(E)
	06:00	2.9	79(E)
	07:00	3.3	150(SSE)
	08:00	3.1	161(SSE)
	09:00	3.7	110(ESE)
	10:00	1.3	158(SSE)
	11:00	1.7	157(SSE)
	12:00	2.5	169(S)
	13:00	3.9	130(SE)
	14:00	2.7	113(ESE)
	15:00	5.7	136(SE)
	16:00	3.5	164(SSE)
	17:00	1.7	104(ESE)
	18:00	3.3	77(ENE)
	19:00	1.3	165(SSE)
	20:00	3.3	50(NE)
	21:00	2.1	141(SE)
	22:00	2.5	163(SSE)
23:00	2.7	113(ESE)	
13-Oct-21	00:00	5.3	164(SSE)
	01:00	2.7	187(S)
	02:00	2.7	122(ESE)
	03:00	3.7	142(SE)
	04:00	1.5	141(SE)
	05:00	5.9	133(SE)
	06:00	4.9	182(S)
	07:00	5.5	152(SSE)
	08:00	2.7	154(SSE)
	09:00	3.5	132(SE)
	10:00	1.7	218(SW)
	11:00	4.3	202(SSW)
	12:00	4.9	204(SSW)
	13:00	5.9	181(S)
	14:00	2.7	166(SSE)
	15:00	4.9	183(S)
	16:00	5.3	177(S)
	17:00	0.9	212(SSW)
	18:00	4.1	185(S)
	19:00	3.7	172(S)
	20:00	1.5	183(S)
	21:00	1.1	177(S)
	22:00	1.3	264(W)
23:00	1.7	152(SSE)	



## Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
14-Oct-21	00:00	2.5	160(SSE)
	01:00	2.7	192(SSW)
	02:00	2.3	169(S)
	03:00	2.9	216(SW)
	04:00	1.3	165(SSE)
	05:00	1.7	173(S)
	06:00	1.9	148(SSE)
	07:00	3.3	181(S)
	08:00	2.7	186(S)
	09:00	1.1	125(SE)
	10:00	2.9	134(SE)
	11:00	1.9	117(ESE)
	12:00	2.9	172(S)
	13:00	1.7	188(S)
	14:00	3.1	187(S)
	15:00	1.9	171(S)
	16:00	1.9	201(SSW)
	17:00	1.1	221(SW)
	18:00	2.3	179(S)
	19:00	0.7	214(SW)
	20:00	1.1	176(S)
	21:00	1.1	182(S)
	22:00	0.7	109(ESE)
23:00	0.7	190(S)	
15-Oct-21	00:00	0.9	193(SSW)
	01:00	1.5	114(ESE)
	02:00	1.9	114(ESE)
	03:00	0.7	164(SSE)
	04:00	2.5	114(ESE)
	05:00	2.1	105(ESE)
	06:00	2.7	141(SE)
	07:00	1.5	69(ENE)
	08:00	2.9	139(SE)
	09:00	1.5	192(SSW)
	10:00	2.5	112(ESE)
	11:00	2.3	173(S)
	12:00	1.9	172(S)
	13:00	1.3	113(ESE)
	14:00	1.1	181(S)
	15:00	2.5	136(SE)
	16:00	2.5	182(S)
	17:00	0.7	156(SSE)
	18:00	1.9	164(SSE)
	19:00	1.3	178(S)
	20:00	0.9	161(SSE)
	21:00	0.0	148(SSE)
	22:00	1.9	169(S)
23:00	1.7	204(SSW)	



## Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
16-Oct-21	00:00	0.7	104(ESE)
	01:00	1.3	206(SSW)
	02:00	0.9	154(SSE)
	03:00	2.3	188(S)
	04:00	1.9	112(ESE)
	05:00	2.3	201(SSW)
	06:00	3.1	152(SSE)
	07:00	2.7	163(SSE)
	08:00	4.1	139(SE)
	09:00	3.5	139(SE)
	10:00	2.7	118(ESE)
	11:00	2.1	133(SE)
	12:00	3.1	161(SSE)
	13:00	2.9	112(ESE)
	14:00	4.7	162(SSE)
	15:00	3.1	113(ESE)
	16:00	4.1	141(SE)
	17:00	2.3	209(SSW)
	18:00	2.5	161(SSE)
	19:00	3.5	119(ESE)
	20:00	3.3	111(ESE)
	21:00	2.9	180(S)
	22:00	2.7	155(SSE)
23:00	4.1	167(SSE)	
17-Oct-21	00:00	4.7	162(SSE)
	01:00	4.1	155(SSE)
	02:00	3.9	157(SSE)
	03:00	4.5	151(SSE)
	04:00	6.3	169(S)
	05:00	2.1	80(E)
	06:00	1.1	105(ESE)
	07:00	2.7	124(SE)
	08:00	5.7	127(SE)
	09:00	2.3	218(SW)
	10:00	4.9	214(SW)
	11:00	3.1	134(SE)
	12:00	3.5	139(SE)
	13:00	6.5	111(ESE)
	14:00	5.5	141(SE)
	15:00	5.1	147(SSE)
	16:00	3.9	164(SSE)
	17:00	2.3	139(SE)
	18:00	1.3	293(WNW)
	19:00	6.3	142(SE)
	20:00	1.7	118(ESE)
	21:00	2.3	132(SE)
	22:00	3.3	138(SE)
23:00	2.1	141(SE)	



## Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
18-Oct-21	00:00	2.9	136(SE)
	01:00	2.1	149(SSE)
	02:00	1.3	292(WNW)
	03:00	3.9	124(SE)
	04:00	2.3	175(S)
	05:00	2.3	154(SSE)
	06:00	3.9	144(SE)
	07:00	2.9	186(S)
	08:00	2.9	147(SSE)
	09:00	4.1	134(SE)
	10:00	2.1	188(S)
	11:00	1.5	182(S)
	12:00	0.9	260(W)
	13:00	1.7	163(SSE)
	14:00	2.5	176(S)
	15:00	0.9	82(E)
	16:00	1.1	168(SSE)
	17:00	1.5	167(SSE)
	18:00	1.9	229(SW)
	19:00	1.1	228(SW)
	20:00	0.9	185(S)
	21:00	0.7	78(ENE)
	22:00	0.9	213(SSW)
23:00	0.5	233(SW)	
19-Oct-21	00:00	0.5	138(SE)
	01:00	0.0	128(SE)
	02:00	0.0	330(NNW)
	03:00	0.9	157(SSE)
	04:00	0.7	350(N)
	05:00	1.3	345(NNW)
	06:00	0.9	222(SW)
	07:00	1.7	184(S)
	08:00	0.9	131(SE)
	09:00	0.7	209(SSW)
	10:00	0.5	104(ESE)
	11:00	1.1	176(S)
	12:00	1.5	113(ESE)
	13:00	3.5	252(WSW)
	14:00	3.5	190(S)
	15:00	0.9	127(SE)
	16:00	0	77(ENE)
	17:00	0.9	142(SE)
	18:00	1.7	220(SW)
	19:00	0.7	163(SSE)
	20:00	0.7	126(SE)
	21:00	0.7	83(E)
	22:00	0.9	218(SW)
23:00	0.7	180(S)	



## Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
20-Oct-21	00:00	0.7	67(ENE)
	01:00	1.1	213(SSW)
	02:00	1.7	93(E)
	03:00	0.9	225(SW)
	04:00	0.5	77(ENE)
	05:00	0.0	119(ESE)
	06:00	0.0	189(S)
	07:00	0.7	191(S)
	08:00	1.1	211(SSW)
	09:00	0.7	234(SW)
	10:00	0.7	278(W)
	11:00	1.5	34(NE)
	12:00	1.1	137(SE)
	13:00	1.7	144(SE)
	14:00	1.3	26(NNE)
	15:00	1.1	232(SW)
	16:00	2.7	201(SSW)
	17:00	2.7	144(SE)
	18:00	0.9	266(W)
	19:00	0.9	94(E)
	20:00	1.1	179(S)
	21:00	1.9	160(SSE)
	22:00	0.7	190(S)
23:00	0.5	136(SE)	
21-Oct-21	00:00	0.5	156(SSE)
	01:00	0.7	205(SSW)
	02:00	0.5	123(ESE)
	03:00	0.7	235(SW)
	04:00	0.7	319(NW)
	05:00	0.5	214(SW)
	06:00	0.0	151(SSE)
	07:00	0.0	133(SE)
	08:00	0.0	87(E)
	09:00	0.9	123(ESE)
	10:00	0.5	52(NE)
	11:00	0.5	194(SSW)
	12:00	1.1	75(ENE)
	13:00	0.9	269(W)
	14:00	2.1	155(SSE)
	15:00	2.7	192(SSW)
	16:00	0.9	159(SSE)
	17:00	1.3	321(NW)
	18:00	0.7	261(W)
	19:00	1.1	324(NW)
	20:00	0.9	230(SW)
	21:00	1.9	117(ESE)
	22:00	1.7	191(S)
23:00	0.7	305(NW)	



## Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
22-Oct-21	00:00	0.9	65(ENE)
	01:00	1.5	112(ESE)
	02:00	1.3	24(NNE)
	03:00	0.9	310(NW)
	04:00	0	118(ESE)
	05:00	0.9	159(SSE)
	06:00	0.5	81(E)
	07:00	0	119(ESE)
	08:00	1.1	6(N)
	09:00	0.7	218(SW)
	10:00	1.1	122(ESE)
	11:00	0.9	145(SE)
	12:00	0.9	181(S)
	13:00	1.5	235(SW)
	14:00	0.7	82(E)
	15:00	0.5	181(S)
	16:00	1.1	237(WSW)
	17:00	1.1	53(NE)
	18:00	1.3	137(SE)
	19:00	0.9	68(ENE)
	20:00	1.9	85(E)
	21:00	3.5	92(E)
	22:00	1.9	107(ESE)
23:00	1.3	149(SSE)	
23-Oct-21	00:00	0.9	296(WNW)
	01:00	1.1	304(NW)
	02:00	1.3	146(SE)
	03:00	1.5	126(SE)
	04:00	0.5	109(ESE)
	05:00	1.9	135(SE)
	06:00	0	98(E)
	07:00	2.5	98(E)
	08:00	0.7	52(NE)
	09:00	1.5	144(SE)
	10:00	1.5	142(SE)
	11:00	1.3	238(WSW)
	12:00	0.7	155(SSE)
	13:00	1.3	163(SSE)
	14:00	0.7	169(S)
	15:00	0.9	284(WNW)
	16:00	0.7	118(ESE)
	17:00	1.3	50(NE)
	18:00	0.9	84(E)
	19:00	0.9	92(E)
	20:00	0.9	297(WNW)
	21:00	1.1	53(NE)
	22:00	0.7	268(W)
23:00	0.9	54(NE)	



## Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
24-Oct-21	00:00	1.1	126(SE)
	01:00	0.9	123(ESE)
	02:00	0.9	300(WNW)
	03:00	0.5	214(SW)
	04:00	1.1	275(W)
	05:00	0.9	257(WSW)
	06:00	1.3	264(W)
	07:00	0.7	298(WNW)
	08:00	0.5	112(ESE)
	09:00	1.1	73(ENE)
	10:00	1.1	296(WNW)
	11:00	0.9	218(SW)
	12:00	0.9	72(ENE)
	13:00	1.5	153(SSE)
	14:00	0.7	220(SW)
	15:00	1.3	286(WNW)
	16:00	1.7	236(SW)
	17:00	1.3	170(S)
	18:00	1.9	142(SE)
	19:00	1.5	266(W)
	20:00	1.3	140(SE)
	21:00	0.7	43(NE)
	22:00	0.7	214(SW)
23:00	1.5	164(SSE)	
25-Oct-21	00:00	0.9	44(NE)
	01:00	1.7	211(SSW)
	02:00	0.5	173(S)
	03:00	1.1	99(E)
	04:00	1.5	152(SSE)
	05:00	1.1	274(W)
	06:00	1.5	301(WNW)
	07:00	2.5	96(E)
	08:00	0.9	227(SW)
	09:00	0	91(E)
	10:00	0.9	301(WNW)
	11:00	0.9	271(W)
	12:00	0.7	141(SE)
	13:00	1.1	176(S)
	14:00	1.1	275(W)
	15:00	0.5	148(SSE)
	16:00	1.3	77(ENE)
	17:00	1.3	155(SSE)
	18:00	0.9	211(SSW)
	19:00	1.3	234(SW)
	20:00	1.7	107(ESE)
	21:00	1.5	304(NW)
	22:00	0.9	167(SSE)
23:00	0	284(WNW)	





## Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
26-Oct-21	00:00	0.5	223(SW)
	01:00	0.7	135(SE)
	02:00	0.5	56(NE)
	03:00	0	274(W)
	04:00	0.5	148(SSE)
	05:00	2.1	101(E)
	06:00	0.9	198(SSW)
	07:00	0.7	153(SSE)
	08:00	1.1	289(WNW)
	09:00	0	348(NNW)
	10:00	0	304(NW)
	11:00	1.7	257(WSW)
	12:00	0.7	299(WNW)
	13:00	0.5	44(NE)
	14:00	0.7	68(ENE)
	15:00	1.5	130(SE)
	16:00	0.7	67(ENE)
	17:00	0.5	182(S)
	18:00	1.1	135(SE)
	19:00	0.7	202(SSW)
	20:00	0.5	66(ENE)
	21:00	0.5	201(SSW)
	22:00	0.9	174(S)
23:00	0.9	161(SSE)	
27-Oct-21	00:00	0	104(ESE)
	01:00	0.5	121(ESE)
	02:00	1.1	92(E)
	03:00	0.9	116(ESE)
	04:00	0	180(S)
	05:00	1.1	228(SW)
	06:00	0.5	183(S)
	07:00	0.9	167(SSE)
	08:00	0.7	279(W)
	09:00	0.9	70(ENE)
	10:00	0.7	180(S)
	11:00	0.9	75(ENE)
	12:00	1.1	177(S)
	13:00	0.7	227(SW)
	14:00	0.9	245(WSW)
	15:00	0.5	147(SSE)
	16:00	0.9	83(E)
	17:00	0.9	94(E)
	18:00	0.7	16(NNE)
	19:00	0.9	179(S)
	20:00	0.9	188(S)
	21:00	0.7	146(SE)
	22:00	0	242(WSW)
23:00	0.5	48(NE)	



## Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
28-Oct-21	00:00	0.7	285(WNW)
	01:00	0.9	242(WSW)
	02:00	0.5	156(SSE)
	03:00	0.7	321(NW)
	04:00	1.5	172(S)
	05:00	2.3	285(WNW)
	06:00	0.5	87(E)
	07:00	1.3	249(WSW)
	08:00	0	169(S)
	09:00	0.7	26(NNE)
	10:00	1.7	265(W)
	11:00	2.3	126(SE)
	12:00	0.7	121(ESE)
	13:00	0.9	135(SE)
	14:00	0.5	111(ESE)
	15:00	1.1	152(SSE)
	16:00	0.7	73(ENE)
	17:00	1.5	103(ESE)
	18:00	0.9	157(SSE)
	19:00	1.3	176(S)
	20:00	1.3	101(E)
	21:00	1.3	62(ENE)
	22:00	1.9	75(ENE)
23:00	1.1	263(W)	
29-Oct-21	00:00	0.5	73(ENE)
	01:00	1.5	196(SSW)
	02:00	2.5	72(ENE)
	03:00	0	130(SE)
	04:00	0.9	214(SW)
	05:00	0	149(SSE)
	06:00	0.7	87(E)
	07:00	0.9	155(SSE)
	08:00	1.3	304(NW)
	09:00	1.5	27(NNE)
	10:00	1.3	288(WNW)
	11:00	1.5	166(SSE)
	12:00	0.9	214(SW)
	13:00	1.1	86(E)
	14:00	1.1	69(ENE)
	15:00	2.3	321(NW)
	16:00	0.7	163(SSE)
	17:00	0.7	164(SSE)
	18:00	0.9	93(E)
	19:00	1.1	237(WSW)
	20:00	0.7	141(SE)
	21:00	0.7	121(ESE)
	22:00	1.1	186(S)
23:00	0.7	99(E)	



## Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
30-Oct-21	00:00	0.5	143(SE)
	01:00	1.7	68(ENE)
	02:00	0.5	223(SW)
	03:00	0.7	110(ESE)
	04:00	0.9	131(SE)
	05:00	1.1	95(E)
	06:00	0.9	64(ENE)
	07:00	0	59(ENE)
	08:00	0.5	354(N)
	09:00	0.9	258(WSW)
	10:00	1.1	51(NE)
	11:00	1.1	76(ENE)
	12:00	1.1	166(SSE)
	13:00	0.7	38(NE)
	14:00	0.7	154(SSE)
	15:00	0.7	139(SE)
	16:00	1.3	197(SSW)
	17:00	0.5	271(W)
	18:00	0.5	273(W)
	19:00	1.1	74(ENE)
	20:00	0.9	258(WSW)
	21:00	0.5	106(ESE)
	22:00	1.1	185(S)
23:00	0.7	182(S)	
31-Oct-21	00:00	0.5	31(NNE)
	01:00	0.7	217(SW)
	02:00	0.7	160(SSE)
	03:00	0	145(SE)
	04:00	1.1	270(W)
	05:00	1.3	286(WNW)
	06:00	0.9	74(ENE)
	07:00	0.5	102(ESE)
	08:00	0.7	239(WSW)
	09:00	1.3	70(ENE)
	10:00	0.5	170(S)
	11:00	0.9	223(SW)
	12:00	0.9	174(S)
	13:00	2.3	56(NE)
	14:00	1.9	126(SE)
	15:00	2.3	270(W)
	16:00	1.1	162(SSE)
	17:00	1.3	151(SSE)
	18:00	0.7	284(WNW)
	19:00	0	133(SE)
	20:00	0	100(E)
	21:00	2.9	101(E)
	22:00	0.7	30(NNE)
23:00	0	97(E)	



## ***Appendix 5.1***

# ***Monitoring Schedule for Reporting Month and Next Reporting Month***

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**Contract No. SPW 12/2021**  
**Environmental Team (2021-2024)**  
**for Shek Wui Effluent Polishing Plant - Main Works**  
**Tentative Impact Monitoring Schedule**  
**Oct 2021**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					01 Oct AQM - 24hr TSP	02 Oct AQM - 1hr TSP
03 Oct	04 Oct	05 Oct	06 Oct	07 Oct AQM - 24hr TSP	08 Oct AQM - 1hr TSP	09 Oct
10 Oct	11 Oct Ecological Monitoring	12 Oct AQM - 24hr TSP Ecological Monitoring	13 Oct	14 Oct	15 Oct AQM - 1hr TSP NM	16 Oct
17 Oct	18 Oct AQM - 24hr TSP	19 Oct AQM - 1hr TSP NM	20 Oct	21 Oct Ecological Monitoring	22 Oct	23 Oct AQM - 24hr TSP
24 Oct	25 Oct AQM - 1hr TSP NM	26 Oct	27 Oct	28 Oct	29 Oct AQM - 24hr TSP Ecological Monitoring	30 Oct AQM - 1hr TSP
31 Oct						

Remark:

- AQM: Air Quality Monitoring
  - NM: Noise Monitoring, the monitoring dates are tentative and subject to change
  - Ecological Monitoring dates are tentative and subject to change based on real-time tide.
1. NM scheduled on 8 Oct was cancelled due to adverse weather conditions (Signal No. 3 and Red Rainstorm Warning were in force)
  2. Ecological monitoring scheduled on 8 Oct was cancelled due to adverse weather condition (Signal No. 3 and Red Rainstorm Warning were in force). A compensatory one was conducted on 11 Oct.
  3. 1-hr AQM and NM scheduled on 13 Oct were cancelled due to adverse weather conditions (Signal No.8 was in force). Compensatory monitoring work for both of them were conducted on 15 Oct.
  4. Ecological monitoring scheduled on 22 Oct was rescheduled to 21 Oct due to a schedule clash



**Contract No. SPW 12/2021**  
**Environmental Team (2021-2024)**  
**for Shek Wui Effluent Polishing Plant - Main Works**  
**Tentative Impact Monitoring Schedule**  
**Nov 2021**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01 Nov	02 Nov	03 Nov	04 Nov AQM - 24hr TSP	05 Nov AQM - 1hr TSP NM Ecological Monitoring	06 Nov
07 Nov	08 Nov	09 Nov	10 Nov AQM - 24hr TSP Ecological Monitoring	11 Nov AQM - 1hr TSP NM	12 Nov	13 Nov
14 Nov	15 Nov	16 Nov AQM - 24hr TSP	17 Nov AQM - 1hr TSP NM	18 Nov	19 Nov Ecological Monitoring	20 Nov
21 Nov	22 Nov AQM - 24hr TSP	23 Nov AQM - 1hr TSP NM	24 Nov	25 Nov	26 Nov Ecological Monitoring	27 Nov AQM - 24hr TSP
28 Nov	29 Nov AQM - 1hr TSP NM	30 Nov				

Remark:

- AQM: Air Quality Monitoring
- NM: Noise Monitoring, the monitoring dates are tentative and subject to change
- Ecological Monitoring dates are tentative and subject to change based on real-time tide.



## ***Appendix 5.2***

# ***Noise Monitoring Results and Graphical Presentations***



**Noise Monitoring Result**

**Day Time (0700 - 1900hrs on weekday)**

Location: NM1 - G/F, Wai Loi Tsuen

Date	Time	Weather	Wind Speed (m/s)	Measurement Noise Level			Baseline Level	Construction Noise Level	Limit Level
				Leq	L10	L90	Leq	Leq	Leq
Unit: dB(A), (30min)									
15/10/2021	17:05	Cloudy	0.0	55.4	58.2	51.4	63.4	55	75
19/10/2021	13:00	Fine	0.0	54.5	58.0	51.2	63.4	55	75
25/10/2021	8:35	Fine	0.4	58.3	60.1	56.8	63.4	58	75

Location: NM2 - G/F, Fu Tei Au

Date	Time	Weather	Wind Speed (m/s)	Measurement Noise Level			Baseline Level	Construction Noise Level	Limit Level
				Leq	L10	L90	Leq	Leq	Leq
Unit: dB(A), (30-min)									
15/10/2021	14:45	Cloudy	0.0	59.2	61.6	55.9	58.0	53	75
19/10/2021	13:45	Fine	0.0	58.9	61.0	54.6	58.0	52	75
25/10/2021	9:25	Fine	0.2	57.6	58.4	54.2	58.0	58	75

Location: NM3 - G/F, Man kok Village

Date	Time	Weather	Wind Speed (m/s)	Measurement Noise Level			Baseline Level	Construction Noise Level	Limit Level
				Leq	L10	L90	Leq	Leq	Leq
Unit: dB(A), (30min)									
15/10/2021	15:30	Cloudy	0.0	63.2	67.0	52.3	63.4	63	75
19/10/2021	15:30	Fine	0.0	64.0	67.5	62.5	63.4	55	75
25/10/2021	10:05	Fine	0.1	63.1	64.6	60.5	63.4	63	75

\* Free field correction (Additional 3dB(A)) was made on NM1, NM2, and NM3 measurement result

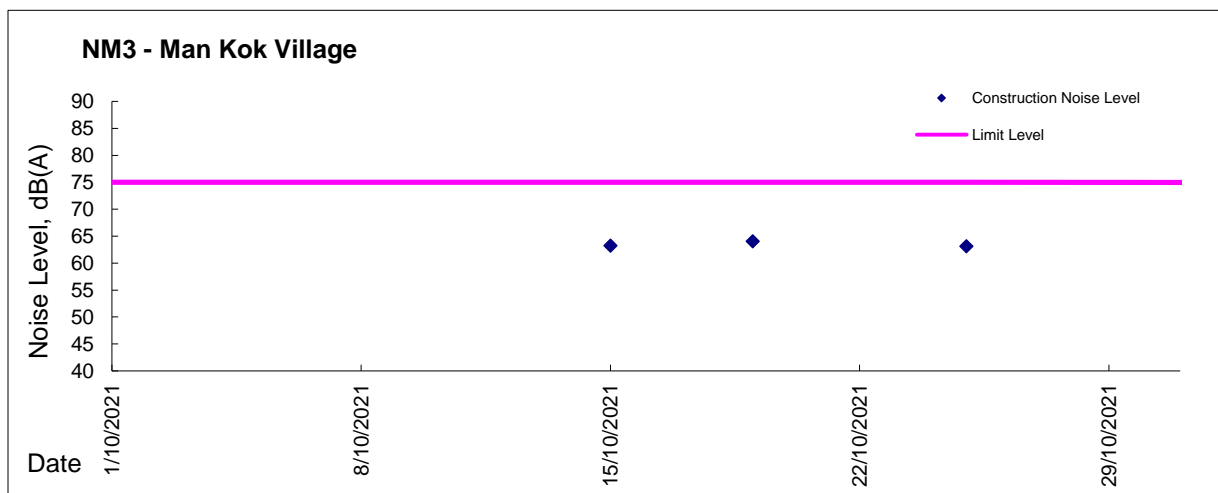
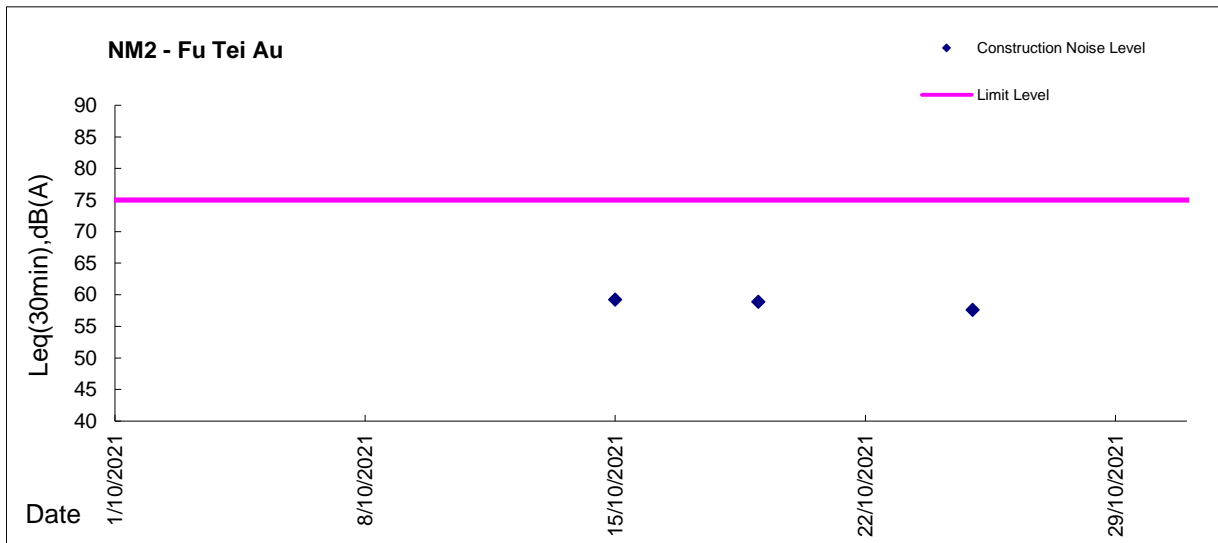
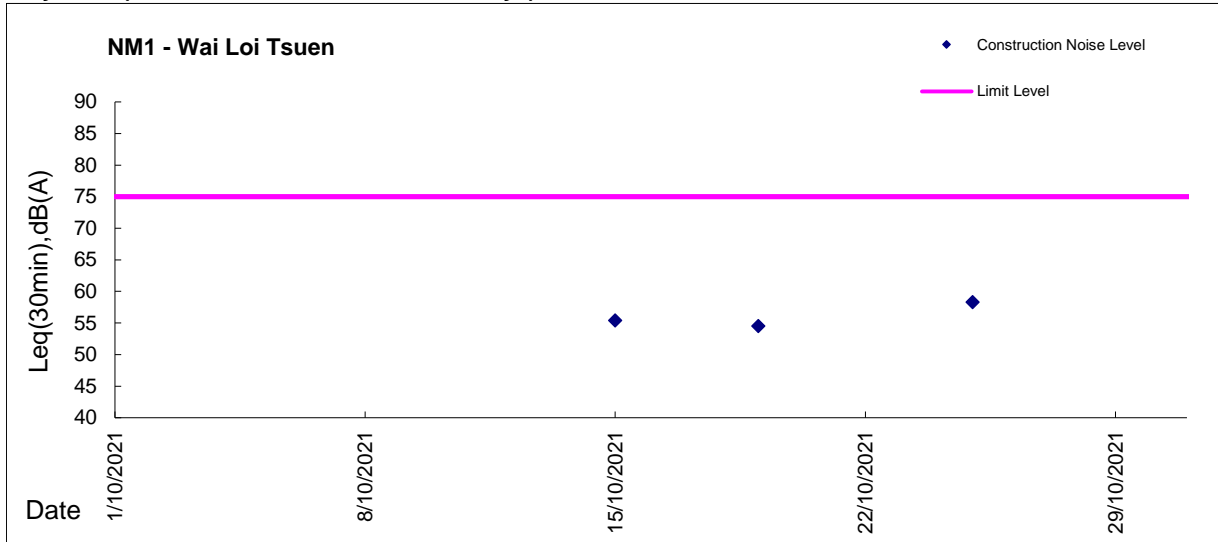
\* NM scheduled on 8 Oct was cancelled due to adverse weather conditions (Signal No. 3 and Red Rainstorm Warning were in force)





**Graphic Presentation of Noise Monitoring Result**

**Day Time (0700 - 1900hrs on normal weekdays)**





## ***Appendix 5.3***

# ***Air Quality Monitoring Results and Graphical Presentations***



Report on 1-hour TSP monitoring at AM1 - Wai Loi Tsuen  
Action Level ( $\mu\text{g}/\text{m}^3$ ) - 320  
Limit Level ( $\mu\text{g}/\text{m}^3$ ) - 500

Date	Weather Condition	Time	Mass Concentration ( $\mu\text{g}/\text{m}^3$ )
2-Oct-21	Fine	8:00	74
2-Oct-21	Fine	9:01	53
2-Oct-21	Fine	10:02	43
8-Oct-21	Fine	13:01	65
8-Oct-21	Fine	14:02	59
8-Oct-21	Fine	15:03	46
15-Oct-21	Fine	8:55	55
15-Oct-21	Fine	9:56	48
15-Oct-21	Fine	10:57	47
19-Oct-21	Fine	8:55	114
19-Oct-21	Fine	9:56	93
19-Oct-21	Fine	10:57	85
25-Oct-21	Fine	8:22	58
25-Oct-21	Fine	9:23	51
25-Oct-21	Fine	10:24	55
30-Oct-21	Fine	8:48	66
30-Oct-21	Fine	9:49	59
30-Oct-21	Fine	10:50	62



Report on 1-hour TSP monitoring at AM2 - Fu Tei Au  
Action Level ( $\mu\text{g}/\text{m}^3$ ) - 322  
Limit Level ( $\mu\text{g}/\text{m}^3$ ) - 500

Date	Weather Condition	Time	Mass Concentration ( $\mu\text{g}/\text{m}^3$ )
2-Oct-21	Fine	8:00	115
2-Oct-21	Fine	9:01	109
2-Oct-21	Fine	10:02	110
8-Oct-21	Fine	13:00	13
8-Oct-21	Fine	14:01	13
8-Oct-21	Fine	15:02	15
15-Oct-21	Fine	9:12	47
15-Oct-21	Fine	10:13	38
15-Oct-21	Fine	11:14	34
19-Oct-21	Fine	8:45	30
19-Oct-21	Fine	9:46	25
19-Oct-21	Fine	10:47	24
25-Oct-21	Fine	8:37	55
25-Oct-21	Fine	9:38	46
25-Oct-21	Fine	10:39	44
30-Oct-21	Fine	8:56	52
30-Oct-21	Fine	9:57	55
30-Oct-21	Fine	10:58	57



Location: AM1a - Site Boundary of the Shek Wu Hui STW (East)  
Impact Monitoring Result on 24-hour TSP monitoring

Date	Sampling Time	Weather Condition	Pressure, hPa		Temp., °C		Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m <sup>3</sup> /min			Total Volume, m <sup>3</sup>	TSP Level, ug/m <sup>3</sup>
			Initial	Final	Initial	Final		Initial	Final	Initial, Qsi	Final, Qsf		Average				
01-Oct-21	8:00	Fine	1009.1	1011	30.3	30	AM1a_24hr_009529	2.7744	2.8483	26199.97	26223.97	24.00	1.23	1.23	1.23	1773	42
07-Oct-21	8:00	Cloudy	1005.7	1004.6	28.8	28.5	AM1a_24hr_008369	2.6338	2.6954	26223.97	26247.97	24.00	1.23	1.26	1.24	1791	34
12-Oct-21	8:00	Cloudy	1008.9	1006.2	29	28.6	AM1a_24hr_008370	2.6264	2.7229	26247.97	26271.97	24.00	1.23	1.23	1.23	1774	54
18-Oct-21	8:00	Fine	1018.3	1017.8	23.9	25.7	AM1a_24hr_008576	2.6614	2.7859	26271.97	26295.97	24.00	1.25	1.24	1.24	1791	70
23-Oct-21	8:00	Fine	1020.1	1018.9	20.5	22.1	AM1a_24hr_009612	2.7869	2.9169	26295.97	26319.97	24.00	1.25	1.25	1.25	1800	72
29-Oct-21	8:00	Fine	1018.2	1018.8	25.5	24.4	AM1a_24hr_008387	2.6652	2.8036	26319.97	26343.97	24.00	1.53	1.53	1.53	2199	63

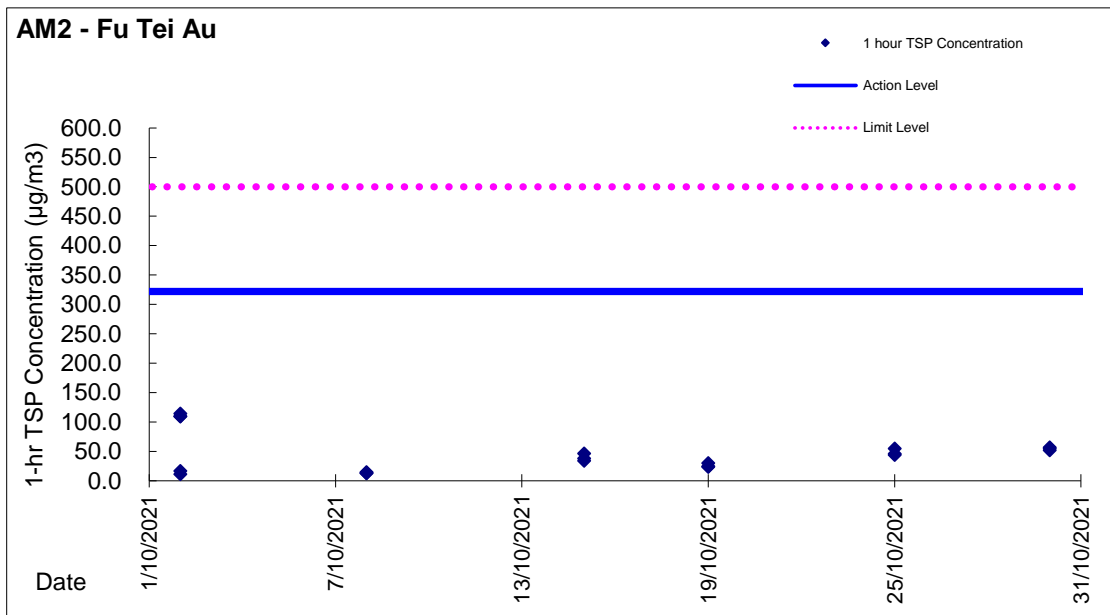
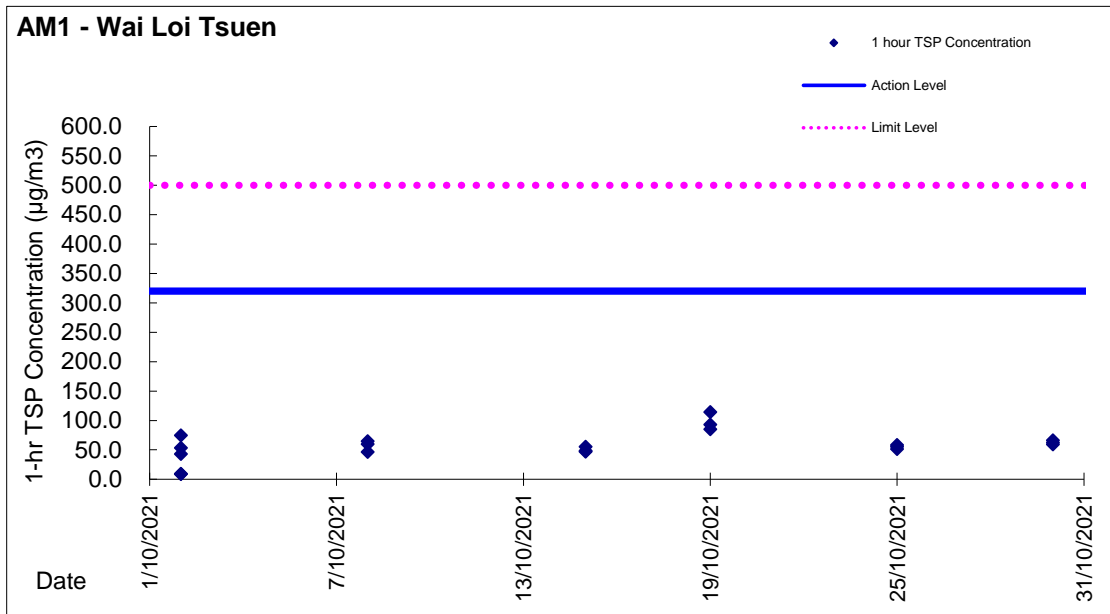


Location: AM2a - Site Boundary of the Shek Wu Hui STW (North)  
 Impact Monitoring Result on 24-hour TSP monitoring

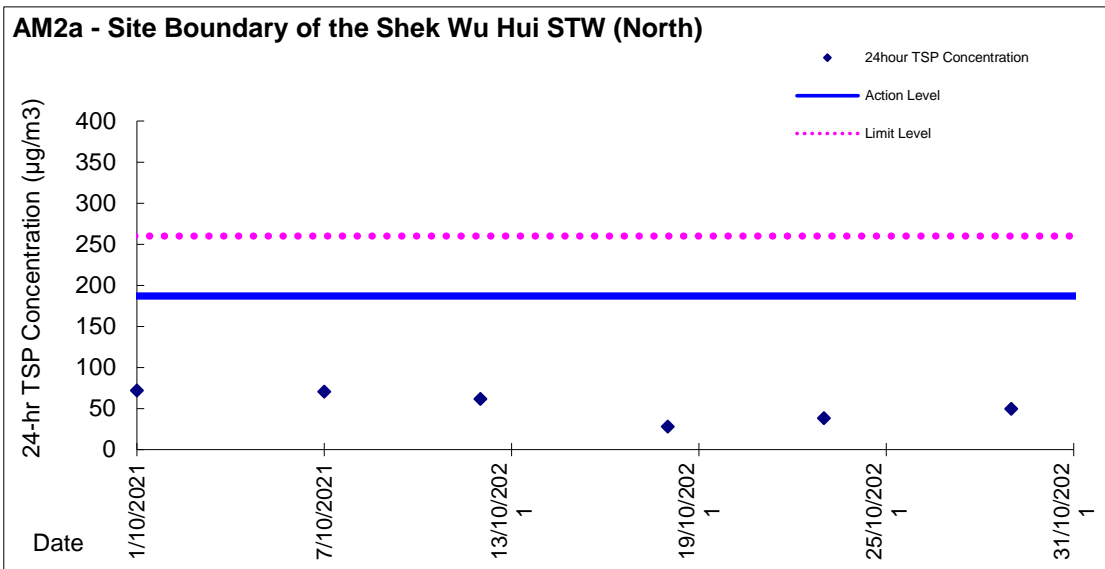
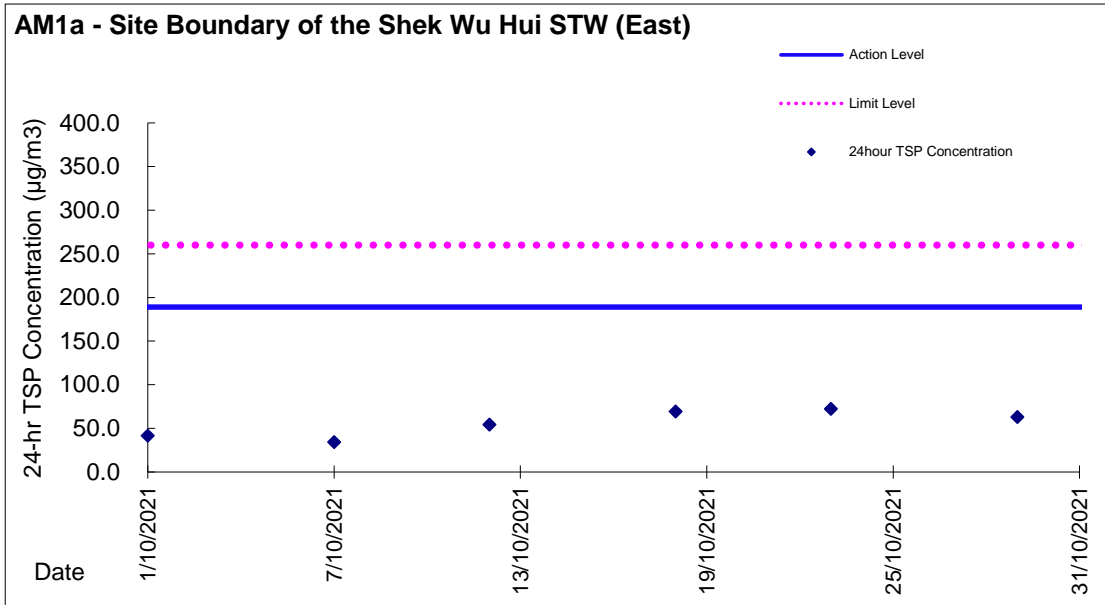
1.251052

Date	Sampling Time	Weather Condition	Pressure, hPa		Temp., °C		Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m <sup>3</sup> /min			Total Volume, m <sup>3</sup>	TSP Level, ug/m <sup>3</sup>
			Initial	Final	Initial	Final		Initial	Final	Initial, Qsi	Final, Qsf		Average				
01-Oct-21	8:00	Fine	1009.1	1011	30.3	30	AM2a_24hr_008368	2.6410	2.7716	17173.93	17197.93	24.00	1.25	1.28	1.27	1822	72
07-Oct-21	8:00	Cloudy	1005.7	1004.6	28.8	28.5	AM2a_24hr_008388	2.6890	2.8132	17197.93	17221.93	24.00	1.22	1.22	1.22	1764	70
12-Oct-21	8:00	Cloudy	1008.9	1006.2	29	28.6	AM2a_24hr_008371	2.6256	2.7298	17221.93	17245.93	24.00	1.17	1.17	1.17	1688	62
18-Oct-21	8:00	Fine	1018.3	1017.8	23.9	25.7	Am2a_24hr_008577	2.6439	2.6914	17245.93	17269.93	24.00	1.19	1.18	1.18	1705	28
23-Oct-21	8:00	Fine	1020.1	1018.9	20.5	22.1	Am2a_24hr_009611	2.7910	2.8536	17269.93	17293.93	24.00	1.14	1.13	1.14	1636	38
29-Oct-21	8:00	Fine	1018.2	1018.8	25.5	24.4	Am2a_24hr_008372	2.6239	2.7241	17293.93	17317.93	24.00	1.40	1.40	1.40	2019	50

Graphic Presentation of TSP Result



Graphic Presentation of TSP Result







## ***Appendix 5.4***

### ***Details of Ecological Monitoring Results in the Reporting Month***

#### 5.4. ECOLOGICAL MONITORING RESULTS

5.4.1. For this reporting month, the numbers of species and individuals recorded were provided in **Table 1** and the abundance of representative species were shown in **Table 2**.

**Table 1 Total Bird Species and Abundance in the Reporting Month**

	Number of Species	Abundance
All Avifauna	48	1957
Waterbirds	21	675

**Table 2 Abundance of Representative Waterbirds in the Reporting Month**

Species Name	Common Name	Chinese Name	Abundance
<i>Egretta garzetta</i>	Little Egret	小白鷺	151
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	58
<i>Ardeola bacchus</i>	Chinese Pond Heron	池鷺	94
<i>Phalacrocorax carbo</i>	Great Cormorant	普通鸕鶿	18
<i>Ardea alba</i>	Great Egret	大白鷺	49
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	213
		<b>Total</b>	<b>583</b>

## Analysis

5.4.2. The result of student t-tests for all waterbirds and representative waterbirds are compiled in **Table 3 and 4** respectively. Further details are provided in **Appendix 5.4b**.

**Table 3 T-test Result for All Waterbirds in the Reporting Month**

T-values of Data in Reporting Month			Confidence Level (Critical Value)	
			95% (-2.132)	99% (-3.747)
Abundance	Monthly	9.133	✓	✓
	Seasonal	8.268	✓	✓

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 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
		95% (2.132)	99% (3.747)		Seasonal	95% (2.132)	
Little Egret	26.642	✓	✓	26.642	✓	✓	✓
Grey Heron	3.014	✓	✓	0.528	✓	✓	✓
Chinese Pond Heron	2.296	✓	✓	2.895	✓	✓	✓
Great Cormorant	1.807	✓	✓	-1.291	✓	✓	✓
Great Egret	3.516	✓	✓	4.856	✓	✓	✓
Eastern Cattle Egret	3.097	✓	✓	2.864	✓	✓	✓

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.

\* Great Cormorant (*Phalacrocorax carbo*) and Grey Heron (*Ardea cinerea*) were not recognised as representative waterbird species during wet season.

5.4.3. No Action Level and Limit Level was triggered for ecological monitoring in the reporting month.

5.4.4. The monitoring work will continue next month to evaluate any construction impact on waterbirds.

**Observations**

5.4.5. Waterbird behaviour observed during ecological monitoring are listed below:

- Flying
- Foraging
- Soaring
- Resting

5.4.6. The anthropogenic activities observed during ecological monitoring are listed in **Table 5**.

**Table 5 Observations during Ecological Monitoring in the Reporting Month**

Location(s)	Observations	
	Project Related	Non-project Related
T1 (PC1, PC2)	N/A	Fishing and Generator
T2 (PC3, PC4)	Excavation and crane	Fishing, Site Cleaning, Excavation Sheet-piling, generator & welding works Scaffolding
PC5	N/A	Site Cleaning
T3 (PC6, PC7)	N/A	Fishing, Excavation Sheet-piling, generator & welding works Scaffolding



## ***Appendix 5.5***

# ***Ecological Monitoring Results and Analysis***

## Summary data of the Ecological Monitoring

Scientific Names	Common Names	Chinese Names	Waterbird	Point Count Abundance	Transect Count Abundance
<i>Anas clypeata</i>	Northern Shoveler	琵嘴鴨	X	3	+
<i>Tachybaptus ruficollis</i>	Little Grebe	小鸕鶿	X	1	N/A
<i>Ardeola bacchus</i>	Chinese Pond Heron	池鷺	X	94	+++++
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	X	213	+++++
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	X	58	+++++
<i>Ardea alba</i>	Great Egret	大白鷺	X	49	++++
<i>Egretta intermedia</i>	Intermediate Egret	中白鷺	X	0	+
<i>Egretta garzetta</i>	Little Egret	小白鷺	X	151	+++++
<i>Phalacrocorax carbo</i>	Great Cormorant	普通鸕鶿	X	18	++
<i>Accipiter trivirgatus</i>	Crested Goshawk	鳳頭鷹	X	1	N/A
<i>Milvus migrans</i>	Black Kite	黑鳶	X	8	+
<i>Amaurornis phoenicurus</i>	White-breasted Waterhen	白胸苦惡鳥	X	4	N/A
<i>Himantopus himantopus</i>	Black-winged Stilt	黑翅長腳鷺	X	9	++
<i>Tringa stagnatilis</i>	Marsh Sandpiper	澤鷺	X	1	+
<i>Tringa nebularia</i>	Common Greenshank	青腳鷺	X	2	+
<i>Tringa ochropus</i>	Green Sandpiper	白腰草鷺	X	1	N/A
<i>Actitis hypoleucos</i>	Common Sandpiper	磯鷺	X	35	+++
<i>Columba livia</i>	Domestic Pigeon	原鴿		12	N/A
<i>Spilopelia chinensis</i>	Spotted Dove	珠頸斑鳩		83	+++++
<i>Halcyon smyrnensis</i>	White-throated Kingfisher	白胸翡翠	X	8	+
<i>Alcedo atthis</i>	Common Kingfisher	普通翠鳥	X	9	++
<i>Ceryle rudis</i>	Pied Kingfisher	斑魚狗	X	2	+
<i>Psittacula krameri</i>	Rose-ringed Parakeet	紅領綠鸚鵡		8	+
<i>Lanius schach</i>	Long-tailed Shrike	棕背伯勞		2	+
<i>Urocissa erythroryncha</i>	Red-billed Blue Magpie	紅嘴藍鵲		4	+
<i>Pica pica</i>	Eurasian Magpie	喜鵲		9	+
<i>Corvus torquatus</i>	Collared Crow	白頸鴉	X	8	+
<i>Corvus macrorhynchos</i>	Large-billed Crow	大嘴烏鴉		5	+
<i>Parus cinereus</i>	Cinereous Tit	蒼背山雀		33	+++
<i>Pycnonotus jocosus</i>	Red-whiskered Bulbul	紅耳鶇		68	+++++
<i>Pycnonotus sinensis</i>	Chinese Bulbul	白頭鶇		107	+++++
<i>Hirundo rustica</i>	Barn Swallow	家燕		27	+

Scientific Names	Common Names	Chinese Names	Waterbird	Point Count Abundance	Transect Count Abundance
<i>Phylloscopus proregulus</i>	Pallas's Leaf Warbler	黃腰柳鶯		1	+
<i>Phylloscopus inornatus</i>	Yellow-browed Warbler	黃眉柳鶯		28	+++
<i>Prinia flaviventris</i>	Yellow-bellied Prinia	黃腹鷓鴣		2	+
<i>Prinia inornata</i>	Plain Prinia	純色鷓鴣		14	++++
<i>Orthotomus sutorius</i>	Common Tailorbird	長尾縫葉鶯		54	+++++
<i>Stachyridopsis ruficeps</i>	Rufous-capped Babbler	紅頭穗鵲		1	N/A
<i>Garrulax perspicillatus</i>	Masked Laughingthrush	黑臉噪鵲		3	+
<i>Zosterops japonicus</i>	Japanese White-eye	暗綠繡眼鳥		152	+++++
<i>Acridotheres cristatellus</i>	Crested Myna	八哥		316	+++++
<i>Gracupica nigricollis</i>	Black-collared Starling	黑領棕鳥		140	+++++
<i>Copsychus saularis</i>	Oriental Magpie Robin	鵲鴝		7	+
<i>Muscicapa latirostris</i>	Asian Brown Flycatcher	北灰鶲		0	+
<i>Passer montanus</i>	Eurasian Tree Sparrow	樹麻雀		108	+++++
<i>Lonchura punctulata</i>	Scaly-breasted Munia	斑文鳥		14	+++
<i>Motacilla alba</i>	White Wagtail	白鶺鴒		84	+++++

Remarks:

X: Waterbird ;

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

According to S4.7 of the approved Baseline Monitoring Report (Ecology), "waterbirds" was defined as "waterbirds and wetland-dependent species", which was referenced to Monthly Waterbird Monitoring Biannual Reports prepared by the Hong Kong Bird Watching Society (Anon, 2020).

Also, S.13.11.3.2 of NENT NDA EIA Study requires "Monitoring of Measures to Mitigate for Impacts of the Project on Wetland-dependent Fauna using the Ng Tung, Sheung Yue and Shek Sheung Rivers". Therefore, "wetland-dependent birds" should be considered as "waterbirds". As raptors and Collared Crow are "wetland-dependent species", they should be taken into consideration in data analysis and impact assessment on waterbirds.

## **Waterbird Ecological Monitoring Result**

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	11/10/2021	12:30	H	299	546	27
		10:00	L	247		32

Total Bird Abundance from Point Count						
Survey Information				Total Bird Abundance from Point Count		
No.	Date	Time	Tide Level	Individuals Recorded	Total	Species Recorded
2	12/10/2021	15:00	H	218	485	27
		11:00	L	267		24
3	21/10/2021	11:00	H	194	542	27
		15:00	L	348		28
4	29/10/2021	16:45	H	200	384	25
		13:00	L	184		24

Remarks: H: High Tide; L: Low Tide

Total Waterbird Abundance from Point Count					
Survey Information				Total Waterbird Abundance from Point Count	
No.	Date	Time	Tide Level	Individuals Recorded	Total
1	11/10/2021	12:30	H	111	192
		10:00	L	81	
2	12/10/2021	15:00	H	76	184
		11:00	L	108	
3	21/10/2021	11:00	H	56	165
		15:00	L	109	
4	29/10/2021	16:45	H	59	134
		13:00	L	75	
<b>Overall Total</b>					<b>675</b>
<b>Average</b>					<b>135</b>

Remarks: H: High Tide; L: Low Tide

### T-Test Analysis for All Waterbirds

#### **Baseline Data**

Monthly Average Abundance (Oct) 51.00

Seasonal Average Abundance (Wet season) 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<sub>0</sub>: The data collected in the reporting month falls within the normal distribution when compared to the baseline monitoring data;

H<sub>1</sub>: The data collected does not falls within the normal distribution when compared to the baseline monitoring data.

If t-test value is **smaller** than the critical value, then rejects H<sub>0</sub>.

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

Crit. Value = -2.132 (95% Confidence Level)

Crit. Value = -3.747 (99% Confidence Level)

Analysis for All Waterbirds			Confidence Level (Critical Value)	
			95%	99%
Abundance	Monthly	9.133	✓	✓
	Seasonal	8.268	✓	✓

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.

			Confidence Level (Critical Value)	
			95%	99%
Abundance	Monthly	9.133	✓	✓
	Seasonal	8.268	✓	✓

Abundance of Representative Waterbirds from Point Count										
Representative Species			Recorded Abundance					Baseline Data		
Species Name	Common Name	Chinese Name	11/10/2021	12/10/2021	21/10/2021	29/10/2021	Total	Average	Average (Oct)	Avg (Winter)
<i>Egretta garzetta</i>	Little Egret	小白鷺	37	40	38	36	151	38	15	15
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	17	8	21	12	58	15	10	13
<i>Ardeola bacchus</i>	Chinese Pond Heron	池鷺	33	11	20	30	94	24	12	9
<i>Phalacrocorax carbo</i>	Great Cormorant	普通鸕鶿	3	1	4	10	18	5	1	7
<i>Ardea alba</i>	Great Egret	大白鷺	13	8	15	13	49	12	7	5
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	53	99	45	16	213	53	0	4

### 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<sub>0</sub>: The data collected in the reporting month falls within the normal distribution when compared to the baseline monitoring data;

H<sub>1</sub>: The data collected does not falls within the normal distribution when compared to the baseline monitoring data.

If t-test value is **smaller** than the critical value, then rejects H<sub>0</sub>.

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)

Common Name of Representative Waterbird	T-value	Confidence Level (Critical Value)		T-value	Confidence Level (Critical Value)		Overall
	Monthly	95%	99%	Seasonal	95%	99%	
Little Egret	26.642	✓	✓	26.642	✓	✓	✓
Grey Heron	3.014	✓	✓	0.528	✓	✓	✓
Chinese Pond Heron	2.296	✓	✓	2.895	✓	✓	✓
Great Cormorant	1.807	✓	✓	-1.291	✓	✓	✓
Great Egret	3.516	✓	✓	4.856	✓	✓	✓
Eastern Cattle Egret	3.097	✓	✓	2.864	✓	✓	✓

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.

\* Great Cormorant (*Phalacrocorax carbo*) and Grey Heron (*Ardea cinerea*) were not recognised as representative waterbird species during wet season.



## ***Appendix 5.6***

# ***Photo Record of Ecological Monitoring***

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**Conditions of Rivers**



**Sheung Yue River (Taken on 11 October 2021)**



**Sheung Yue River (Taken on 21 October 2021)**









**Shek Sheung River (Taken on 29 October 2021)**



**Shek Sheung River (Taken on 12 October 2021)**

## Human Activities & Site Conditions

		
<p><b>Excavation &amp; Crane</b> (Project-related, taken on 12 October 2021)</p>	<p><b>Sheet-piling, generator &amp; welding works</b> (Non-project-related, taken on 11 October 2021)</p>	<p><b>Excavation, Crane, Sheet-piling, generator &amp; welding works</b> (Non-project-related, taken on 21 October 2021)</p>
		
<p><b>Fishing</b> (Non-project-related, taken on 21 October 2021)</p>	<p><b>Site Cleaning</b> (Non-project-related, taken on 29 October 2021)</p>	<p><b>Site Cleaning</b> (Non-project-related, taken on 11 October 2021)</p>



## ***Appendix 5.7***

### ***Monthly Summary Waste Flow Table***



### Monthly Summary Waste Flow Table for 2021

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 '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m3)
Jan	10.034	0.000	0.000	8.257	1.777	0.606	0.000	0.000	0.002	0.000	0.038
Feb	3.703	0.000	0.000	2.871	0.833	0.071	2.120	0.000	0.000	0.000	0.024
Mar	4.644	0.000	0.000	2.190	2.454	0.037	0.000	0.000	0.006	0.000	0.044
Apr	0.211	0.000	0.023	0.000	0.188	0.167	0.000	0.000	0.008	0.000	0.042
May	0.557	0.000	0.218	0.000	0.340	0.190	0.001	0.002	0.008	0.000	0.081
Jun	0.370	0.000	0.023	0.000	0.348	0.119	8.210	0.000	0.000	0.000	0.069
<b>Sub-total</b>	<b>19.519</b>	<b>0.000</b>	<b>0.263</b>	<b>13.317</b>	<b>5.939</b>	<b>1.189</b>	<b>10.331</b>	<b>0.002</b>	<b>0.023</b>	<b>0.000</b>	<b>0.299</b>
Jul	0.592	0.000	0.000	0.000	0.592	0.096	0.000	0.000	0.010	0.000	0.046
Aug	0.567	0.000	0.000	0.000	0.567	0.368	0.002	0.017	0.008	0.000	0.066
Sep	0.184	0.000	0.000	0.000	0.184	0.589	0.000	0.000	0.000	0.000	0.037
Oct	0.230	0.000	0.000	0.000	0.230	0.170	0.001	0.003	0.008	0.000	0.055
Nov											
Dec											
<b>Total</b>	<b>21.092</b>	<b>0.000</b>	<b>0.263</b>	<b>13.317</b>	<b>7.512</b>	<b>2.411</b>	<b>10.334</b>	<b>0.022</b>	<b>0.049</b>	<b>0.000</b>	<b>0.502</b>

- Notes:
1. Assume the density of soil fill is 2 ton/m<sup>3</sup>.
  2. Assume the density of rock and broken concrete is 2.5 ton/m<sup>3</sup>.
  3. Assume the density of general refuse is 0.9 ton/m<sup>3</sup>.
  4. Assume density of waste oil is assumed to be 0.8 kg/L.
  5. The inert C&D materials except slurry and bentonite are disposed at Tuen Mun 38.
  6. The slurry and bentonite are disposed at Tseung Kwun O 137.
  7. The non-inert C&D wastes are disposed at NENT.



### Monthly Summary Waste Flow Table for 2021

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 <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )
Jan	0.836	0.000	0.000	0.000	0.836	0.301	21.25	0.000	0.002	0.000	0.006
Feb	0.911	0.000	0.000	0.000	0.911	0.376	39.35	0.000	0.000	0.000	0.007
Mar	0.954	0.000	0.000	0.000	0.954	0.202	0.00	0.000	0.003	0.000	0.016
Apr	0.550	0.000	0.000	0.046	0.504	0.000	0.00	0.000	0.008	0.000	0.009
May	1.368	0.000	0.000	0.149	1.220	0.081	0.00	0.000	0.008	0.000	0.012
Jun	0.670	0.000	0.000	0.074	0.596	0.000	0.00	0.010	0.000	0.000	0.012
<b>Sub-total</b>	<b>5.290</b>	<b>0.000</b>	<b>0.000</b>	<b>0.269</b>	<b>5.021</b>	<b>0.961</b>	<b>60.60</b>	<b>0.010</b>	<b>0.020</b>	<b>0.000</b>	<b>0.062</b>
Jul	2.818	0.000	0.000	0.058	2.760	0.000	0.00	0.000	0.010	0.000	0.011
Aug	5.061	0.000	0.000	0.000	5.061	0.021	27.13	0.013	0.014	0.000	0.010
Sep	4.093	0.000	0.000	0.000	4.093	0.152	38.40	0.000	0.000	0.000	0.009
Oct	1.413	0.000	0.000	0.064	1.349	0.023	0.000	0.006	0.008	0.000	0.014
Nov											
Dec											
<b>Total</b>	<b>18.675</b>	<b>0.000</b>	<b>0.000</b>	<b>0.391</b>	<b>18.284</b>	<b>1.158</b>	<b>126.13</b>	<b>0.029</b>	<b>0.052</b>	<b>0.000</b>	<b>0.107</b>

- Notes:
1. Assume the density of soil fill and special waste (i.e. sediment from DSD sedimentation tank) is 2 ton/m<sup>3</sup>.
  2. Assume the density of rock and broken concrete is 2.5 ton/m<sup>3</sup>
  3. Assume the density of general refuse is 0.9 ton/m<sup>3</sup>
  4. Density of waste oil is assumed to be 0.8 kg/L. Chemical waste includes waste oil.
  5. The inert C&D materials except slurry and bentonite are disposed at Tuen Mun 38
  6. The slurry and bentonite are disposed at Tseung Kwun O 137
  7. The non-inert C&D wastes, including general refuse & special waste (i.e. sediment from DSD sedimentation tank) are disposed at NENT

## EM&A Monthly Reporting Template (cut-off at the end of each month)

Name of Department: ArchSD/CEDD/DSD/EMSD/HyD/WSD

Contract No.: DE/2018/03

### Monthly Summary Waste Flow Table for 2021 (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 <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )
Jan	9.53 T	0	0	0	9.53 T	0	0	0	0	0	
Feb	3.47T	0	0	0	3.47 T	0	0	0	0	0	
Mar	14.79T	0	0	0	14.79T	0	0	0	0	0	
Apr	7.21T	0	0	0	7.21T	0	0	0	0	0	
May	11.34T	0	0	0	11.34T	0	0	0	0	0	
June	328.08T	0	0	0	328.08T	0	0	0	0	0	
Sub-total	374.42T	0	0	0	374.42T	0	0	0	0	0	
July	579.34T	0	0	0	579.34T	0	0	0.131	0.007	0	
Aug	64.14T	0	0	0	64.14T	0	0	0.11	0	0	
Sept	19.29T	0	0	0	19.29T	0	0	0	0	0	
Oct	0	0	0	0	0	0	0	0	0	0	
Nov											
Dec											
Total	1037.19T	0	0	0	1037.19T	0	0	0.241	0.007	0	

**Monthly Summary Waste Flow Table for 2021** (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 '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 kg)
Jan	230.16	0	0	0	230.16	0	0	0	0	0	1.54
Feb	175.98	0	100	0	75.98	0	0	0	0	0	3.63
Mar	11.98	0	0	0	11.98	0	0	0	0	0	1.35
Apr	0	0	0	0	0	0	0	0	0	0	1.48
May	0	0	0	0	0	0	0	0	0	0	3.25
June	0	0	0	0	0	0	0	0	0	0	2.01
Sub-total	418.12	0	100	0	318.12	0	0	0	0	0	13.26
July	0	0	0	0	0	0	0	0	0	0	4.21
Aug	0	0	0	0	0	0	0	0	0	0	1.09
Sept	4.24	0	0	0	4.24	0	0	0	0	0	0
Oct	0	0	0	0	0	0	0	0	0	0	0
Nov											
Dec											
Total	422.36	0	100	0	322.36	0	0	0	0	0	18.56



## ***Appendix 6.1***

### ***Event and Action Plans***



**Event and Action Plan**

**Event and Action Plan for Construction Noise**

Event	Action			
	ET	IEC	ER	Contractor
Action Level exceeded	<ol style="list-style-type: none"> <li>1. Notify IEC and Contractor;</li> <li>2. Carry out investigation;</li> <li>3. Report the results of investigation to the IEC, ER and Contractor;</li> <li>4. Discuss with the Contractor and formulate remedial measures;</li> <li>5. Increase monitoring frequency to check mitigation effectiveness;</li> </ol>	<ol style="list-style-type: none"> <li>1. Review the analysed results submitted by the ET;</li> <li>2. Review the proposed remedial measures by the Contractor and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit noise mitigation proposals to IEC;</li> <li>2. Implement noise mitigation proposals.</li> </ol>
Limit Level exceeded	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IEC, ER, EPD and Contractor;</li> <li>3. Repeat measurements to confirm findings;</li> <li>4. Increase monitoring frequency;</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>6. Inform IEC, ER and EPD the causes and actions taken for the exceedances;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>4. Ensure remedial measures properly implemented;</li> <li>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.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Resubmit proposals if problem still not under control;</li> <li>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>



### Event and Action Plan for Construction Dust Monitoring

Event	Action			
	ET	IEC	ER	Contractor
<b>Action Level</b>				
Action level being exceeded by one sampling	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of complaint and propose remedial measures;</li> <li>2. Inform IEC and ER;</li> <li>3. Repeat measurement to confirm finding;</li> <li>4. Increase monitoring frequency to daily.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method.</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify the Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Rectify any unacceptable practices.</li> <li>2. Amend working methods agreed with the ER as appropriate.</li> </ol>
Action level being exceeded by two or more consecutive sampling	<ol style="list-style-type: none"> <li>1. Identify sources.</li> <li>2. Inform the IEC and ER.</li> <li>3. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>4. Repeat measurements to confirm findings.</li> <li>5. Increase monitoring frequency to daily.</li> <li>6. Discuss with the IEC, ER and Contractor on remedial action required.</li> <li>7. If exceedance continues, arrange meeting with the IEC, Contractor and ER.</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and Contractor on possible remedial measures;</li> <li>4. Advise the ET on the effectiveness of the proposed remedial measures;</li> <li>5. Supervise Implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify Contractor;</li> <li>3. Ensure remedial measures properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit proposals for remedial actions to IEC within three working days of notification;</li> <li>2. Implement the agreed proposals;</li> <li>3. Amend proposal if appropriate.</li> </ol>
<b>Limit Level</b>				
Limit level being exceeded by one sampling	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>2. Inform Contractor, IEC, ER, and EPD;</li> <li>3. Repeat measurement to confirm finding;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and Contractor on possible remedial measures;</li> <li>4. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>5. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify Contractor;</li> <li>3. Ensure remedial measures properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC within three working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Amend proposal if appropriate.</li> </ol>



Event	Action			
	ET	IEC	ER	Contractor
	ER informed of the results.			
Limit level being exceeded by two or more consecutive sampling	<ol style="list-style-type: none"> <li>1. Notify IEC, ER, Contractor and EPD;</li> <li>2. Identify source;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify Contractor;</li> <li>3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Ensure remedial measures properly implemented;</li> <li>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.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC within three working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Resubmit proposals if problem still not under control;</li> <li>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>



## ***Appendix 6.2***

# ***Summary of Notification of Exceedance***

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### Summary for Notification of Exceedance

Reporting Month: October

Ref No.	Date	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Follow-up Action	
-	-	-	-	-	-	-	-	

Ref. No.	Date	Time	Location	Construction Noise Level	Parameter	Action Level	Limit Level	Follow-up action
-	-	-	-	-	-	-	-	-



## ***Appendix 8.1***

### ***Complaint Log***



### Appendix 8.1 Environmental Complaints Log

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
1	18 March 2020	EPD	Expansion Site of SWHSTP (Portion C)	Water contamination	<p>Muddy water was suspected to be discharged from the expansion site of SWHSTP to Shek Sheung River, manholes and foul drains nearby</p> <p>The investigation and mitigation measures included</p> <ul style="list-style-type: none"><li>- Employed suction truck and dump truck to clear the silt and mud at Shek Sheung River</li><li>- Arranged to repair the wastewater treatment system</li><li>- Installed additional sedimentation tanks and wastewater treatment system to increase the on-site treatment capacity</li><li>- Clean the slurry sediment released from the outlet regularly by suction trucks</li><li>- Avoid damage of underground drains and pipes caused by existing construction works</li><li>- Avoid illegal discharge from the Site into foul drains and manholes</li></ul>	Closed
2	19 February 2021	EPD	SWHEPP	Odour nuisance	<p>Significant odour nuisance was suspected to be emitted from the construction activities of SWHEPP</p> <p>The investigation and mitigation measures included</p> <ul style="list-style-type: none"><li>- Ensured only PMEs with valid NRMM label were used on-site</li><li>- Conducted regular visual checking against emission quality of exhaust pipe of equipment by using the Ringlemann Chart</li><li>- Used ULSD for diesel-powered equipment</li><li>- Provided water spraying and water sprinklers system for haul road access and demolition works</li><li>- Used battery powered solution to provide power to the tower crane</li><li>- Provided cover for all rubbish bins on-site</li><li>- Separated general refuse from construction waste</li></ul>	Closed



Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
3	9 August 2021	EPD	SWHEPP	Air Quality	<p>Air nuisance was suspected to be originated from the construction activities of SWHEPP</p> <p>The investigation and mitigation measures included</p> <ul style="list-style-type: none"><li>- Ensured only PMEs with valid NRMM label were used on-site</li><li>- Conducted regular visual checking against emission quality of exhaust pipe of equipment by using the Ringlemann Chart</li><li>- Used ULSD for diesel-powered equipment</li><li>- Used battery powered solution to provide power to the tower crane</li><li>- Carried out plant maintenance in a timely manner</li></ul>	Closed



## ***Appendix 9.1***

# ***Construction Programme of Individual Contracts***







ID	Activity ID	Key Date	Task Name	Incliment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete
1	CD-1000		<b>Contract Dates</b>			<b>1585 days</b>	<b>Mon 18/11/19</b>	<b>Thu 27/3/25</b>	<b>1651.5 days</b>	<b>Mon 18/11/19</b>	<b>Fri 13/6/25</b>	<b>Mon 18/11/19</b>	<b>NA</b>			<b>88.5 days</b>		<b>0%</b>
2	CD-1010		Starting Date			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19		8,9,13FS+290 days,14FS+311 days	0 days		100%
3	CAD-1000		<b>Access Dates (cal. day)</b>			<b>310 days</b>	<b>Mon 18/11/19</b>	<b>Wed 23/9/20</b>	<b>289 days</b>	<b>Mon 18/11/19</b>	<b>Wed 2/9/20</b>	<b>Mon 18/11/19</b>	<b>Wed 2/9/20</b>			<b>0 days</b>		<b>100%</b>
4	CAD-1010		Portion B-1 (Access Road AR3)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20		201	0 days		100%
5	CAD-1020		Portion B-1A (Area for the works for Sidestream Treatment Facilities by Others)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20			0 days		100%
6	CAD-1030		Portion B-2 (Inlet Works No.1)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20		295,306	0 days		100%
7	CAD-1040		Portion B-2A (Area for the pipe-jacking works by others)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20	Fri 10/1/20			0 days		100%
8	CAD-1050		Portion B-3 (Primary Sedimentation Tanks No. 1-4)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19		335	0 days		100%
9	CAD-1060		Portion B-4 (Bioreactor No. 2A & 2B)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19		353	0 days		100%
10	CAD-1070		Portion B-5 (Membrane Facilities Building No.2)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Tue 17/3/20	Tue 17/3/20	Tue 17/3/20	Tue 17/3/20		402,419,425	0 days		100%
11	CAD-1080		Portion B-6 (SAS Pumping Station)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19		434	0 days		100%
12	CAD-1090		Portion B-7 (Ancillary structures)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19		461	0 days		100%
13	CAD-1100		Portion B-7A (Alternation works for existing Power House)			0 days	Wed 2/9/20	Wed 2/9/20	0 days	Wed 2/9/20	Wed 2/9/20	Wed 2/9/20	Wed 2/9/20		539FS-1 day,29FS+179 days	0 days		100%
14	CAD-1110		Portion B-8 (Alternation for existing Membrane Facilities Building No.1)			0 days	Tue 22/9/20	Tue 22/9/20	0 days	Wed 26/9/20	Wed 26/9/20	Wed 26/9/20	Wed 26/9/20		541FS-1 day	0 days		100%
15	CAD-1020		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	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19		532	0 days		100%
16	CAD-1130		Portion B-9 (remainder works in Zone B)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19		542,556	0 days		100%
17	CAD-1140		Portion B-9A (Area for the pipe-jacking works by others)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19			0 days		100%
18	CAD-1150		Portion B-9B (Area for underground pipework modification and connection works by others)			0 days	Mon 18/11/19	Mon 18/11/19	0 days	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19	Mon 18/11/19			0 days		100%
19	CAD-1160		Portion B-9C (Area for the works for pipeworks)			0 days	Wed 22/7/20	Wed 22/7/20	0 days	Fri 24/7/20	Fri 24/7/20	Fri 24/7/20	Fri 24/7/20		2FS+151 days	0 days		100%
20	CKD-1000		<b>Key Dates (cal. day)</b>			<b>1440 days</b>	<b>Tue 19/11/19</b>	<b>Sat 28/10/23</b>	<b>1144 days</b>	<b>Fri 27/11/20</b>	<b>Mon 15/1/24</b>	<b>Fri 27/11/20</b>	<b>NA</b>			<b>618 days</b>		<b>99%</b>
21	CKD-1010		KD1A completion of AR3 in Portion B-1 (375 days after starting date)			300 days	Tue 19/11/19	Sun 13/9/20	0 days	Fri 27/11/20	Fri 27/11/20	Fri 27/11/20	Fri 27/11/20		2FS+376 days	0 days		100%
22	CKD-1020		KD1B completion of utilities diversion for commencement of Inlet Works No.1 in Portion B-2 (438.5 days after starting date)			360 days	Tue 19/11/19	Thu 12/11/20	1 day	Sat 30/1/21	Sat 30/1/21	Sat 30/1/21	Sat 30/1/21		2FS+439.5 days	0 days		100%
23	CKD-1030		KD1C completion of civil and structural works of Inlet Works No.1 in Portion B-2 (1068.5 days after starting date)			990 days	Tue 19/11/19	Thu 4/8/22	0 days	Sat 22/10/22	Sat 22/10/22	NA	NA	2FS+1069.5 days	67	1056.5 days		0%
24	CKD-1040		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	0 days	Mon 20/2/23	Mon 20/2/23	NA	NA	2FS+1191 days	70	947 days		0%
25	CKD-1050		KD1E completion of civil and structural works of Bioreactor in Portion B-4 (1140days after starting date)			1140 days	Tue 19/11/19	Sun 1/1/23	0 days	Sun 1/1/23	Sun 1/1/23	NA	NA	2FS+1141 days		997 days		0%
26	CKD-1060		KD1F completion of civil and structural works of MFB from B2 floor to 1st floor level in Portion B-5 (855.5 days after starting date)			800 days	Tue 19/11/19	Wed 26/1/22	0 days	Wed 23/3/22	Wed 23/3/22	NA	NA	2FS+856.5 days	74	1273.5 days		0%
27	CKD-1070		KD1G completion of civil and structural works of MFB in Portion B-5 (1002.5 days after starting date)			950 days	Tue 19/11/19	Sat 25/6/22	0 days	Wed 17/8/22	Wed 17/8/22	NA	NA	2FS+1003.5 days	78	1126.5 days		0%
28	CKD-1080		KD1H completion of civil and structural works of SAS Pumping Station in Portion B-6 (703.5 days after starting date)			630 days	Tue 19/11/19	Mon 9/8/21	0 days	Fri 22/10/21	Fri 22/10/21	NA	NA	2FS+704.5 days	82	1425.5 days		0%
29	CKD-1090		KD1I completion alternation works for existing Power House in Portion B-7A (179days after access date of B-7A)			150 days	Fri 4/9/20	Sun 31/1/21	1 day	Mon 1/3/21	Mon 1/3/21	Mon 1/3/21	Mon 1/3/21	13FS+179 days		0 days		100%
30	CKD-1100		KD1J completion of auxiliary facilities in Portion B-7 (811.5 days after starting date)			800 days	Tue 19/11/19	Wed 26/1/22	0 days	Mon 7/2/22	Mon 7/2/22	NA	NA	2FS+812.5 days	86	1317.5 days		0%
31	CKD-1110		KD2A completion of effluent pipes to UV system and connection to its downstream in Portion B-9 (577.5 days after starting date)			495 days	Tue 19/11/19	Sat 27/3/21	0 days	Fri 18/6/21	Fri 18/6/21	Fri 18/6/21	Fri 18/6/21	2FS+578.5 days	93	0 days		100%
32	CKD-1120		KD2B completion of air supply main alternation to existing air blower house No.2 in Portion B-8A (494 days after starting date)			420 days	Tue 19/11/19	Mon 11/1/21	0 days	Fri 26/3/21	Fri 26/3/21	Fri 26/3/21	Fri 26/3/21	2FS+495 days		0 days		100%
33	CKD-1130		KD3A completion of all utilities and road works (1519 days after starting date)			1440 days	Tue 19/11/19	Sat 28/10/23	0 days	Mon 15/1/24	Mon 15/1/24	NA	NA	2FS+1520 days	99	606 days		0%
34	CCD-1000		<b>Completion Date (cal. Day)</b>			<b>1956 days</b>	<b>Tue 19/11/19</b>	<b>Thu 27/3/25</b>	<b>1056 days</b>	<b>Sat 23/7/22</b>	<b>Fri 13/6/25</b>	<b>Sat 23/7/22</b>	<b>NA</b>			<b>50.5 days</b>		<b>0%</b>
35	CCD-1010		Section 1 of the Works (1,543.5 after starting date)			1460 days	Fri 17/11/23	Fri 9/2/24	0 days	Fri 9/2/24	Fri 9/2/24	NA	NA	2FS+1544.5 days	105	0 days		0%
36	CCD-1020		Section 2 of the Works (977.5 after starting date)			900 days	Tue 19/11/19	Fri 6/5/22	0 days	Sat 23/7/22	Sat 23/7/22	NA	NA	2FS+978.5 days	111	0 days		0%
37	CCD-1030		Section 3 of the Works (1,687.5 after starting date)			1590 days	Tue 19/11/19	Wed 12/6/24	0 days	Wed 12/6/24	Wed 12/6/24	Wed 12/6/24	Wed 12/6/24	39FS+1 day,117,38FS+1 day		-77.5 days		99%
38	CCD-1040		Defects Liability Period			365 days	Wed 27/3/24	Thu 27/3/25	365 days	Thu 13/6/24	Fri 13/6/25	NA	NA	37FS+1 day		0 days		0%
39	CCD-1050		Landscape Establishment Works			365 days	Wed 27/3/24	Thu 27/3/25	365 days	Thu 13/6/24	Fri 13/6/25	NA	NA	37FS+1 day		103.5 days		0%
40	PD-1000		<b>Planned Completion</b>			<b>1686 days</b>	<b>Fri 14/8/20</b>	<b>Thu 27/3/25</b>	<b>1820 days</b>	<b>Wed 30/9/20</b>	<b>Wed 24/9/25</b>	<b>Wed 30/9/20</b>	<b>NA</b>			<b>0 days</b>		<b>3%</b>
41	PCD-1000		<b>Planned Completion - Key Dates (cal. day)</b>			<b>1170 days</b>	<b>Fri 14/8/20</b>	<b>Sat 28/10/23</b>	<b>1321 days</b>	<b>Wed 30/9/20</b>	<b>Mon 13/5/24</b>	<b>Wed 30/9/20</b>	<b>NA</b>			<b>-119 days</b>		<b>99%</b>
42	PKD-1010	KD1A	KD1A completion of AR3 in Portion B-1 (300days after starting date)			0 days	Sat 12/9/20	Sat 12/9/20	0 days	Wed 30/9/20	Wed 30/9/20	Wed 30/9/20	Wed 30/9/20	210FF		0 days		100%
43	PCD-1020	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	0 days	Fri 22/1/21	Fri 22/1/21	Fri 22/1/21	Fri 22/1/21	286FF,291FF,273FF		0 days		100%
44	PCD-1030	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	0 days	Thu 1/12/22	Thu 1/12/22	NA	NA	330FF,322FF,248FF,294FF,212FF,250FF		-40 days		0%
45	PCD-1040	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	0 days	Mon 20/2/23	Mon 20/2/23	NA	NA	349FF,348FF,351FF,333FF		0 days		0%
46	PCD-1050	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	0 days	Sat 22/4/23	Sat 22/4/23	NA	NA	391FF,397FF,393FF,396FF,392FF		-111 days		0%
47	PCD-1060	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	0 days	Thu 4/8/22	Thu 4/8/22	NA	NA	430FF		-135 days		0%
48	PCD-1070	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	0 days	Wed 28/12/22	Wed 28/12/22	NA	NA	431FF		-133 days		0%
49	PCD-1080	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	0 days	Sat 19/3/22	Sat 19/3/22	NA	NA	459FF,458FF		-148 days		0%
50	PCD-1090	KD1I	KD1I completion alternation works for existing Power House in Portion B-7A (1500days after access date of B-7A)			0 days	Sat 30/1/21	Sat 30/1/21	1 day	Fri 29/1/21	Fri 29/1/21	Fri 29/1/21	Fri 29/1/21	539FF		0 days		100%
51	PCD-1100	KD1J	KD1J completion of auxiliary facilities in Portion B-7 (800days after starting date)			0 days	Wed 26/1/22	Wed 26/1/22	0 days	Mon 13/6/22	Mon 13/6/22	NA	NA	496FF,495FF,521FF,520FF,513FF,512FF		-126 days		0%
52	PCD-1110	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	0 days	Wed 4/8/21	Wed 4/8/21	NA	NA	545FF,543FF		-47 days		0%
53	PCD-1120	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	1 day	Fri 26/3/21	Fri 26/3/21	Fri 26/3/21	Fri 26/3/21	532FF,536FF,537FF,538FF		0 days		100%
54	PCD-1130	KD3A	KD3A completion of all utilities and road works (1440days after starting date)			0 days	Sat 28/10/23	Sat 28/10/23	0 days	Mon 13/5/24	Mon 13/5/24	NA	NA	555FF,557FF		-119 days		0%
55	PCD-1000		<b>Planned Completion Date (cal. Day)</b>			<b>1056 days</b>	<b>Fri 6/5/22</b>	<b>Thu 27/3/25</b>	<b>1054 days</b>	<b>Sat 5/11/22</b>	<b>Wed 24/9/25</b>	<b>NA</b>	<b>NA</b>			<b>-106 days</b>		<b>0%</b>
56	PCD-1010	SW1	Section 1 of the Works (1,460 after starting date)															



ID	Activity ID	Key Date	Task Name	Inclment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete
85	ET1H-1100		<b>Inclment Weather to KD1J (cal. Day)</b>			0 days	NA	NA	49 days	Mon 7/2/22	Mon 28/3/22	NA	NA			1276.5 days		0%
86	ET1H-1110		Delay and Disruption of Works before June 2021			0 days	NA	NA	23 days	Mon 7/2/22	Wed 2/3/22	NA	NA 30	87		1276.5 days		0%
87	ET1H-1120		Delay and Disruption of Works in June 2021			0 days	NA	NA	26 days	Wed 2/3/22	Mon 28/3/22	NA	NA 86			1276.5 days		0%
88	ET2A-1000		<b>Effects to KD2A</b>			0 days	NA	NA	53 days	Fri 18/6/21	Tue 10/8/21	Fri 18/6/21	NA			1506.5 days		24%
89	ET2A-1100		<b>Inclment Weather to KD2A (cal. Day)</b>			49 days	NA	NA	49 days	Tue 22/6/21	Tue 10/8/21	Tue 22/6/21	NA			1506.5 days		17%
90	ET2A-1110		Delay and Disruption of Works before June 2021			0 days	NA	NA	23 days	Tue 22/6/21	Thu 15/7/21	Tue 22/6/21	NA 93	91		1506.5 days		37%
91	ET2A-1120		Delay and Disruption of Works in June 2021			0 days	NA	NA	26 days	Thu 15/7/21	Tue 10/8/21	NA	NA 90			1506.5 days		0%
92	ET2A-1200		<b>Other Events to KD2A (not all)</b>			0 days	NA	NA	4 days	Fri 18/6/21	Tue 22/6/21	Fri 18/6/21	Tue 22/6/21			0 days		100%
93	ET2A-1210		Special working arrangement due to COVID-19 in January 2020			0 days	NA	NA	4 days	Fri 18/6/21	Tue 22/6/21	Fri 18/6/21	Tue 22/6/21	31	90			100%
94	ET3A-1000		<b>Effects to KD3A</b>			0 days	NA	NA	53 days	Tue 16/1/24	Fri 8/3/24	NA	NA			565 days		0%
95	ET3A-1100		<b>Inclment Weather to KD3A (cal. Day)</b>			49 days	NA	NA	49 days	Sat 20/1/24	Fri 8/3/24	NA	NA			565 days		0%
96	ET3A-1110		Delay and Disruption of Works before June 2021			0 days	NA	NA	23 days	Sat 20/1/24	Sun 11/2/24	NA	NA 99	97		565 days		0%
97	ET3A-1120		Delay and Disruption of Works in June 2021			0 days	NA	NA	26 days	Mon 12/2/24	Fri 8/3/24	NA	NA 96			565 days		0%
98	ET3A-1200		<b>Other Events to KD3A (not all)</b>			0 days	NA	NA	4 days	Tue 16/1/24	Fri 19/1/24	NA	NA			565 days		0%
99	ET3A-1210		Special working arrangement due to COVID-19 in January 2020			0 days	NA	NA	4 days	Tue 16/1/24	Fri 19/1/24	NA	NA 33	96		565 days		0%
100	ETS1-1000		<b>Effects to Section 1 of the Works</b>			0 days	NA	NA	53 days	Fri 9/2/24	Tue 2/4/24	NA	NA			540.5 days		0%
101	ETS1-1100		<b>Inclment Weather to Section 1 of the Works (cal. Day)</b>			49 days	NA	NA	49 days	Tue 13/2/24	Tue 2/4/24	NA	NA			540.5 days		0%
102	ETS1-1110		Delay and Disruption of Works before June 2021			0 days	NA	NA	23 days	Tue 13/2/24	Thu 7/3/24	NA	NA 105	103		540.5 days		0%
103	ETS1-1120		Delay and Disruption of Works in June 2021			0 days	NA	NA	26 days	Thu 7/3/24	Tue 2/4/24	NA	NA 102			540.5 days		0%
104	ETS1-1200		<b>Other Events to Section 1 of the Works (not all)</b>			0 days	NA	NA	4 days	Fri 9/2/24	Tue 13/2/24	NA	NA			540.5 days		0%
105	ETS1-1210		Special working arrangement due to COVID-19 in January 2020			0 days	NA	NA	4 days	Fri 9/2/24	Tue 13/2/24	NA	NA 35	102		540.5 days		0%
106	ETS2-1000		<b>Effects to Section 2 of the Works</b>			0 days	NA	NA	53 days	Sat 23/7/22	Wed 14/9/22	NA	NA			1106.5 days		0%
107	ETS2-1100		<b>Inclment Weather to Section 2 of the Works (cal. Day)</b>			49 days	NA	NA	49 days	Wed 27/7/22	Wed 14/9/22	NA	NA			1106.5 days		0%
108	ETS2-1110		Delay and Disruption of Works before June 2021			0 days	NA	NA	23 days	Wed 27/7/22	Fri 19/8/22	NA	NA 111	109		1106.5 days		0%
109	ETS2-1120		Delay and Disruption of Works in June 2021			0 days	NA	NA	26 days	Fri 19/8/22	Wed 14/9/22	NA	NA 108			1106.5 days		0%
110	ETS2-1200		<b>Other Events to Section 2 of the Works (not all)</b>			0 days	NA	NA	4 days	Sat 23/7/22	Wed 27/7/22	NA	NA			1106.5 days		0%
111	ETS2-1210		Special working arrangement due to COVID-19 in January 2020			0 days	NA	NA	4 days	Sat 23/7/22	Wed 27/7/22	NA	NA 36	108		1106.5 days		0%
112	ETS3-1000		<b>Effects to Section 3 of the Works</b>			0 days	NA	NA	53 days	Wed 12/6/24	Sun 4/8/24	NA	NA			416.5 days		0%
113	ETS3-1100		<b>Inclment Weather to Section 3 of the Works (cal. Day)</b>			49 days	NA	NA	49 days	Sun 16/6/24	Sun 4/8/24	NA	NA			416.5 days		0%
114	ETS3-1110		Delay and Disruption of Works before June 2021			0 days	NA	NA	23 days	Sun 16/6/24	Tue 9/7/24	NA	NA 117	115		416.5 days		0%
115	ETS3-1120		Delay and Disruption of Works in June 2021			0 days	NA	NA	26 days	Tue 9/7/24	Sun 4/8/24	NA	NA 114			416.5 days		0%
116	ETS3-1200		<b>Other Events to Section 3 of the Works (not all)</b>			0 days	NA	NA	4 days	Wed 12/6/24	Sun 16/6/24	NA	NA			416.5 days		0%
117	ETS3-1210		Special working arrangement due to COVID-19 in January 2020			0 days	NA	NA	4 days	Wed 12/6/24	Sun 16/6/24	NA	NA 37	114		416.5 days		0%
118	SUBS-1000		<b>Submissions (cal. day)</b>			1564 days	Mon 18/11/19	Wed 28/2/24	1956 days	Mon 18/11/19	Wed 26/3/25	Mon 18/11/19	NA			182 days		60%
119	SUBS-1000		<b>Submittal Package</b>			96 days	Mon 18/11/19	Fri 21/2/20	562 days	Mon 18/11/19	Tue 1/6/21	Mon 18/11/19	Tue 1/6/21			0 days		100%
120	SUBS-1010		Prepare & submit subletting procedure			12 days	Mon 18/11/19	Fri 29/11/19	12 days	Mon 18/11/19	Mon 18/11/19	Fri 29/11/19	Fri 29/11/19	121		0 days		100%
121	SUBS-1020		PM review and accept subletting procedure			15 days	Sat 30/11/19	Wed 11/12/19	12 days	Sat 30/11/19	Wed 11/12/19	Sat 30/11/19	Wed 11/12/19	120		0 days		100%
122	SUBS-1030		Subletting for demolition works			24 days	Thu 12/12/19	Sat 4/1/20	93 days	Thu 12/12/19	Wed 18/3/20	Tue 17/12/19	Wed 18/3/20	121,154		0 days		100%
123	SUBS-1040		Subletting for UU diversion for Inlet Works No.1			24 days	Thu 12/12/19	Sat 4/1/20	78 days	Thu 12/12/19	Fri 10/1/20	Fri 27/3/20	Fri 10/1/20	121		0 days		100%
124	SUBS-1050		Subletting for inspection pit excavation			0 days	NA	NA	56 days	Thu 19/12/19	Wed 12/2/20	Thu 19/12/19	Wed 12/2/20	121,154		0 days		100%
125	SUBS-1060		Subletting for Preliminary Works (topographic surveying)			14 days	Thu 12/12/19	Wed 25/12/19	54 days	Fri 20/12/19	Tue 11/2/20	Fri 20/12/19	Tue 11/2/20	121,154		0 days		100%
126	SUBS-1070		Subletting for AR3 access road			24 days	Sat 4/1/20	Fri 13/12/19	0 days	Fri 13/12/19	Fri 13/12/19	Fri 13/12/19	Tue 11/2/20	124		0 days		100%
127	SUBS-1080		Subletting for pre-drilling works			24 days	Thu 12/12/19	Sat 4/1/20	38 days	Thu 6/2/20	Fri 20/3/20	Thu 6/2/20	Fri 20/3/20	125,126		0 days		100%
128	SUBS-1090		Subletting for Contractor designer for temporary works and ICE			24 days	Thu 12/12/19	Sat 4/1/20	71 days	Mon 16/12/19	Mon 24/2/20	Mon 16/12/19	Mon 24/2/20	127		0 days		100%
129	SUBS-1100		Subletting for independent BIM consultant			24 days	Thu 12/12/19	4/1/20	0 days	Wed 11/12/19	Thu 23/1/20	Wed 11/12/19	Thu 23/1/20	125		0 days		100%
130	SUBS-1110		Subletting for independent BIM services			0 days	NA	NA	15 days	Tue 14/1/20	Wed 28/2/20	Tue 14/1/20	Wed 28/2/20	125		0 days		100%
131	SUBS-1120		Subletting for Design, Supply & Install of Temporary Activated Carbon Deodorization Units (E&M Works)			0 days	NA	NA	0 days	Fri 13/12/19	Tue 11/2/20	Fri 13/12/19	Tue 11/2/20	125		0 days		100%
132	SUBS-1130		Subletting for pre-bored H pile works			36 days	Thu 12/12/19	Thu 16/1/20	45 days	Sun 5/7/20	Tue 18/8/20	Sun 5/7/20	Tue 18/8/20	131		0 days		100%
133	SUBS-1140		Subletting for Sheelple installation works			0 days	NA	NA	45 days	Tue 1/9/20	Thu 15/10/20	Thu 1/9/20	Thu 15/10/20	131		0 days		100%
134	SUBS-1150		Subletting for ELS works for Inlet Works No.1			48 days	Sun 5/1/20	Fri 21/2/20	85 days	Fri 16/10/20	Fri 8/1/21	Fri 16/10/20	Fri 8/1/21	133		0 days		100%
135	SUBS-1160		Subletting for ELS works for Membrane Facilities Building and other buildings			48 days	Sun 5/1/20	Fri 21/2/20	85 days	Fri 16/10/20	Fri 8/1/21	Fri 16/10/20	Fri 8/1/21	133		0 days		100%
136	SUBS-1170		Subletting for structural works for Inlet Works Building			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Sat 9/1/21	Thu 25/2/21	Sat 9/1/21	Thu 25/2/21	135		0 days		100%
137	SUBS-1180		Subletting for structural works for Primary Sedimentation Tanks			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Sat 9/1/21	Thu 25/2/21	Sat 9/1/21	Thu 25/2/21	135		0 days		100%
138	SUBS-1190		Subletting for structural works for Bioreactors			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Sat 9/1/21	Thu 25/2/21	Sat 9/1/21	Thu 25/2/21	135		0 days		100%
139	SUBS-1200		Subletting for structural works for Membrane Facilities Building			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Sat 9/1/21	Thu 25/2/21	Sat 9/1/21	Thu 25/2/21	135		0 days		100%
140	SUBS-1210		Subletting for structural works for SAS pumping house and ancillary structures			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Sat 9/1/21	Thu 25/2/21	Sat 9/1/21	Thu 25/2/21	135		0 days		100%
141	SUBS-1220		Subletting for ABWF works			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Fri 26/2/21	Wed 14/4/21	Fri 26/2/21	Wed 14/4/21	140		0 days		100%
142	SUBS-1230		Subletting for Process Pipeworks, Utilities and Roadworks			48 days	Thu 12/12/19	Tue 28/1/20	150 days	Fri 22/5/20	Sun 18/10/20	Fri 22/5/20	Sun 18/10/20	121		0 days		100%
143	SUBS-1240		Subletting for Landscape Hardworks and Softworks			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Thu 15/4/21	Tue 1/6/21	Thu 15/4/21	Tue 1/6/21	141		0 days		100%
144	SUBS-1250		Subletting for Trial dewatering works and installation of additional stop logs at BR2 connon channel due to malfunctioned of existing penstock at FST no. 5 and 7 (EWN 055)			0 days	NA	NA	15 days	Tue 15/9/20	Tue 29/9/20	Tue 15/9/20	Tue 29/9/20	355		0 days		100%
145	SUBS-1260		Subletting for Diversion of Power supply for existing Slaughter House pump station (CE 034)			0 days	NA	NA	14 days	Mon 21/9/20	Sun 4/10/20	Mon 21/9/20	Sun 4/10/20			0 days		100%
146	SUBS-1270		Subletting for Decommission of existing power and signal systems in leachate Pump station switch room (PMI 039)			0 days	NA	NA	14 days	Mon 21/9/20	Sun 4/10/20	Mon 21/9/20	Sun 4/10/20			0 days		100%
147	SUBS-1280		Subletting for Diversion of Existing DN250 Leachate Raising Main (PPMI 025)			0 days	NA	NA	31 days	Mon 21/9/20	Wed 21/10/20	Mon 21/9/20	Wed 21/10/20			0 days		100%
148	SUBS-1290		Subletting for Construction of Cable trough for CLP 11kv Cable Diversion (PPMI 041)			0 days	NA	NA	31 days	Mon 21/9								

ID	Activity ID	Key Date	Task Name	Incliment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete	Gantt Chart (Qtr 3 2019 - Qtr 3 2024)											
170	SUBA-1130b		Prepare and submit Dewatering proposal for basement construction for Primary Sedimentation tanks No.1-4			0 days	NA	NA	24 days	Fri 1/7/22	Mon 25/7/22	NA	NA	NA3465F		1158 days		0%	[Gantt bar for 170: Fri 1/7/22 to Mon 25/7/22]											
171	SUBA-1130c		Prepare and submit Dewatering proposal for basement construction for Bioreactor No. 2A&2B			0 days	NA	NA	24 days	Sun 15/5/22	Wed 8/6/22	NA	NA	NA3895F		1205 days		0%	[Gantt bar for 171: Sun 15/5/22 to Wed 8/6/22]											
172	SUBA-1140		Prepare and submit Pre-construction condition survey of existing structures/ services			24 days	Wed 5/2/20	Fri 28/2/20	0 days	Mon 18/11/19	Fri 6/3/20	Mon 18/11/19	Fri 6/3/20	198		0 days		100%	[Gantt bar for 172: Mon 18/11/19 to Fri 6/3/20]											
173	SUBA-1150		Prepare and submit Settlement and movement monitoring proposal of existing structures/ services			24 days	Wed 5/2/20	Fri 28/2/20	110 days	Mon 18/11/19	Fri 6/3/20	Mon 18/11/19	Fri 6/3/20	198FS+120 days		0 days		100%	[Gantt bar for 173: Mon 18/11/19 to Fri 6/3/20]											
174	SUBA-1160		Prepare and submit design of structure elements of the temporary activated carbon deodorization unit			60 days	Fri 1/7/20	Mon 16/3/20	60 days	Mon 18/11/19	Mon 16/3/20	Mon 18/11/19	Mon 16/3/20	2FS+60 days		0 days		100%	[Gantt bar for 174: Mon 18/11/19 to Mon 16/3/20]											
175	SUBA-1170		Prepare of RSE and structural design for alternation and additional (A&A) works at Membrane Facilities Building No.1			180 days	Mon 18/10/21	Fri 15/4/22	180 days	Mon 18/10/21	Fri 15/4/22	NA	NA		541	332 days		0%	[Gantt bar for 175: Mon 18/10/21 to Fri 15/4/22]											
176	SUBA-1180		Prepare of RSE and structural design for alternation and additional (A&A) works at Main Power House			44 days	Wed 15/7/20	Thu 3/9/20	60 days	Mon 6/7/20	Thu 3/9/20	Mon 6/7/20	Thu 3/9/20		539	0 days		100%	[Gantt bar for 176: Mon 6/7/20 to Thu 3/9/20]											
177	SUBE-1000		<b>Environmental Aspect Submissions</b>			<b>45 days</b>	<b>Mon 18/11/19</b>	<b>Wed 1/1/20</b>	<b>81 days</b>	<b>Mon 18/11/19</b>	<b>Thu 6/2/20</b>	<b>Mon 18/11/19</b>	<b>Thu 6/2/20</b>			<b>0 days</b>		<b>100%</b>	[Gantt bar for 177: Mon 18/11/19 to Thu 6/2/20]											
178	SUBE-1010		Prepare, submit & approve Site Management Plan for Trip Tricket System			45 days	Mon 18/11/19	Wed 1/1/20	66 days	Mon 18/11/19	Wed 22/1/20	Mon 18/11/19	Wed 22/1/20			0 days		100%	[Gantt bar for 178: Mon 18/11/19 to Wed 22/1/20]											
179	SUBE-1020		Prepare, submit & approve Waste Management Plan			45 days	Mon 18/11/19	Wed 1/1/20	81 days	Mon 18/11/19	Thu 6/2/20	Mon 18/11/19	Thu 6/2/20			0 days		100%	[Gantt bar for 179: Mon 18/11/19 to Thu 6/2/20]											
180	SUBE-1030		Prepare, submit & approve Environmental Management Plan			45 days	Mon 18/11/19	Wed 1/1/20	66 days	Mon 18/11/19	Wed 22/1/20	Mon 18/11/19	Wed 22/1/20			0 days		100%	[Gantt bar for 180: Mon 18/11/19 to Wed 22/1/20]											
181	SUBP-1000		<b>Procurement</b>			<b>731 days</b>	<b>Mon 18/11/19</b>	<b>Wed 17/11/21</b>	<b>648 days</b>	<b>Mon 18/11/19</b>	<b>Thu 26/8/21</b>	<b>Mon 18/11/19</b>	<b>NA</b>			<b>278 days</b>		<b>94%</b>	[Gantt bar for 181: Mon 18/11/19 to Thu 26/8/21]											
182	SUBP-1010		Prepare and submit the Procurement Procedure			12 days	Mon 18/11/19	Fri 29/11/19	2 days	Mon 18/11/19	Tue 19/11/19	Mon 18/11/19	Tue 19/11/19	183		0 days		100%	[Gantt bar for 182: Mon 18/11/19 to Tue 19/11/19]											
183	SUBP-1020		PM Review & Accept Procurement Procedure			12 days	Sat 30/11/19	Wed 11/12/19	21 days	Tue 19/11/19	Tue 10/12/19	Tue 19/11/19	Tue 10/12/19	182	184,185,186,187,188,189,190,191	0 days		100%	[Gantt bar for 183: Tue 19/11/19 to Tue 10/12/19]											
184	SUBP-1030		Prepare, submit and approve the pipe works material			25 days	Thu 12/12/19	Sun 5/1/20	34 days	Thu 6/2/20	Tue 10/3/20	Thu 6/2/20	Tue 10/3/20	183	212,532,551,552,554,553,549,557,0	0 days		100%	[Gantt bar for 184: Thu 6/2/20 to Tue 10/3/20]											
185	SUBP-1040		Prepare, submit and approve the water proofing material			25 days	Thu 12/12/19	Sun 5/1/20	25 days	Thu 26/8/21	NA	NA	183	329,325	278 days			0%	[Gantt bar for 185: Thu 26/8/21 to NA]											
186	SUBP-1050		Prepare, submit and approve the concrete mix material			48 days	Thu 12/12/19	Tue 28/1/20	90 days	Mon 3/2/20	Sat 2/5/20	Mon 3/2/20	Sat 2/5/20	183	391,426	0 days		100%	[Gantt bar for 186: Mon 3/2/20 to Sat 2/5/20]											
187	SUBP-1060		Prepare, submit and approve the rebar material			48 days	Thu 12/12/19	Tue 28/1/20	49 days	Fri 10/7/20	Sat 23/5/20	Fri 10/7/20	Sat 23/5/20	183	391,426	0 days		100%	[Gantt bar for 187: Fri 10/7/20 to Sat 23/5/20]											
188	SUBP-1070		Prepare, submit and approve the metal works material			48 days	Thu 12/12/19	Tue 28/1/20	48 days	Tue 1/9/20	Sun 18/10/20	Tue 1/9/20	Sun 18/10/20	183	391,426	0 days		100%	[Gantt bar for 188: Tue 1/9/20 to Sun 18/10/20]											
189	SUBP-1080		Prepare, submit and approve the ABWF works material			48 days	Sat 12/12/20	Tue 28/1/20	48 days	Mon 1/3/21	Sat 17/4/21	Mon 1/3/21	Sat 17/4/21	183	332,350,398,460,488,504,514,522,0	0 days		100%	[Gantt bar for 189: Mon 1/3/21 to Sat 17/4/21]											
190	SUBP-1090		Prepare, submit and approve the protective lining to concrete			0 days	NA	NA	48 days	Tue 1/9/20	Sun 18/10/20	Tue 1/9/20	Sun 18/10/20	183	391,426	0 days		100%	[Gantt bar for 190: Tue 1/9/20 to Sun 18/10/20]											
191	SUBP-1100		Prepare, submit and approve the multi-part covers			0 days	NA	NA	21 days	Tue 5/5/20	Mon 25/5/20	Tue 5/5/20	Mon 25/5/20	183		0 days		100%	[Gantt bar for 191: Tue 5/5/20 to Mon 25/5/20]											
192	SUBB-1000		<b>BIM</b>			<b>1205 days</b>	<b>Thu 6/2/20</b>	<b>Wed 28/2/24</b>	<b>1562 days</b>	<b>Mon 18/11/19</b>	<b>Fri 28/2/25</b>	<b>Mon 18/11/19</b>	<b>NA</b>			<b>178 days</b>		<b>27%</b>	[Gantt bar for 192: Mon 18/11/19 to Fri 28/2/25]											
193	SUBB-1010		Prepare, submit and approve the proposal of details of Common data environment (CDE)			48 days	Thu 6/2/20	Wed 1/4/20	37 days	Mon 18/11/19	Wed 1/4/20	Mon 18/11/19	Wed 1/4/20	129,130	194	0 days		100%	[Gantt bar for 193: Mon 18/11/19 to Wed 1/4/20]											
194			Prepare and submit BIM submission			1484 days	Thu 6/2/20	Wed 28/2/24	1451 days	Thu 2/4/20	Fri 28/2/25	Thu 2/4/20	NA	193		178 days		25%	[Gantt bar for 194: Thu 2/4/20 to Fri 28/2/25]											
195	C-1000		<b>Construction Works (Working day)</b>			<b>1957 days</b>	<b>Mon 18/11/19</b>	<b>Thu 27/3/25</b>	<b>2138 days</b>	<b>Mon 18/11/19</b>	<b>Wed 24/3/25</b>	<b>Mon 18/11/19</b>	<b>NA</b>			<b>0 days</b>		<b>51%</b>	[Gantt bar for 195: Mon 18/11/19 to Wed 24/3/25]											
196	CPW-1000		<b>Preliminary Works</b>			<b>109 days</b>	<b>Mon 18/11/19</b>	<b>Thu 5/3/20</b>	<b>121 days</b>	<b>Mon 18/11/19</b>	<b>Tue 17/3/20</b>	<b>Mon 18/11/19</b>	<b>Tue 17/3/20</b>			<b>0 days</b>		<b>100%</b>	[Gantt bar for 196: Mon 18/11/19 to Tue 17/3/20]											
197	CPW-1000		Initial Survey			24 days	Mon 18/11/19	Sat 14/12/19	10 days	Mon 18/11/19	Thu 28/11/19	Mon 18/11/19	Thu 28/11/19	198		0 days		100%	[Gantt bar for 197: Mon 18/11/19 to Thu 28/11/19]											
198	CPW-2000		Condition Survey			30 days	Fri 27/12/19	Tue 4/2/20	89 days	Mon 18/11/19	Fri 6/3/20	Mon 18/11/19	Fri 6/3/20	125,197	199,172,173FS+120 days,200	0 days		100%	[Gantt bar for 198: Mon 18/11/19 to Fri 6/3/20]											
199	CPW-3000		Installation of Monitoring Markers			26 days	Wed 5/2/20	Thu 5/3/20	78 days	Fri 29/11/19	Thu 5/3/20	Fri 29/11/19	Thu 5/3/20	198		0 days		100%	[Gantt bar for 199: Fri 29/11/19 to Thu 5/3/20]											
200	CPW-4000		Tree Felling Works	22, 235		0 days	NA	NA	9 days	Sat 7/3/20	Sat 7/3/20	Tue 17/3/20	Tue 17/3/20	198		0 days		100%	[Gantt bar for 200: Sat 7/3/20 to Tue 17/3/20]											
201	CAR-0000		<b>Access Road (AR3), B-1</b>			<b>193 days</b>	<b>Mon 20/1/20</b>	<b>Sat 12/9/20</b>	<b>238 days</b>	<b>Thu 12/12/19</b>	<b>Wed 30/9/20</b>	<b>Thu 12/12/19</b>	<b>Wed 30/9/20</b>	<b>4156</b>		<b>0 days</b>		<b>100%</b>	[Gantt bar for 201: Thu 12/12/19 to Wed 30/9/20]											
202	CAR-1000		Site setup and clearance works	05		28 days	Mon 20/1/20	Mon 24/2/20	38 days	Mon 20/1/20	Fri 6/3/20	Mon 20/1/20	Fri 6/3/20	203		0 days		100%	[Gantt bar for 202: Mon 20/1/20 to Fri 6/3/20]											
203	CAR-1001		Awaiting for AECOM instruction for alignment confirmation for road works	055		0 days	NA	NA	5 days	Mon 17/2/20	Thu 12/3/20	Mon 17/2/20	Thu 12/3/20	202		0 days		100%	[Gantt bar for 203: Mon 17/2/20 to Thu 12/3/20]											
204	CAR-1002		Additional Works in Access Road AR3 to Settle Left-in Material by Contract DC/2016/07	215-1		0 days	NA	NA	4 days	Thu 21/5/20	Mon 25/5/20	Thu 21/5/20	Mon 25/5/20	203		0 days		100%	[Gantt bar for 204: Thu 21/5/20 to Mon 25/5/20]											
205	CAR-2000		Drainage and Utilities Works			76 days	Fri 6/3/20	Tue 9/6/20	75 days	Sat 7/3/20	Tue 9/6/20	Sat 7/3/20	Tue 9/6/20	204		0 days		100%	[Gantt bar for 205: Sat 7/3/20 to Tue 9/6/20]											
206	CAR-2000a		Trimming of Existing Sheet Piles in Access Road AR3	215-2		0 days	NA	NA	20 days	Tue 14/7/20	Wed 5/8/20	Tue 14/7/20	Wed 5/8/20	205		0 days		100%	[Gantt bar for 206: Tue 14/7/20 to Wed 5/8/20]											
207	CAR-2000b		Installation of Multi-part Cover and Manhole Cover of Chamber RP6 and Associated Concreting Works in Portion B-1	215		0 days	NA	NA	7 days	Fri 28/8/20	Fri 4/9/20	Fri 28/8/20	Fri 4/9/20	206		0 days		100%	[Gantt bar for 207: Fri 28/8/20 to Fri 4/9/20]											
208	CAR-2001		Diversion of Existing Underground Cables in Portion B-1A	036		0 days	NA	NA	172 days	Thu 5/3/20	Wed 30/9/20	Thu 5/3/20	Wed 30/9/20	207		0 days		100%	[Gantt bar for 208: Thu 5/3/20 to Wed 30/9/20]											
209	CAR-2002		Additional U-channel, beam barrier and footway concrete pavement	055		0 days	NA	NA	60 days	Thu 12/12/19	Wed 26/2/20	Thu 12/12/19	Wed 26/2/20	210		0 days		100%	[Gantt bar for 209: Thu 12/12/19 to Wed 26/2/20]											
210	CAR-3000	KD1A	Roadworks	055		80 days	Wed 10/6/20	Sat 12/9/20	133 days	Fri 24/4/20	Wed 30/9/20	Fri 24/4/20	Wed 30/9/20	126,209,208	42FF	0 days		100%	[Gantt bar for 210: Fri 24/4/20 to Wed 30/9/20]											
211	CIW-0000		<b>Inlet Works No.1, B-2</b>			<b>854 days</b>	<b>Mon 6/1/20</b>	<b>Mon 21/11/22</b>	<b>594 days</b>	<b>Tue 26/11/19</b>	<b>Thu 25/11/21</b>	<b>Tue 26/11/19</b>	<b>NA</b>			<b>0 days</b>		<b>88%</b>	[Gantt bar for 211: Tue 26/11/19 to Thu 25/11/21]											
212	CIW-1000		<b>Diversion Works (1. Inlet Trunk Sewer, Leachate Rising Mains, Sludge Pipes, Tank Drains and Pipelines near Primary Sludge Thickeners)</b>			<b>180 days</b>	<b>Mon 6/1/20</b>	<b>Fri 14/8/20</b>	<b>459 days</b>	<b>Tue 26/11/19</b>	<b>Wed 16/6/21</b>	<b>Tue 26/11/19</b>	<b>NA</b>	<b>184,123</b>	<b>44FF</b>	<b>111 days</b>		<b>88%</b>	[Gantt bar for 212: Tue 26/11/19 to Wed 16/6/21]											
213	CIW-1100		Utilities scanning to identify existing UU arrangement			12 days	Mon 6/1/20	Sat 18/1/20	0 days	Fri 13/12/19	Sat 18/1/20	Fri 13/12/19	Sat 18/1/20	158	214SS,216	0 days		100%	[Gantt bar for 213: Fri 13/12/19 to Sat 18/1/20]											
214	CIW-1200		Trial pits to locate the collection points			24 days	Mon 6/1/20	Wed 5/2/20	0 days	Mon 6/1/20	Tue 10/3/20	Mon 6/1/20	Tue 10/3/20	158,213SS,124	232,251	0 days		100%	[Gantt bar for 214: Mon 6/1/20 to Tue 10/3/20]											
215	CIW-1300		<b>Installation and Commissioning of Temporary Activated Carbon Deodorization Unit for the Existing Inlet Works</b>			<b>0 days</b>	<b>NA</b>	<b>NA</b>	<b>98 days</b>	<b>Wed 11/3/20</b>	<b>Wed 11/3/20</b>	<b>Wed 11/3/20</b>	<b>Sat 11/7/20</b>			<b>0 days</b>		<b>100%</b>	[Gantt bar for 215: Wed 11/3/20 to Sat 11/7/20]											
216	CIW-1310		Construction of concrete plinth			0 days	NA	NA	24 days	Wed 11/3/20	Wed 8/4/20	Wed 11/3/20	Wed 8/4/20	213	217	0 days		100%	[Gantt bar for 216: Wed 11/3/20 to Wed 8/4/20]											
217	CIW-1320		Installation of Deodorizer			0 days	NA	NA	40 days	Thu 9/4/20	Sat 30/5/20	Thu 9/4/20	Sat 30/5/20	216		0 days		100%	[Gantt bar for 217: Thu 9/4/20 to Sat 30/5/20]											
218	CIW-1330		Testing & commissioning																											

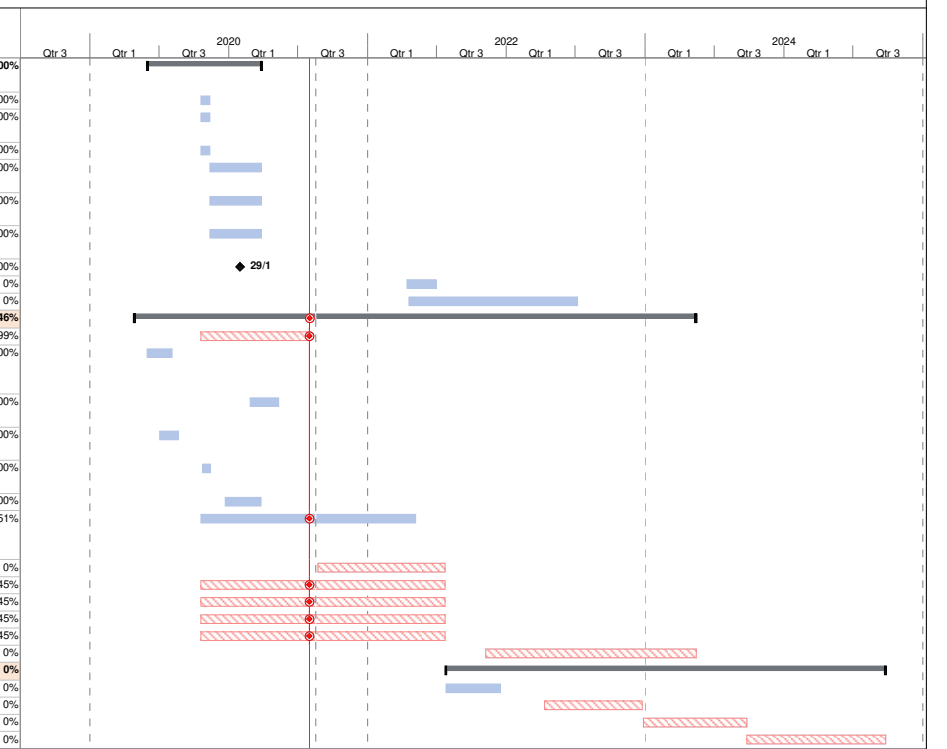
ID	Activity ID	Key Date	Task Name	Incliment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete
252	CIW-1500b		Joint Initial Survey arrangement with MTRCL			0 days	NA	NA	158 days	Tue 26/11/19	Wed 10/6/20	Tue 26/11/19	Wed 10/6/20			0 days		100%
253	CIW-1500c		Site Clearance & inspection pit excavation under conforming alignments			0 days	NA	NA	36 days	Fri 12/6/20	Sat 25/7/20	Fri 12/6/20	Sat 25/7/20			0 days		100%
254	CIW-1511		<b>Tank Drain Diversion near MTRCL track</b>			<b>0 days</b>	<b>NA</b>	<b>NA</b>	<b>246 days</b>	<b>Thu 11/6/20</b>	<b>Mon 12/4/21</b>	<b>Thu 11/6/20</b>	<b>Sat 10/4/21</b>			<b>0 days</b>		<b>100%</b>
255	CIW-1511a		Excavation of trial pit near MHD9.5 (TP45 & 47)	040		0 days	NA	NA	12 days	Mon 27/7/20	Sat 8/8/20	Mon 27/7/20	Sat 8/8/20		256,260	0 days		100%
256	CIW-1511b		Uncharted cables found near MTRCL track and identification			0 days	NA	NA	1 day	Thu 18/6/20	Thu 18/6/20	Thu 18/6/20	Thu 18/6/20			0 days		100%
257	CIW-1511c		Excavation of trial pit near MHD9.5			0 days	NA	NA	5 days	Fri 19/6/20	Wed 24/6/20	Fri 19/6/20	Wed 24/6/20		258	0 days		100%
258	CIW-1511d		Lower the ground surface, opening and additional trial pit (TP38)		(046)	0 days	NA	NA	60 days	Thu 11/6/20	Fri 21/8/20	Thu 11/6/20	Fri 21/8/20		259	0 days		100%
259	CIW-1511e		Excavation of Trial Pits near Manhole MHA04 and MH09	040		0 days	NA	NA	60 days	Fri 11/6/20	Fri 21/8/20	Thu 11/6/20	Fri 21/8/20			0 days		100%
260	CIW-1511f		Additional Trial Pit between MHD9.5 and MHA04	040		0 days	NA	NA	25 days	Fri 21/8/20	Fri 18/9/20	Fri 21/8/20	Fri 18/9/20			0 days		100%
261	CIW-1511g		Sheetpile installation for MHD9.5			0 days	NA	NA	38 days	Fri 1/9/20	Fri 16/10/20	Fri 16/10/20	Fri 16/10/20			0 days		100%
262	CIW-1511h		Sheetpile installation between MHD9.5 & MHA04			0 days	NA	NA	25 days	Tue 8/9/20	Thu 8/10/20	Tue 8/9/20	Thu 8/10/20			0 days		100%
263	CIW-1511i		LUU supporting & ELS works& excavatub between MHD9.5 & MHA04			0 days	NA	NA	73 days	Wed 7/10/20	Mon 4/1/21	Wed 7/10/20	Mon 4/1/21			0 days		100%
264	CIW-1511j		Unsuit excavated material from MHD9.5 to MHA04		261	0 days	NA	NA	4 days	Fri 20/11/20	Tue 24/11/20	Fri 20/11/20	Tue 24/11/20			0 days		100%
265	CIW-1511k		Revise design of manhole MHD9.5		(167)	0 days	NA	NA	20 days	Thu 7/1/21	Fri 29/1/21	Thu 7/1/21	Fri 29/1/21			0 days		100%
266	CIW-1511l		Break up opening and plugging existing concrete pipe at MHD9.5			0 days	NA	NA	6 days	Mon 18/1/21	Sat 23/1/21	Mon 18/1/21	Sat 23/1/21			0 days		100%
267	CIW-1511m		Trimming existing concrete pipe at MHD9.5			0 days	NA	NA	13 days	Fri 22/1/21	Fri 5/2/21	Fri 22/1/21	Fri 5/2/21			0 days		100%
268	CIW-1511n		Construction of manhole MHD9.5			0 days	NA	NA	49 days	Sat 6/2/21	Sat 10/4/21	Sat 6/2/21	Sat 10/4/21			0 days		100%
269	CIW-1511o		Additional work to prevent backflow from MH11 to MHD9.5	(176)		0 days	NA	NA	9 days	Mon 18/1/21	Wed 27/1/21	Mon 18/1/21	Wed 27/1/21			0 days		100%
270	CIW-1511p		Sewage overflow incident of MHD11	(180)		0 days	NA	NA	9 days	Sat 13/2/21	Thu 25/2/21	Sat 13/2/21	Thu 25/2/21			0 days		100%
271	CIW-1512		Additional Special manhole for tank drain (NCE)			0 days	NA	NA	35 days	Mon 24/8/20	Mon 5/10/20	Mon 24/8/20	Mon 5/10/20		272,273	0 days		100%
272	CIW-1513		Breaking of concrete surround of cables (0.8m x 0.8m x 70m) (NCE)			0 days	NA	NA	24 days	Tue 8/9/20	Wed 7/10/20	Tue 8/9/20	Wed 7/10/20			0 days		100%
273	CIW-1514	KD1B	Construction of tank drain along revised alignment w/ concrete surround		051	0 days	NA	NA	10 days	Tue 5/1/21	Fri 15/1/21	Tue 5/1/21	Fri 15/1/21		271	0 days		100%
274	CIW-1516		Backfilling trench between MHD9.5 & MHA04			0 days	NA	NA	20 days	Sat 16/1/21	Mon 8/2/21	Sat 16/1/21	Mon 8/2/21			0 days		100%
275	CIW-1520		<b>Diversion of Sludge Pipes</b>			<b>75 days</b>	<b>Tue 21/4/20</b>	<b>Tue 21/7/20</b>	<b>364 days</b>	<b>Mon 11/5/20</b>	<b>Thu 29/7/21</b>	<b>Mon 11/5/20</b>	<b>NA</b>			<b>0 days</b>		<b>96%</b>
276	CIW-1520a		Excavation of trial pit and identification of connection point		351	0 days	NA	NA	103 days	Mon 11/5/20	Wed 9/9/20	Mon 11/5/20	Wed 9/9/20		277	0 days		100%
277	CIW-1520b		Trench excavation for twin DN250 sludge pipe, on hold due to encounter of uncharted sludge pipe		351	75 days	Tue 21/4/20	Tue 21/7/20	4 days	Wed 15/7/20	Sat 18/7/20	Wed 15/7/20	Sat 18/7/20		276	0 days		100%
278	CIW-1520c		Additional hole drilling works and identification of connection point			0 days	NA	NA	53 days	Mon 20/7/20	Mon 20/7/20	Mon 20/7/20	Mon 20/7/20		277	0 days		100%
279	CIW-1520d		Temporary diversion of substandard DI 250 Leachate raising main		202	0 days	NA	NA	127 days	Tue 20/10/20	Wed 24/3/21	Tue 20/10/20	Wed 24/3/21		228	0 days		100%
280	CIW-1520e		Protection work for substandard DI 500 tank drain Pipe (near MHD 9.5)		302	0 days	NA	NA	93 days	Wed 18/11/20	Fri 12/3/21	Wed 18/11/20	Fri 12/3/21		228	0 days		100%
281	CIW-1520f		Encounter of uncharted concrete pipe within sheetpile cofferdam at MHA04			0 days	NA	NA	2 days	Tue 10/11/20	Wed 11/11/20	Tue 10/11/20	Wed 11/11/20		282	0 days		100%
282	CIW-1520g		Resumption and construction of sludge pipe construction			0 days	NA	NA	253 days	Sat 19/9/20	Thu 29/7/21	Sat 19/9/20	NA	281	307,44FF	-36 days		91%
283	CIW-1530		Diversion of Leachate Raising Main			60 days	Tue 21/4/20	Fri 3/7/20	60 days	Tue 14/9/21	Thu 25/11/21	NA	NA	241		-135 days		0%
284	CIW-1600		<b>Diversion of pipelines near Primary Sludge Thickeners (approx. 180m long 150mm to 375mm concrete pipes)</b>			<b>156 days</b>	<b>Thu 6/2/20</b>	<b>Fri 14/8/20</b>	<b>570 days</b>	<b>Tue 26/11/19</b>	<b>Thu 28/10/21</b>	<b>Tue 26/11/19</b>	<b>NA</b>			<b>0 days</b>		<b>55%</b>
285	CIW-1610		Trench Excavation from MH MHD1E to MHD6 (approx. 90m long with MHS MHD1A, 1B, 1C, 1D & 1E) - resigned		87	60 days	Thu 6/2/20	Mon 20/4/20	0 days	Tue 26/11/19	Tue 26/11/19	Tue 26/11/19	Tue 26/11/19			0 days		100%
286	CIW-1620		Manholes construction and Pipe laying - omitted		87	60 days	Mon 30/3/20	Sat 13/6/20	0 days	Tue 2/6/20	Tue 2/6/20	Tue 2/6/20	Tue 2/6/20		286	0 days		100%
287	CIW-1621		Temporary Diversion of Existing DN200 Filtrate Raising Main		034	0 days	NA	NA	20 days	Sat 1/8/20	Mon 24/8/20	Sat 1/8/20	Mon 24/8/20		288	0 days		100%
288	CIW-1623		Pipeline Diversion Works near Primary Sludge Thickening Tank		(114)	0 days	NA	NA	30 days	Fri 16/4/21	Sat 22/5/21	Fri 16/4/21	Sat 22/5/21		287	0 days		100%
289	CIW-1625		Uncharted underground utilities near Proposed MHD5B		0260	0 days	NA	NA	26 days	Mon 24/5/21	Wed 23/6/21	Mon 24/5/21	Wed 23/6/21		288,289	0 days		100%
290	CIW-1630		Trench Excavation from MH (approx. 90m long with MHS M1A to M3B)			60 days	Tue 21/4/20	Fri 3/7/20	32 days	Thu 19/3/20	Thu 19/3/20	Thu 19/3/20	Wed 29/4/20		291,292	0 days		100%
291	CIW-1640		Manholes construction (M1A, M1B, M2B, M3B) and Pipe laying			25 days	Mon 15/6/20	Wed 15/7/20	12 days	Mon 4/5/20	Sat 16/5/20	Mon 4/5/20	Sat 16/5/20		286,288	0 days		100%
292	CIW-1650		Trench Excavation from MHD5 to MHD9.5 (approx. 90m long with MHS MHD5A & 5B)		(114)	50 days	Thu 16/7/20	Fri 11/9/20	60 days	Wed 2/9/20	Wed 30/12/20	Wed 2/9/20	Wed 30/12/20		290,296,301,303,305	0 days		100%
293	CIW-1660		Provision of Pumping System from Screen to Flume Channel		87	0 days	NA	NA	287 days	Tue 10/11/20	Thu 28/10/21	Tue 10/11/20	NA	289	294	-111 days		75%
294	CIW-1670		Manholes construction (MHD5A, MHD5B, MHD5C) and Pipe laying			45 days	Sat 23/5/20	Thu 16/7/20	293 days	Thu 3/11/20	Thu 28/10/21	Thu 3/11/20	NA	293	44FF	-111 days		8%
295	CIW-2000		<b>Decommission and Demolition of Existing Facilities and Structures</b>			<b>240 days</b>	<b>Mon 2/3/20</b>	<b>Fri 18/12/20</b>	<b>222 days</b>	<b>Thu 19/3/20</b>	<b>Tue 15/12/20</b>	<b>Thu 19/3/20</b>	<b>Tue 15/12/20</b>		<b>6,122,160</b>	<b>0 days</b>		<b>100%</b>
296	CIW-2100		<b>Primary Sludge Thickening Tank No.1 and No.2</b>			<b>80 days</b>	<b>Mon 2/3/20</b>	<b>Thu 9/6/20</b>	<b>222 days</b>	<b>Thu 19/3/20</b>	<b>Tue 15/12/20</b>	<b>Thu 19/3/20</b>	<b>Tue 15/12/20</b>		<b>292</b>	<b>0 days</b>		<b>100%</b>
297	CIW-2101		Additional Works for Temporary Diversion of Bypass Pipe near Primary Sludge Thickeners			0 days	NA	NA	45 days	Thu 19/3/20	Thu 19/3/20	Thu 19/3/20	Sun 17/5/20			0 days		100%
298	CIW-2110		Removal of E&M equipment of primary sludge thickening tank			0 days	NA	NA	1 day	Thu 4/6/20	Thu 4/6/20	Thu 4/6/20	Thu 4/6/20		299	0 days		100%
299	CIW-2120		Decommission and Demolition the tank			80 days	Mon 2/3/20	Tue 9/6/20	150 days	Thu 18/6/20	Tue 15/12/20	Thu 18/6/20	Tue 15/12/20		298	0 days		100%
300	CIW-2130		Demolition of structure no.2			0 days	NA	NA	24 days	Mon 18/5/20	Mon 22/6/20	Mon 18/5/20	Mon 22/6/20			0 days		100%
301	CIW-2200		Primary Sludge Pump Pit			60 days	Wed 10/6/20	Thu 20/8/20	18 days	Wed 22/7/20	Tue 11/8/20	Wed 22/7/20	Tue 11/8/20		299,300,302,304	0 days		100%
302	CIW-2300		Septic Tank			50 days	Fri 21/8/20	Tue 20/10/20	18 days	Wed 12/8/20	Tue 1/9/20	Wed 12/8/20	Tue 1/9/20		301	0 days		100%
303	CIW-2400		<b>Diesel Tank</b>			<b>50 days</b>	<b>Wed 21/10/20</b>	<b>Fri 18/12/20</b>	<b>53 days</b>	<b>Thu 2/7/20</b>	<b>Tue 1/9/20</b>	<b>Thu 2/7/20</b>	<b>Tue 1/9/20</b>		<b>292</b>	<b>0 days</b>		<b>100%</b>
304	CIW-2410		Transfers of Remaining Diesel Fuel of Existing Diesel Tank			0 days	NA	NA	15 days	Thu 2/7/20	Thu 2/7/20	Thu 2/7/20	Tue 21/7/20		305	0 days		100%
305	CIW-2420		Demolition of diesel tank			50 days	Wed 21/10/20	Fri 18/12/20	18 days	Wed 12/8/20	Tue 1/9/20	Wed 12/8/20	Tue 1/9/20		304	0 days		100%
306	CIW-3000		<b>Inlet Works No.1 Building (1)</b>			<b>569 days</b>	<b>Sat 19/12/20</b>	<b>Mon 21/11/22</b>	<b>747 days</b>	<b>Wed 15/9/20</b>	<b>Thu 23/3/23</b>	<b>Tue 15/9/20</b>	<b>NA</b>			<b>748 days</b>		<b>18%</b>
307	CIW-3100		Predrilling (10hrs, 1trigs, 2.5days/drillhole/rig) - stage 1			40 days	Mon 4/1/21	Mon 22/2/21	28 days	Tue 15/9/20	Mon 19/10/20	Tue 15/9/20	Mon 19/10/20		248,250,273,228,282	0 days	1	100%
308	CIW-3100a		Predrilling (22hrs, 1trigs, 2.5days/drillhole/rig) - stage 2			0 days	NA	NA	60 days	Tue 8/12/20	Mon 22/2/21	Tue 8/12/20	Mon 22/2/21			0 days		100%
309	CIW-3200		Pre-bored H piles (188nos, 1.8trigs, 2days/rig/pile)			133 days	Tue 23/2/21	Wed 4/8/21	210 days	Fri 19/2/21	Tue 2/11/21	Fri 19/2/21	NA	228,132	310SS+150 days,311	-34 days	5	63%
310	CIW-3400a		Pile Load Test at stage 1			26 days	Thu 5/8/21	Fri 3/9/21	21 days	Sat 21/8/21	Tue 14/9/21	NA	NA	309SS+150 days	312	83 days		0%
311																		



ID	Activity ID	Key Date	Task Name	Incliment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete
342	CPS-3000		Predrilling (63mrs, 3rigs, 3days/drillhole/ri)			38 days	Thu 10/2/22	Fri 25/3/22	38 days	Fri 15/10/21	Sat 27/11/21	NA	NA	127,452,339,340	343	-62 days	1	0%
343	CPS-4000		Pre-bored H piles (205nos, 2.5rigs, 2days/pile/ri)			102 days	Sat 26/3/22	Mon 1/8/22	164 days	Mon 29/11/21	Wed 22/6/22	NA	NA	132,453,341,342	344	-62 days	5	0%
344	CPS-5000		Sheetpile Installation (FSP-II, 3360sq.m, 3rigs, 50sqm/ri/day)			85 days	Wed 25/5/22	Fri 2/9/22	42 days	Thu 5/5/22	Fri 24/6/22	NA	NA	343,345,346,347	345	-62 days	0	0%
345	CPS-6000		Pile Load Test			26 days	Tue 2/8/22	Wed 23/8/22	26 days	Thu 23/6/22	Sat 23/7/22	NA	NA	346	346	0 days	0	0%
346	CPS-7000		ELS works (20000cu.m soil with 2 layers walling / strutting)			45 days	Sat 3/9/22	Fri 28/10/22	60 days	Mon 25/7/22	Wed 6/10/22	NA	NA	343,135,345,344	347	0 days	3	0%
347	CPS-7900		Receiving of Civil Requirements from PM			0 days	NA	NA	1 day	Thu 7/7/22	Thu 7/7/22	NA	NA	347FF-3 emons,348,1665F,1705F	348	186 days	0	0%
348	CPS-8000	KD1D	R.C. Structure works (including ELS demolition works)			92 days	Sat 29/10/22	Mon 20/2/23	112 days	Thu 6/10/22	Mon 20/2/23	NA	NA	348SS-3 emons,349,350,45FF,351FF	349	0 days	3	0%
349	CPS-9000	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	0 days	Mon 20/2/23	Mon 20/2/23	NA	NA	45FF	45FF	0 days	0	0%
350	CPS-10000	SW1	ABWF works + BS works			150 days	Tue 21/2/23	Wed 23/8/23	150 days	Tue 21/2/23	Wed 23/8/23	NA	NA	348,189,141	56FF	139 days	0	0%
351	CPS-11000	KD1D	Flowmeter Chamber no.1			60 days	Tue 21/2/23	Sat 6/5/23	60 days	Tue 6/12/22	Mon 20/2/23	NA	NA	348FF	45FF,333FF	0 days	0	0%
352	CPS-12000	SW2	Process Pipe CHG chaingae 0-50, CHH chaingae 0-80, CHI chaingae 0-95 & CHJ chaingae 0-40 and surrounding utilities			0 days	NA	NA	100 days	Wed 8/6/22	Thu 6/10/22	NA	NA	344SS+27 days	57FF,555	-62 days	0	0%
353	<b>CBR-0000</b>		<b>Bioreactors No.2A &amp; 2B, B-4 (3)</b>			<b>1106 days</b>	<b>Mon 18/11/19</b>	<b>Sat 12/8/23</b>	<b>1194 days</b>	<b>Mon 18/11/19</b>	<b>Mon 27/11/23</b>	<b>Mon 18/11/19</b>	<b>NA 9</b>			<b>546 days</b>		<b>38%</b>
354	CBR-1000		Operation of 2no. Existing 800mm air mains over bioreactor no.2			360 days	Mon 18/11/19	Wed 11/11/20	292 days	Mon 18/11/19	Wed 11/11/20	Mon 18/11/19	Wed 11/11/20	NA	NA	0 days	0	100%
355	CBR-2000		Construction of Removable Steel Shutter in the Common Channel of BR2 and 3		67	0 days	NA	NA	86 days	Thu 1/10/20	Fri 15/1/21	Thu 1/10/20	Fri 15/1/21	144	365	0 days	0	100%
356	CBR-4100		Take Down E&M Equipment & cables in Bioreactor BR2 and Return to DSD		95	0 days	NA	NA	90 days	Thu 15/10/20	Mon 1/2/21	Thu 15/10/20	Mon 1/2/21	366	366	0 days	0	100%
357	CBR-4200		Installation of monitoring points before demolition of BR2		219	0 days	NA	NA	5 days	Wed 27/1/21	Mon 1/2/21	Wed 27/1/21	Mon 1/2/21	363	358	0 days	0	100%
358	CBR-4300		Condition Survey for BR2			0 days	NA	NA	1 day	Fri 30/10/20	Fri 30/10/20	Fri 30/10/20	Fri 30/10/20	357	366	0 days	0	100%
359	<b>CBR-5000</b>		<b>Demolition of existing bioreactor no.2</b>			<b>60 days</b>	<b>Wed 3/2/21</b>	<b>Tue 20/4/21</b>	<b>98 days</b>	<b>Tue 10/11/20</b>	<b>Wed 10/3/21</b>	<b>Tue 10/11/20</b>	<b>Wed 10/3/21</b>	<b>122,162</b>		<b>0 days</b>		<b>100%</b>
360	CBR-5100		Identification and removal of existing cables on air main pipe bridge		210	0 days	NA	NA	35 days	Tue 10/11/20	Sat 19/12/20	Tue 10/11/20	Sat 19/12/20	361,365	361,365	0 days	0	100%
361	CBR-5300		Plugging and demolition of existing DN800 air main			0 days	NA	NA	5 days	Mon 28/12/20	Sat 2/1/21	Mon 28/12/20	Sat 2/1/21	360	366	0 days	0	100%
362	CBR-5200		Division of existing lighting cable and Earthing ducts, stage 1		264	0 days	NA	NA	43 days	Fri 4/12/20	Fri 4/12/20	Tue 26/1/21	Fri 4/12/20	363	366	0 days	0	100%
363	CBR-5400		Overflow incident from BR1 to BR2 works area no.1 (Dec 2020)		285	0 days	NA	NA	33 days	Fri 18/12/20	Thu 28/1/21	Fri 18/12/20	Thu 28/1/21	364	357,362	0 days	0	100%
364	CBR-5410		Overflow incident from BR1 to BR2 works area (Feb 2021)		340	0 days	NA	NA	8 days	Tue 16/2/21	Wed 24/2/21	Tue 16/2/21	Wed 24/2/21	365	366,363	0 days	0	100%
365	CBR-3000		Construction of Isolation Wall & stoplog in common channel of BR2 & BR3		277	0 days	NA	NA	43 days	Sat 16/1/21	Wed 10/3/21	Sat 16/1/21	Wed 10/3/21	355,360	364	0 days	0	100%
366	CBR-5500		Demolition of existing pipe bridge, partition wall and base slab (Stage 1)			30 days	Wed 3/2/21	Fri 12/3/21	26 days	Tue 2/2/21	Sat 6/3/21	Tue 2/2/21	Sat 6/3/21	362,358,364,356	367SS,368	0 days	0	100%
367	CBR-5520		Removal of additional concrete infill within the partition walls		(174)	0 days	NA	NA	26 days	Tue 2/2/21	Sat 6/3/21	Tue 2/2/21	Sat 6/3/21	366SS	368	0 days	0	100%
368	CBR-5900		Construction of precautionary measures (i.e. isolation wall)		322	0 days	NA	NA	2 days	Tue 9/3/21	Tue 9/3/21	Tue 9/3/21	Tue 9/3/21	366,367	369,371	0 days	0	100%
369	CBR-5905		Construction of precautionary measures (i.e. bund wall)		305	0 days	NA	NA	3 days	Thu 15/4/21	Sat 17/4/21	Thu 15/4/21	Sat 17/4/21	368	368	0 days	0	100%
370	CBR-5910		Removal of abandoned DN250 air pipe		209	0 days	NA	NA	6 days	Tue 20/4/21	Mon 26/4/21	Tue 20/4/21	Mon 26/4/21	369	370	0 days	0	100%
371	CBR-6000		Predrilling (33mrs, 3rigs, 2days/drillhole/ri), stage 1			44 days	Wed 21/4/21	Sat 12/6/21	44 days	Mon 1/3/21	Wed 5/5/21	Mon 1/3/21	Wed 5/5/21	368	372	0 days	1	100%
372	CBR-7000		Pre-bored H piles (113nos, 2rigs, 2days/pile/ri), stage 1			113 days	Thu 15/6/21	Thu 18/11/21	113 days	Thu 6/5/21	Fri 17/9/21	Thu 6/5/21	NA	371	382SS+30 days,377SS+45 days,381	5	41%	
373	CBR-7100		<b>External works between BR2 and MFB2</b>			<b>0 days</b>	<b>NA</b>	<b>NA</b>	<b>217 days</b>	<b>Wed 30/6/21</b>	<b>Mon 21/3/22</b>	<b>Wed 30/6/21</b>	<b>NA</b>			<b>1046 days</b>		<b>9%</b>
374	CBR-7110		DN700 (CHER)RAS Diversion			0 days	NA	NA	45 days	Wed 30/6/21	Sat 21/8/21	Wed 30/6/21	Sat 21/8/21	375	375	1212 days	2%	0%
375	CBR-7120		Temporary vehicle diversion for RAS operation			0 days	NA	NA	6 days	Mon 23/8/21	Sat 28/8/21	Mon 23/8/21	Sat 28/8/21	374	374	1212 days	0%	0%
376	CBR-7130		<b>DN600 Temporary Sewage diversion</b>			<b>0 days</b>	<b>NA</b>	<b>NA</b>	<b>120 days</b>	<b>Wed 30/6/21</b>	<b>Sat 20/11/21</b>	<b>Wed 30/6/21</b>	<b>NA</b>			<b>-45 days</b>		<b>18%</b>
377	CBR-7131		2nos. Manhole Construction (MHTD1 and MHTD2)		204, 353	0 days	NA	NA	75 days	Wed 30/6/21	Mon 27/9/21	Wed 30/6/21	NA	372SS+45 days	378FS-30 days	-88 days	0	36%
378	CBR-7132		Existing DN600 tank drain diversion		204, 353	45 days	NA	NA	75 days	Mon 23/8/21	Sat 20/11/21	NA	NA	377FS-30 days	379	-88 days	0	0%
379	CBR-7140		Demolition of abandoned DN600 pipe and existing surrounded wall & channel of BR2		353, 336	30 days	NA	NA	45 days	Mon 22/11/21	Sat 15/1/22	NA	NA	378	380	-88 days	0	0%
380	CBR-7150		Pre-drilling(3nr.) & Pre-bored H piles (20mrs, 1rig, 2days/drillhole/ri), stage 2A			26 days	NA	NA	26 days	Mon 17/1/22	Fri 18/2/22	NA	NA	379	381	-88 days	0	0%
381	CBR-7160		Pile load test			26 days	NA	NA	26 days	Sat 19/2/22	Mon 21/3/22	NA	NA	380,386	389,388	-88 days	0	0%
382	CBR-7200		<b>External works between BR2 and PST</b>			<b>0 days</b>	<b>NA</b>	<b>NA</b>	<b>141 days</b>	<b>Wed 30/6/21</b>	<b>Wed 15/12/21</b>	<b>Wed 30/6/21</b>	<b>NA</b>	<b>372SS+30 days</b>		<b>-38 days</b>		<b>19%</b>
383	CBR-7210		Demolition of existing DN1200, DN900 and DN500 pipe (w/ ELS works)		91	0 days	NA	NA	75 days	Wed 30/6/21	Mon 27/9/21	Wed 30/6/21	NA	372SS+45 days	384	-38 days	0	36%
384	CBR-7220		Division of existing lighting cable and Earthing ducts (w/ ELS)		264	0 days	NA	NA	30 days	Tue 28/9/21	Wed 3/11/21	NA	NA	383	385	-38 days	0	0%
385	CBR-7230		Demolition of existing side wall		336	0 days	NA	NA	12 days	Thu 4/11/21	Wed 17/11/21	NA	NA	384	386	-38 days	0	0%
386	CBR-7240		Pre-bored H piles (24mrs, 2rig, 2days/drillhole/ri), stage 2B			24 days	NA	NA	24 days	Thu 18/11/21	Wed 15/12/21	NA	NA	385	381	-38 days	0	0%
387	CBR-7340		Demolition of existing side wall between BR2 & BR3 and baseslab			0 days	NA	NA	60 days	Sat 18/9/21	Tue 30/11/21	NA	NA	372	388	1 day	0	0%
388	CBR-8000		Sheetpile Installation (3000sq.m, 1rigs, 50sqm/ri/day)			60 days	Wed 9/9/21	Fri 19/11/21	60 days	Wed 22/3/22	Tue 7/6/22	NA	NA	381,387	389	-88 days	0	0%
389	CBR-10000		ELS works (18100cu.m soil with 4 layers walling / strutting)			125 days	Mon 20/12/21	Sat 27/5/22	80 days	Wed 8/6/22	Fri 9/9/22	NA	NA	135,381,388	391,390FF-3 emons,399SS+46 days	3	0%	
390	CBR-10900		Receiving of Civil Requirements from PM			0 days	NA	NA	1 day	Sat 11/6/22	Sat 11/6/22	NA	NA	389FF-3 emons	391SS-3 emons	168 days	0	0%
391	CBR-11000	KD1E	R.C. Structure works (including ELS demolition works)			180 days	Sat 28/5/22	Sat 31/12/22	180 days	Sat 10/9/22	Sat 22/4/23	NA	NA	138,188,187,190,188,389,390SS-3 emons	398,46FF,397,393FF,394SS+25 da	5	0%	
392	CBR-11000	KD1E	Process Pipe CHQ chaingae 65-140			0 days	NA	NA	60 days	Wed 8/2/23	Sat 22/4/23	NA	NA	391FF	46FF	-88 days	0	0%
393	CBR-11020	KD1E	Additional backfill works after end wall construction at BR2 common channel		277	0 days	NA	NA	30 days	Wed 15/3/23	Sat 22/4/23	NA	NA	391FF	46FF	-88 days	0	0%
394	CBR-13000	KD1E	Flowmeter no. 2,4			180 days	2023/1/3	2023/8/12	60 days	Thu 10/1/22	Wed 21/12/22	NA	NA	391SS+25 days	395FS-13 days	-88 days	0	0%
395	CBR-14000	KD1E	Gate Valve Chamber no.1-3			180 days	2023/1/3	2023/8/12	60 days	Wed 7/12/22	Tue 21/2/23	NA	NA	394FS-13 days	396FS-12 days	-88 days	0	0%
396	CBR-15000	KD1E	Plug Valve Chamber no.1-2			180 days	2023/1/3	2023/8/12	60 days	Wed 8/2/23	Sat 22/4/23	NA	NA	395FS-12 days	46FF	-88 days	0	0%
397	CBR-12000	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	0 days	Sat 22/4/23	Sat 22/4/23	NA	NA	391	46FF	-88 days	0	0%
398	CBR-16000	SW1	ABWF works + BS works			180 days	Tue 3/1/23	Sat 12/8/23	180 days	Mon 24/4/23	Mon 27/11/23	NA	NA	391,189,141	56FF	60 days	0	0%
399	CBR-17000	SW2	Process Pipe CHQ chaingae 65-170, CHP chaingae 60-130, CHL chaingae 0-35 & CHK chaingae 0-50 and surrounding utilities			0 days	NA	NA	80 days	Tue 8/8/22	Sat 5/11/22	NA	NA	389SS+46 days	57FF,555	-88 days	0	0%
400	<b>CMF-0000</b>		<b>Membrane Facilities Building, B</b>															

ID	Activity ID	Key Date	Task Name	Inherent Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete
435	CSA-1000		<b>Additional Preliminary Works</b>			<b>0 days</b>	<b>NA</b>	<b>NA</b>	<b>330 days</b>	<b>Tue 9/6/20</b>	<b>Mon 19/7/21</b>	<b>Tue 9/6/20</b>	<b>NA</b>			<b>1247 days</b>		<b>98%</b>
436	CSA-1020		Expose and abandon existing electric cable & trial pits		78	0 days	NA	NA	39 days	Mon 17/8/20	Wed 30/9/20	Mon 17/8/20	Wed 30/9/20			0 days		100%
437	CSA-1030		Installation of standpipes		71	0 days	NA	NA	13 days	Mon 14/9/20	Mon 28/9/20	Mon 14/9/20	Mon 28/9/20			0 days		100%
438	CSA-1100		Diversion of Existing SAS Raising Main near SAS Pumping Station		68, 75, 76	0 days	NA	NA	170 days	Tue 9/6/20	Thu 31/12/20	Tue 9/6/20	Thu 31/12/20			0 days		100%
439	CSA-1200		Decommission of existing power and signal systems in leachate pump station switch room		312, 309, 310	0 days	NA	NA	58 days	Mon 21/9/20	Mon 30/11/20	Mon 21/9/20	Mon 30/11/20	146	453	0 days		100%
440	CSA-1300		Construction of Cable trough for CLP 11kv Cable Diversion		75, 76, 77, 161	0 days	NA	NA	54 days	Mon 19/10/20	Mon 21/12/20	Mon 19/10/20	Mon 21/12/20		453	0 days		100%
441	CSA-1400		Demolition of Existing Pillar box and its concrete plinth		144, 212, 3/30	0 days	NA	NA	53 days	Wed 12/8/20	Sat 14/11/20	Wed 12/8/20	Sat 14/11/20	149	453	0 days		100%
442	CSA-1500		Excavation to locate existing underground cable near SAS Pump Station		78	0 days	NA	NA	59 days	Wed 17/6/20	Sat 21/11/20	Wed 17/6/20	Sat 21/11/20		453	0 days		100%
443	CSA-1600		Diversion of Existing DN80 Permeate Raising Main near SAS Pumping station		89	0 days	NA	NA	72 days	Tue 6/10/20	Thu 31/12/20	Tue 6/10/20	Thu 31/12/20		453	0 days		100%
444	CSA-1800		Trench Excavation near SAS for CLP diversion of 11kv cable		309, 310	0 days	NA	NA	53 days	Mon 12/10/20	Sat 12/12/20	Mon 12/10/20	Sat 12/12/20		453	0 days		100%
445	CSA-1700		Relocation of Oil Interceptor Near Existing Compressor House		144, 212, 3/70	0 days	NA	NA	50 days	Mon 9/11/20	Fri 8/1/21	Mon 9/11/20	Fri 8/1/21		453	0 days		100%
446	CSA-1900		Diversion of existing system sewerage		212, 309, 3183	0 days	NA	NA	36 days	Wed 13/1/21	Fri 26/2/21	Wed 13/1/21	Fri 26/2/21	151	455,453,447	0 days		100%
447	CSA-1910		Diversion of existing copper pipe near proposed SAS pumping station		309, 310	0 days	NA	NA	61 days	Mon 19/10/20	Thu 31/12/20	Mon 19/10/20	Thu 31/12/20	446	453	0 days		100%
448	CSA-1920		Pipeline of proposed SAS Pumping Station - 13 nos. of puddles		221	0 days	NA	NA	180 days	Mon 7/12/20	Mon 19/7/21	Mon 7/12/20	Mon 19/7/21			1247 days		92%
449	CSA-1930		Additional DN150 Raising main for SAS		220/69	0 days	NA	NA	15 days	Wed 21/2/20	Fri 18/12/20	Wed 21/2/20	Fri 18/12/20			0 days		100%
450	CSA-1940		Additional DN90 PE pipe diversion		89	0 days	NA	NA	7 days	Fri 11/12/20	Fri 18/12/20	Fri 11/12/20	Fri 18/12/20			0 days		100%
451	CSA-1970		Additional diversion of existing sludge rising main and sewerage system		81	0 days	NA	NA	15 days	Thu 21/1/21	Sat 6/2/21	Thu 21/1/21	Sat 6/2/21			0 days		100%
452	CSA-2000		Predrilling (4hrs, 1rig, 4days/drillhole/rig)		68	16 days	Wed 20/5/20	Sat 6/6/20	7 days	Sat 18/4/20	Sat 25/4/20	Sat 18/4/20	Sat 25/4/20	127	342,453	0 days		100%
453	CSA-3000		Pre-bored H piles (12nos, 1rigs, 4days/pile/rig)			60 days	Mon 8/6/20	Tue 18/8/20	19 days	Mon 4/1/21	Mon 25/1/21	Mon 4/1/21	Mon 25/1/21	132,452,148,438,439,441,442,443,445,444,343,454		2	0 days	100%
454	CSA-4000		Pile Load Test			21 days	Wed 19/8/20	Tue 17/9/20	22 days	Fri 19/3/21	Tue 23/2/21	Fri 19/3/21	Tue 23/2/21	453	456,455	0 days		100%
455	CSA-5000		Sheetpile Installation (FSP-II, 690sq.m, 40sqm/day)			28 days	Wed 19/8/20	Sat 19/9/20	28 days	Thu 30/3/21	Wed 5/5/21	Tue 30/3/21	Wed 5/5/21	133,454,446	456	0 days		100%
456	CSA-6000		ELS works (1300cu.m soil with 2 layers walling / strutting)			75 days	Mon 21/9/20	Wed 19/2/20	75 days	Thu 6/5/21	Wed 4/8/21	Thu 6/5/21	Wed 4/8/21	NA,455,135,454	458,457FF-3 emons	-121 days	2	96%
457	CSA-6900		Receiving of Civil Requirements from PM			0 days	NA	NA	1 day	Thu 6/5/21	Thu 6/5/21	Thu 6/5/21	Thu 6/5/21	456FF-3 emons	458SS-3 emons	0 days		100%
458	CSA-7000	KD1H	R.C. Structure works (including ELS demolition works)			186 days	Mon 21/12/20	Mon 9/8/21	186 days	Thu 5/8/21	Sat 19/3/22	Thu 5/8/21	Sat 19/3/22	NA,456,457SS-3 emons	459,460,49FF	-121 days	5	0%
459	CSA-8000	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	0 days	Sat 19/3/22	Sat 19/3/22	NA	NA	458	49FF	-121 days		0%
460	CSA-9000	SW1	ABWF works + BS works			90 days	Tue 10/8/21	Thu 25/11/21	90 days	Thu 14/6/22	Wed 28/9/22	Thu 14/6/22	Wed 28/9/22	NA	458,189,141,522SS	56FF	405 days	0%
461	CAS-0000		<b>Ancillary Structures, B-7</b>			<b>503 days</b>	<b>Mon 7/9/20</b>	<b>Sat 21/5/22</b>	<b>420 days</b>	<b>Mon 3/5/21</b>	<b>Wed 28/9/22</b>	<b>Mon 3/5/21</b>	<b>NA</b>	<b>12</b>		<b>891 days</b>		<b>7%</b>
462	CAS-1000		Demolition of Existing Faciliates and Structures (leachate pump pit & pumping station)			120 days	Mon 7/9/20	Sat 30/1/21	120 days	Mon 3/5/21	Thu 23/9/21	Mon 3/5/21	NA	122,160,162	497	48 days		41%
463	CFS-1000		<b>Fire Services Sprinkler Pumping Room &amp; Emergency Generator House (9)(10)**</b>		<b>301</b>	<b>220 days</b>	<b>Sat 10/4/21</b>	<b>Sun 3/1/21</b>	<b>419 days</b>	<b>Tue 4/5/21</b>	<b>Wed 28/9/22</b>	<b>Tue 4/5/21</b>	<b>NA</b>	<b>NA</b>		<b>405 days</b>		<b>14%</b>
464	CFS-1000		Water Sampling and Testing for existing effluent pump pit		384	0 days	NA	NA	12 days	Tue 4/5/21	Mon 17/5/21	Tue 4/5/21	Mon 17/5/21		465	0 days		100%
465	CFS-1150		Identification, decommission and demolition of the existing kloak		86	0 days	NA	NA	26 days	Tue 18/5/21	Fri 18/6/21	Tue 18/5/21	Fri 18/6/21	464	466,479	0 days		100%
466	CFS-1100		Provision of Flowmeter chamber, gate valve chamber and associated sewerage		85	0 days	NA	NA	90 days	Sat 19/6/21	Tue 5/10/21	Sat 19/6/21	NA	465	467,469FF	-101 days		40%
467	CFS-1200		Decommission and demolition of the existing pump pit and associated sewerage manholes and pipes		86	0 days	NA	NA	40 days	Wed 6/10/21	Mon 22/11/21	NA	NA	466	470	-101 days		0%
468	CFS-1250		Diversion of Leachate Raising Main near SSSH		241	0 days	NA	NA	18 days	Wed 28/7/21	Wed 18/8/21	NA	NA	469SF	480	18 days		0%
469	CFS-1300		E&M provision of flowmeter chamber and associated sewerage for effluent and sewage from SSSH		256	0 days	NA	NA	40 days	Wed 18/8/21	Tue 5/10/21	NA	NA	466FF	470,468SF	-61 days		0%
470	CFS-2000		Excavation for Raft Footing (800cu.m)			65 days	NA	NA	44 days	Tue 23/11/21	Sat 15/1/22	NA	NA	469,467	471	-101 days		0%
471	CFS-2800		Plate load test at bottom level of compacted general fill(2no.)			12 days	NA	NA	7 days	Mon 17/1/22	Mon 24/1/22	NA	NA	470	472	-101 days		0%
472	CFS-2900		Soil Replacement (14 layers SRT)			0 days	NA	NA	42 edays	Mon 24/1/22	Mon 7/3/22	NA	NA	471	473	-124.42 edays		0%
473	CFS-3000		Plate load test at bottom level of base slab (3no.)			28 days	Fri 4/6/21	Mon 21/6/21	7 days	Tue 8/3/22	Tue 15/3/22	NA	NA	472	474FF-3 emons,475	-101 days		0%
474	CFS-3900		Receiving of Civil Requirements from PM			0 days	NA	NA	1 day	Tue 23/11/21	Tue 23/11/21	NA	NA	473FF-3 emons	475SS-3 emons	59 days		0%
475	CFS-4000	KD1J	R.C. structure works			120 days	NA	NA	70 days	Wed 16/3/22	Mon 13/6/22	NA	NA	473,474SS-3 emons	477,476,51FF,521FF,520FF	-101 days	2	0%
476	CFS-5000	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	0 days	Mon 13/6/22	Mon 13/6/22	NA	NA	475	51FF	-101 days		0%
477	CFS-6000	SW1	ABWF works + BS works			90 days	Tue 14/9/21	Mon 3/1/22	90 days	Tue 14/6/22	Wed 28/9/22	NA	NA	475	56FF	405 days		0%
478	CCS-1000		<b>Chemical System No.1 (8)*</b>			<b>168 days</b>	<b>Mon 1/2/21</b>	<b>Thu 26/8/21</b>	<b>386 days</b>	<b>Sat 12/6/21</b>	<b>Wed 28/9/22</b>	<b>Sat 12/6/21</b>	<b>NA</b>	<b>NA</b>		<b>891 days</b>		<b>4%</b>
479	CCS-1310		Demolition of SSSH Pump Pit and Associated Sewerage System		086	0 days	NA	NA	26 days	Sat 19/6/21	Tue 20/7/21	Sat 19/6/21	NA	465	481	54 days		38%
480	CCS-1110		Removal of existing Leachate Raising Main near SSSH		241	0 days	NA	NA	12 days	Wed 18/8/21	Tue 31/8/21	NA	NA	468	481	18 days		0%
481	CCS-1100		Excavation for Raft Footing (200cu.m)			10 days	Mon 1/2/21	Thu 11/2/21	10 days	Mon 1/9/21	Sat 11/9/21	NA	NA	480,479	485FF-3 emons,486,482	18 days		0%
482	CCS-1080		Plate load test at bottom level of compacted general fill(2no.)			9 days	NA	NA	9 days	Mon 13/9/21	Thu 23/9/21	NA	NA	481	483	18 days		0%
483	CCS-1090		Soil Replacement (10 layers SRT)			0 days	NA	NA	30 edays	Thu 23/9/21	Sat 23/10/21	NA	NA	482	484	23.58 edays		0%
484	CCS-1200		Plate load test at bottom level of base slab (1no.)			5 days	Tue 16/2/21	Wed 3/3/21	5 days	Mon 25/10/21	Fri 29/10/21	NA	NA	483	486,493	19 days		0%
485	CCS-1190		Receiving of Civil Requirements from PM			0 days	NA	NA	1 day	Sat 12/6/21	Sat 12/6/21	Sat 12/6/21	Sat 12/6/21	481FF-3 emons	486SS-3 emons	0 days		100%
486	CCS-1300	KD1J	R.C. structure works			45 days	Mon 15/3/21	Mon 10/5/21	60 days	Sat 30/10/21	Tue 11/1/22	NA	NA	481,485SS-3 emons,484	51FF,488,487	20 days	2	0%
487	CCS-1400	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	0 days	Tue 11/1/22	Tue 11/1/22	NA	NA	486	51FF	20 days		0%
488	CCS-1500	SW1	ABWF works + BS works			90 days	Tue 11/5/21	Thu 28/8/21	90 days	Tue 14/6/22	Wed 28/9/22	NA	NA	189,141,486,522SS	56FF	405 days		0%
489	CDS-0000		<b>Deodorization System No.3A (7)*</b>			<b>149 days</b>	<b>Tue 16/11/21</b>	<b>Sat 21/5/22</b>	<b>105 days</b>	<b>Thu 5/8/21</b>	<b>Wed 8/12/21</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>90 days</b>		<b>0%</b>
490	CDS-2000		Excavation for Raft Footing (400cu.m)			20 days	Tue 16/11/21	Wed 8/12/21	20 days	Sat 14/8/21	Tue 7/9/21	NA	NA	491SF		1205 days		0%
491	CDS-2008		Plate load test at bottom level of compacted general fill(2no.)			10 days	NA	NA	10 days	Tue 7/9/21	Sat 18/9/21	NA	NA	492SF	490SF	1195 days		0%
492	CDS-2100		Soil Replacement (14 layers SRT)			0 days	NA	NA	42 edays	Sat 18/9/21	Sat 30/10/21	NA	NA	493SF	491SF	1425.42 edays		0%
493	CDS-3000		Plate load test at bottom level of base slab (1no.)			4 days	Thu 9/12/21	Fri 24/12/21	4 days	Sat 30/10/21	Wed 3/11/21	NA	NA	484	494FF-3 emons,495,492SF,500FS	19 days		0%
494	CDS-3900		Receiving of Civil Requirements from PM			0 days	NA											

ID	Activity ID	Key Date	Task Name	Incliment Weather CE no. (NCE no.)	PMI & CE no. (NCE no.)	Baseline Duration	Baseline Start	Baseline Finish	Duration	Start	Finish	Actual Start	Actual Finish	Predecessors	Successors	Total Slack	Risk Allowance	% Complete
532	CAA-1000	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	246 days	Mon 1/6/20	Fri 26/3/21	Mon 1/6/20	Fri 26/3/21	15,142,184	53FF	0 days		100%
533	CAA-1100		Change of pipe bridge design		(057)	0 days	NA	NA	135 days	Mon 1/6/20	Tue 10/11/20	Mon 1/6/20	Tue 10/11/20		536,537,538	0 days		100%
534	CAA-1200		Additional inspection pit to verify the connection point to existing (CE xxx)			0 days	NA	NA	135 days	Mon 1/6/20	Tue 10/11/20	Mon 1/6/20	Tue 10/11/20		536,537,538	0 days		100%
535	CAA-1300		Additional MBV installation (CE xxx)			0 days	NA	NA	135 days	Mon 1/6/20	Tue 10/11/20	Mon 1/6/20	Tue 10/11/20		536,537,538	0 days		100%
536	CAA-1400		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	111 days	Wed 11/11/20	Fri 26/3/21	Wed 11/11/20	Fri 26/3/21	533,534,535	53FF	0 days		100%
537	CAA-1500	KD2B	Re-alignmnet of DN800 Temporary Air Main (CHTA) and Provision of FRP Staircases		064	0 days	NA	NA	111 days	Wed 11/11/20	Fri 26/3/21	Wed 11/11/20	Fri 26/3/21	533,534,535	53FF	0 days		100%
538	CAA-1600	KD2B	Elevated Section of DN800 Temporary Air Main (CHTA) across existing Bioreactor's Distribution Chamber No. 2		062	0 days	NA	NA	111 days	Wed 11/11/20	Fri 26/3/21	Wed 11/11/20	Fri 26/3/21	533,534,535	53FF,539	0 days		100%
539	CAA-2000	KD11	B7-A Alternation works for existing Power House			122 days	Fri 4/9/20	Sat 30/1/21	0 days	Wed 11/11/20	Fri 29/1/21	Wed 11/11/20	Fri 29/1/21	13FS-1 day,122,160,162,176,538	50FF,540FS+356 days	0 days		100%
540	CAA-2100	SW3	Additional works for Power House		224	0 days	NA	NA	60 days	Thu 14/4/22	Wed 29/6/22	NA	NA	539FS-356 days	58FF	570 days		0%
541	CAA-3000	SW3	Alternation works for existing Membrane Facilities Building No.1			360 days	Mon 1/2/21	Fri 22/4/22	360 days	Tue 19/4/22	Thu 6/7/23	NA	NA	14FS-1 day,175	58FF	269 days		0%
542	CUU-0000	*	External Underground Service, Utilities, Road/Drain			1091 days	Mon 24/2/20	Sat 28/10/23	1192 days	Mon 27/4/20	Mon 13/5/24	Mon 27/4/20	NA	16		-88 days		46%
543	CUU-1000	KD2A	Process Pipes CHR and CHS (approx. 93m twin DN900 D.I.)		33, 222, 255	325 days	Mon 24/2/20	Sat 27/3/21	379 days	Mon 27/4/20	Wed 4/8/21	Mon 27/4/20	NA	184,142	54SS+48 days,552SS+48 days,55	-39 days		99%
544	CUU-1000a		Special Treatment for Removing the Existing Abandoned DN1800 By-pass Pipe and the Concrete Mass in Conflict with the Proposed Sheetpile wall for trenching work of Process Pipeline CHR and CHS		33	0 days	NA	NA	54 days	Sat 30/5/20	Mon 3/8/20	Sat 30/5/20	Mon 3/8/20			0 days		100%
545	CUU-1000b		Trenchless work for Process Pipes CHR and CHS (approx. 7m twin DN900 D.I.)		255	0 days	NA	NA	60 days	Thu 25/2/21	Mon 10/5/21	Thu 25/2/21	Mon 10/5/21		52FF	0 days		100%
546	CUU-1001		Removal of Abandoned DN1800 Concrete Pipe and Concrete Mass near Existing UV Disinfection Channel at CHR & CHS Process Pipe Works Area		033	0 days	NA	NA	43 days	Thu 2/7/20	Thu 20/8/20	Thu 2/7/20	Thu 20/8/20			0 days		100%
547	CUU-1002		Grouting for Sheung Shui Slaughter House Boundary Walls along CHR & CHS Pipes Works Area		222	0 days	NA	NA	20 days	Fri 23/10/20	Mon 16/11/20	Fri 23/10/20	Mon 16/11/20			0 days		100%
548	CUU-1004		Delay Delivery of DI pipes due to COVID-19		(076)	0 days	NA	NA	75 days	Tue 22/12/20	Thu 25/3/21	Tue 22/12/20	Thu 25/3/21		549FF	0 days		100%
549	CUU-2000	SW2	Process Pipes, including CHT, CHX, CHY, CHPS1&2, CHS S1&2, CHDO 1&2, CHPSW 1-8, CHTPS, CHPT1&2, CHTFT 1&2, CHTE, CHTD, Foam Collection & Surplus activated sludge rising main pipe			550 days	Mon 29/6/20	Fri 6/5/22	457 days	Mon 19/10/20	Fri 6/5/22	Mon 19/10/20	NA	184,142,548FF,543SS+48 days	57FF,555,550SS+250 days	63 days		51%
550	CUU-2100	SW2	Remaining Process Pipes			0 days	NA	NA	270 days	Mon 23/8/21	Fri 22/7/22	NA	NA	549SS+250 days	57FF	0 days		0%
551	CUU-3000	SW2	Remaining Drainage			550 days	Mon 29/6/20	Fri 6/5/22	520 days	Mon 19/10/20	Fri 22/7/22	Mon 19/10/20	NA	184,142	555,57FF	0 days	5	45%
552	CUU-4000	SW2	Remaining Sewerage			550 days	Mon 29/6/20	Fri 6/5/22	520 days	Mon 19/10/20	Fri 22/7/22	Mon 19/10/20	NA	184,142,543SS+48 days	555,57FF	0 days	5	45%
553	CUU-5000	SW2	Remaining Waterworks			550 days	Mon 29/6/20	Fri 6/5/22	520 days	Mon 19/10/20	Fri 22/7/22	Mon 19/10/20	NA	184,142,543SS+48 days	557FS+2 days,57FF	0 days	5	45%
554	CUU-6000	SW2	Remaining Cable Ducts			550 days	Mon 29/6/20	Fri 6/5/22	520 days	Mon 19/10/20	Fri 22/7/22	Mon 19/10/20	NA	184,142,543SS+48 days	555,57FF	0 days	5	45%
555	CUU-7000	KD3A	Roadworks			540 days	Fri 31/12/21	Sat 28/10/23	440 days	Mon 7/11/22	Mon 13/5/24	NA	NA	554,551,552,549,352,399,334,433	54FF,558SS+123 days	-88 days	5	0%
556	CLW-0000	*	Landscaping Works			854 days	Wed 11/5/22	Thu 27/3/25	946 days	Tue 26/7/22	Wed 24/9/25	NA	NA	16		0 days		0%
557	CLW-1000	KD3A	Irrigation System			120 days	Wed 11/5/22	Fri 30/9/22	120 days	Tue 26/7/22	Thu 15/12/22	NA	NA	553FS+2 days,184	558,54FF	1 day		0%
558	CLW-2000	SW3	Hard Landscaping Works			220 days	Mon 3/10/22	Mon 3/7/23	214 days	Tue 11/4/23	Sat 23/12/23	NA	NA	557,555SS+123 days	559,58FF	-88 days	5	0%
559	CLW-3000	SW3	Soft Landscaping Works			220 days	Tue 26/3/24	Tue 4/7/23	214 days	Wed 27/12/23	Tue 24/9/24	NA	NA	558,143	560,58FF	-88 days	5	0%
560	CLW-4000	DLP	Establishment Works (365 days)			294 days	Wed 27/3/24	Thu 27/3/25	365 days	Wed 25/9/24	Wed 24/9/25	NA	NA	559,143	59FF,60FF	0 days	5	0%



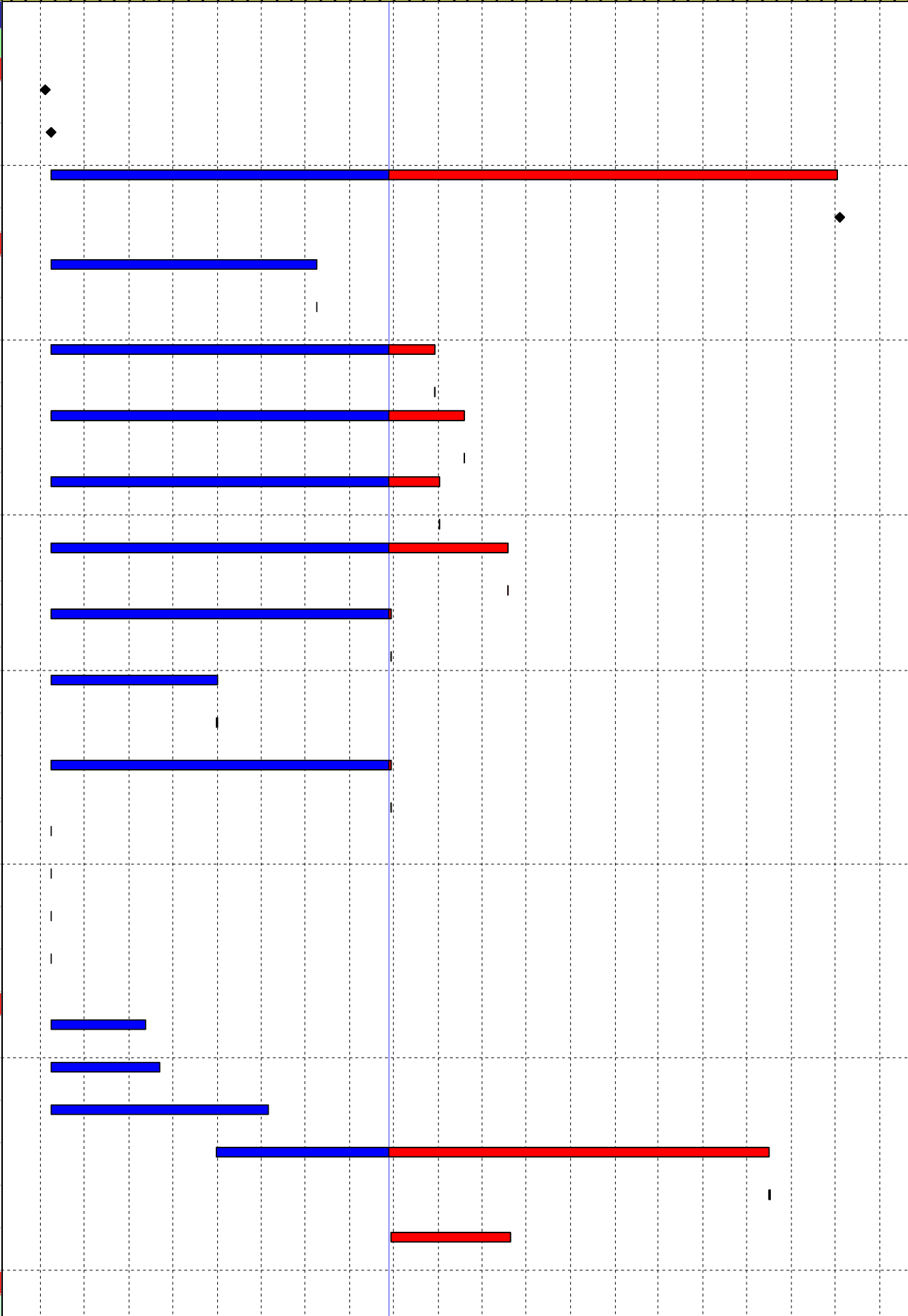
Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	2020			2021			2022			2023			2024																																	
								J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A

**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 A		21-Sep-21		
AS000020	Starting Date	0	23-Oct-19 A		21-Sep-21		
AS000110	Whole Contract Period (1626 days from starting date)	1626	23-Oct-19 A	04-Apr-24	26-Sep-21	09-Apr-24	5
AS000220	Completion Date for the whole of the Works	0		09-Apr-24		09-Apr-24	0
Access Date							
AS001100	Portion C-1A (within 480 to 550 days from starting date)	550	23-Oct-19 A	24-Apr-21 A	21-Sep-21	21-Sep-21	
AS001120	Planned Access Date for Portion C-1A	1	24-Apr-21 A	24-Apr-21 A	21-Sep-21	21-Sep-21	
AS001200	Portion C-2A (within 705 to 795 days from starting date)	795	23-Oct-19 A	25-Dec-21	21-Sep-21	25-Dec-21	0
AS001220	Planned Access Date for Portion C-2A	1	25-Dec-21	25-Dec-21*	25-Dec-21	25-Dec-21	0
AS001300	Portion C-2B (within 765 to 855 days from starting date)	855	23-Oct-19 A	23-Feb-22	21-Sep-21	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 A	04-Jan-22	21-Sep-21	04-Jan-22	0
AS001420	Planned Access Date for Portion C2-C	1	04-Jan-22	04-Jan-22*	04-Jan-22	04-Jan-22	0
AS001500	Portion C-2D (within 825 to 945 days from starting date)	945	23-Oct-19 A	24-May-22	21-Sep-21	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 A	26-Sep-21	21-Sep-21	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 A	30-Sep-20 A	21-Sep-21	21-Sep-21	
AS001720	Planned Access Date for Portion B-1	1	30-Sep-20 A	30-Sep-20 A	21-Sep-21	21-Sep-21	
AS001800	Portion B-2 (within 615 to 705 days from starting date) (SS by NCE-NCE-219)	705	23-Oct-19 A	26-Sep-21	21-Sep-21	26-Sep-21	0
AS001820	Planned Access Date for Portion B-2 (SS by NCE-NCE-219)	1	26-Sep-21	26-Sep-21*	26-Sep-21	26-Sep-21	0
AS001900	Works Area WA1-B (starting date)	1	23-Oct-19 A	23-Oct-19 A	23-Sep-21	23-Sep-21	
AS001910	Planned Access Date for Works Area WA1-B	1	23-Oct-19 A	23-Oct-19 A	23-Sep-21	23-Sep-21	
AS001920	Works Area WA3 (starting date)	1	23-Oct-19 A	23-Oct-19 A	23-Sep-21	23-Sep-21	
AS001930	Planned Access Date for Works Area WA3	1	23-Oct-19 A	23-Oct-19 A	23-Sep-21	23-Sep-21	

Key Dates							
AS002010	KD1A Submission of Civil Requirement Dwgs, Elec. Schematic Dwgs of UV System No.1 and Effluent Pumping Station No.1	196	23-Oct-19 A	05-May-20 A	07-Oct-21	07-Oct-21	
AS002020	KD2A Submission of Civil Requirement Dwgs, Elec. Schematic Dwgs of SD Bldg, SD & DC, CHP Bldg, Workshop No.2, etc.	226	23-Oct-19 A	04-Jun-20 A	09-Apr-24	09-Apr-24	
AS002040	KD2B Submission of Remaining Civil Requirement Dwgs, Elec. Schematic Dwgs of SD Bldg, SD & DC, CHP Bldg, etc.	461	23-Oct-19 A	15-Jan-21 A	09-Apr-24	09-Apr-24	
AS002050	KD3A Completion of Phase 1 Commissioning of Sidestream Treatment Facilities (1140d after Portion B-1 Access)	1141	30-Sep-20 A	14-Nov-23*	21-Sep-21	14-Nov-23	0
AS002050j	Revised KD3A Completion Date (Impacted by NICE-CNE-0248 - Inclement Weather - May 2021)	4	15-Nov-23	18-Nov-23*	15-Nov-23	18-Nov-23	0
AS002060	KD5A - Completion of the BS Fittings Installation at CLP Sub-Station at Workshop No. 2 (245d after Portion C-3 Access)	246	26-Sep-21	29-May-22*	26-Sep-21	29-May-22	0

**Section 1 - Complete All Design at UV System No.1 & EP Station No. 1**



File Name: DE/2018/03 RP R14  
 Layout: DE1803 RP (Sep 2021) - WBS  
 Page 1 of 24

- Remaining Work
- Critical Activity
- Actual Progress
- ◆ Milestone

**Contract No. DE/2018/03**  
**Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1**  
**Sidestream Treatment Facilities and E&M Works for Sludge Treatment Facilities**  
**Revised Programme - as at 20 Sept 2021**

Date	Revision	Checked	Approved
31-May-21	Rev.10	LT	KM
30-Jun-21	Rev.11	LT	KM
31-Jul-21	Rev.12	LT	KM
31-Aug-21	Rev.13	LT	KM
30-Sep-21	Rev.14	LT	KM



































































ID	ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Early Start	Early Finish	Free Slack	Predecessors	Successors	Resource Names	Gantt Chart (2020-2024)																											
1	1.1		DE/2018/04 - Contract Master Programme	1990 days	Mon 02/12/19	Tue 13/05/25	Mon 02/12/19	Tue 13/05/25	0 days				[Gantt Chart]																											
2	2.1.1		Starting Date	0 days	Mon 02/12/19	Mon 02/12/19	Mon 02/12/19	Mon 02/12/19	0 days	35S+162S edays,629,202			[Gantt Chart]																											
3	3.1.2		Completion Date	0 days	Tue 14/05/24	Tue 14/05/24	Tue 14/05/24	Tue 14/05/24	0 days	25S+162S ev4			[Gantt Chart]																											
4	4.1.3		Defect Dates with respect to Completion Date	365 days	Tue 14/05/24	Tue 13/05/25	Tue 14/05/24	Tue 13/05/25	0 days	3			[Gantt Chart]																											
5	5.2		Access Dates	1599 days	Mon 02/12/19	Thu 18/04/24	Mon 02/12/19	Thu 18/04/24	0 days				[Gantt Chart]																											
6	6.2.1		Access Date for Works Area WA1-C	90 days	Mon 02/12/19	Sat 29/02/20	Mon 02/12/19	Sat 29/02/20	0 days				[Gantt Chart]																											
7	7.2.2		Access Date for Works Area WA2-C	90 days	Mon 02/12/19	Sat 29/02/20	Mon 02/12/19	Sat 29/02/20	0 days				[Gantt Chart]																											
8	8.2.3		Access Date for Portion B-2, Inlet Works No. 1	150 edays	Tue 28/06/22	Fri 25/11/22	Tue 28/06/22	Fri 25/11/22	0 days				[Gantt Chart]																											
9	9.2.4		Access Date for Portion B-3, PST No. 1~4	90 edays	Sat 14/01/23	Fri 14/04/23	Sat 14/01/23	Fri 14/04/23	0 days				[Gantt Chart]																											
10	10.2.5		Access Date for Portion B-3A, Existing PST No. 4 and No. 6	0 days	Mon 02/12/19	Mon 02/12/19	Mon 02/12/19	Mon 02/12/19	0 days				[Gantt Chart]																											
11	11.2.6		Access Date for Portion B-3B, Temporary Filtrate Lifting Well and Eq. Tank	0 days	Mon 02/12/19	Mon 02/12/19	Mon 02/12/19	Mon 02/12/19	0 days				[Gantt Chart]																											
12	12.2.7		Access Date for Portion B-4, BR 2A & 2B	90 edays	Fri 25/11/22	Thu 23/02/23	Fri 25/11/22	Thu 23/02/23	0 days				[Gantt Chart]																											
13	13.2.8		Access Date for Portion B-5A, MFB No. 2 below 1st floor level	90 edays	Mon 20/12/21	Sun 20/03/22	Mon 20/12/21	Sun 20/03/22	0 days				[Gantt Chart]																											
14	14.2.9		Access Date for Portion B-5B, MFB No. 2 remaining portion	90 edays	Thu 19/05/22	Wed 17/08/22	Thu 19/05/22	Wed 17/08/22	0 days				[Gantt Chart]																											
15	15.2.10		Access Date for Portion B-7 & 7B, Chemical Dosing, Concrete Plinth for DOs,	150 edays	Mon 20/12/21	Thu 19/05/22	Mon 20/12/21	Thu 19/05/22	0 days				[Gantt Chart]																											
16	16.2.11		Access Date for Portion B-7A & 7B, area for modification of existing emerg	0 edays	Mon 02/12/19	Mon 02/12/19	Mon 02/12/19	Mon 02/12/19	0 days				[Gantt Chart]																											
17	17.2.12		Access Date for Portion B-9B, underground pipework	60 edays	Sun 18/02/24	Thu 18/04/24	Sun 18/02/24	Thu 18/04/24	0 days				[Gantt Chart]																											
18	18.2.13		Access Date for B-10, existing sludge thickening building	0 edays	Mon 02/12/19	Mon 02/12/19	Mon 02/12/19	Mon 02/12/19	0 days				[Gantt Chart]																											
19	19.3		Key Dates	555 days	Mon 02/12/19	Wed 09/06/21	Mon 02/12/19	Wed 09/06/21	0 days				[Gantt Chart]																											
20	20.3.1		KD1A - Submission of civil and dimensional requirement drawings, electrical	340 edays	Mon 02/12/19	Fri 06/11/20	Mon 02/12/19	Fri 06/11/20	0 edays	31FF			[Gantt Chart]																											
21	21.3.2		KD1B - Submission of remaining civil and dimensional requirement drawings	550 edays	Mon 02/12/19	Fri 04/06/21	Mon 02/12/19	Fri 04/06/21	0 edays	32FF			[Gantt Chart]																											
22	22.3.3		KD3A - Completion of E&M Installation works of existing power house in Poi	240 edays	Mon 02/12/19	Wed 29/07/20	Mon 02/12/19	Wed 29/07/20	0 edays	33FF			[Gantt Chart]																											
23	23.3.4		KD3B - Completion of all work for reprovision of the existing Primary Sedime	555 edays	Mon 02/12/19	Wed 09/06/21	Mon 02/12/19	Wed 09/06/21	0 edays	34FF			[Gantt Chart]																											
24	24.4		Sectional Completion Dates	1625 days	Mon 02/12/19	Tue 14/05/24	Mon 02/12/19	Tue 14/05/24	0 days				[Gantt Chart]																											
25	25.4.1		Section 1 - Completion of the design of E&M Works for all works as defined	600 edays	Mon 02/12/19	Sat 24/07/21	Mon 02/12/19	Sat 24/07/21	0 edays	35FF			[Gantt Chart]																											
26	26.4.2		Section 2 - Completion of all works for Inlet Works, PST No. 1~4, BR No. 2A &	1600 edays	Mon 02/12/19	Fri 19/04/24	Mon 02/12/19	Fri 19/04/24	0 edays	36FF			[Gantt Chart]																											
27	27.4.3		Section 3 - Completion of all works for retrofitting of the existing PST...etc (6	660 edays	Mon 02/12/19	Wed 22/09/21	Mon 02/12/19	Wed 22/09/21	0 edays	37FF			[Gantt Chart]																											
28	28.4.4		Section 4 - Completion of Work for remainder of the works (1625 days after	1625 edays	Mon 02/12/19	Tue 14/05/24	Mon 02/12/19	Tue 14/05/24	0 edays	38FF			[Gantt Chart]																											
29	29.5		DE/2018/04 - the Contractor's Programme (w/ Defects Date of Planned Completion Date)	1977 days	Mon 02/12/19	Wed 30/04/25	Mon 02/12/19	Wed 30/04/25	0 days				[Gantt Chart]																											
30	30.5.1		Starting Date	0 days	Mon 02/12/19	Mon 02/12/19	Mon 02/12/19	Mon 02/12/19	0 days	629,2025S+30 edays,425			[Gantt Chart]																											
31	31.5.2		Planned Key Date Completion Date - KD1A	0 days	Fri 30/10/20	Fri 30/10/20	Fri 30/10/20	Fri 30/10/20	7 days	20FF			[Gantt Chart]																											
32	32.5.3		Planned Key Date Completion Date - KD1B	0 days	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	3 days	21FF			[Gantt Chart]																											
33	33.5.4		Planned Key Date Completion Date - KD3A	0 days	Wed 22/07/20	Wed 22/07/20	Wed 22/07/20	Wed 22/07/20	7 days	22FF			[Gantt Chart]																											
34	34.5.5		Planned Key Date Completion Date - KD3B	0 days	Mon 07/06/21	Mon 07/06/21	Mon 07/06/21	Mon 07/06/21	2 days	23FF			[Gantt Chart]																											
35	35.5.6		Planned Sectional Completion Date - Section 1	0 days	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	11 days	25FF			[Gantt Chart]																											
36	36.5.7		Planned Sectional Completion Date - Section 2	0 days	Mon 01/04/24	Mon 01/04/24	Mon 01/04/24	Mon 01/04/24	18 days	26FF			[Gantt Chart]																											
37	37.5.8		Planned Sectional Completion Date - Section 3	0 days	Wed 01/09/21	Wed 01/09/21	Wed 01/09/21	Wed 01/09/21	21 days	27FF			[Gantt Chart]																											
38	38.5.9		Planned Sectional Completion Date - Section 4	0 days	Wed 01/05/24	Wed 01/05/24	Wed 01/05/24	Wed 01/05/24	13 days	28FF			[Gantt Chart]																											
39	39.5.10		Planned Completion Date	0 days	Wed 08/05/24	Wed 08/05/24	Wed 08/05/24	Wed 08/05/24	5 days	1287,1288,13			[Gantt Chart]																											
40	40.5.11		Defect Dates with respect to planned completion date	365 days	Wed 01/05/24	Wed 30/04/25	Wed 01/05/24	Wed 30/04/25	0 days				[Gantt Chart]																											
41	41.5.12		Part A: Procurement and Delivery of Major Plant and Materials	758 days	Wed 01/07/20	Thu 28/07/22	Wed 01/07/20	Thu 28/07/22	422 days				[Gantt Chart]																											
42	42.5.12.1		Planned Completion Date for Procurement of major plant and materials	0 days	Thu 03/06/21	Thu 03/06/21	Thu 03/06/21	Thu 03/06/21	0 days	30S+550 d			[Gantt Chart]																											
43	43.5.12.2		General - stoplogs and penstocks, C11, EQT013	120 days	Wed 01/07/20	Wed 28/10/20	Wed 01/07/20	Wed 28/10/20	0 days				[Gantt Chart]																											
44	44.5.12.2.1		Submission for acceptance of purchasing package	60 days	Wed 01/07/20	Sat 29/08/20	Wed 01/07/20	Sat 29/08/20	0 days	45			[Gantt Chart]																											
45	45.5.12.2.2		Invitation of quotations for purchasing package	30 days	Sun 30/08/20	Mon 28/09/20	Sun 30/08/20	Mon 28/09/20	0 days	44	46		[Gantt Chart]																											
46	46.5.12.2.3		Acceptance of conforming quotation (Completed)	30 days	Tue 29/09/20	Wed 28/10/20	Tue 29/09/20	Wed 28/10/20	0 days	45	253		[Gantt Chart]																											
47	47.5.12.3		General - Instrumentations except use at BR, C11, EQT035-1	401 days	Sat 02/01/21	Sun 06/02/22	Sat 02/01/21	Sun 06/02/22	594 days				[Gantt Chart]																											
48	48.5.12.3.1		Submission for acceptance of purchasing package	60 days	Sat 02/01/21	Tue 02/03/21	Sat 02/01/21	Tue 02/03/21	0 days				[Gantt Chart]																											
49	49.5.12.3.2		Invitation of quotations for purchasing package (Rev. 10)	30 days	Fri 11/06/21	Sat 10/07/21	Fri 11/06/21	Sat 10/07/21	0 days	50			[Gantt Chart]																											
50	50.5.12.3.3		Acceptance of conforming quotation (Rev. 10)	30 days	Mon 09/08/21	Sun 11/07/21	Mon 09/08/21	Sun 11/07/21	0 days	49	51		[Gantt Chart]																											
51	51.5.12.3.4		Manufacturing and Factory Acceptance Test of Plant (Rev. 10)	121 days	Tue 10/08/21	Wed 08/12/21	Tue 10/08/21	Wed 08/12/21	0 days	50	52		[Gantt Chart]																											
52	52.5.12.3.5		Shipping and Delivery of Plant (Rev. 10)	60 days	Thu 09/12/21	Sun 06/02/22	Thu 09/12/21	Sun 06/02/22	237 days	51	335,466,748		[Gantt Chart]																											
53	53.5.12.4		General - pipework and valves, C11, ref. EQT036 (Rev. 11)	422 days	Mon 02/11/20	Tue 28/12/21	Mon 02/11/20	Tue 28/12/21	214 days				[Gantt Chart]																											
54	54.5.12.4.1		Submission for acceptance of purchasing package (Rev. 11)	255 days	Mon 02/11/20	Wed 14/07/21	Mon 02/11/20	Wed 14/07/21	0 days	55			[Gantt Chart]																											
55	55.5.12.4.2		Invitation of quotations for purchasing package (Rev. 11)	40 days	Fri 01/01/21	Sun 08/08/21	Fri 01/01/21	Sun 08/08/21	0 days	54	56		[Gantt Chart]																											
56	56.5.12.4.3		Acceptance of conforming quotation (Rev. 11)	50 days	Sun 31/01/21	Sun 12/09/21	Sun 31/01/21	Sun 12/09/21	0 days	55	279,285,430,559,682		[Gantt Chart]																											
57	57.5.12.4.4		Submission for acceptance of purchasing package for remaining pipework and valves (Rev. 13)	30 days	Mon 01/11/21	Tue 30/11/21	Mon 01/11/21	Tue 30/11/21	0 days	58			[Gantt Chart]																											

Task Milestone Project Summary Late Critical Split Manual Progress Milestone (Actual) Slack

Milestone, Tentative Summary Manual Summary Critical Progress Slack (Float) Slack



ID	ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Early Start	Early Finish	Free Slack	Predecessors	Successors	Resource Names	Gantt Chart (2020 Half 1, 2020 Half 2, 2021 Half 1, 2021 Half 2, 2022 Half 1, 2022 Half 2, 2023 Half 1, 2023 Half 2, 2024 Half 1, 2024 Half 2)																											
58	58.5.12.4.5		Invitation of quotations for purchasing package (Rev. 13)	14 days	Wed 01/12/21	Tue 14/12/21	Wed 01/12/21	Tue 14/12/21	0 days	57	59																													
59	59.5.12.4.6		Acceptance of conforming quotation (Rev. 13)	14 days	Wed 15/12/21	Tue 28/12/21	Wed 15/12/21	Tue 28/12/21	0 days	58																														
60	60.5.12.5		General - Electric actuators, C11, ref. EQT072 (Rev. 11)	74 days	Thu 02/12/21	Sun 13/02/22	Thu 02/12/21	Sun 13/02/22	167 days																															
61	61.5.12.5.1		Submission for acceptance of purchasing package (Rev. 11)	30 days	Thu 02/12/21	Fri 31/12/21	Thu 02/12/21	Fri 31/12/21	0 days	62																														
62	62.5.12.5.2		Invitation of quotations for purchasing package (Rev. 11)	30 days	Sat 01/01/22	Sun 30/01/22	Sat 01/01/22	Sun 30/01/22	0 days	61																														
63	63.5.12.5.3		Acceptance of conforming quotation (Rev. 11)	14 days	Mon 31/01/22	Sun 13/02/22	Mon 31/01/22	Sun 13/02/22	0 days	62	285,430,559,682																													
64	64.5.12.6		General - HV Switchboards, C9, ref. 04SC012 (Rev. 14)	105 days	Mon 04/01/21	Sun 18/04/21	Mon 04/01/21	Sun 18/04/21	0 days																															
65	65.5.12.6.1		Submission for acceptance of purchasing package	45 days	Mon 04/01/21	Wed 17/02/21	Mon 04/01/21	Wed 17/02/21	0 days	66																														
66	66.5.12.6.2		Invitation of quotations for purchasing package	30 days	Thu 18/02/21	Fri 19/03/21	Thu 18/02/21	Fri 19/03/21	0 days	65	67																													
67	67.5.12.6.3		Acceptance of conforming quotation (Rev. 11, Completed)	30 days	Sat 20/03/21	Sun 18/04/21	Sat 20/03/21	Sun 18/04/21	0 days	66	657,257																													
68	68.5.12.7		General - LV Switchboards, C9, ref. 04SC013 (Rev. 14)	120 days	Mon 04/01/21	Mon 03/05/21	Mon 04/01/21	Mon 03/05/21	0 days																															
69	69.5.12.7.1		Submission for acceptance of purchasing package	60 days	Mon 04/01/21	Thu 04/03/21	Mon 04/01/21	Thu 04/03/21	0 days	70																														
70	70.5.12.7.2		Invitation of quotations for purchasing package	30 days	Fri 05/03/21	Sat 03/04/21	Fri 05/03/21	Sat 03/04/21	0 days	69	71																													
71	71.5.12.7.3		Acceptance of conforming quotation (Rev. 11, Completed)	30 days	Sun 04/04/21	Mon 03/05/21	Sun 04/04/21	Mon 03/05/21	0 days	70	256,532,403,656																													
72	72.5.12.8		General - VSDs & Passive Type Harmonic Filters, C11, ref. EQT034 (Rev. 1)	574 days	Fri 01/01/21	Thu 28/07/22	Fri 01/01/21	Thu 28/07/22	152 days																															
73	73.5.12.8.1		Submission for acceptance of purchasing package	60 days	Fri 01/01/21	Mon 01/03/21	Fri 01/01/21	Mon 01/03/21	0 days	74																														
74	74.5.12.8.2		Invitation of quotations for purchasing package	30 days	Tue 02/03/21	Wed 31/03/21	Tue 02/03/21	Wed 31/03/21	0 days	73	75																													
75	75.5.12.8.3		Acceptance of conforming quotation (Rev. 11, Completed)	30 days	Thu 01/04/21	Fri 30/04/21	Thu 01/04/21	Fri 30/04/21	0 days	74	254,401,530,653																													
76	76.5.12.8.4		Manufacturing and Factory Acceptance Test of Plant	90 days	Mon 13/06/22	Mon 13/06/22	Wed 16/03/22	Mon 13/06/22	0 days	254,401,530,653																														
77	77.5.12.8.5		Shipping and Delivery of Plant to LVSB Sub-Contractor	45 days	Tue 14/06/22	Thu 28/07/22	Tue 14/06/22	Thu 28/07/22	0 days	76	29255-90 edays																													
78	78.5.12.9		General - 11kV/380V Stepdown Power Transformers, C11, EQT032 (Rev. 1)	110 days	Mon 18/01/21	Fri 07/05/21	Mon 18/01/21	Fri 07/05/21	0 days																															
79	79.5.12.9.1		Submission for acceptance of purchasing package	50 days	Mon 18/01/21	Mon 08/03/21	Mon 18/01/21	Mon 08/03/21	0 days	80																														
80	80.5.12.9.2		Invitation of quotations for purchasing package	30 days	Tue 09/03/21	Wed 07/04/21	Tue 09/03/21	Wed 07/04/21	0 days	79	81																													
81	81.5.12.9.3		Acceptance of conforming quotation (Rev. 11, Completed)	30 days	Thu 08/04/21	Fri 07/05/21	Thu 08/04/21	Fri 07/05/21	0 days	80	254,653																													
82	82.5.12.10		General - UPS, C11, EQT039A (Rev. 14)	90 days	Wed 01/12/21	Mon 28/02/22	Wed 01/12/21	Mon 28/02/22	0 days																															
83	83.5.12.10.1		Submission for acceptance of purchasing package (Rev. 13)	30 days	Wed 01/12/21	Thu 30/12/21	Wed 01/12/21	Thu 30/12/21	0 days	84																														
84	84.5.12.10.2		Invitation of quotations for purchasing package (Rev. 13)	30 days	Fri 31/12/21	Sat 29/01/22	Fri 31/12/21	Sat 29/01/22	0 days	83	85																													
85	85.5.12.10.3		Acceptance of conforming quotation (Rev. 13)	30 days	Sun 30/01/22	Mon 28/02/22	Sun 30/01/22	Mon 28/02/22	0 days	84	254,401,530,653																													
86	86.5.12.11		General - HV Cables, C11, EQT041 (Rev. 13)	65 days	Wed 01/12/21	Thu 03/02/22	Wed 01/12/21	Thu 03/02/22	25 days																															
87	87.5.12.11.1		Submission for acceptance of purchasing package	14 days	Wed 01/12/21	Tue 14/12/21	Wed 01/12/21	Tue 14/12/21	0 days	88																														
88	88.5.12.11.2		Invitation of quotations for purchasing package	21 days	Wed 15/12/21	Tue 04/01/22	Wed 15/12/21	Tue 04/01/22	0 days	87	89																													
89	89.5.12.11.3		Acceptance of conforming quotation	30 days	Wed 05/01/22	Thu 03/02/22	Wed 05/01/22	Thu 03/02/22	0 days	88	254,653																													
90	90.5.12.12		General - LV Cables, C11, EQT042 (Rev. 13)	65 days	Wed 01/12/21	Thu 03/02/22	Wed 01/12/21	Thu 03/02/22	25 days																															
91	91.5.12.12.1		Submission for acceptance of purchasing package	14 days	Wed 01/12/21	Tue 14/12/21	Wed 01/12/21	Tue 14/12/21	0 days	92																														
92	92.5.12.12.2		Invitation of quotations for purchasing package	21 days	Wed 15/12/21	Tue 04/01/22	Wed 15/12/21	Tue 04/01/22	0 days	91	93																													
93	93.5.12.12.3		Acceptance of conforming quotation	30 days	Wed 05/01/22	Thu 03/02/22	Wed 05/01/22	Thu 03/02/22	0 days	92	254,401,530,653																													
94	94.5.13		Part B: Subletting of major sub-contract works	761 days	Wed 01/01/20	Sun 30/01/22	Wed 01/01/20	Sun 30/01/22	0 days	2,30																														
95	95.5.13.1		Planned Completion Date for major sub-contract works	0 days	Thu 12/08/21	Thu 12/08/21	Thu 12/08/21	Thu 12/08/21	0 days	255+620 days																														
96	96.5.13.2		General - Independent BEAM Plus Consultant (04SC007)	150 days	Wed 01/01/20	Fri 29/05/20	Wed 01/01/20	Fri 29/05/20	0 days																															
97	97.5.13.2.1		Submission for acceptance of proposed Independent BEAM Plus Consultant	60 edays	Wed 01/01/20	Sun 01/03/20	Wed 01/01/20	Sun 01/03/20	0 edays	98																														
98	98.5.13.2.2		Acceptance of proposed Independent BEAM Plus Consultant	14 edays	Sun 01/03/20	Sun 15/03/20	Sun 01/03/20	Sun 15/03/20	0 edays	97	99																													
99	99.5.13.2.3		Engagement with an Independent BEAM Plus Consultant	7 days	Sun 15/03/20	Sat 21/03/20	Sun 15/03/20	Sat 21/03/20	0 days	98																														
100	100.5.13.2.4		Actual Date for engagement with an independent BEAM Plus Consultant	0 days	Fri 29/05/20	Fri 29/05/20	Fri 29/05/20	Fri 29/05/20	0 days																															
101	101.5.13.3		General - Conduction of Pump sump physical model test 04SC015	514 days	Fri 15/05/20	Sun 10/10/21	Fri 15/05/20	Sun 10/10/21	0 days																															
102	102.5.13.3.1		Submission for acceptance of proposed hydraulic laboratory to conduct	7 edays	Fri 15/05/20	Fri 22/05/20	Fri 15/05/20	Fri 22/05/20	0 edays	103																														
103	103.5.13.3.2		Invitation to quotations for provision of service	7 edays	Fri 22/05/20	Fri 29/05/20	Fri 22/05/20	Fri 29/05/20	0 edays	102	104																													
104	104.5.13.3.3		Acceptance of proposed hydraulic laboratory	6 days	Fri 29/05/20	Wed 03/06/20	Fri 29/05/20	Wed 03/06/20	0 days	103	105																													
105	105.5.13.3.4		Commencement of detailed proposal and conduction of test (Rev 13)	480 days	Thu 04/06/20	Sun 26/09/21	Thu 04/06/20	Sun 26/09/21	0 days	104	106																													
106	106.5.13.3.5		Acceptance of hydraulic Report (Rev 13)	14 days	Mon 27/09/21	Sun 10/10/21	Mon 27/09/21	Sun 10/10/21	0 days	105																														
107	107.5.13.4		General - Independent Checking Engineer (04SC004)	127 days	Wed 11/03/20	Wed 15/07/20	Wed 11/03/20	Wed 15/07/20	0 days																															
108	108.5.13.4.1		Submission for acceptance of proposed Independent Checking Engineer	90 edays	Wed 11/03/20	Tue 09/06/20	Wed 11/03/20	Tue 09/06/20	0 edays	109																														
109	109.5.13.4.2		Acceptance of proposed Independent Checking Engineer	1 eday	Wed 24/06/20	Thu 25/06/20	Wed 24/06/20	Thu 25/06/20	0 edays	108	110																													
110	110.5.13.4.3		Engagement with an Independent Checking Engineer	21 days	Thu 25/06/20	Wed 15/07/20	Thu 25/06/20	Wed 15/07/20	0 days	109	111																													
111	111.5.13.4.4		Actual Date for engagement with an ICE (Completed)	0 days	Wed 15/07/20	Wed 15/07/20	Wed 15/07/20	Wed 15/07/20	0 days	110																														
112	112.5.13.5		General - Lifting Appliances (04SC008)	81 days	Fri 01/05/20	Tue 21/07/20	Fri 01/05/20	Tue 21/07/20	0 days																															
113	113.5.13.5.1		Submission for acceptance of subcontract works package	30 edays	Fri 01/05/20	Sun 31/05/20	Fri 01/05/20	Sun 31/05/20	0 edays	114																														
114	114.5.13.5.2		Invitation of tender for subcontract works	21 edays	Sun 31/05/20	Sun 21/06/20	Sun 31/05/20	Sun 21/06/20	0 edays	113	115																													
115	115.5.13.5.3		Acceptance of conforming tender	30 edays	Sun 21/06/20	Tue 21/07/20	Sun 21/06/20	Tue 21/07/20	0 edays	114	116																													
116	116.5.13.5.4		Sub-contract work commencement date (Completed)	0 days	Tue 21/07/20	Tue 21/07/20	Tue 21/07/20	Tue 21/07/20	0 days	115	258,404,533,658,1050																													

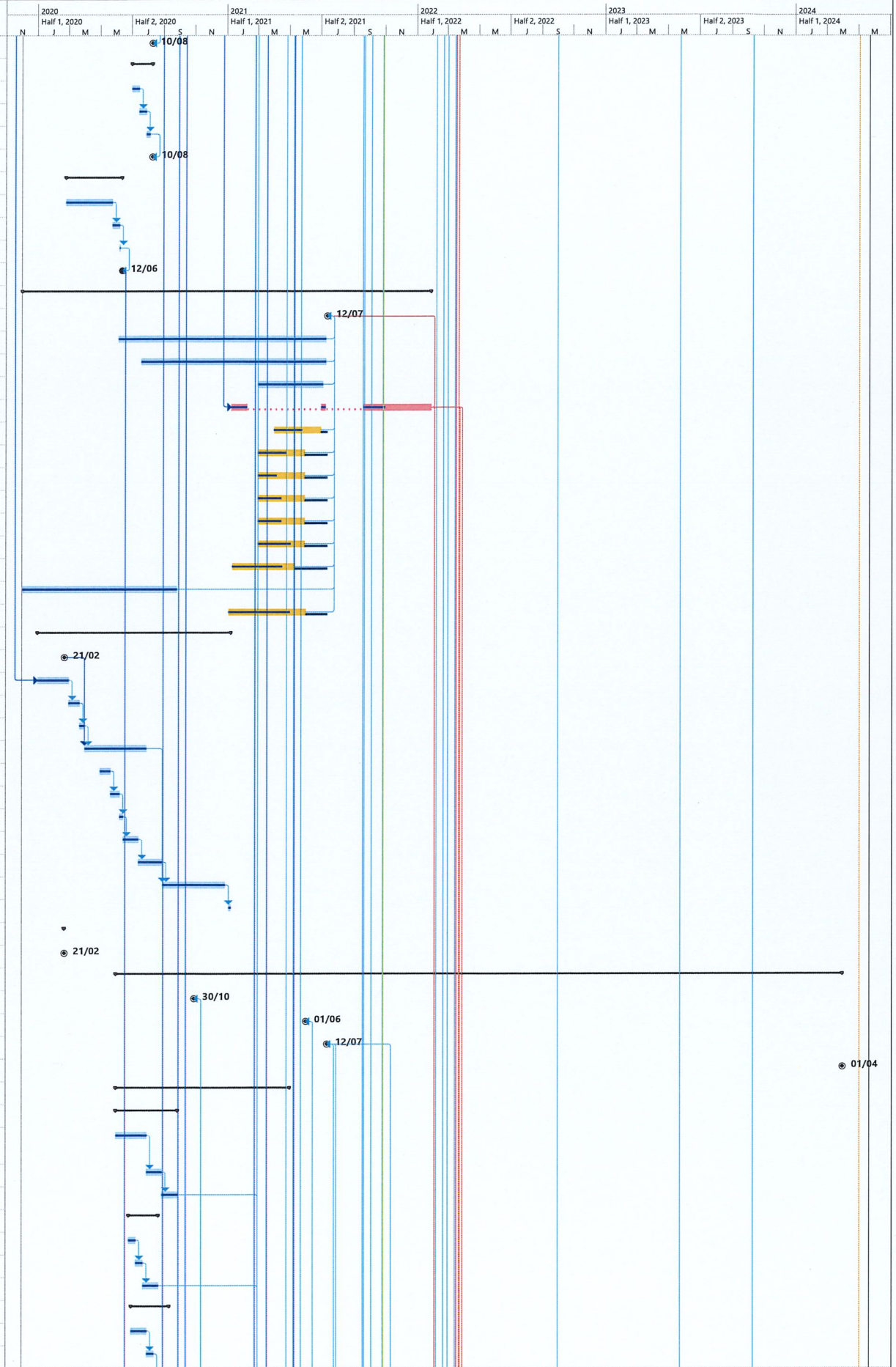
Task Milestone Project Summary Late Critical Split Manual Progress Milestone (Actual) +  
Milestone, Tentative Summary Manual Summary Critical Progress Slack (Float) Slack







ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Early Start	Early Finish	Free Slack	Predecessors	Successors	Resource Names
174	174.5.13.16.4	Sub-contract work commencement date (Completed)	0 days	Mon 10/08/20	Mon 10/08/20	Mon 10/08/20	Mon 10/08/20	0 days	173FF		
175	175.5.13.17	General - Civil Construction Work for Temp. Filtrate Eq. System (04SC001)	40 days	Wed 01/07/20	Mon 10/08/20	Wed 01/07/20	Mon 10/08/20	0 days			
176	176.5.13.17.1	Submission for acceptance of subcontract works package	14 days	Wed 01/07/20	Tue 14/07/20	Wed 01/07/20	Tue 14/07/20	0 days	177		
177	177.5.13.17.2	Invitation of tender for subcontract works	14 days	Wed 15/07/20	Tue 28/07/20	Wed 15/07/20	Tue 28/07/20	0 days	176	178	
178	178.5.13.17.3	Acceptance of conforming tender	7 days	Wed 29/07/20	Tue 04/08/20	Wed 29/07/20	Tue 04/08/20	0 days	177	179FF	
179	179.5.13.17.4	Sub-contract work commencement date (Completed)	0 days	Mon 10/08/20	Mon 10/08/20	Mon 10/08/20	Mon 10/08/20	0 days	178FF		
180	180.5.13.18	Mis - Modification of existing power house (04SC010)	109 days	Mon 24/02/20	Fri 12/06/20	Mon 24/02/20	Fri 12/06/20	0 days			
181	181.5.13.18.1	Submission for acceptance of subcontract works package	90 days	Mon 24/02/20	Sat 23/05/20	Mon 24/02/20	Sat 23/05/20	0 days		182	
182	182.5.13.18.2	Invitation of tender for subcontract works	14 days	Sun 24/05/20	Sat 06/06/20	Sun 24/05/20	Sat 06/06/20	0 days	181	183	
183	183.5.13.18.3	Acceptance of conforming tender	1 day	Sun 07/06/20	Sun 07/06/20	Sun 07/06/20	Sun 07/06/20	0 days	182	184FF	
184	184.5.13.18.4	Sub-contract work commencement date (Completed)	0 days	Fri 12/06/20	Fri 12/06/20	Fri 12/06/20	Fri 12/06/20	0 days	183FF	1163	
185	185.5.14	Part C: General Design Submissions	788 days	Mon 02/12/19	Thu 27/01/22	Mon 02/12/19	Thu 27/01/22	0 days			
186	186.5.14.1	Planned Sectional Completion Date - Section 1	0 days	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	0 days	187FF,188FF		
187	187.5.14.2	CDS001 - General Design Parameters (Rev. 11)	400 edays	Fri 05/06/20	Sat 10/07/21	Fri 05/06/20	Sat 10/07/21	0 edays		186FF	
188	188.5.14.3	CDS020 - Electrical Installation Typical Details	355 edays	Mon 20/07/20	Sat 10/07/21	Mon 20/07/20	Sat 10/07/21	0 edays		186FF	
189	189.5.14.4	CDS009 - Detailed Design for Plant Service Water System	125 edays	Mon 01/03/21	Sun 04/07/21	Mon 01/03/21	Sun 04/07/21	0 edays		186FF	
190	190.5.14.5	CDS012 - Detailed Design for SCADA System	383.4 edays	Sat 09/01/21	Thu 27/01/22	Sat 09/01/21	Thu 27/01/22	0 edays	131	186FF,254FF,401FF,530FI	
191	191.5.14.6	CDS13-1 - Detailed Design for CCTV System	90 edays	Thu 01/04/21	Wed 30/06/21	Thu 01/04/21	Wed 30/06/21	12.38 edays		186FF	
192	192.5.14.7	CDS13-2 - Detailed Design for Gas Detection and Monitoring System	90 edays	Mon 01/03/21	Sun 30/05/21	Mon 01/03/21	Sun 30/05/21	43.38 edays		186FF	
193	193.5.14.8	CDS14-1 - Detailed Design for Power monitoring system (PMS)	90 edays	Mon 01/03/21	Sun 30/05/21	Mon 01/03/21	Sun 30/05/21	43.38 edays		186FF	
194	194.5.14.9	CDS14-2 - Detailed Design for Computerized maintenance and management system	90 edays	Mon 01/03/21	Sun 30/05/21	Mon 01/03/21	Sun 30/05/21	43.38 edays		186FF	
195	195.5.14.10	CDS14-3 - Detailed Design for Information and documents management system	90 edays	Mon 01/03/21	Sun 30/05/21	Mon 01/03/21	Sun 30/05/21	43.38 edays		186FF	
196	196.5.14.11	CDS031 - Detailed Design for MVAC System	90 edays	Mon 01/03/21	Sun 30/05/21	Mon 01/03/21	Sun 30/05/21	43.38 edays		186FF	
197	197.5.14.12	CDS042 - Detailed Design for Lightning Protection System	120 edays	Mon 11/01/21	Tue 11/05/21	Mon 11/01/21	Tue 11/05/21	62.38 edays		186FF	
198	198.5.14.13	Design submissions for E&M installation works of existing sludge thickening tank	300 edays	Mon 02/12/19	Sun 27/09/20	Mon 02/12/19	Sun 27/09/20	0 edays		186FF	
199	199.5.14.14	Design Submission for Earthing and Lightning (Rev. 8)	147.38 edays	Mon 04/01/21	Mon 31/05/21	Mon 04/01/21	Mon 31/05/21	42 edays		186FF	
200	200.5.15	Works Area WA1-C	374 days	Wed 01/01/20	Fri 08/01/21	Wed 01/01/20	Fri 08/01/21	0 days			
201	201.5.15.1	Actual Access / Handover Date	1 day	Fri 21/02/20	Fri 21/02/20	Fri 21/02/20	Fri 21/02/20	0 days		205	
202	202.5.15.2	Submission for acceptance of subcontract works package (Site Office) (04)	60 days	Wed 01/01/20	Sat 29/02/20	Wed 01/01/20	Sat 29/02/20	0 days	255+30 edays	203	
203	203.5.15.3	Invitation of quotations for subcontract works (Site Office)	21 days	Sun 01/03/20	Sat 21/03/20	Sun 01/03/20	Sat 21/03/20	0 days	202	204	
204	204.5.15.4	Acceptance of conforming quotation (Site Office)	10 days	Sun 22/03/20	Tue 31/03/20	Sun 22/03/20	Tue 31/03/20	0 days	203	205	
205	205.5.15.5	Design and Fabrication of the Contractor's Site Accommodations	120 days	Wed 01/04/20	Wed 29/07/20	Wed 01/04/20	Wed 29/07/20	0 days	201,204	211	
206	206.5.15.6	Submission for acceptance of subcontract works package (Site Office Foundation)	20 days	Fri 01/05/20	Wed 20/05/20	Fri 01/05/20	Wed 20/05/20	0 days		207	
207	207.5.15.7	Invitation of quotations for subcontract works (Site Office Foundation)	18 days	Thu 21/05/20	Sun 07/06/20	Thu 21/05/20	Sun 07/06/20	0 days	206	208	
208	208.5.15.8	Acceptance of conforming quotation (Site foundation)	7 days	Mon 08/06/20	Sun 14/06/20	Mon 08/06/20	Sun 14/06/20	0 days	207	209	
209	209.5.15.9	Design and Construction of the Contractor's Site Office foundation	30 days	Mon 15/06/20	Tue 14/07/20	Mon 15/06/20	Tue 14/07/20	0 days	208	210	
210	210.5.15.10	Construction of Contractor's Site Office foundation (Completed)	47 days	Wed 15/07/20	Sun 30/08/20	Wed 15/07/20	Sun 30/08/20	0 days	209	211	
211	211.5.15.11	Site Installation of the Contractor's Site Accommodations (MIC) (Rev. 5)	120 days	Mon 31/08/20	Mon 28/12/20	Mon 31/08/20	Mon 28/12/20	0 days	205,210	212	
212	212.5.15.12	Anticipated date of working at site (Rev. 5) (Completed)	4 days	Tue 05/01/21	Fri 08/01/21	Tue 05/01/21	Fri 08/01/21	0 days		211	
213	213.5.16	Works Area WA2-C	1 day	Fri 21/02/20	Fri 21/02/20	Fri 21/02/20	Fri 21/02/20	0 days			
214	214.5.16.1	Actual Access / Handover Date	1 day	Fri 21/02/20	Fri 21/02/20	Fri 21/02/20	Fri 21/02/20	0 days		211	
215	215.5.17	Inlet Works No. 1, Portion B-2 (PS 6B.2.1)	1400 days	Mon 01/06/20	Mon 01/04/24	Mon 01/06/20	Mon 01/04/24	0 days			
216	216.5.17.1	Planned Key Date Completion Date - KD1A, IW	0 days	Fri 30/10/20	Fri 30/10/20	Fri 30/10/20	Fri 30/10/20	0 days	250FF,251FI		
217	217.5.17.2	Planned Key Date Completion Date - KD1B, IW	0 days	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	0 days	252FF		
218	218.5.17.3	Planned Sectional Completion Date - Section 1, IW	0 days	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	0 days	253FF,254FI		
219	219.5.17.4	Planned Sectional Completion Date - Section 2, IW	0 days	Mon 01/04/24	Mon 01/04/24	Mon 01/04/24	Mon 01/04/24	0 days			
220	220.5.17.5	Selection of Suppliers for major plant and materials for Inlet Works No. 1	335 days	Mon 01/06/20	Sat 01/05/21	Mon 01/06/20	Sat 01/05/21	0 days			
221	221.5.17.5.1	Inlet Works - inlet Pumps (Marking Scheme Approach), C11, ref. EQT006	120 days	Mon 01/06/20	Mon 28/09/20	Mon 01/06/20	Mon 28/09/20	0 days			
222	222.5.17.5.1.1	Submission for acceptance of purchasing package including proposed marking scheme	60 days	Mon 01/06/20	Thu 30/07/20	Mon 01/06/20	Thu 30/07/20	0 days		223	
223	223.5.17.5.1.2	Invitation of quotations for purchasing package	30 days	Fri 31/07/20	Sat 29/08/20	Fri 31/07/20	Sat 29/08/20	0 days	222	224	
224	224.5.17.5.1.3	Acceptance of conforming quotation (Completed)	30 days	Sun 30/08/20	Mon 28/09/20	Sun 30/08/20	Mon 28/09/20	0 days	223	253	
225	225.5.17.5.2	Inlet Works - mechanical raked bar screens, C11, ref. EQT052	58 days	Fri 26/06/20	Sat 22/08/20	Fri 26/06/20	Sat 22/08/20	0 days			
226	226.5.17.5.2.1	Submission for acceptance of purchasing package	14 days	Fri 26/06/20	Thu 09/07/20	Fri 26/06/20	Thu 09/07/20	0 days		227	
227	227.5.17.5.2.2	Invitation of quotations for purchasing package	14 days	Fri 10/07/20	Thu 23/07/20	Fri 10/07/20	Thu 23/07/20	0 days	226	228	
228	228.5.17.5.2.3	Acceptance of conforming quotation (Completed)	30 days	Fri 24/07/20	Sat 22/08/20	Fri 24/07/20	Sat 22/08/20	0 days	227	253	
229	229.5.17.5.3	Inlet Works - screening conveyors and Diverters, C11, ref. EQT053	74 days	Wed 01/07/20	Sat 12/09/20	Wed 01/07/20	Sat 12/09/20	0 days			
230	230.5.17.5.3.1	Submission for acceptance of purchasing package	30 days	Wed 01/07/20	Thu 30/07/20	Wed 01/07/20	Thu 30/07/20	0 days		231	
231	231.5.17.5.3.2	Invitation of quotations for purchasing package	14 days	Fri 31/07/20	Thu 13/08/20	Fri 31/07/20	Thu 13/08/20	0 days	230	232	



Task Milestone Project Summary Late Critical Split Manual Progress Milestone (Actual) +  
Milestone, Tentative Summary Manual Summary Critical Progress Slack (Float) Slack



ID	ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Early Start	Early Finish	Free Slack	Predecessors	Successors	Resource Names	2020 Half 1, 2020		2021 Half 1, 2021		2022 Half 1, 2022		2023 Half 1, 2023		2024 Half 1, 2024														
													N	J	M	M	J	S	N	J	M	M	J	S	N	J	M	M	J	S	N	J	M	M	
232	232	5.17.5.3.3	Acceptance of conforming quotation (Completed)	30 days	Fri 14/08/20	Sat 12/09/20	Fri 14/08/20	Sat 12/09/20	0 days	231	253																								
233	233	5.17.5.4	Inlet Works - screening screw type compactors, C11, ref. EQT003	105 days	Wed 01/07/20	Tue 13/10/20	Wed 01/07/20	Tue 13/10/20	0 days																										
234	234	5.17.5.4.1	Submission for acceptance of purchasing package	45 days	Wed 01/07/20	Fri 14/08/20	Wed 01/07/20	Fri 14/08/20	0 days																										
235	235	5.17.5.4.2	Invitation of quotations for purchasing package	30 days	Sat 15/08/20	Sun 13/09/20	Sat 15/08/20	Sun 13/09/20	0 days	234	236																								
236	236	5.17.5.4.3	Acceptance of conforming quotation (Completed)	30 days	Mon 14/09/20	Tue 13/10/20	Mon 14/09/20	Tue 13/10/20	0 days	235	253																								
237	237	5.17.5.5	Inlet Works - grit removal system, C11, ref. EQT004	90 days	Wed 01/07/20	Mon 28/09/20	Wed 01/07/20	Mon 28/09/20	0 days																										
238	238	5.17.5.5.1	Submission for acceptance of purchasing package	30 days	Wed 01/07/20	Thu 30/07/20	Wed 01/07/20	Thu 30/07/20	0 days		239																								
239	239	5.17.5.5.2	Invitation of quotations for purchasing package	30 days	Fri 31/07/20	Sat 29/08/20	Fri 31/07/20	Sat 29/08/20	0 days	238	240																								
240	240	5.17.5.5.3	Acceptance of conforming quotation (Completed)	30 days	Sun 30/08/20	Mon 28/09/20	Sun 30/08/20	Mon 28/09/20	0 days	239	253																								
241	241	5.17.5.6	Inlet Works - grit classifiers, C11, ref. EQT005	90 days	Wed 01/07/20	Mon 28/09/20	Wed 01/07/20	Mon 28/09/20	0 days																										
242	242	5.17.5.6.1	Submission for acceptance of purchasing package	30 days	Wed 01/07/20	Thu 30/07/20	Wed 01/07/20	Thu 30/07/20	0 days		243																								
243	243	5.17.5.6.2	Invitation of quotations for purchasing package	30 days	Fri 31/07/20	Sat 29/08/20	Fri 31/07/20	Sat 29/08/20	0 days	242	244																								
244	244	5.17.5.6.3	Acceptance of conforming quotation (Completed)	30 days	Sun 30/08/20	Mon 28/09/20	Sun 30/08/20	Mon 28/09/20	0 days	243	253																								
245	245	5.17.5.7	Inlet Works - Fixed Bar Screen, C11, ref. EQT046 (Rev. 10)	310 days	Fri 26/06/20	Sat 01/05/21	Fri 26/06/20	Sat 01/05/21	0 days																										
246	246	5.17.5.7.1	Submission for acceptance of purchasing package	14 days	Fri 26/06/20	Thu 09/07/20	Fri 26/06/20	Thu 09/07/20	0 days		247																								
247	247	5.17.5.7.2	Invitation of quotations for purchasing package	266 days	Fri 10/07/20	Thu 01/04/21	Fri 10/07/20	Thu 01/04/21	0 days	246	248																								
248	248	5.17.5.7.3	Acceptance of conforming quotation (Rev. 10)	30 days	Fri 02/04/21	Sat 01/05/21	Fri 02/04/21	Sat 01/05/21	0 days	247	253																								
249	249	5.17.6	Design Submissions for IW	479 days	Wed 15/07/20	Sat 06/11/21	Wed 15/07/20	Sat 06/11/21	0 days																										
250	250	5.17.6.1	Electrical schematic drawings for Inlet Works No. 1	90 days	Wed 15/07/20	Mon 12/10/20	Wed 15/07/20	Mon 12/10/20	0 days		216FF																								
251	251	5.17.6.2	CDS080-1 - Civil and dimensional requirements drawings for Inlet Works No. 1	45 days	Tue 01/09/20	Thu 15/10/20	Tue 01/09/20	Thu 15/10/20	0 days		216FF																								
252	252	5.17.6.3	CDS081-1 - Civil and dimensional requirements drawings for Inlet Work	210 days	Fri 28/08/20	Thu 25/03/21	Fri 28/08/20	Thu 25/03/21	0 days		217FF																								
253	253	5.17.6.4	CDS002 - Detailed Design for Inlet Works No. 1	144 edays	Mon 01/03/21	Fri 23/07/21	Mon 01/03/21	Fri 23/07/21	0 edays	228,232,224,261,283,268,271,274,277																									
254	254	5.17.6.5	CDS021 - Detailed Design for Electrical Installations for Inlet Works No.	166.63 edays	Sun 23/05/21	Sat 06/11/21	Sun 23/05/21	Sat 06/11/21	0 edays	75,81,85,89,76,300,292,303,218FF																									
255	255	5.17.6.6	CDS034-1 - Detailed Design for Electrical Installations BS at Inlet Works	120 edays	Fri 12/03/21	Sat 10/07/21	Fri 12/03/21	Sat 10/07/21	0 edays	136	354,218FF																								
256	256	5.17.6.7	CDS025-1 - Detailed Design for LV Switchboards for Inlet Works No. 1	60 edays	Mon 03/05/21	Fri 02/07/21	Mon 03/05/21	Fri 02/07/21	10 edays	71	292,218FF																								
257	257	5.17.6.8	CDS026-1 - Detailed Design for HV Switchboards for Inlet Works No. 1	60 edays	Sun 18/04/21	Thu 17/06/21	Sun 18/04/21	Thu 17/06/21	0.63 edays	67	296,218FF																								
258	258	5.17.6.9	CDS050-1 - Detailed Design for Lifting Appliances - Inlet Works No. 1	210 edays	Tue 01/09/20	Tue 30/03/21	Tue 01/09/20	Tue 30/03/21	0 edays	116	289,218FF																								
259	259	5.17.7	Manufacturing and Delivery of Plant & Materials	696 days	Tue 30/03/21	Thu 23/02/23	Tue 30/03/21	Thu 23/02/23	215 days																										
260	260	5.17.7.1	Inlet Pumps, EQT006	489 days	Sat 24/07/21	Thu 24/11/22	Sat 24/07/21	Thu 24/11/22	352 days																										
261	261	5.17.7.1.1	Manufacturing of Inlet Pumps, EQT006	240 days	Sat 24/07/21	Sun 20/03/22	Sat 24/07/21	Sun 20/03/22	0 days	253	262																								
262	262	5.17.7.1.2	Factory Acceptance Test of Plant (to be witnessed by PM)	60 days	Mon 21/03/22	Thu 19/05/22	Mon 21/03/22	Thu 19/05/22	129 days	261	263																								
263	263	5.17.7.1.3	Shipping and Delivery of Plant to site	60 days	Mon 26/09/22	Thu 24/11/22	Mon 26/09/22	Thu 24/11/22	225 days	262,310SS-6328																									
264	264	5.17.7.2	Mechanical Raked Bar Screen, EQT052	489 days	Sat 24/07/21	Thu 24/11/22	Sat 24/07/21	Thu 24/11/22	31 days		324																								
265	265	5.17.7.2.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Sat 24/07/21	Sun 20/03/22	Sat 24/07/21	Sun 20/03/22	189 days	253	266																								
266	266	5.17.7.2.2	Shipping and Delivery of Plant to site	60 days	Mon 26/09/22	Thu 24/11/22	Mon 26/09/22	Thu 24/11/22	31 days	265,310SS-6326,329																									
267	267	5.17.7.3	Screening Conveyors and Diverters, EQT053	489 days	Sat 24/07/21	Thu 24/11/22	Sat 24/07/21	Thu 24/11/22	357 days																										
268	268	5.17.7.3.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Sat 24/07/21	Sun 20/03/22	Sat 24/07/21	Sun 20/03/22	189 days	253	269																								
269	269	5.17.7.3.2	Shipping and Delivery of Plant to site	60 days	Mon 26/09/22	Thu 24/11/22	Mon 26/09/22	Thu 24/11/22	143 days	268,310SS-6327																									
270	270	5.17.7.4	Screening Screw Type Compactors, EQT003	489 days	Sat 24/07/21	Thu 24/11/22	Sat 24/07/21	Thu 24/11/22	31 days		324																								
271	271	5.17.7.4.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Sat 24/07/21	Sun 20/03/22	Sat 24/07/21	Sun 20/03/22	189 days	253	272																								
272	272	5.17.7.4.2	Shipping and Delivery of Plant to site	60 days	Mon 26/09/22	Thu 24/11/22	Mon 26/09/22	Thu 24/11/22	173 days	271,310SS-6332																									
273	273	5.17.7.5	Grit Removal System, EQT004	489 days	Sat 24/07/21	Thu 24/11/22	Sat 24/07/21	Thu 24/11/22	373 days																										
274	274	5.17.7.5.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Sat 24/07/21	Sun 20/03/22	Sat 24/07/21	Sun 20/03/22	189 days	253	275																								
275	275	5.17.7.5.2	Shipping and Delivery of Plant to site	60 days	Mon 26/09/22	Thu 24/11/22	Mon 26/09/22	Thu 24/11/22	246 days	274,310SS-6330																									
276	276	5.17.7.6	Grit Classifiers, EQT005	489 days	Sat 24/07/21	Thu 24/11/22	Sat 24/07/21	Thu 24/11/22	387 days																										
277	277	5.17.7.6.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Sat 24/07/21	Sun 20/03/22	Sat 24/07/21	Sun 20/03/22	189 days	253	278																								
278	278	5.17.7.6.2	Shipping and Delivery of Plant to site	60 days	Mon 26/09/22	Thu 24/11/22	Mon 26/09/22</																												







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

ID	ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Early Start	Early Finish	Free Slack	Predecessors	Successors	Resource Names	Gantt Chart (2020-2024)																											
350	350.5.17.8.3.5		Site Acceptance Test for PLC System at Inlet Works No. 1	60 days	Thu 07/09/23	Sun 05/11/23	Thu 07/09/23	Sun 05/11/23	35 days	349	351,1278		[Gantt Chart Data]																											
351	351.5.17.8.3.6		Site Acceptance Test for E&M Equip & Instrumentations calibration,	15 days	Tue 02/01/24	Tue 16/01/24	Tue 02/01/24	Tue 16/01/24	0 days	323,338,343,352			[Gantt Chart Data]																											
352	352.5.17.8.3.7		System Commissioning for E&M Equip at Inlet Works No. 1	15 edays	Tue 16/01/24	Wed 31/01/24	Tue 16/01/24	Wed 31/01/24	0 edays	351	353		[Gantt Chart Data]																											
353	353.5.17.8.3.8		Risk Allowances for completion of Processing Plant at Inlet Works No. 1	7 edays	Wed 31/01/24	Wed 07/02/24	Wed 31/01/24	Wed 07/02/24	0.63 edays	352,361	1274		[Gantt Chart Data]																											
354	354.5.17.8.3.9		Building Services Installations for Inlet Works No. 1	300 days	Sun 26/03/23	Fri 19/01/24	Sun 26/03/23	Fri 19/01/24	17 days	310FS+120			[Gantt Chart Data]																											
355	355.5.17.8.3.9.1		Mechanical Ventilation and Air Conditioning System, IW	150 days	Sun 26/03/23	Tue 22/08/23	Sun 26/03/23	Tue 22/08/23	30 days		361	MVAC - B x 4~6 men	[Gantt Chart Data]																											
356	356.5.17.8.3.9.2		Lighting and Power Distribution System, IW	180 days	Sun 26/03/23	Thu 21/09/23	Sun 26/03/23	Thu 21/09/23	0 days		361	BS - A x 4~6 men	[Gantt Chart Data]																											
357	357.5.17.8.3.9.3		Plumbing Installation, IW	120 days	Sun 26/03/23	Sun 23/07/23	Sun 26/03/23	Sun 23/07/23	60 days	1245	1247,361	Pb - A x 4~6 men	[Gantt Chart Data]																											
358	358.5.17.8.3.9.4		CCTV Installation (5 indoor +5 outdoor Cameras), IW	90 days	Mon 24/04/23	Sat 22/07/23	Mon 24/04/23	Sat 22/07/23	51 days	310SS+150	361,1277	BS - B x 4~6 men	[Gantt Chart Data]																											
359	359.5.17.8.3.9.5		Fire Services Installation, IW	120 days	Mon 24/04/23	Mon 21/08/23	Mon 24/04/23	Mon 21/08/23	31 days	310SS+150	1198,1210,1211,361	FS - A x 4~6 men	[Gantt Chart Data]																											
360	360.5.17.8.3.9.6		Earthing and Lightning Protection System, IW	60 days	Wed 24/05/23	Sat 22/07/23	Wed 24/05/23	Sat 22/07/23	61 days	310SS+180	361	BS - C x 2~4 men	[Gantt Chart Data]																											
361	361.5.17.8.3.9.7		Testing and Commissioning of Building Services Installations, IW	120 days	Fri 22/09/23	Fri 19/01/24	Fri 22/09/23	Fri 19/01/24	12 days	355,356,357,353		BS - C x 2~4 men	[Gantt Chart Data]																											
362	362.5.18		Primary Sedimentation Tanks No. 1~4, Portion B-3 (P5 6B2.2)	1371 days	Wed 01/07/20	Mon 01/04/24	Wed 01/07/20	Mon 01/04/24	0 days				[Gantt Chart Data]																											
363	363.5.18.1		Planned Key Date Completion Date - KD1A, PST No. 1~4	0 days	Fri 30/10/20	Fri 30/10/20	Fri 30/10/20	Fri 30/10/20	0 days	397FF,398FF			[Gantt Chart Data]																											
364	364.5.18.2		Planned Key Date Completion Date - KD1B, PST No. 1~4	1 day	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	0 days	399FF			[Gantt Chart Data]																											
365	365.5.18.3		Planned Sectional Completion Date - Section 1, PST No. 1~4	0 days	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	0 days	402FF,401FF			[Gantt Chart Data]																											
366	366.5.18.4		Planned Sectional Completion Date - Section 2, PST No. 1~4	0 days	Mon 01/04/24	Mon 01/04/24	Mon 01/04/24	Mon 01/04/24	0 days	490FF			[Gantt Chart Data]																											
367	367.5.18.5		Selection of Suppliers for major plant and materials for PST No. 1~4	230 days	Wed 01/07/20	Wed 01/07/20	Wed 01/07/20	Mon 15/02/21	0 days				[Gantt Chart Data]																											
368	368.5.18.5.1		PST - lamella plate settlers, C11, ref. EQT014	90 days	Wed 01/07/20	Mon 28/09/20	Wed 01/07/20	Mon 28/09/20	0 days				[Gantt Chart Data]																											
369	369.5.18.5.1.1		Submission for acceptance of purchasing package	30 days	Wed 01/07/20	Thu 30/07/20	Wed 01/07/20	Thu 30/07/20	0 days		370		[Gantt Chart Data]																											
370	370.5.18.5.1.2		Invitation of quotations for purchasing package	30 days	Fri 31/07/20	Sat 29/08/20	Fri 31/07/20	Sat 29/08/20	0 days	369	371		[Gantt Chart Data]																											
371	371.5.18.5.1.3		Acceptance of conforming quotation (Completed)	30 days	Sun 30/08/20	Mon 28/09/20	Sun 30/08/20	Mon 28/09/20	0 days	370	400		[Gantt Chart Data]																											
372	372.5.18.5.2		PST - reciprocating type bottom scrapers, C11, ref. EQT014	135 days	Wed 01/07/20	Thu 12/11/20	Wed 01/07/20	Thu 12/11/20	0 days				[Gantt Chart Data]																											
373	373.5.18.5.2.1		Submission for acceptance of purchasing package	45 days	Wed 01/07/20	Fri 14/08/20	Wed 01/07/20	Fri 14/08/20	0 days		374		[Gantt Chart Data]																											
374	374.5.18.5.2.2		Invitation of quotations for purchasing package	60 days	Sat 15/08/20	Tue 13/10/20	Sat 15/08/20	Tue 13/10/20	0 days	373	375		[Gantt Chart Data]																											
375	375.5.18.5.2.3		Acceptance of conforming quotation (Completed)	30 days	Wed 14/10/20	Thu 12/11/20	Wed 14/10/20	Thu 12/11/20	0 days	374	400		[Gantt Chart Data]																											
376	376.5.18.5.3		PST - surface scum skimmers, C11, ref. EQT015	90 days	Tue 07/07/20	Sun 04/10/20	Tue 07/07/20	Sun 04/10/20	0 days				[Gantt Chart Data]																											
377	377.5.18.5.3.1		Submission for acceptance of purchasing package	30 days	Tue 07/07/20	Wed 05/08/20	Tue 07/07/20	Wed 05/08/20	0 days		378		[Gantt Chart Data]																											
378	378.5.18.5.3.2		Invitation of quotations for purchasing package	30 days	Thu 06/08/20	Fri 04/09/20	Thu 06/08/20	Fri 04/09/20	0 days	377	379		[Gantt Chart Data]																											
379	379.5.18.5.3.3		Acceptance of conforming quotation	30 days	Sat 05/09/20	Sun 04/10/20	Sat 05/09/20	Sun 04/10/20	0 days	378	400		[Gantt Chart Data]																											
380	380.5.18.5.4		PST - scum collector pipes, C11, ref. EQT015	210 days	Wed 01/07/20	Tue 26/01/21	Wed 01/07/20	Tue 26/01/21	0 days				[Gantt Chart Data]																											
381	381.5.18.5.4.1		Submission for acceptance of purchasing package	120 days	Wed 01/07/20	Wed 28/10/20	Wed 01/07/20	Wed 28/10/20	0 days		382		[Gantt Chart Data]																											
382	382.5.18.5.4.2		Invitation of quotations for purchasing package	60 days	Thu 29/10/20	Sun 27/12/20	Thu 29/10/20	Sun 27/12/20	0 days	381	383		[Gantt Chart Data]																											
383	383.5.18.5.4.3		Acceptance of conforming quotation	30 days	Mon 28/12/20	Tue 26/01/21	Mon 28/12/20	Tue 26/01/21	0 days	382	400		[Gantt Chart Data]																											
384	384.5.18.5.5		PST - piston type primary sludge pumps, C11, ref. EQT016	210 days	Wed 01/07/20	Tue 26/01/21	Wed 01/07/20	Tue 26/01/21	0 days				[Gantt Chart Data]																											
385	385.5.18.5.5.1		Submission for acceptance of purchasing package	120 days	Wed 01/07/20	Wed 28/10/20	Wed 01/07/20	Wed 28/10/20	0 days		386		[Gantt Chart Data]																											
386	386.5.18.5.5.2		Invitation of quotations for purchasing package	60 days	Thu 29/10/20	Sun 27/12/20	Thu 29/10/20	Sun 27/12/20	0 days	385	387		[Gantt Chart Data]																											
387	387.5.18.5.5.3		Acceptance of conforming quotation (Completed)	30 days	Mon 28/12/20	Tue 26/01/21	Mon 28/12/20	Tue 26/01/21	0 days	386	400		[Gantt Chart Data]																											
388	388.5.18.5.6		PST - drain pumps, C11, ref. EQT007	210 days	Tue 14/07/20	Mon 08/02/21	Tue 14/07/20	Mon 08/02/21	0 days				[Gantt Chart Data]																											
389	389.5.18.5.6.1		Submission for acceptance of purchasing package	120 days	Tue 14/07/20	Tue 10/11/20	Tue 14/07/20	Tue 10/11/20	0 days		390		[Gantt Chart Data]																											
390	390.5.18.5.6.2		Invitation of quotations for purchasing package	60 days	Wed 11/11/20	Sat 09/01/21	Wed 11/11/20	Sat 09/01/21	0 days	389	391		[Gantt Chart Data]																											
391	391.5.18.5.6.3		Acceptance of conforming quotation (Completed)	30 days	Sun 10/01/21	Mon 08/02/21	Sun 10/01/21	Mon 08/02/21	0 days	390	400		[Gantt Chart Data]																											
392	392.5.18.5.7		PST - air blowers, C11, ref. EQT018	210 days	Tue 21/07/20	Mon 15/02/21	Tue 21/07/20	Mon 15/02/21	0 days				[Gantt Chart Data]																											
393	393.5.18.5.7.1		Submission for acceptance of purchasing package	120 days	Tue 21/07/20	Tue 17/11/20	Tue 21/07/20	Tue 17/11/20	0 days		394		[Gantt Chart Data]																											
394	394.5.18.5.7.2		Invitation of quotations for purchasing package	60 days	Wed 18/11/20	Sat 16/01/21	Wed 18/11/20	Sat 16/01/21	0 days	393	395		[Gantt Chart Data]																											
395	395.5.18.5.7.3		Acceptance of conforming quotation	30 days	Sun 17/01/21	Mon 15/02/21	Sun 17/01/21	Mon 15/02/21	0 days	394	400		[Gantt Chart Data]																											
396	396.5.18.6		Design Submissions for PST No. 1~4	587 days	Sat 01/08/20	Fri 11/03/22	Sat 01/08/20	Fri 11/03/22	0 days				[Gantt Chart Data]																											
397	397.5.18.6.1		Electrical schematic drawings for PST No. 1~4	60 days	Sat 01/08/20	Tue 29/09/20	Sat 01/08/20	Tue 29/09/20	0 days		363FF		[Gantt Chart Data]																											
398	398.5.18.6.2		CDS080-2 - Civil and dimensional requirements drawings for PST No. 1~4 up to	50 days	Tue 01/09/20	Tue 20/10/20	Tue 01/09/20	Tue 20/10/20	0 days		363FF		[Gantt Chart Data]																											
399	399.5.18.6.3		CDS081-2 - Civil and dimensional requirements drawings for PST No. 1~4	150 days	Tue 01/09/20	Thu 28/01/21	Tue 01/09/20	Thu 28/01/21	0 days		364FF		[Gantt Chart Data]																											
400	400.5.18.6.4		CDS003 - Detailed Design for Primary Sedimentation Tanks No. 1~4	104 edays	Mon 15/02/21	Sun 30/05/21	Mon 15/02/21	Sun 30/05/21	0.63 edays	371,375,375,407,410,413,416,419,422			[Gantt Chart Data]																											
401	401.5.18.6.5		CDS022 - Detailed Design for Electrical Installations for PST No. 1~4	154.88 edays	Thu 07/10/21	Fri 11/03/22	Thu 07/10/21	Fri 11/03/22	0 edays	75,85,93,197,6,441,365FF			[Gantt Chart Data]																											
402	402.5.18.6.6		CDS034-2 - Detailed Design for Electrical Installations BS at PST No. 1~4	90 edays	Thu 12/03/21	Thu 10/06/21	Fri 12/03/21	Thu 10/06/21	32.38 edays	136	483,365FF		[Gantt Chart Data]																											
403	403.5.18.6.7		CDS025-2 - Detailed Design for LV Switchboards for PST No. 1~4	60 edays	Mon 03/05/21	Fri 02/07/21	Mon 03/05/21	Fri 02/07/21	0.63 edays	71	437,365FF		[Gantt Chart Data]																											
404	404.5.18.6.8		CDS050-2 - Detailed Design for Lifting Appliances - PST No. 1~4	150 edays	Tue 01/09/20	Fri 29/01/21	Tue 01/09/20	Fri 29/01/21	0 edays	116	434,365FF		[Gantt Chart Data]																											
405	405.5.18.7		Manufacturing and Delivery of Plant & Materials	811 days	Fri 29/01/21	Wed 19/04/23	Fri 29/01/21	Wed 19/04/23	232 days				[Gantt Chart Data]																											
406	406.5.18.7.1		Lamella Plate Settlers, EQT014	668 days	Mon 31/05/21	Wed 29/03/23	Mon 31/05/21	Wed 29/03/23	193 days				[Gantt Chart Data]																											
407	407.5.18.7.1.1		Manufacturing and Factory Acceptance Test of Plant	300 days	Mon 31/05/21	Sat 26/03/22	Mon 31/05/21	Sat 26/03/22	323 days	400	408		[Gantt Chart Data]																											
408	408.5.18.7.1.2		Shipping and Delivery of Plant to site	45 days	Mon 13/02/23	Wed 29/03/23	Mon 13/02/23	Wed 29/03/23	143 days	407,445SS-6459			[Gantt Chart Data]																											

Task Milestone Project Summary Late Critical Manual Progress Milestone (Actual) Slack  
 Milestone, Tentative Summary Manual Summary Critical Progress Slack (Float) Slack



ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Early Start	Early Finish	Free Slack	Predecessors	Successors	Resource Names	Gantt Chart (2020 Half 1, 2020 Half 2, 2021 Half 1, 2021 Half 2, 2022 Half 1, 2022 Half 2, 2023 Half 1, 2023 Half 2, 2024 Half 1)																											
409	409 5.18.7.2	Reciprocating Type Bottom Scrappers, EQT014	668 days	Mon 31/05/21	Wed 29/03/23	Mon 31/05/21	Wed 29/03/23	163 days				[Gantt bar for 409: Mon 31/05/21 to Wed 29/03/23]																											
410	410 5.18.7.2.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Mon 31/05/21	Sat 26/03/22	Mon 31/05/21	Sat 26/03/22	323 days	400	411		[Gantt bar for 410: Mon 31/05/21 to Sat 26/03/22]																											
411	411 5.18.7.2.2	Shipping and Delivery of Plant to site	45 days	Mon 13/02/23	Wed 29/03/23	Mon 13/02/23	Wed 29/03/23	16 days	410,445SS-6460			[Gantt bar for 411: Mon 13/02/23 to Wed 29/03/23]																											
412	412 5.18.7.3	Surface Scum Skimmers, EQT015	668 days	Mon 31/05/21	Wed 29/03/23	Mon 31/05/21	Wed 29/03/23	253 days				[Gantt bar for 412: Mon 31/05/21 to Wed 29/03/23]																											
413	413 5.18.7.3.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Mon 31/05/21	Sat 26/03/22	Mon 31/05/21	Sat 26/03/22	323 days	400	414		[Gantt bar for 413: Mon 31/05/21 to Sat 26/03/22]																											
414	414 5.18.7.3.2	Shipping and Delivery of Plant to site	45 days	Mon 13/02/23	Wed 29/03/23	Mon 13/02/23	Wed 29/03/23	203 days	413,445SS-6461			[Gantt bar for 414: Mon 13/02/23 to Wed 29/03/23]																											
415	415 5.18.7.4	Surface Scum Collection Pipes, EQT015	668 days	Mon 31/05/21	Wed 29/03/23	Mon 31/05/21	Wed 29/03/23	253 days				[Gantt bar for 415: Mon 31/05/21 to Wed 29/03/23]																											
416	416 5.18.7.4.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Mon 31/05/21	Sat 26/03/22	Mon 31/05/21	Sat 26/03/22	323 days	400	417		[Gantt bar for 416: Mon 31/05/21 to Sat 26/03/22]																											
417	417 5.18.7.4.2	Shipping and Delivery of Plant to site	45 days	Mon 13/02/23	Wed 29/03/23	Mon 13/02/23	Wed 29/03/23	203 days	416,445SS-6462			[Gantt bar for 417: Mon 13/02/23 to Wed 29/03/23]																											
418	418 5.18.7.5	Piston Type Primary Sludge Pumps, EQT016	668 days	Mon 31/05/21	Wed 29/03/23	Mon 31/05/21	Wed 29/03/23	133 days				[Gantt bar for 418: Mon 31/05/21 to Wed 29/03/23]																											
419	419 5.18.7.5.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Mon 31/05/21	Sat 26/03/22	Mon 31/05/21	Sat 26/03/22	323 days	400	420		[Gantt bar for 419: Mon 31/05/21 to Sat 26/03/22]																											
420	420 5.18.7.5.2	Shipping and Delivery of Plant to site	45 days	Mon 13/02/23	Wed 29/03/23	Mon 13/02/23	Wed 29/03/23	106 days	419,445SS-6463			[Gantt bar for 420: Mon 13/02/23 to Wed 29/03/23]																											
421	421 5.18.7.6	Drain Pumps, EQT007	668 days	Mon 31/05/21	Wed 29/03/23	Mon 31/05/21	Wed 29/03/23	163 days				[Gantt bar for 421: Mon 31/05/21 to Wed 29/03/23]																											
422	422 5.18.7.6.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Mon 31/05/21	Sat 26/03/22	Mon 31/05/21	Sat 26/03/22	323 days	400	423		[Gantt bar for 422: Mon 31/05/21 to Sat 26/03/22]																											
423	423 5.18.7.6.2	Shipping and Delivery of Plant to site	45 days	Mon 13/02/23	Wed 29/03/23	Mon 13/02/23	Wed 29/03/23	136 days	422,445SS-6464			[Gantt bar for 423: Mon 13/02/23 to Wed 29/03/23]																											
424	424 5.18.7.7	Air Blower, EQT018	668 days	Mon 31/05/21	Wed 29/03/23	Mon 31/05/21	Wed 29/03/23	193 days				[Gantt bar for 424: Mon 31/05/21 to Wed 29/03/23]																											
425	425 5.18.7.7.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Mon 31/05/21	Sat 26/03/22	Mon 31/05/21	Sat 26/03/22	323 days	400	426		[Gantt bar for 425: Mon 31/05/21 to Sat 26/03/22]																											
426	426 5.18.7.7.2	Shipping and Delivery of Plant to site	45 days	Mon 13/02/23	Wed 29/03/23	Mon 13/02/23	Wed 29/03/23	166 days	425,445SS-6465			[Gantt bar for 426: Mon 13/02/23 to Wed 29/03/23]																											
427	427 5.18.7.8	Stoplogs and Penstocks, EQT013	668 days	Mon 31/05/21	Wed 29/03/23	Mon 31/05/21	Wed 29/03/23	43 days				[Gantt bar for 427: Mon 31/05/21 to Wed 29/03/23]																											
428	428 5.18.7.8.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Mon 31/05/21	Tue 25/01/22	Mon 31/05/21	Tue 25/01/22	383 days	400	429		[Gantt bar for 428: Mon 31/05/21 to Tue 25/01/22]																											
429	429 5.18.7.8.2	Shipping and Delivery of Plant to site	45 days	Mon 13/02/23	Wed 29/03/23	Mon 13/02/23	Wed 29/03/23	16 days	445SS-60 ed457			[Gantt bar for 429: Mon 13/02/23 to Wed 29/03/23]																											
430	430 5.18.7.9	Pipework, Valves and Electric Actuators, EQT036, EQT042 (Rev. 11)	409 days	Mon 14/02/22	Wed 29/03/23	Mon 14/02/22	Wed 29/03/23	43 days	56,63			[Gantt bar for 430: Mon 14/02/22 to Wed 29/03/23]																											
431	431 5.18.7.9.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Mon 14/02/22	Tue 11/10/22	Mon 14/02/22	Tue 11/10/22	124 days	400	432		[Gantt bar for 431: Mon 14/02/22 to Tue 11/10/22]																											
432	432 5.18.7.9.2	Shipping and Delivery of Plant to site	45 days	Mon 13/02/23	Wed 29/03/23	Mon 13/02/23	Wed 29/03/23	16 days	431,445SS-6458			[Gantt bar for 432: Mon 13/02/23 to Wed 29/03/23]																											
433	433 5.18.7.10	Lifting Appliances	790 days	Fri 29/01/21	Wed 29/03/23	Fri 29/01/21	Wed 29/03/23	66 days				[Gantt bar for 433: Fri 29/01/21 to Wed 29/03/23]																											
434	434 5.18.7.10.1	Manufacturing and Factory Acceptance Test of Plant	210 days	Fri 29/01/21	Thu 26/08/21	Fri 29/01/21	Thu 26/08/21	535 days	404	435		[Gantt bar for 434: Fri 29/01/21 to Thu 26/08/21]																											
435	435 5.18.7.10.2	Shipping and Delivery of Plant to site	45 days	Mon 13/02/23	Wed 29/03/23	Mon 13/02/23	Wed 29/03/23	16 days	434,445SS-6448			[Gantt bar for 435: Mon 13/02/23 to Wed 29/03/23]																											
436	436 5.18.7.11	LV Switchboards	635 days	Sat 03/07/21	Wed 29/03/23	Sat 03/07/21	Wed 29/03/23	53 days				[Gantt bar for 436: Sat 03/07/21 to Wed 29/03/23]																											
437	437 5.18.7.11.1	PST - Manufacturing of Plant	300 days	Sat 03/07/21	Thu 28/04/22	Sat 03/07/21	Thu 28/04/22	0 days	403	438		[Gantt bar for 437: Sat 03/07/21 to Thu 28/04/22]																											
438	438 5.18.7.11.2	PST - Factory Acceptance Test of Plant (to be witnessed by PM)	90 days	Fri 29/04/22	Wed 27/07/22	Fri 29/04/22	Wed 27/07/22	200 days	437	439		[Gantt bar for 438: Fri 29/04/22 to Wed 27/07/22]																											
439	439 5.18.7.11.3	PST - Shipping and Delivery of Plant to site	45 days	Mon 13/02/23	Wed 29/03/23	Mon 13/02/23	Wed 29/03/23	16 days	438,445SS-6470			[Gantt bar for 439: Mon 13/02/23 to Wed 29/03/23]																											
440	440 5.18.7.12	PLC System	405 days	Fri 11/03/22	Wed 19/04/23	Fri 11/03/22	Wed 19/04/23	32 days				[Gantt bar for 440: Fri 11/03/22 to Wed 19/04/23]																											
441	441 5.18.7.12.1	Manufacturing of Plant, PLC for PST	300 days	Fri 11/03/22	Wed 04/01/23	Fri 11/03/22	Wed 04/01/23	0 days	401	442		[Gantt bar for 441: Fri 11/03/22 to Wed 04/01/23]																											
442	442 5.18.7.12.2	Factory Acceptance Test of Plant, PLC for PST (To be witnessed by PM)	60 days	Thu 05/01/23	Sun 05/03/23	Thu 05/01/23	Sun 05/03/23	0 days	441	443		[Gantt bar for 442: Thu 05/01/23 to Sun 05/03/23]																											
443	443 5.18.7.12.3	Shipping and Delivery of Plant to site	45 days	Mon 06/03/23	Wed 19/04/23	Mon 06/03/23	Wed 19/04/23	0 days	442,445SS-6471			[Gantt bar for 443: Mon 06/03/23 to Wed 19/04/23]																											
444	444 5.18.8	Site Installation Work	298 days	Fri 14/04/23	Mon 05/02/24	Fri 14/04/23	Mon 05/02/24	0 days				[Gantt bar for 444: Fri 14/04/23 to Mon 05/02/24]																											
445	445 5.18.8.1	Tentative Civil Handover Date, Portion B-3, PST No. 1~4 (Rev. 5)	1 day	Fri 14/04/23	Fri 14/04/23	Fri 14/04/23	Fri 14/04/23	0 days	448,483FS+90 days,446,4			[Gantt bar for 445: Fri 14/04/23 to Fri 14/04/23]																											
446	446 5.18.8.2	Commencement of E&M Installation at PST No. 1~4	297 days	Sat 15/04/23	Mon 05/02/24	Sat 15/04/23	Mon 05/02/24	0 days	445	403		[Gantt bar for 446: Sat 15/04/23 to Mon 05/02/24]																											
447	447 5.18.8.2.1	Provision of Temporary Water Supply, Electricity Supply, Lighting We	30 days	Sat 15/04/23	Sun 14/05/23	Sat 15/04/23	Sun 14/05/23	0 days	445			[Gantt bar for 447: Sat 15/04/23 to Sun 14/05/23]																											
448	448 5.18.8.2.2	Installation of Lifting Appliances at PST No. 1~4	127 days	Sat 15/04/23	Sat 19/08/23	Sat 15/04/23	Sat 19/08/23	50 days	445,435			[Gantt bar for 448: Sat 15/04/23 to Sat 19/08/23]																											
449	449 5.18.8.2.2.1	Basement EOT Crane LA-02-01 SWL 10t	30 days	Sat 15/04/23	Sun 14/05/23	Sat 15/04/23	Sun 14/05/23	0 days	450,451,455	LA - A x 4~6 men		[Gantt bar for 449: Sat 15/04/23 to Sun 14/05/23]																											
450	450 5.18.8.2.2.2	Coping Level EOT Crane LA-02-02 SWL 5t	30 days	Mon 15/05/23	Tue 13/06/23	Mon 15/05/23	Tue 13/06/23	60 days	449	455	LA - A x 4~6 men	[Gantt bar for 450: Mon 15/05/23 to Tue 13/06/23]																											
451	451 5.18.8.2.2.3	Coping Level EOT Crane LA-02-03 SWL 5t	30 days	Mon 15/05/23	Tue 13/06/23	Mon 15/05/23	Tue 13/06/23	0 days	449	452,453,455	LA - B x 4~6 men	[Gantt bar for 451: Mon 15/05/23 to Tue 13/06/23]																											
452	452 5.18.8.2.2.4	Coping Level EOT Crane LA-02-04 SWL 5t	30 days	Wed 14/06/23	Thu 13/07/23	Wed 14/06/23	Thu 13/07/23	30 days	451	455	LA - A x 4~6 men	[Gantt bar for 452: Wed 14/06/23 to Thu 13/07/23]																											
453	453 5.18.8.2.2.5	Coping Level EOT Crane LA-02-05 SWL 5t	30 days	Wed 14/06/23	Thu 13/07/23	Wed 14/06/23	Thu 13/07/23	0 days	451	454,455	LA - B x 4~6 men	[Gantt bar for 453: Wed 14/06/23 to Thu 13/07/23]																											
454	454 5.18.8.2.2.6	Coping Level EOT Crane LA-02-06 SWL 2t	30 days	Fri 14/07/23	Sat 12/08/23	Fri 14/07/23	Sat 12/08/23	0 days	453	455	LA - A x 4~6 men	[Gantt bar for 454: Fri 14/07/23 to Sat 12/08/23]																											
455	455 5.18.8.2.2.7	T&C, Loading Test for Lifting Appliances at PST No. 1~4	7 days	Sun 13/08/23	Sat 19/08/23	Sun 13/08/23	Sat 19/08/23	0 days	449,450,451,459	LA - A x 4~6 men		[Gantt bar for 455: Sun 13/08/23 to Sat 19/08/23]																											
456	456 5.18.8.2.3	Mechanical Installations at PST No. 1~4	240 days	Sat 15/04/23	Sun 10/12/23	Sat 15/04/23	Sun 10/12/23	20 days	480			[Gantt bar for 456: Sat 15/04/23 to Sun 10/12/23]																											
457	457 5.18.8.2.3.1	Installation of penstocks and stoplogs (Penstock 18nos, Stoplogs 1	90 days	Sat 15/04/23	Thu 13/07/23	Sat 15/04/23	Thu 13/07/23	0 days	429	463,468	ME - E x 4~6 men	[Gantt bar for 457: Sat 15/04/23 to Thu 13/07/23]																											
458	458 5.18.8.2.3.2	Installation of pipework and valves, EQT036	240 days	Sat 15/04/23	Sun 10/12/23	Sat 15/04/23	Sun 10/12/23	27 days	432			[Gantt bar for 458: Sat 15/04/23 to Sun 10/12/23]																											
459	459 5.18.8.2.3.3	Installation of lamella plate settlers (x4), EQT014	60 days	Sun 20/08/23	Wed 18/10/23	Sun 20/08/23	Wed 18/10/23	0 days	460,455,406,461,462	ME - A x 4~6 men		[Gantt bar for 459: Sun 20/08/23 to Wed 18/10/23]																											
460	460 5.18.8.2.3.4	Installation of reciprocating type bottom scrapers (x4), EQT014	30 days	Sat 15/04/23	Sun 14/05/23	Sat 15/04/23	Sun 14/05/23	97 days	411	459	ME - A x 4~6 men	[Gantt bar for 460: Sat 15/04/23 to Sun 14/05/23]																											
461	461 5.18.8.2.3.5	Installation of surface scum skimmers (x1), EQT015	30 days	Thu 19/10/23	Fri 17/11/23	Thu 19/10/23	Fri 17/11/23	50 days	459,414		ME - A x 4~6 men	[Gantt bar for 461: Thu 19/10/23 to Fri 17/11/23]																											
462	462 5.18.8.2.3.6	Installation of scum collector pipes (x1), EQT015	30 days	Thu 19/10/23	Fri 17/11/23	Thu 19/10/23	Fri 17/11/23	50 days	459,417		ME - B x 4~6 men	[Gantt bar for 462: Thu 19/10/23 to Fri 17/11/23]																											
463	463 5.18.8.2.3.7	Installation of piston type primary sludge pumps (x3), EQT016	30 days	Fri 14/07/23	Sat 12/08/23	Fri 14/07/23	Sat 12/08/23	0 days	457,420	464	ME - C x 4~6 men	[Gantt bar for 463: Fri 14/07/23 to Sat 12/08/23]																											
464	464 5.18.8.2.3.8	Installation of drain pumps (x1), EQT007	30 days	Sun 13/08/23	Mon 11/09/23	Sun 13/08/23	Mon 11/09/23	0 days	463,423	465	ME - C x 4~6 men	[Gantt bar for 464: Sun 13/08/23 to Mon 11/09/23]																											
465	465 5.18.8.2.3.9	Installation of air blowers (x2), EQT018	30 days	Tue 12/09/23	Wed 11/10/23	Tue 12/09/23	Wed 11/10/23	0 days	464,426	466	ME - C x 4~6 men	[Gantt bar for 465: Tue 12/09/23 to Wed 11/10/23]																											
466	466 5.18.8.2.3.10	Installation of instrumentations, EQT035-1	60 days	Thu 12/10/23	Sun 10/12/23	Thu 12/10/23	Sun 10/12/23	27 days	465,52		ME - C x 4~6 men	[Gantt bar for 466: Thu 12/10/23 to Sun 10/12/23]																											
467	467 5.18.8.2.3.11	Installation of Platforms, Covers etc., PST, EQT050	60 days	Thu 21/09/23	Sun 19/11/23	Thu 21/09/23	Sun 19/11/23	48 days			ME - F x 4~6 men	[G																											



ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Early Start	Early Finish	Free Slack	Predecessors	Successors	Resource Names	Gantt Chart (2020-2024)																											
468	468.5.18.8.2.3	Site Acceptance Tests - mechanical aspects including alignment an	150 days	Fri 14/07/23	Sun 10/12/23	Fri 14/07/23	Sun 10/12/23	27 days	457		ME - D x 2~4 men	[Gantt Chart Data]																											
469	469.5.18.8.2.4	Electrical Installations for PST No. 1~4	260 days	Sat 15/04/23	Sat 30/12/23	Sat 15/04/23	Sat 30/12/23	0 days	445	480		[Gantt Chart Data]																											
470	470.5.18.8.2.4	Installation of LV Switchboards, PST	60 days	Sat 15/04/23	Tue 13/06/23	Sat 15/04/23	Tue 13/06/23	30 days	439	473	LV - A x 4~6 men	[Gantt Chart Data]																											
471	471.5.18.8.2.4	Installation of PLC Panel, PST	60 days	Thu 20/04/23	Sun 18/06/23	Thu 20/04/23	Sun 18/06/23	25 days	443	473	EE - A x 4~6 men	[Gantt Chart Data]																											
472	472.5.18.8.2.4	Installation of cable trays and cable containments, PST	90 days	Sat 15/04/23	Thu 13/07/23	Sat 15/04/23	Thu 13/07/23	0 days		473	EE - A x 4~6 men	[Gantt Chart Data]																											
473	473.5.18.8.2.4	Cables laying and terminations, PST	90 days	Fri 14/07/23	Wed 11/10/23	Fri 14/07/23	Wed 11/10/...	0 days	470,471,472	475FS-30 days,478,476	EE - B x 4~6 men	[Gantt Chart Data]																											
474	474.5.18.8.2.4	Tentative Civil Handover Date, LV cables draw pits from IW to PST	1 day	Thu 20/07/23	Thu 20/07/23	Thu 20/07/23	Thu 20/07/23	24 days		475FF+30 days		[Gantt Chart Data]																											
475	475.5.18.8.2.4	Energisation of LV Switchboards, PST	1 day	Tue 12/09/23	Tue 12/09/23	Tue 12/09/23	Tue 12/09/23	109 days	473FS-30 da	480	LV - A x 4~6 men	[Gantt Chart Data]																											
476	476.5.18.8.2.4	Site Acceptance Tests - Electrical aspects including voltage and cur	80 days	Thu 12/10/23	Sat 30/12/23	Thu 12/10/23	Sat 30/12/23	2 days	473	351	LV - A x 4~6 men	[Gantt Chart Data]																											
477	477.5.18.8.2.5	SCADA Systems, PST No. 1~4	60 days	Thu 12/10/23	Sun 10/12/23	Thu 12/10/23	Sun 10/12/23	57 days				[Gantt Chart Data]																											
478	478.5.18.8.2.5	Configuration of PLC System	45 days	Thu 12/10/23	Sat 25/11/23	Thu 12/10/23	Sat 25/11/23	0 days	473	479	PLC - B x 1 man	[Gantt Chart Data]																											
479	479.5.18.8.2.5	Site Acceptance Test for PLC System at PST No. 1~4	15 days	Sun 26/11/23	Sun 10/12/23	Sun 26/11/23	Sun 10/12/23	0 days	478	481FF,1278	PLC - A x 1 man	[Gantt Chart Data]																											
480	480.5.18.8.2.6	Site Acceptance Test for E&M Equip and Instrumentations calibration	15 edays	Sat 30/12/23	Sun 14/01/24	Sat 30/12/23	Sun 14/01/24	0.63 edays	456,469,475	481		[Gantt Chart Data]																											
481	481.5.18.8.2.7	System Commissioning for E&M Equip at PST No. 1~4	15 days	Mon 15/01/24	Mon 29/01/24	Mon 15/01/24	Mon 29/01/...	0 days	480,479FF	482		[Gantt Chart Data]																											
482	482.5.18.8.2.8	Risk Allowances for Completion of Processing Plant at PST No. 1~4	7 edays	Mon 29/01/24	Mon 05/02/24	Mon 29/01/24	Mon 05/02/...	2.63 edays	481	1274		[Gantt Chart Data]																											
483	483.5.18.8.2.9	Building Services Installations for PST No. 1~4	150 days	Fri 14/07/23	Sun 10/12/23	Fri 14/07/23	Sun 10/12/23	2 days	445FS+90 di			[Gantt Chart Data]																											
484	484.5.18.8.2.9	Mechanical Ventilation and Air Conditioning System, PST	90 days	Fri 14/07/23	Wed 11/10/23	Fri 14/07/23	Wed 11/10/...	0 days		490	MVAC - B x 4~6 men	[Gantt Chart Data]																											
485	485.5.18.8.2.9	Lighting and Power Distribution System, PST	90 days	Fri 14/07/23	Wed 11/10/23	Fri 14/07/23	Wed 11/10/...	0 days		490	BS - A x 4~6 men	[Gantt Chart Data]																											
486	486.5.18.8.2.9	Plumbing Installation, PST	80 days	Fri 14/07/23	Sun 01/10/23	Fri 14/07/23	Sun 01/10/23	0 days	1245	1247,490	Pb - B x 4~6 men	[Gantt Chart Data]																											
487	487.5.18.8.2.9	CCTV Installation (9 indoor + 2 outdoor Cameras), PST	60 days	Fri 14/07/23	Mon 11/09/23	Fri 14/07/23	Mon 11/09/...	0 days	445FS+60 di	490,1277	BS - B x 4~6 men	[Gantt Chart Data]																											
488	488.5.18.8.2.9	Fire Services Installation, PST	85 days	Fri 14/07/23	Fri 06/10/23	Fri 14/07/23	Fri 06/10/23	0 days		1198,1210,1211,490	FS - A x 4~6 men	[Gantt Chart Data]																											
489	489.5.18.8.2.9	Earthing and Lightning Protection System, PST	90 days	Fri 14/07/23	Wed 11/10/23	Fri 14/07/23	Wed 11/10/...	0 days		490	BS - C x 2~4 men	[Gantt Chart Data]																											
490	490.5.18.8.2.9	Testing and Commissioning of Building Services Installations, PST	60 days	Thu 12/10/23	Sun 10/12/23	Thu 12/10/23	Sun 10/12/23	113 days	484,485,486	366FF	BS - C x 2~4 men	[Gantt Chart Data]																											
491	491.5.19	Bioreactors No. 2A & 2B, Portion B-4 (PS 6B2.4)	1326 days	Sat 15/08/20	Mon 01/04/24	Sat 15/08/20	Mon 01/04/...	0 days				[Gantt Chart Data]																											
492	492.5.19.1	Planned Key Date Completion Date - KD1A, BR 2A & 2B	0 days	Fri 30/10/20	Fri 30/10/20	Fri 30/10/20	Fri 30/10/20	0 days	526FF,527FF			[Gantt Chart Data]																											
493	493.5.19.2	Planned Key Date Completion Date - KD1B, BR 2A & 2B	0 days	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	0 days	528FF			[Gantt Chart Data]																											
494	494.5.19.3	Planned Sectional Completion Date - Section 1, BR 2A & 2B	0 days	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	Mon 12/07/...	0 days	529FF,530FF			[Gantt Chart Data]																											
495	495.5.19.4	Planned Sectional Completion Date - Section 2, BR 2A & 2B	0 days	Mon 01/04/24	Mon 01/04/24	Mon 01/04/24	Mon 01/04/...	0 days	601FF,600FF			[Gantt Chart Data]																											
496	496.5.19.5	Selection of Suppliers for major plant and materials for BR 2A & 2B	193 days	Tue 01/09/20	Fri 12/03/21	Tue 01/09/20	Fri 12/03/21	102 days				[Gantt Chart Data]																											
497	497.5.19.5.1	BR - pre-treatment fine screens (Marking Scheme Approach), EQT019	150 days	Tue 01/09/20	Thu 28/01/21	Tue 01/09/20	Thu 28/01/21	0 days				[Gantt Chart Data]																											
498	498.5.19.5.1.1	Submission for acceptance of purchasing package	60 days	Tue 01/09/20	Fri 30/10/20	Tue 01/09/20	Fri 30/10/20	0 days		499		[Gantt Chart Data]																											
499	499.5.19.5.1.2	Invitation of quotations for purchasing package	60 days	Sat 31/10/20	Tue 29/12/20	Sat 31/10/20	Tue 29/12/20	0 days	498	500		[Gantt Chart Data]																											
500	500.5.19.5.1.3	Acceptance of conforming quotation (Completed)	30 days	Wed 30/12/20	Thu 28/01/21	Wed 30/12/20	Thu 28/01/21	0 days	499	529		[Gantt Chart Data]																											
501	501.5.19.5.2	BR - air diffusion system (Marking Scheme Approach), EQT017	180 days	Tue 01/09/20	Sat 27/02/21	Tue 01/09/20	Sat 27/02/21	0 days				[Gantt Chart Data]																											
502	502.5.19.5.2.1	Submission for acceptance of purchasing package including proposed marking scheme	90 days	Tue 01/09/20	Sun 29/11/20	Tue 01/09/20	Sun 29/11/20	0 days		503		[Gantt Chart Data]																											
503	503.5.19.5.2.2	Invitation of quotations for purchasing package	60 days	Mon 30/11/20	Thu 28/01/21	Mon 30/11/20	Thu 28/01/21	0 days	502	504		[Gantt Chart Data]																											
504	504.5.19.5.2.3	Acceptance of conforming quotation	30 days	Fri 29/01/21	Sat 27/02/21	Fri 29/01/21	Sat 27/02/21	0 days	503	529		[Gantt Chart Data]																											
505	505.5.19.5.3	BR - submersible mixers, C11, EQT020	150 days	Tue 01/09/20	Thu 28/01/21	Tue 01/09/20	Thu 28/01/21	0 days				[Gantt Chart Data]																											
506	506.5.19.5.3.1	Submission for acceptance of purchasing package	60 days	Tue 01/09/20	Fri 30/10/20	Tue 01/09/20	Fri 30/10/20	0 days		507		[Gantt Chart Data]																											
507	507.5.19.5.3.2	Invitation of quotations for purchasing package	60 days	Sat 31/10/20	Tue 29/12/20	Sat 31/10/20	Tue 29/12/20	0 days	506	508		[Gantt Chart Data]																											
508	508.5.19.5.3.3	Acceptance of conforming quotation (Completed)	30 days	Wed 30/12/20	Thu 28/01/21	Wed 30/12/20	Thu 28/01/21	0 days	507	529		[Gantt Chart Data]																											
509	509.5.19.5.4	BR - mixed liquor return pumps, C11, EQT008	150 days	Mon 14/09/20	Wed 10/02/21	Mon 14/09/20	Wed 10/02/21	0 days				[Gantt Chart Data]																											
510	510.5.19.5.4.1	Submission for acceptance of purchasing package	60 days	Mon 14/09/20	Thu 12/11/20	Mon 14/09/20	Thu 12/11/20	0 days		511		[Gantt Chart Data]																											
511	511.5.19.5.4.2	Invitation of quotations for purchasing package	60 days	Fri 13/11/20	Mon 11/01/21	Fri 13/11/20	Mon 11/01/21	0 days	510	512		[Gantt Chart Data]																											
512	512.5.19.5.4.3	Acceptance of conforming quotation (Completed)	30 days	Tue 12/01/21	Wed 10/02/21	Tue 12/01/21	Wed 10/02/21	0 days	511	529		[Gantt Chart Data]																											
513	513.5.19.5.5	BR - scum removal systems, C11, EQT021, EQT022	150 days	Mon 14/09/20	Wed 10/02/21	Mon 14/09/20	Wed 10/02/21	0 days				[Gantt Chart Data]																											
514	514.5.19.5.5.1	Submission for acceptance of purchasing package	60 days	Mon 14/09/20	Thu 12/11/20	Mon 14/09/20	Thu 12/11/20	0 days		515		[Gantt Chart Data]																											
515	515.5.19.5.5.2	Invitation of quotations for purchasing package	60 days	Fri 13/11/20	Mon 11/01/21	Fri 13/11/20	Mon 11/01/21	0 days	514	516		[Gantt Chart Data]																											
516	516.5.19.5.5.3	Acceptance of conforming quotation (Completed)	30 days	Tue 12/01/21	Wed 10/02/21	Tue 12/01/21	Wed 10/02/21	0 days	515	529		[Gantt Chart Data]																											
517	517.5.19.5.6	BR - aeration blowers (Marking Scheme Approach), EQT039	180 days	Mon 14/09/20	Fri 12/03/21	Mon 14/09/20	Fri 12/03/21	0 days				[Gantt Chart Data]																											
518	518.5.19.5.6.1	Submission for acceptance of purchasing package including proposed marking scheme	90 days	Mon 14/09/20	Sat 12/12/20	Mon 14/09/20	Sat 12/12/20	0 days		519		[Gantt Chart Data]																											
519	519.5.19.5.6.2	Invitation of quotations for purchasing package	60 days	Sun 13/12/20	Wed 10/02/21	Sun 13/12/20	Wed 10/02/21	0 days	518	520		[Gantt Chart Data]																											
520	520.5.19.5.6.3	Acceptance of conforming quotation	30 days	Thu 11/02/21	Fri 12/03/21	Thu 11/02/21	Fri 12/03/21	0 days	519	529		[Gantt Chart Data]																											
521	521.5.19.5.7	BR - instrumentations, C11, EQT035-2	150 days	Thu 01/10/20	Sat 27/02/21	Thu 01/10/20	Sat 27/02/21	115 days				[Gantt Chart Data]																											
522	522.5.19.5.7.1	Submission for acceptance of purchasing package	60 days	Thu 01/10/20	Sun 29/11/20	Thu 01/10/20	Sun 29/11/20	0 days		523		[Gantt Chart Data]																											
523	523.5.19.5.7.2	Invitation of quotations for purchasing package	60 days	Mon 30/11/20	Thu 28/01/21	Mon 30/11/20	Thu 28/01/21	0 days	522	524		[Gantt Chart Data]																											
524	524.5.19.5.7.3	Acceptance of conforming quotation	30 days	Fri 29/01/21	Sat 27/02/21	Fri 29/01/21	Sat 27/02/21	13 days	523	529		[Gantt Chart Data]																											

Bestwise Project: DE/2018/04 Date: 28/09/21

Task: [Blue Bar] Milestone: [Black Diamond] Project Summary: [Grey Bar] Late: [Red Bar] Critical Split: [Yellow Bar] Manual Progress: [Dotted Line] Milestone (Actual): [Red Star]

Milestone, Tentative: [Blue Circle] Summary: [Black Arrow] Manual Summary: [Grey Arrow] Critical: [Red Arrow] Progress: [Red Bar] Slack (Float): [Blue Line] Slack: [Black Line]



ID	ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Early Start	Early Finish	Free Slack	Predecessors	Successors	Resource Names	Gantt Chart (2020-2024)																											
525	525.5.19.6		Design Submissions for BR 2A & 2B	578 days	Sat 15/08/20	Tue 15/03/22	Sat 15/08/20	Tue 15/03/22	0 days				[Gantt Chart]																											
526	526.5.19.6.1		Electrical schematic drawings for BR No. 2A & 2B	60 days	Sat 15/08/20	Tue 13/10/20	Sat 15/08/20	Tue 13/10/20	0 days	492FF			[Gantt Chart]																											
527	527.5.19.6.2		CDS080-3 - Civil and dimensional requirements drawings for BR 2A&2B up to +	55 days	Tue 01/09/20	Sun 25/10/20	Tue 01/09/20	Sun 25/10/20	0 days	492FF			[Gantt Chart]																											
528	528.5.19.6.3		CDS081-3 - Civil and dimensional requirements drawings for BR 2A & 2B	281 days	Fri 28/08/20	Fri 04/06/21	Fri 28/08/20	Fri 04/06/21	0 days	493FF			[Gantt Chart]																											
529	529.5.19.6.4		CDS004 - Detailed Design for Bioreactor 2A and 2B	120 edays	Fri 12/03/21	Sat 10/07/21	Fri 12/03/21	Sat 10/07/21	0.63 edays	500,504,505,536,539,542,545,548,551			[Gantt Chart]																											
530	530.5.19.6.5		CDS023 - Detailed Design for Electrical Installations for BR No. 2A & 2B	159.38 edays	Thu 07/10/21	Tue 15/03/22	Thu 07/10/21	Tue 15/03/22	0 edays	75,85,93,19-76,494FF,703			[Gantt Chart]																											
531	531.5.19.6.6		CDS034-3 - Detailed Design for Electrical Installations BS at BR No. 2A & 2B	100 edays	Fri 12/03/21	Sun 20/06/21	Fri 12/03/21	Sun 20/06/21	22.38 edays	136	595,494FF,596		[Gantt Chart]																											
532	532.5.19.6.7		CDS025-3 - Detailed Design for LV Switchboards for BR 2A and 2B	60 edays	Mon 03/05/21	Fri 02/07/21	Mon 03/05/21	Fri 02/07/21	0.63 edays	71	689,494FF		[Gantt Chart]																											
533	533.5.19.6.8		CDS050-3 - Detailed Design for Lifting Appliances - BR 2A & 2B	120 edays	Thu 01/10/20	Fri 29/01/21	Thu 01/10/20	Fri 29/01/21	0 edays	116	563,494FF		[Gantt Chart]																											
534	534.5.19.7		Manufacturing and Delivery of Plant & Materials	740 days	Fri 29/01/21	Tue 07/02/23	Fri 29/01/21	Tue 07/02/23	258 days				[Gantt Chart]																											
535	535.5.19.7.1		Pre-treatment Fine Screens, EQT019	577 days	Sun 11/07/21	Tue 07/02/23	Sun 11/07/21	Tue 07/02/23	185 days				[Gantt Chart]																											
536	536.5.19.7.1.1		Manufacturing and Factory Acceptance Test of Plant	240 days	Sun 11/07/21	Mon 07/03/22	Sun 11/07/21	Mon 07/03/22	292 days	529	537		[Gantt Chart]																											
537	537.5.19.7.1.2		Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	Sun 25/12/22	Tue 07/02/23	16 days	536,566SS-6579			[Gantt Chart]																											
538	538.5.19.7.2		Air Diffusion System, EQT017	577 days	Sun 11/07/21	Tue 07/02/23	Sun 11/07/21	Tue 07/02/23	168 days				[Gantt Chart]																											
539	539.5.19.7.2.1		Manufacturing and Factory Acceptance Test of Plant	240 days	Sun 11/07/21	Mon 07/03/22	Sun 11/07/21	Mon 07/03/22	292 days	529	540		[Gantt Chart]																											
540	540.5.19.7.2.2		Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	Sun 25/12/22	Tue 07/02/23	83 days	539,566SS-6580			[Gantt Chart]																											
541	541.5.19.7.3		Submersible Mixer, EQT020	577 days	Sun 11/07/21	Tue 07/02/23	Sun 11/07/21	Tue 07/02/23	213 days				[Gantt Chart]																											
542	542.5.19.7.3.1		Manufacturing and Factory Acceptance Test of Plant	240 days	Sun 11/07/21	Mon 07/03/22	Sun 11/07/21	Mon 07/03/22	292 days	529	543		[Gantt Chart]																											
543	543.5.19.7.3.2		Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	Sun 25/12/22	Tue 07/02/23	44 days	542,566SS-6581			[Gantt Chart]																											
544	544.5.19.7.4		Mixed Liquor Return Pumps, EQT008	577 days	Sun 11/07/21	Tue 07/02/23	Sun 11/07/21	Tue 07/02/23	228 days				[Gantt Chart]																											
545	545.5.19.7.4.1		Manufacturing and Factory Acceptance Test of Plant	240 days	Sun 11/07/21	Mon 07/03/22	Sun 11/07/21	Mon 07/03/22	292 days	529	546		[Gantt Chart]																											
546	546.5.19.7.4.2		Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	Sun 25/12/22	Tue 07/02/23	16 days	545,566SS-6582			[Gantt Chart]																											
547	547.5.19.7.5		Sludge Removal System, EQT021, EQT022	577 days	Sun 11/07/21	Tue 07/02/23	Sun 11/07/21	Tue 07/02/23	258 days				[Gantt Chart]																											
548	548.5.19.7.5.1		Manufacturing and Factory Acceptance Test of Plant	240 days	Sun 11/07/21	Mon 07/03/22	Sun 11/07/21	Mon 07/03/22	292 days	529	549		[Gantt Chart]																											
549	549.5.19.7.5.2		Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	Sun 25/12/22	Tue 07/02/23	46 days	548,566SS-6583			[Gantt Chart]																											
550	550.5.19.7.6		Aeration Blowers, EQT039	577 days	Sun 11/07/21	Tue 07/02/23	Sun 11/07/21	Tue 07/02/23	258 days				[Gantt Chart]																											
551	551.5.19.7.6.1		Manufacturing and Factory Acceptance Test of Plant (to be witness)	240 days	Sun 11/07/21	Mon 07/03/22	Sun 11/07/21	Mon 07/03/22	292 days	529	552		[Gantt Chart]																											
552	552.5.19.7.6.2		Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	Sun 25/12/22	Tue 07/02/23	173 days	551,566SS-6584			[Gantt Chart]																											
553	553.5.19.7.7		Instrumentations, EQT035-2	577 days	Sun 11/07/21	Tue 07/02/23	Sun 11/07/21	Tue 07/02/23	243 days				[Gantt Chart]																											
554	554.5.19.7.7.1		Manufacturing and Factory Acceptance Test of Plant	240 days	Sun 11/07/21	Mon 07/03/22	Sun 11/07/21	Mon 07/03/22	292 days	529	555		[Gantt Chart]																											
555	555.5.19.7.7.2		Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	Sun 25/12/22	Tue 07/02/23	166 days	554,566SS-6585			[Gantt Chart]																											
556	556.5.19.7.8		Stoplogs and Penstocks, EQT013	577 days	Sun 11/07/21	Tue 07/02/23	Sun 11/07/21	Tue 07/02/23	33 days				[Gantt Chart]																											
557	557.5.19.7.8.1		Manufacturing and Factory Acceptance Test of Plant	240 days	Sun 11/07/21	Mon 07/03/22	Sun 11/07/21	Mon 07/03/22	292 days	529	558		[Gantt Chart]																											
558	558.5.19.7.8.2		Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	Sun 25/12/22	Tue 07/02/23	16 days	557,566SS-6577			[Gantt Chart]																											
559	559.5.19.7.9		Pipework, Valves and Electric Actuators, EQT036, EQT042 (Rev. 11)	359 days	Mon 14/02/22	Tue 07/02/23	Mon 14/02/22	Tue 07/02/23	93 days	56,63			[Gantt Chart]																											
560	560.5.19.7.9.1		Manufacturing and Factory Acceptance Test of Plant	240 days	Mon 14/02/22	Tue 11/10/22	Mon 14/02/22	Tue 11/10/22	74 days	529	561		[Gantt Chart]																											
561	561.5.19.7.9.2		Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	Sun 25/12/22	Tue 07/02/23	16 days	560,566SS-6578			[Gantt Chart]																											
562	562.5.19.7.10		Lifting Appliances	740 days	Fri 29/01/21	Tue 07/02/23	Fri 29/01/21	Tue 07/02/23	101 days				[Gantt Chart]																											
563	563.5.19.7.10.1		Manufacturing and Factory Acceptance Test of Plant	210 days	Fri 29/01/21	Thu 26/08/21	Fri 29/01/21	Thu 26/08/21	485 days	533	564		[Gantt Chart]																											
564	564.5.19.7.10.2		Shipping and Delivery of Plant to site	45 days	Sun 25/12/22	Tue 07/02/23	Sun 25/12/22	Tue 07/02/23	16 days	563,566SS-6570			[Gantt Chart]																											
565	565.5.19.8		Site Installation Work	348 days	Thu 23/02/23	Mon 05/02/24	Mon 05/02/23	Mon 05/02/24	0 days				[Gantt Chart]																											
566	566.5.19.8.1		Tentative Civil Handover Date, Portion B-4, BR2A & 2B (Rev. 5)	1 day	Thu 23/02/23	Thu 23/02/23	Thu 23/02/23	Thu 23/02/23	0 days	570,576,587,595FS+90 ec			[Gantt Chart]																											
567	567.5.19.8.2		Tentative Civil Handover Date, LV cables draw pits from MFB2 to BR2	1 day	Thu 01/06/23	Thu 01/06/23	Thu 01/06/23	Thu 01/06/23	30 days	590FF+30 days			[Gantt Chart]																											
568	568.5.19.8.3		Commencement of E&M Installation at Bioreactor No. 2A & 2B	347 days	Fri 24/02/23	Mon 05/02/24	Fri 24/02/23	Mon 05/02/24	0 days	566			[Gantt Chart]																											
569	569.5.19.8.3.1		Provision of Temporary Water Supply, Electricity Supply, Lighting, W	7 days	Fri 24/02/23	Thu 02/03/23	Fri 24/02/23	Thu 02/03/23	0 days	566			[Gantt Chart]																											
570	570.5.19.8.3.2		Installation of Lifting Appliances at BR 2A & 2B	67 days	Fri 24/02/23	Mon 01/05/23	Fri 24/02/23	Mon 01/05/23	85 days	566,564			[Gantt Chart]																											
571	571.5.19.8.3.2.1		Coping Level EOT Crane LA-03-01 SWL 5t	30 days	Fri 24/02/23	Sat 25/03/23	Fri 24/02/23	Sat 25/03/23	0 days	573,574,575	LA - A x 4~6 men		[Gantt Chart]																											
572	572.5.19.8.3.2.2		Coping Level EOT Crane LA-03-02 SWL 5t	30 days	Fri 24/02/23	Sat 25/03/23	Fri 24/02/23	Sat 25/03/23	0 days	573,574,575	LA - B x 4~6 men		[Gantt Chart]																											
573	573.5.19.8.3.2.3		Coping Level EOT Crane LA-03-03 SWL 5t	30 days	Sun 26/03/23	Mon 24/04/23	Sun 26/03/23	Mon 24/04/23	0 days	571,572	575	LA - A x 4~6 men	[Gantt Chart]																											
574	574.5.19.8.3.2.4		Coping Level Mobile A-frame LA-03-04 SWL 4t	7 days	Sun 26/03/23	Sat 01/04/23	Sun 26/03/23	Sat 01/04/23	23 days	571,572	575	LA - B x 4~6 men	[Gantt Chart]																											
575	575.5.19.8.3.2.5		T&C, Loading Test for Lifting Appliances at Bioreactor No. 2A & 2B	7 days	Tue 25/04/23	Mon 01/05/23	Tue 25/04/23	Mon 01/05/23	0 days	571,572,575,580		LA - B x 4~6 men	[Gantt Chart]																											
576	576.5.19.8.3.3		Mechanical Installations for E&M Equip at BR 2A & 2B	270 days	Fri 24/02/23	Mon 20/11/23	Fri 24/02/23	Mon 20/11/23	10 days	566	592		[Gantt Chart]																											
577	577.5.19.8.3.3.1		Installation of penstocks and stoplogs (Penstocks 8nos, Stoplogs 8	90 days	Fri 24/02/23	Wed 24/05/23	Fri 24/02/23	Wed 24/05/23	0 days	558	586	ME - E x 4~6 men	[Gantt Chart]																											
578	578.5.19.8.3.3.2		Installation of pipework and valves, EQT036	150 days	Fri 24/02/23	Sun 23/07/23	Fri 24/02/23	Sun 23/07/23	0 days	561	585	ME - C x 4~6 men	[Gantt Chart]																											
579	579.5.19.8.3.3.3		Installation of pre-treatment fine screens (x4)	28 days	Fri 24/02/23	Thu 23/03/23	Fri 24/02/23	Thu 23/03/23	0 days	537	581	ME - A x 4~6 men	[Gantt Chart]																											
580	580.5.19.8.3.3.4		Installation of air diffusion system (x2), EQT017	90 days	Tue 02/05/23	Sun 30/07/23	Tue 02/05/23	Sun 30/07/23	0 days	575,540	584	ME - D x 2~4 men	[Gantt Chart]																											
581	581.5.19.8.3.3.5		Installation of submersible mixers (x16), EQT020	90 days	Fri 24/03/23	Wed 21/06/23	Fri 24/03/23	Wed 21/06/23	162 days	579,543	592	ME - B x 4~6 men	[Gantt Chart]																											
582	582.5.19.8.3.3.6		Installation of mixed liquor return pumps (x6), EQT008	30 days	Fri 24/02/23	Sat 25/03/23	Fri 24/02/23	Sat 25/03/23	0 days	546	583	ME - A x 4~6 men	[Gantt Chart]																											
583	583.5.19.8.3.3.7		Installation of scum removal systems (x2), EQT022	45 days	Sun 26/03/23	Tue 09/05/23	Sun 26/03/23	Tue 09/05/23	205 days	582,549	592	ME - B x 4~6 men	[Gantt Chart]																											

Task: [Blue bar] Milestone: [Black diamond] Project Summary: [Grey bar] Late: [Red bar] Critical Split: [Yellow bar] Manual Progress: [Dotted line] Milestone (Actual): [Red star]

Milestone, Tentative: [Blue circle] Summary: [Black circle] Manual Summary: [Grey bar] Critical: [Red bar] Progress: [Red bar] Slack (Float): [Blue bar] Slack: [Blue bar]



ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Early Start	Early Finish	Free Slack	Predecessors	Successors	Resource Names	Gantt Chart (2020-2024)																											
584	584.5.19.8.3.3.1	Installation of aeration blowers (x4), EQT039	45 days	Mon 31/07/23	Wed 13/09/23	Mon 31/07/23	Wed 13/09/23	78 days	580,552	592	ME - D x 2~4 men	[Gantt Chart Bar]																											
585	585.5.19.8.3.3.1	Installation of instrumentations, EQT035-2	60 days	Mon 24/07/23	Thu 21/09/23	Mon 24/07/23	Thu 21/09/23	70 days	578,555	592	ME - D x 2~4 men	[Gantt Chart Bar]																											
586	586.5.19.8.3.3.1	Site Acceptance Tests - mechanical aspects including alignment an	180 days	Thu 25/05/23	Mon 20/11/23	Thu 25/05/23	Mon 20/11/23	10 days	577	592	ME - D x 2~4 men	[Gantt Chart Bar]																											
587	587.5.19.8.3.4	Electrical Installations for E&M Equip at BR 2A & 2B	280 days	Fri 24/02/23	Thu 30/11/23	Fri 24/02/23	Thu 30/11/23	0 days	566	592		[Gantt Chart Bar]																											
588	588.5.19.8.3.4.1	Installation of cable trays and cable containments	120 days	Fri 24/02/23	Fri 23/06/23	Fri 24/02/23	Fri 23/06/23	0 days	566	589	EE - A x 4~6 men	[Gantt Chart Bar]																											
589	589.5.19.8.3.4.1	Cables laying and terminations	100 days	Sat 24/06/23	Sun 01/10/23	Sat 24/06/23	Sun 01/10/23	0 days	588	591,764	EE - C x 4~6 men	[Gantt Chart Bar]																											
590	590.5.19.8.3.4.1	Energisation of LV Switchboards, BR2	1 day	Mon 31/07/23	Mon 31/07/23	Mon 31/07/23	Mon 31/07/23	122 days	567FF+30 d	592	LV - A x 4~6 men	[Gantt Chart Bar]																											
591	591.5.19.8.3.4.1	Site Acceptance Tests - Electrical aspects including voltage and cur	60 days	Mon 02/10/23	Thu 30/11/23	Mon 02/10/23	Thu 30/11/23	32 days	589	351	LV - A x 4~6 men	[Gantt Chart Bar]																											
592	592.5.19.8.3.5	Site Acceptance Test for E&M Equip at BR 2A & 2B	30 edays	Thu 30/11/23	Sat 30/12/23	Thu 30/11/23	Sat 30/12/23	0.63 edays	576,581,585	593		[Gantt Chart Bar]																											
593	593.5.19.8.3.6	System Commissioning for E&M Equip at BR 2A & 2B	30 days	Sun 31/12/23	Mon 29/01/24	Sun 31/12/23	Mon 29/01/24	0 days	592,766	594		[Gantt Chart Bar]																											
594	594.5.19.8.3.7	Risk Allowances for Completion of Processing Plant at BR 2A & 2B	7 edays	Mon 29/01/24	Mon 05/02/24	Mon 29/01/24	Mon 05/02/24	2.63 edays	593	1274		[Gantt Chart Bar]																											
595	595.5.19.8.3.8	Building Services Installations for BR 2A & 2B	195 days	Thu 25/05/23	Tue 05/12/23	Thu 25/05/23	Tue 05/12/23	12 days	566FF+90 et			[Gantt Chart Bar]																											
596	596.5.19.8.3.8.1	Lighting and Power Distribution System, BR2	150 days	Thu 25/05/23	Sat 21/10/23	Thu 25/05/23	Sat 21/10/23	0 days	531	601	BS - A x 4~6 men	[Gantt Chart Bar]																											
597	597.5.19.8.3.8.1	Plumbing Installation, BR2	120 days	Thu 25/05/23	Thu 21/09/23	Thu 25/05/23	Thu 21/09/23	10 days	1245	1247,601	Pb - A x 4~6 men	[Gantt Chart Bar]																											
598	598.5.19.8.3.8.1	CCTV Installation (7 indoor + 2 outdoor Cameras), BR2	60 days	Sat 24/06/23	Tue 22/08/23	Sat 24/06/23	Tue 22/08/23	20 days	566FF+120	601,1277	BS - B x 4~6 men	[Gantt Chart Bar]																											
599	599.5.19.8.3.8.1	Fire Services Installation, BR2	120 days	Thu 25/05/23	Thu 21/09/23	Thu 25/05/23	Thu 21/09/23	15 days	1198,1210,1211,601		FS - B x 4~6 men	[Gantt Chart Bar]																											
600	600.5.19.8.3.8.1	Lightning Protection System, BR2	60 days	Thu 25/05/23	Sun 23/07/23	Thu 25/05/23	Sun 23/07/23	253 days	495FF		BS - C x 2~4 men	[Gantt Chart Bar]																											
601	601.5.19.8.3.8.1	Testing and Commissioning of Building Services Installations, BR2	45 days	Sun 22/10/23	Tue 05/12/23	Sun 22/10/23	Tue 05/12/23	118 days	596,597,598,495FF		BS - C x 2~4 men	[Gantt Chart Bar]																											
602	5.20	Membrane Facilities Building, Portion B-5 (PS 6B.2.4)	1320 days	Fri 21/08/20	Mon 01/04/24	Fri 21/08/20	Mon 01/04/24	0 days				[Gantt Chart Bar]																											
603	603.5.20.1	Planned Key Date Completion Date - KD1A, MFB No. 2	0 days	Fri 30/10/20	Fri 30/10/20	Fri 30/10/20	Fri 30/10/20	0 days	649FF,650FF			[Gantt Chart Bar]																											
604	604.5.20.2	Planned Key Date Completion Date - KD1B, MFB No. 2	0 days	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	0 days	651FF			[Gantt Chart Bar]																											
605	605.5.20.3	Planned Sectional Completion Date - Section 1, MFB No. 2	0 days	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	0 days	652FF,653FF			[Gantt Chart Bar]																											
606	606.5.20.4	Planned Sectional Completion Date - Section 2, MFB No. 2	0 days	Mon 01/04/24	Mon 01/04/24	Mon 01/04/24	Mon 01/04/24	0 days				[Gantt Chart Bar]																											
607	607.5.20.5	Selection of Suppliers for major plant and materials for MFB	224 days	Tue 01/09/20	Mon 12/04/21	Tue 01/09/20	Mon 12/04/21	64 days				[Gantt Chart Bar]																											
608	608.5.20.5.1	MFS - hollow fibre membrane modules (Marking Scheme Approach), ref. EQT020	150 days	Tue 01/09/20	Thu 28/01/21	Tue 01/09/20	Thu 28/01/21	0 days				[Gantt Chart Bar]																											
609	609.5.20.5.1.1	Submission for acceptance of purchasing package including proposed marking scheme	60 days	Tue 01/09/20	Fri 30/10/20	Tue 01/09/20	Fri 30/10/20	0 days		610		[Gantt Chart Bar]																											
610	610.5.20.5.1.2	Invitation of quotations for purchasing package	60 days	Sat 31/10/20	Tue 29/12/20	Sat 31/10/20	Tue 29/12/20	0 days	609	611		[Gantt Chart Bar]																											
611	611.5.20.5.1.3	Acceptance of conforming quotation (Completed)	30 days	Wed 30/12/20	Thu 28/01/21	Wed 30/12/20	Thu 28/01/21	0 days	610	652		[Gantt Chart Bar]																											
612	612.5.20.5.2	MFS - air scour blowers, C11, ref. EQT040	150 days	Tue 01/09/20	Thu 28/01/21	Tue 01/09/20	Thu 28/01/21	0 days				[Gantt Chart Bar]																											
613	613.5.20.5.2.1	Submission for acceptance of purchasing package	60 days	Tue 01/09/20	Fri 30/10/20	Tue 01/09/20	Fri 30/10/20	0 days		614		[Gantt Chart Bar]																											
614	614.5.20.5.2.2	Invitation of quotations for purchasing package	60 days	Sat 31/10/20	Tue 29/12/20	Sat 31/10/20	Tue 29/12/20	0 days	613	615		[Gantt Chart Bar]																											
615	615.5.20.5.2.3	Acceptance of conforming quotation	30 days	Wed 30/12/20	Thu 28/01/21	Wed 30/12/20	Thu 28/01/21	0 days	614	654		[Gantt Chart Bar]																											
616	616.5.20.5.3	MFS - permeate pumps, C11, ref. EQT024	180 days	Tue 01/09/20	Sat 27/02/21	Tue 01/09/20	Sat 27/02/21	0 days				[Gantt Chart Bar]																											
617	617.5.20.5.3.1	Submission for acceptance of purchasing package	90 days	Tue 01/09/20	Sun 29/11/20	Tue 01/09/20	Sun 29/11/20	0 days		618		[Gantt Chart Bar]																											
618	618.5.20.5.3.2	Invitation of quotations for purchasing package	60 days	Mon 30/11/20	Thu 28/01/21	Mon 30/11/20	Thu 28/01/21	0 days	617	619		[Gantt Chart Bar]																											
619	619.5.20.5.3.3	Acceptance of conforming quotation (Completed)	30 days	Fri 29/01/21	Sat 27/02/21	Fri 29/01/21	Sat 27/02/21	0 days	618	652		[Gantt Chart Bar]																											
620	620.5.20.5.4	MFS - compressed air system, C11, ref. EQT029	120 days	Tue 15/09/20	Tue 12/01/21	Tue 15/09/20	Tue 12/01/21	108 days				[Gantt Chart Bar]																											
621	621.5.20.5.4.1	Submission for acceptance of purchasing package	60 days	Tue 15/09/20	Fri 13/11/20	Tue 15/09/20	Fri 13/11/20	0 days		622		[Gantt Chart Bar]																											
622	622.5.20.5.4.2	Invitation of quotations for purchasing package	30 days	Sat 14/11/20	Sun 13/12/20	Sat 14/11/20	Sun 13/12/20	0 days	621	623		[Gantt Chart Bar]																											
623	623.5.20.5.4.3	Acceptance of conforming quotation	30 days	Mon 14/12/20	Tue 12/01/21	Mon 14/12/20	Tue 12/01/21	48 days	622	654		[Gantt Chart Bar]																											
624	624.5.20.5.5	MFS - chemical storage tanks, C11, ref. EQT025	120 days	Thu 01/10/20	Thu 28/01/21	Thu 01/10/20	Thu 28/01/21	92 days				[Gantt Chart Bar]																											
625	625.5.20.5.5.1	Submission for acceptance of purchasing package	60 days	Thu 01/10/20	Sun 29/11/20	Thu 01/10/20	Sun 29/11/20	0 days		626		[Gantt Chart Bar]																											
626	626.5.20.5.5.2	Invitation of quotations for purchasing package	30 days	Mon 30/11/20	Tue 29/12/20	Mon 30/11/20	Tue 29/12/20	0 days	625	627		[Gantt Chart Bar]																											
627	627.5.20.5.5.3	Acceptance of conforming quotation	30 days	Wed 30/12/20	Thu 28/01/21	Wed 30/12/20	Thu 28/01/21	32 days	626	654		[Gantt Chart Bar]																											
628	628.5.20.5.6	MFS - chemical dosing pumps, C11, ref. EQT026	120 days	Thu 01/10/20	Thu 28/01/21	Thu 01/10/20	Thu 28/01/21	92 days				[Gantt Chart Bar]																											
629	629.5.20.5.6.1	Submission for acceptance of purchasing package	60 days	Thu 01/10/20	Sun 29/11/20	Thu 01/10/20	Sun 29/11/20	0 days	2,30	630		[Gantt Chart Bar]																											
630	630.5.20.5.6.2	Invitation of quotations for purchasing package	30 days	Mon 30/11/20	Tue 29/12/20	Mon 30/11/20	Tue 29/12/20	0 days	629	631		[Gantt Chart Bar]																											
631	631.5.20.5.6.3	Acceptance of conforming quotation	30 days	Wed 30/12/20	Thu 28/01/21	Wed 30/12/20	Thu 28/01/21	32 days	630	654		[Gantt Chart Bar]																											
632	632.5.20.5.7	MFS - return activated sludge pumps (Marking Scheme Approach), ref. EQT027	180 days	Thu 01/10/20	Mon 29/03/21	Thu 01/10/20	Mon 29/03/21	0 days				[Gantt Chart Bar]																											
633	633.5.20.5.7.1	Submission for acceptance of purchasing package	90 days	Thu 01/10/20	Tue 29/12/20	Thu 01/10/20	Tue 29/12/20	0 days		634		[Gantt Chart Bar]																											
634	634.5.20.5.7.2	Invitation of quotations for purchasing package	60 days	Wed 30/12/20	Sat 27/02/21	Wed 30/12/20	Sat 27/02/21	0 days	633	635		[Gantt Chart Bar]																											
635	635.5.20.5.7.3	Acceptance of conforming quotation (Completed)	30 days	Sun 28/02/21	Mon 29/03/21	Sun 28/02/21	Mon 29/03/21	0 days	634	652		[Gantt Chart Bar]																											
636	636.5.20.5.8	MFS - membrane tank drain pumps, C11, ref. EQT009	180 days	Tue 15/09/20	Sat 13/03/21	Tue 15/09/20	Sat 13/03/21	0 days				[Gantt Chart Bar]																											
637	637.5.20.5.8.1	Submission for acceptance of purchasing package	90 days	Tue 15/09/20	Sun 13/12/20	Tue 15/09/20	Sun 13/12/20	0 days		638		[Gantt Chart Bar]																											
638	638.5.20.5.8.2	Invitation of quotations for purchasing package	60 days	Mon 14/12/20	Thu 11/02/21	Mon 14/12/20	Thu 11/02/21	0 days	637	639		[Gantt Chart Bar]																											
639	639.5.20.5.8.3	Acceptance of conforming quotation (Completed)	30 days	Fri 12/02/21	Sat 13/03/21	Fri 12/02/21	Sat 13/03/21	0 days	638	652		[Gantt Chart Bar]																											
640	640.5.20.5.9	Plant Service Water System - booster pumps, C11, ref. EQT030	180 days	Thu 15/10/20	Mon 12/04/21	Thu 15/10/20	Mon 12/04/21	64 days				[Gantt Chart Bar]																											
641	641.5.20.5.9.1	Submission for acceptance of purchasing package	90 days	Thu 15/10/20	Tue 12/01/21	Thu 15/10/20	Tue 12/01/21	0 days		642		[Gantt Chart Bar]																											

Task Milestone Project Summary Late Critical Split Manual Progress Milestone (Actual) Critical Slack (Float) Slack



ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Early Start	Early Finish	Free Slack	Predecessors	Successors	Resource Names	Gantt Chart (2020-2024)																											
642	642.5.20.5.9.2	Invitation of quotations for purchasing package	60 days	Wed 13/01/21	Sat 13/03/21	Wed 13/01/21	Sat 13/03/21	0 days	641	643		[Gantt Chart Data]																											
643	643.5.20.5.9.3	Acceptance of conforming quotation	30 days	Sun 14/03/21	Mon 12/04/21	Sun 14/03/21	Mon 12/04/21	0 days	642	652		[Gantt Chart Data]																											
644	644.5.20.5.10	Plant Service Water System - hydro-pneumatic pressure tanks, C11, r	120 days	Thu 01/10/20	Thu 28/01/21	Thu 01/10/20	Thu 28/01/21	138 days				[Gantt Chart Data]																											
645	645.5.20.5.10.1	Submission for acceptance of purchasing package	60 days	Thu 01/10/20	Sun 29/11/20	Thu 01/10/20	Sun 29/11/20	0 days		646		[Gantt Chart Data]																											
646	646.5.20.5.10.2	Invitation of quotations for purchasing package	30 days	Mon 30/11/20	Tue 29/12/20	Mon 30/11/20	Tue 29/12/20	0 days	645	647		[Gantt Chart Data]																											
647	647.5.20.5.10.3	Acceptance of conforming quotation	30 days	Wed 30/12/20	Thu 28/01/21	Wed 30/12/20	Thu 28/01/21	74 days	646	652		[Gantt Chart Data]																											
648	648.5.20.6	Design Submissions for MFB No. 2	572 days	Fri 21/08/20	Tue 15/03/22	Fri 21/08/20	Tue 15/03/22	0 days				[Gantt Chart Data]																											
649	649.5.20.6.1	Electrical schematic drawings for MFB No. 2	60 days	Fri 21/08/20	Mon 19/10/20	Fri 21/08/20	Mon 19/10/20	0 days		603FF		[Gantt Chart Data]																											
650	650.5.20.6.2	CDS080-4 - Civil and dimensional requirements drawings for MFB no. 2 up to +	30 days	Tue 01/09/20	Wed 30/09/20	Tue 01/09/20	Wed 30/09/20	0 days		603FF		[Gantt Chart Data]																											
651	651.5.20.6.3	CDS081-4 - Civil and dimensional requirements drawings for MFB No. 2	210 days	Fri 28/08/20	Thu 25/03/21	Fri 28/08/20	Thu 25/03/21	0 days		604FF		[Gantt Chart Data]																											
652	652.5.20.6.4	CDS005 - Detailed Design for Membrane Filtration System, Pumps and	80 edays	Mon 12/04/21	Thu 01/07/21	Mon 12/04/21	Thu 01/07/21	0.63 edays	611,619,635,661,665,668,671,680,683			[Gantt Chart Data]																											
653	653.5.20.6.5	CDS024 - Detailed Design for Electrical Installations for MFB No. 2	159.38 edays	Thu 07/10/21	Tue 15/03/22	Thu 07/10/21	Tue 15/03/22	0 edays	75,85,81,89,76,700,706,605FF			[Gantt Chart Data]																											
654	654.5.20.6.6	CDS008 - Detailed Design for Membrane Filtration System, Air Blowers,	100 edays	Mon 01/03/21	Wed 09/06/21	Mon 01/03/21	Wed 09/06/21	0.63 edays	615,623,627,674,677,605FF			[Gantt Chart Data]																											
655	655.5.20.6.7	CDS034-4 - Detailed Design for Electrical Installations BS at MFB No. 2	100 edays	Fri 12/03/21	Sun 20/06/21	Fri 12/03/21	Sun 20/06/21	22.38 edays	136	771,605FF		[Gantt Chart Data]																											
656	656.5.20.6.8	CDS025-4 - Detailed Design for LV Switchboards for Membrane Filtrati	60 edays	Mon 03/05/21	Fri 02/07/21	Mon 03/05/21	Fri 02/07/21	0.63 edays	71	692,605FF		[Gantt Chart Data]																											
657	657.5.20.6.9	CDS026-2 - Detailed Design for HV Switchboards for MFB No. 2	60 edays	Sun 18/04/21	Thu 17/06/21	Sun 18/04/21	Thu 17/06/21	0.63 edays	67	605FF,696		[Gantt Chart Data]																											
658	658.5.20.6.10	CDS050-4 - Detailed Design for Lifting Appliances - MFB No. 2	150 edays	Thu 15/10/20	Sun 14/03/21	Thu 15/10/20	Sun 14/03/21	0 edays	116	686,605FF		[Gantt Chart Data]																											
659	659.5.20.7	Manufacturing and Delivery of Plant & Materials	652 days	Sun 14/03/21	Sun 25/12/22	Sun 14/03/21	Sun 25/12/22	242 days				[Gantt Chart Data]																											
660	660.5.20.7.1	Hollow Fibre Membrane Modules, EQT023	385 days	Fri 02/07/21	Thu 21/07/22	Fri 02/07/21	Thu 21/07/22	191 days				[Gantt Chart Data]																											
661	661.5.20.7.1.1	MFS - Manufacturing of Plant	300 days	Fri 02/07/21	Wed 27/04/22	Fri 02/07/21	Wed 27/04/22	0 days	652	662		[Gantt Chart Data]																											
662	662.5.20.7.1.2	MFS - Factory Acceptance Test of Plant (to be witnessed by PM)	40 days	Thu 28/04/22	Mon 06/06/22	Thu 28/04/22	Mon 06/06/22	0 days	661	663		[Gantt Chart Data]																											
663	663.5.20.7.1.3	MFS - Shipping and Delivery of Plant to site	45 days	Tue 07/06/22	Thu 21/07/22	Tue 07/06/22	Thu 21/07/22	0 days	662	721		[Gantt Chart Data]																											
664	664.5.20.7.2	Air Scour Blowers, EQT040	396 days	Fri 02/07/21	Mon 01/08/22	Fri 02/07/21	Mon 01/08/22	208 days				[Gantt Chart Data]																											
665	665.5.20.7.2.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Fri 02/07/21	Sat 26/02/22	Fri 02/07/21	Sat 26/02/22	111 days	652	666		[Gantt Chart Data]																											
666	666.5.20.7.2.2	Shipping and Delivery of Plant to site	45 days	Sat 18/06/22	Mon 01/08/22	Sat 18/06/22	Mon 01/08/22	0 days	665,733SS-6722			[Gantt Chart Data]																											
667	667.5.20.7.3	Permeate Pump, EQT024	285 days	Fri 02/07/21	Tue 12/04/22	Fri 02/07/21	Tue 12/04/22	409 days				[Gantt Chart Data]																											
668	668.5.20.7.3.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Fri 02/07/21	Sat 26/02/22	Fri 02/07/21	Sat 26/02/22	0 days	652	669		[Gantt Chart Data]																											
669	669.5.20.7.3.2	Shipping and Delivery of Plant to site	45 days	Sun 27/02/22	Tue 12/04/22	Sun 27/02/22	Tue 12/04/22	201 days	668	723		[Gantt Chart Data]																											
670	670.5.20.7.4	Compressed Air System, EQT029	396 days	Fri 02/07/21	Mon 01/08/22	Fri 02/07/21	Mon 01/08/22	208 days				[Gantt Chart Data]																											
671	671.5.20.7.4.1	Manufacturing and Factory Acceptance Test of Plant	210 days	Fri 02/07/21	Thu 27/01/22	Fri 02/07/21	Thu 27/01/22	141 days	652	672		[Gantt Chart Data]																											
672	672.5.20.7.4.2	Shipping and Delivery of Plant to site	45 days	Sat 18/06/22	Mon 01/08/22	Sat 18/06/22	Mon 01/08/22	0 days	671,733SS-6722			[Gantt Chart Data]																											
673	673.5.20.7.5	Chemical Storage Tanks, EQT025	225 days	Thu 10/06/21	Thu 20/01/22	Thu 10/06/21	Thu 20/01/22	403 days				[Gantt Chart Data]																											
674	674.5.20.7.5.1	Manufacturing and Factory Acceptance Test of Plant	180 days	Thu 10/06/21	Mon 06/12/21	Thu 10/06/21	Mon 06/12/21	0 days	654	675		[Gantt Chart Data]																											
675	675.5.20.7.5.2	Shipping and Delivery of Plant to site	45 days	Tue 07/12/21	Thu 20/01/22	Tue 07/12/21	Thu 20/01/22	104 days	674	727		[Gantt Chart Data]																											
676	676.5.20.7.6	Chemical Dosing Pumps, EQT026	225 days	Thu 10/06/21	Thu 20/01/22	Thu 10/06/21	Thu 20/01/22	403 days				[Gantt Chart Data]																											
677	677.5.20.7.6.1	Manufacturing and Factory Acceptance Test of Plant	180 days	Thu 10/06/21	Mon 06/12/21	Thu 10/06/21	Mon 06/12/21	0 days	654	678		[Gantt Chart Data]																											
678	678.5.20.7.6.2	Shipping and Delivery of Plant to site	45 days	Tue 07/12/21	Thu 20/01/22	Tue 07/12/21	Thu 20/01/22	104 days	677	728		[Gantt Chart Data]																											
679	679.5.20.7.7	Stoplogs and Penstocks, EQT013	396 days	Fri 02/07/21	Mon 01/08/22	Fri 02/07/21	Mon 01/08/22	208 days				[Gantt Chart Data]																											
680	680.5.20.7.7.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Fri 02/07/21	Sat 26/02/22	Fri 02/07/21	Sat 26/02/22	111 days	652	681		[Gantt Chart Data]																											
681	681.5.20.7.7.2	Shipping and Delivery of Plant to site	45 days	Sat 18/06/22	Mon 01/08/22	Sat 18/06/22	Mon 01/08/22	0 days	680,733SS-6720			[Gantt Chart Data]																											
682	682.5.20.7.8	Pipework, Valves and Electric Actuators, EQT036 (Rev. 11)	285 days	Mon 14/02/22	Fri 25/11/22	Mon 14/02/22	Fri 25/11/22	272 days	56,63			[Gantt Chart Data]																											
683	683.5.20.7.8.1	Manufacturing and Factory Acceptance Test of Plant	240 days	Mon 14/02/22	Tue 11/10/22	Mon 14/02/22	Tue 11/10/22	0 days	652	684		[Gantt Chart Data]																											
684	684.5.20.7.8.2	Shipping and Delivery of Plant to site	45 days	Wed 12/10/22	Fri 25/11/22	Wed 12/10/22	Fri 25/11/22	64 days	683	726		[Gantt Chart Data]																											
685	685.5.20.7.9	Lifting Appliances	356 days	Sun 14/03/21	Fri 04/03/22	Sun 14/03/21	Fri 04/03/22	206 days				[Gantt Chart Data]																											
686	686.5.20.7.9.1	Manufacturing and Factory Acceptance Test of Plant	210 days	Sun 14/03/21	Sat 09/10/21	Sun 14/03/21	Sat 09/10/21	101 days	658	687		[Gantt Chart Data]																											
687	687.5.20.7.9.2	Shipping and Delivery of Plant to site	45 days	Wed 19/01/22	Fri 04/03/22	Wed 19/01/22	Fri 04/03/22	16 days	686,710SS-6713,736			[Gantt Chart Data]																											
688	688.5.20.7.10	LV Switchboards	395 days	Sat 03/07/21	Mon 01/08/22	Sat 03/07/21	Mon 01/08/22	178 days				[Gantt Chart Data]																											
689	689.5.20.7.10.1	BR - Manufacturing of Plant	240 days	Sat 03/07/21	Sun 27/02/22	Sat 03/07/21	Sun 27/02/22	0 days	532	690		[Gantt Chart Data]																											
690	690.5.20.7.10.2	BR - Factory Acceptance Test of Plant (to be witnessed by PM)	90 days	Mon 28/02/22	Sat 28/05/22	Mon 28/02/22	Sat 28/05/22	0 days	689	691		[Gantt Chart Data]																											
691	691.5.20.7.10.3	BR - Shipping and Delivery of Plant to site	45 days	Sun 29/05/22	Tue 12/07/22	Sun 29/05/22	Tue 12/07/22	126 days	690	751		[Gantt Chart Data]																											
692	692.5.20.7.10.4	MFS - Manufacturing of Plant	240 days	Sat 03/07/21	Sun 27/02/22	Sat 03/07/21	Sun 27/02/22	0 days	656	693		[Gantt Chart Data]																											
693	693.5.20.7.10.5	MFS - Factory Acceptance Test of Plant (to be witnessed by PM)	90 days	Mon 28/02/22	Sat 28/05/22	Mon 28/02/22	Sat 28/05/22	20 days	692	694		[Gantt Chart Data]																											
694	694.5.20.7.10.6	MFS - Shipping and Delivery of Plant to site	45 days	Sat 18/06/22	Mon 01/08/22	Sat 18/06/22	Mon 01/08/22	106 days	693,733SS-6752			[Gantt Chart Data]																											
695	695.5.20.7.11	HV Switchboards, EQT031	410 days	Fri 18/06/21	Mon 01/08/22	Fri 18/06/21	Mon 01/08/22	208 days				[Gantt Chart Data]																											
696	696.5.20.7.11.1	MFS - Manufacturing of Plant	180 days	Fri 18/06/21	Tue 14/12/21	Fri 18/06/21	Tue 14/12/21	0 days	657	697		[Gantt Chart Data]																											
697	697.5.20.7.11.2	MFS - Factory Acceptance Test of Plant (to be witnessed by PM)	90 days	Wed 15/12/21	Mon 14/03/22	Wed 15/12/21	Mon 14/03/22	95 days	696	698		[Gantt Chart Data]																											
698	698.5.20.7.11.3	MFS - Shipping and Delivery of Plant to site	45 days	Sat 18/06/22	Mon 01/08/22	Sat 18/06/22	Mon 01/08/22	106 days	697,733SS-6755			[Gantt Chart Data]																											
699	699.5.20.7.12	11kV/380V Stepdown Power Transformers, EQT032	285 days	Wed 16/03/22	Sun 25/12/22	Wed 16/03/22	Sun 25/12/22	236 days				[Gantt Chart Data]																											
700	700.5.20.7.12.1	MFS - Manufacturing and Factory Acceptance Test of Plant	240 days	Wed 16/03/22	Thu 10/11/22	Wed 16/03/22	Thu 10/11/22	0 days	653	701		[Gantt Chart Data]																											

Task Milestone Project Summary Late Critical Split Manual Progress Milestone (Actual) Critical Progress Slack (Float) Slack

Milestone, Tentative Summary Manual Summary Critical Progress Slack (Float) Slack



ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Early Start	Early Finish	Free Slack	Predecessors	Successors	Resource Names	Gantt Chart (2020-2024)																											
701	701.5.20.7.12.2	MFS - Shipping and Delivery of Plant to site	45 days	Fri 11/11/22	Sun 25/12/22	Fri 11/11/22	Sun 25/12/22	0 days	700	756		[Gantt Chart]																											
702	702.5.20.7.13	PLC System	285 days	Wed 16/03/22	Sun 25/12/22	Wed 16/03/22	Sun 25/12/22	32 days				[Gantt Chart]																											
703	703.5.20.7.13.1	Manufacturing of Plant, PLC for BR2A & B	210 days	Wed 16/03/22	Tue 11/10/22	Wed 16/03/22	Tue 11/10/22	0 days	530	704		[Gantt Chart]																											
704	704.5.20.7.13.2	Factory Acceptance Test of Plant, PLC for BR2A & B (To be witnessed)	30 days	Wed 12/10/22	Thu 10/11/22	Wed 12/10/22	Thu 10/11/22	0 days	703	705		[Gantt Chart]																											
705	705.5.20.7.13.3	Shipping and Delivery of Plant to site	45 days	Fri 11/11/22	Sun 25/12/22	Fri 11/11/22	Sun 25/12/22	0 days	704	753		[Gantt Chart]																											
706	706.5.20.7.13.4	Manufacturing of Plant, PLC for MFB2	210 days	Wed 16/03/22	Tue 11/10/22	Wed 16/03/22	Tue 11/10/22	0 days	653	707		[Gantt Chart]																											
707	707.5.20.7.13.5	Factory Acceptance Test of Plant, PLC for MFB2 (To be witnessed by)	30 days	Wed 12/10/22	Thu 10/11/22	Wed 12/10/22	Thu 10/11/22	0 days	706	708		[Gantt Chart]																											
708	708.5.20.7.13.6	Shipping and Delivery of Plant to site	45 days	Fri 11/11/22	Sun 25/12/22	Fri 11/11/22	Sun 25/12/22	0 days	707	754		[Gantt Chart]																											
709	709.5.20.8	Site Installation Work	683 days	Sun 20/03/22	Wed 31/01/24	Sun 20/03/22	Wed 31/01/24	0 days				[Gantt Chart]																											
710	710.5.20.8.1	Tentative Civil Handover Date, Portion B-5A, MFB No. 2 below 1st floor	1 day	Sun 20/03/22	Sun 20/03/22	Sun 20/03/22	Sun 20/03/22	0 days		713,719FS+45 edays,712,		[Gantt Chart]																											
711	711.5.20.8.2	Commencement of E&M Installation at MFB No. 2 Lower Part	404 days	Mon 21/03/22	Fri 28/04/23	Mon 21/03/22	Fri 28/04/23	0 days	710			[Gantt Chart]																											
712	712.5.20.8.2.1	Provision of Temporary Water Supply, Electricity Supply, Lighting, W	7 days	Mon 21/03/22	Sun 27/03/22	Mon 21/03/22	Sun 27/03/22	0 days	710			[Gantt Chart]																											
713	713.5.20.8.2.2	Installation of Lifting Appliances at MFB No. 2	66 days	Mon 21/03/22	Wed 25/05/22	Mon 21/03/22	Wed 25/05/22	248 days	710,687			[Gantt Chart]																											
714	714.5.20.8.2.2.1	B2 EOT Crane LA-04-01 SWL 5t	45 days	Mon 21/03/22	Wed 04/05/22	Mon 21/03/22	Wed 04/05/22	0 days		716,717,718		[Gantt Chart]																											
715	715.5.20.8.2.2.2	B2 EOT Crane LA-04-02 SWL 5t	30 days	Mon 21/03/22	Tue 19/04/22	Mon 21/03/22	Tue 19/04/22	15 days		716,717,718		[Gantt Chart]																											
716	716.5.20.8.2.2.3	B2 MR LA-04-03 SWL 5t	14 days	Thu 05/05/22	Wed 18/05/22	Thu 05/05/22	Wed 18/05/22	0 days	714,715	718		[Gantt Chart]																											
717	717.5.20.8.2.2.4	B1 MR LA-04-04 SWL 3t	14 days	Thu 05/05/22	Wed 18/05/22	Thu 05/05/22	Wed 18/05/22	0 days	714,715	718		[Gantt Chart]																											
718	718.5.20.8.2.2.5	T&C, Loading Test for Lifting Appliances	7 days	Thu 19/05/22	Wed 25/05/22	Thu 19/05/22	Wed 25/05/22	57 days	714,715,716,721			[Gantt Chart]																											
719	719.5.20.8.2.3	Mechanical Installations for E&M Equip. at MFB No. 2 Lower Part	359 days	Thu 05/05/22	Fri 28/04/23	Thu 05/05/22	Fri 28/04/23	0 days	710FS+45 et731SS			[Gantt Chart]																											
720	720.5.20.8.2.3.1	Installation of penstocks and stoplogs (Penstocks 18nos, Stoplogs	90 days	Tue 02/08/22	Sun 30/10/22	Tue 02/08/22	Sun 30/10/22	0 days	681	730	ME - E x 4~6 men	[Gantt Chart]																											
721	721.5.20.8.2.3.2	Installation of hollow fibre membrane modules (x9), EQT023	90 days	Fri 22/07/22	Wed 19/10/22	Fri 22/07/22	Wed 19/10/22	191 days	663,718		ME - A x 4~6 men	[Gantt Chart]																											
722	722.5.20.8.2.3.3	Installation of air scour blowers (x3), EQT040	90 days	Tue 02/08/22	Sun 30/10/22	Tue 02/08/22	Sun 30/10/22	0 days	666,672	726,723,724	ME - B x 4~6 men	[Gantt Chart]																											
723	723.5.20.8.2.3.4	Installation of permeate pumps (x10), EQT024	90 days	Mon 31/10/22	Sat 28/01/23	Mon 31/10/22	Sat 28/01/23	0 days	722,669	726	ME - A x 4~6 men	[Gantt Chart]																											
724	724.5.20.8.2.3.5	Installation of return activated sludge pumps (x5), EQT010	90 days	Mon 31/10/22	Sat 28/01/23	Mon 31/10/22	Sat 28/01/23	0 days	722	726	ME - B x 4~6 men	[Gantt Chart]																											
725	725.5.20.8.2.3.6	Installation of membrane tank drain pumps (x2), EQT009	45 days	Thu 05/05/22	Sat 18/06/22	Thu 05/05/22	Sat 18/06/22	224 days		726	ME - C x 4~6 men	[Gantt Chart]																											
726	726.5.20.8.2.3.7	Installation of pipework and valves, EQT036	90 days	Sun 29/01/23	Fri 28/04/23	Sun 29/01/23	Fri 28/04/23	0 days	722,723,724,730FF		ME - C x 4~6 men	[Gantt Chart]																											
727	727.5.20.8.2.3.8	Installation of chemical storage tank, EQT025	60 days	Thu 05/05/22	Sun 03/07/22	Thu 05/05/22	Sun 03/07/22	299 days	675		ME - D x 2~4 men	[Gantt Chart]																											
728	728.5.20.8.2.3.9	Installation of chemical dosing pumps, EQT026	60 days	Thu 05/05/22	Sun 03/07/22	Thu 05/05/22	Sun 03/07/22	299 days	678		ME - D x 2~4 men	[Gantt Chart]																											
729	729.5.20.8.2.3.10	Installation of plant service water system	90 days	Thu 05/05/22	Tue 02/08/22	Thu 05/05/22	Tue 02/08/22	269 days			ME - C x 4~6 men	[Gantt Chart]																											
730	730.5.20.8.2.3.11	Site Acceptance Tests - mechanical aspects including alignment an	180 days	Mon 31/10/22	Fri 28/04/23	Mon 31/10/22	Fri 28/04/23	176 days	720,726FF	768	ME - D x 2~4 men	[Gantt Chart]																											
731	731.5.20.8.2.4	Electrical Installations for E&M Equip. at MFB No. 2 Lower Part	150 days	Thu 05/05/22	Sat 01/10/22	Thu 05/05/22	Sat 01/10/22	237 days	719SS			[Gantt Chart]																											
732	732.5.20.8.2.4.1	Installation of cable trays and cable containments	150 days	Thu 05/05/22	Sat 01/10/22	Thu 05/05/22	Sat 01/10/22	45 days		757		[Gantt Chart]																											
733	733.5.20.8.3	Tentative Civil Handover Date, Portion B-5B, MFB No. 2 remaining port	1 day	Wed 17/08/22	Wed 17/08/22	Wed 17/08/22	Wed 17/08/22	0 days		736,745FS+45 edays,771		[Gantt Chart]																											
734	734.5.20.8.4	Commencement of E&M Installation at MFB No. 2 Upper Part	532 days	Thu 18/08/22	Wed 31/01/24	Thu 18/08/22	Wed 31/01/24	0 days	733			[Gantt Chart]																											
735	735.5.20.8.4.1	Provision of Temporary Water Supply, Electricity Supply, Lighting, W	7 days	Thu 18/08/22	Wed 24/08/22	Thu 18/08/22	Wed 24/08/22	0 days	733			[Gantt Chart]																											
736	736.5.20.8.4.2	Installation of Lifting Appliances at MFB No. 2	142 days	Thu 18/08/22	Fri 06/01/23	Thu 18/08/22	Fri 06/01/23	40 days	733,687			[Gantt Chart]																											
737	737.5.20.8.4.2.1	GF EOT Crane LA-04-05 SWL 5t	45 days	Thu 18/08/22	Sat 01/10/22	Thu 18/08/22	Sat 01/10/22	0 days		739,740,744	LA - A x 4~6 men	[Gantt Chart]																											
738	738.5.20.8.4.2.2	GF Gantry Crane LA-04-06 SWL 6t	45 days	Thu 18/08/22	Sat 01/10/22	Thu 18/08/22	Sat 01/10/22	0 days		739,740,744	LA - B x 4~6 men	[Gantt Chart]																											
739	739.5.20.8.4.2.3	1F EOT Crane LA-04-07 SWL 15t	45 days	Sun 02/10/22	Tue 15/11/22	Sun 02/10/22	Tue 15/11/22	0 days	737,738	741,742,743,744	LA - A x 4~6 men	[Gantt Chart]																											
740	740.5.20.8.4.2.4	1F EOT Crane LA-04-08 SWL 15t	45 days	Sun 02/10/22	Tue 15/11/22	Sun 02/10/22	Tue 15/11/22	0 days	737,738	741,742,743,744	LA - B x 4~6 men	[Gantt Chart]																											
741	741.5.20.8.4.2.5	RF EOT Crane LA-04-09 SWL 2t	45 days	Wed 16/11/22	Fri 30/12/22	Wed 16/11/22	Fri 30/12/22	0 days	739,740	744	LA - A x 4~6 men	[Gantt Chart]																											
742	742.5.20.8.4.2.6	RF Retractable MR LA-04-10 SWL 2t	45 days	Wed 16/11/22	Fri 30/12/22	Wed 16/11/22	Fri 30/12/22	0 days	739,740	744	LA - B x 4~6 men	[Gantt Chart]																											
743	743.5.20.8.4.2.7	Mobile A-frame LA-04-11 SWL 2t	7 days	Wed 16/11/22	Tue 22/11/22	Wed 16/11/22	Tue 22/11/22	38 days	739,740	744	LA - C x 4~6 men	[Gantt Chart]																											
744	744.5.20.8.4.2.8	T&C, Loading Test for Lifting Appliances	7 days	Sat 31/12/22	Fri 06/01/23	Sat 31/12/22	Fri 06/01/23	0 days	737,738,739,746		LA - A x 4~6 men	[Gantt Chart]																											
745	745.5.20.8.4.3	Mechanical Installations for E&M Equip. at MFB No. 2 Upper Part	377 days	Sun 02/10/22	Fri 13/10/23	Sun 02/10/22	Fri 13/10/23	0 days	733FS+45 et750SS+45 edays,768			[Gantt Chart]																											
746	746.5.20.8.4.3.1	Installation of air scour blowers (x3)	100 days	Sat 07/01/23	Sun 16/04/23	Sat 07/01/23	Sun 16/04/23	0 days	744	747,749	ME - A x 4~6 men	[Gantt Chart]																											
747	747.5.20.8.4.3.2	Installation of compressed air system (x1)	60 days	Mon 17/04/23	Thu 15/06/23	Mon 17/04/23	Thu 15/06/23	160 days	746		ME - B x 4~6 men	[Gantt Chart]																											
748	748.5.20.8.4.3.3	Installation of instrumentations, EQT035-1	60 days	Sun 02/10/22	Wed 30/11/22	Sun 02/10/22	Wed 30/11/22	357 days	52		ME - D x 2~4 men	[Gantt Chart]																											
749	749.5.20.8.4.3.4	Site Acceptance Tests - mechanical aspects including alignment an	180 days	Mon 17/04/23	Fri 13/10/23	Mon 17/04/23	Fri 13/10/23	40 days	746		ME - D x 2~4 men	[Gantt Chart]																											
750	750.5.20.8.4.4	Electrical Installations for E&M Equip. at MFB No. 2 Upper Part	340 days	Wed 16/11/22	Sat 21/10/23	Wed 16/11/22	Sat 21/10/23	0 days	745SS+45 et768			[Gantt Chart]																											
751	751.5.20.8.4.4.1	Installation of LV Switchboards, BR2	90 days	Wed 16/11/22	Mon 13/02/23	Wed 16/11/22	Mon 13/02/23	40 days	691	758	LV - B x 4~6 men	[Gantt Chart]																											
752	752.5.20.8.4.4.2	Installation of LV Switchboards, MFB No. 2	90 days	Wed 16/11/22	Mon 13/02/23	Wed 16/11/22	Mon 13/02/23	40 days	694	758	LV - A x 4~6 men	[Gantt Chart]																											
753	753.5.20.8.4.4.3	Installation of PLC Panels, BR2	90 days	Mon 26/12/22	Sat 25/03/23	Mon 26/12/22	Sat 25/03/23	0 days	705	758,764		[Gantt Chart]																											
754	754.5.20.8.4.4.4	Installation of PLC Panels, MFB No. 2	90 days	Mon 26/12/22	Sat 25/03/23	Mon 26/12/22	Sat 25/03/23	242 days	708		PLC - B x 1 man	[Gantt Chart]																											
755	755.5.20.8.4.4.5	Installation of HV Switchboards, MFB No. 2	60 days	Wed 16/11/22	Sat 14/01/23	Wed 16/11/22	Sat 14/01/23	0 days	698	758,759FS+30 days	HV - A x 4~6 men	[Gantt Chart]																											
756	756.5.20.8.4.4.6	Installation of transformer, MFB No. 2, EQT032	45 days	Mon 26/12/22	Wed 08/02/23	Mon 26/12/22	Wed 08/02/23	0 days	701	760FS+30 days		[Gantt Chart]																											
757	757.5.20.8.4.4.7	Installation of cable trays and cable containments	180 days	Wed 16/11/22	Sun 14/05/23	Wed 16/11/22	Sun 14/05/23	192 days	732			[Gantt Chart]																											
758	758.5.20.8.4.4.8	Cables laying and terminations	150 days	Sun 26/03/23	Tue 22/08/23	Sun 26/03/23	Tue 22/08/23	0 days	751,752,753,765,762,761			[Gantt Chart]																											
759	759.5.20.8.4.4.9	Testing of HV Switchboards, MFB No. 2	21 days	Tue 14/02/23	Mon 06/03/23	Tue 14/02/23	Mon 06/03/23	261 days	755FS+30 di		HV - A x 4~6 men	[Gantt Chart]																											

Task Milestone Project Summary Late Critical Split Manual Progress Milestone (Actual) +  
Milestone, Tentative Summary Manual Summary Critical Progress Slack (Float) Slack



ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Early Start	Early Finish	Free Slack	Predecessors	Successors	Resource Names	Gantt Chart (2020-2024)																											
760	760 5.20.8.4.4.	Testing of Transformers, MFB No. 2	21 days	Sat 11/03/23	Fri 31/03/23	Sat 11/03/23	Fri 31/03/23	236 days	756FS+30 d		HV - A x 4~6 men	[Gantt Chart Data]																											
761	761 5.20.8.4.4.	Energisation of LV Switchboards, MFB No. 2 (Rev. 8)	1 day	Wed 23/08/23	Wed 23/08/23	Wed 23/08/23	Wed 23/08/23	91 days	758		LA - A x 4~6 men	[Gantt Chart Data]																											
762	762 5.20.8.4.4.	Site Acceptance Tests - Electrical aspects including voltage and cur	60 days	Wed 23/08/23	Sat 21/10/23	Wed 23/08/23	Sat 21/10/23	0 days	758	768	LV - A x 4~6 men	[Gantt Chart Data]																											
763	763 5.20.8.4.5	SCADA Systems, BR No. 1 & No 2, MFB No. 2	91 days	Wed 23/08/23	Tue 21/11/23	Wed 23/08/23	Tue 21/11/23	31 days				[Gantt Chart Data]																											
764	764 5.20.8.4.5.	Configuration of PLC System for BR No. 1 & No. 2	30 days	Mon 02/10/23	Tue 31/10/23	Mon 02/10/23	Tue 31/10/23	0 days	753,589	766	PLC - A x 1 man	[Gantt Chart Data]																											
765	765 5.20.8.4.5.	Configuration of PLC System for MFB No. 2	30 days	Wed 23/08/23	Thu 21/09/23	Wed 23/08/23	Thu 21/09/23	0 days	758	767		[Gantt Chart Data]																											
766	766 5.20.8.4.5.	Site Acceptance Test for PLC System at BR No. 1 and No. 2	21 days	Wed 01/11/23	Tue 21/11/23	Wed 01/11/23	Tue 21/11/23	19 days	764	769,593,1278		[Gantt Chart Data]																											
767	767 5.20.8.4.5.	Site Acceptance Test for PLC System at MFB No. 2	21 days	Fri 22/09/23	Thu 12/10/23	Fri 22/09/23	Thu 12/10/23	59 days	765	769,1278		[Gantt Chart Data]																											
768	768 5.20.8.4.6	Site Acceptance Test for E&M Equip at MFB No. 2	30 edays	Sat 21/10/23	Mon 20/11/23	Sat 21/10/23	Mon 20/11/23	20.63 edays	745,750,762,769			[Gantt Chart Data]																											
769	769 5.20.8.4.7	System Commissioning for E&M Equip at MFB No. 2	45 days	Mon 11/12/23	Wed 24/01/24	Mon 11/12/23	Wed 24/01/24	0 days	766,768,776,770			[Gantt Chart Data]																											
770	770 5.20.8.4.8	Risk Allowances for Completion of Processing Plant at MFB No. 2	7 edays	Wed 24/01/24	Wed 31/01/24	Wed 24/01/24	Wed 31/01/24	7.63 edays	769	1274		[Gantt Chart Data]																											
771	771 5.20.8.4.9	Building Services Installations for MFB No. 2	330 days	Sun 15/01/23	Sun 10/12/23	Sun 15/01/23	Sun 10/12/23	12 days	733FS+150 d			[Gantt Chart Data]																											
772	772 5.20.8.4.9.	Mechanical Ventilation and Air Conditioning System, MFB No. 2	120 days	Sun 15/01/23	Sun 14/05/23	Sun 15/01/23	Sun 14/05/23	90 days		778	MVAC - A x 4~6 men	[Gantt Chart Data]																											
773	773 5.20.8.4.9.	Lighting and Power Distribution System, MFB No. 2	210 days	Sun 15/01/23	Sat 12/08/23	Sun 15/01/23	Sat 12/08/23	0 days		778	BS - A x 4~6 men	[Gantt Chart Data]																											
774	774 5.20.8.4.9.	Plumbing Installation, MFB No. 2	180 days	Sun 15/01/23	Thu 13/07/23	Sun 15/01/23	Thu 13/07/23	30 days	1245	1247,778	Pb - B x 4~6 men	[Gantt Chart Data]																											
775	775 5.20.8.4.9.	CCTV Installation (10 indoor + 3 outdoor Cameras), MFB No. 2	90 days	Sun 15/01/23	Fri 14/04/23	Sun 15/01/23	Fri 14/04/23	120 days	733FS+120 d	778,1277	BS - B x 4~6 men	[Gantt Chart Data]																											
776	776 5.20.8.4.9.	Fire Services Installation, MFB No. 2	120 days	Sun 15/01/23	Sun 14/05/23	Sun 15/01/23	Sun 14/05/23	90 days		1198,1210,1211,778	FS - B x 4~6 men	[Gantt Chart Data]																											
777	777 5.20.8.4.9.	Earthing and Lightning Protection System, MFB No. 2	60 days	Sun 15/01/23	Wed 15/03/23	Sun 15/01/23	Wed 15/03/23	315 days		769FF	BS - C x 2~4 men	[Gantt Chart Data]																											
778	778 5.20.8.4.9.	Testing and Commissioning of Building Services Installations, MFB	120 days	Sun 13/08/23	Sun 10/12/23	Sun 13/08/23	Sun 10/12/23	0 days	772,773,774,769			[Gantt Chart Data]																											
779	779 5.21	Chemical System No. 1 and No. 2, Portion B-7 & B-7B (PS 6B.2.3)	1351 days	Tue 21/07/20	Mon 01/04/24	Tue 21/07/20	Mon 01/04/24	0 days				[Gantt Chart Data]																											
780	780 5.21.1	Planned Key Date Completion Date - KD1B, Chem Sys No. 1 & 2	0 days	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	0 days	797FF,798FF			[Gantt Chart Data]																											
781	781 5.21.2	Planned Sectional Completion Date - Section 1, Chem Sys No. 1 & 2	0 days	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	0 days	799FF,800FF			[Gantt Chart Data]																											
782	782 5.21.3	Planned Sectional Completion Date - Section 2, Chem Sys No. 1 & 2	0 days	Mon 01/04/24	Mon 01/04/24	Mon 01/04/24	Mon 01/04/24	0 days	828FF			[Gantt Chart Data]																											
783	783 5.21.4	Selection of Suppliers for major plant and materials for Chemical System	240 days	Thu 01/10/20	Fri 28/05/21	Thu 01/10/20	Fri 28/05/21	0 days				[Gantt Chart Data]																											
784	784 5.21.4.1	Chemical Storage and Dosing - chemical storage tanks, C11, ref. EQT025	240 days	Thu 01/10/20	Fri 28/05/21	Thu 01/10/20	Fri 28/05/21	0 days				[Gantt Chart Data]																											
785	785 5.21.4.1.1	Submission for acceptance of purchasing package	60 days	Thu 01/10/20	Sun 29/11/20	Thu 01/10/20	Sun 29/11/20	0 days		786		[Gantt Chart Data]																											
786	786 5.21.4.1.2	Invitation of quotations for purchasing package	30 days	Mon 30/11/20	Tue 29/12/20	Mon 30/11/20	Tue 29/12/20	0 days	785	787		[Gantt Chart Data]																											
787	787 5.21.4.1.3	Acceptance of conforming quotation	30 days	Wed 30/12/20	Thu 28/01/21	Wed 30/12/20	Thu 28/01/21	30 days	786	799		[Gantt Chart Data]																											
788	788 5.21.4.2	Chemical Storage and Dosing - chemical dosing pumps, C11, ref. EQT027	150 days	Thu 01/10/20	Sat 27/02/21	Thu 01/10/20	Sat 27/02/21	54 days				[Gantt Chart Data]																											
789	789 5.21.4.2.1	Submission for acceptance of purchasing package	60 days	Thu 01/10/20	Sun 29/11/20	Thu 01/10/20	Sun 29/11/20	0 days		790		[Gantt Chart Data]																											
790	790 5.21.4.2.2	Invitation of quotations for purchasing package	60 days	Mon 30/11/20	Thu 28/01/21	Mon 30/11/20	Thu 28/01/21	0 days	789	791		[Gantt Chart Data]																											
791	791 5.21.4.2.3	Acceptance of conforming quotation	30 days	Fri 29/01/21	Sat 27/02/21	Fri 29/01/21	Sat 27/02/21	0 days	790	799,800,801		[Gantt Chart Data]																											
792	792 5.21.4.3	Chemical Storage and Dosing - transfer pumps, C11, ref. EQT026	120 days	Thu 01/10/20	Thu 28/01/21	Thu 01/10/20	Thu 28/01/21	84 days				[Gantt Chart Data]																											
793	793 5.21.4.3.1	Submission for acceptance of purchasing package	60 days	Thu 01/10/20	Sun 29/11/20	Thu 01/10/20	Sun 29/11/20	0 days		794		[Gantt Chart Data]																											
794	794 5.21.4.3.2	Invitation of quotations for purchasing package	30 days	Mon 30/11/20	Tue 29/12/20	Mon 30/11/20	Tue 29/12/20	0 days	793	795		[Gantt Chart Data]																											
795	795 5.21.4.3.3	Acceptance of conforming quotation	30 days	Wed 30/12/20	Thu 28/01/21	Wed 30/12/20	Thu 28/01/21	30 days	794	799		[Gantt Chart Data]																											
796	796 5.21.5	Design Submissions for Chemical System No. 1 and No. 2	324 days	Tue 21/07/20	Thu 10/06/21	Tue 21/07/20	Thu 10/06/21	33 days				[Gantt Chart Data]																											
797	797 5.21.5.1	Electrical schematic drawings for Chemical Systems No. 1 and No. 2	60 days	Tue 21/07/20	Fri 18/09/20	Tue 21/07/20	Fri 18/09/20	256 days		780FF		[Gantt Chart Data]																											
798	798 5.21.5.2	CDS081-5 - Civil and dimensional requirements drawings for Chemical System	70 days	Fri 28/08/20	Thu 05/11/20	Fri 28/08/20	Thu 05/11/20	0 days		780FF		[Gantt Chart Data]																											
799	799 5.21.5.3	CDS006 - Detailed Design for Chemical Dosing System	90 edays	Sat 27/02/21	Fri 28/05/21	Sat 27/02/21	Fri 28/05/21	0.63 edays	787,791,795,805,808,811,781FF			[Gantt Chart Data]																											
800	800 5.21.5.4	CDS027 - Detailed Design for Electrical Installations for Chemical System	90 edays	Sat 27/02/21	Fri 28/05/21	Sat 27/02/21	Fri 28/05/21	45 edays	791	818,781FF		[Gantt Chart Data]																											
801	801 5.21.5.5	CDS028 - Detailed Design for Electrical Installations for Chemical System	90 edays	Sat 27/02/21	Fri 28/05/21	Sat 27/02/21	Fri 28/05/21	45 edays	791	818,781FF		[Gantt Chart Data]																											
802	802 5.21.5.6	CDS034-5 - Detailed Design for Electrical Installations BS at Chemical System	90 edays	Fri 12/03/21	Thu 10/06/21	Fri 12/03/21	Thu 10/06/21	32.38 edays	136	818,781FF		[Gantt Chart Data]																											
803	803 5.21.6	Manufacturing and Delivery of Plant & Materials	296 days	Sat 29/05/21	Sun 20/03/22	Sat 29/05/21	Sun 20/03/22	417 days				[Gantt Chart Data]																											
804	804 5.21.6.1	Chemical Storage Tanks, EQT025	225 days	Sat 29/05/21	Sat 08/01/22	Sat 29/05/21	Sat 08/01/22	488 days				[Gantt Chart Data]																											
805	805 5.21.6.1.1	Manufacturing and Factory Acceptance Test of Plant	180 days	Sat 29/05/21	Wed 24/11/21	Sat 29/05/21	Wed 24/11/21	0 days	799	806		[Gantt Chart Data]																											
806	806 5.21.6.1.2	Shipping and Delivery of Plant to site	45 days	Thu 25/11/21	Sat 08/01/22	Thu 25/11/21	Sat 08/01/22	73 days	805	817		[Gantt Chart Data]																											
807	807 5.21.6.2	Chemical Dosing Pumps, EQT027	296 days	Sat 29/05/21	Sun 20/03/22	Sat 29/05/21	Sun 20/03/22	417 days				[Gantt Chart Data]																											
808	808 5.21.6.2.1	Manufacturing and Factory Acceptance Test of Plant	180 days	Sat 29/05/21	Wed 24/11/21	Sat 29/05/21	Wed 24/11/21	71 days	799	809		[Gantt Chart Data]																											
809	809 5.21.6.2.2	Shipping and Delivery of Plant to site	45 days	Fri 04/02/22	Sun 20/03/22	Fri 04/02/22	Sun 20/03/22	2 days	808,814FF-6817			[Gantt Chart Data]																											
810	810 5.21.6.3	Chemical Transfer Pumps, EQT026	296 days	Sat 29/05/21	Sun 20/03/22	Sat 29/05/21	Sun 20/03/22	417 days				[Gantt Chart Data]																											
811	811 5.21.6.3.1	Manufacturing and Factory Acceptance Test of Plant	180 days	Sat 29/05/21	Wed 24/11/21	Sat 29/05/21	Wed 24/11/21	71 days	799	812		[Gantt Chart Data]																											
812	812 5.21.6.3.2	Shipping and Delivery of Plant to site	45 days	Fri 04/02/22	Sun 20/03/22	Fri 04/02/22	Sun 20/03/22	2 days	811,814FF-6817			[Gantt Chart Data]																											
813	813 5.21.7	Site Installation Work	307 days	Tue 22/03/22	Mon 23/01/23	Tue 22/03/22	Mon 23/01/23	415 days				[Gantt Chart Data]																											
814	814 5.21.7.1	Tentative Civil Handover Date, Portion B-7 & B-7B (Rev. 5)	1 day	Thu 19/05/22	Thu 19/05/22	Thu 19/05/22	Thu 19/05/22	0 days	812FF-60 edays,809FF-60			[Gantt Chart Data]																											
815	815 5.21.7.2	Tentative Civil Handover Date, Chemical Pipe Trench (by others)	1 day	Sun 01/05/22	Sun 01/05/22	Sun 01/05/22	Sun 01/05/22	33 days		817FF+50 days		[Gantt Chart Data]																											
816	816 5.21.7.3	Commencement of E&M Installation at Chemical Dosing System 1 and	307 days	Tue 22/03/22	Mon 23/01/23	Tue 22/03/22	Mon 23/01/23	415 days				[Gantt Chart Data]																											
817	817 5.21.7.3.1	Mechanical Installations for E&M Equip. for Chemical Dosing System	90 edays	Tue 22/03/22	Mon 20/06/22	Tue 22/03/22	Mon 20/06/22	0 edays	815FF+50 d:818		ME - D x 2~4 men	[Gantt Chart Data]																											
818	818 5.21.7.3.2	Electrical Installations for E&M Equip. for Chemical Dosing System	90 edays	Mon 20/06/22	Sun 18/09/22	Mon 20/06/22	Sun 18/09/22	0.63 edays	817,800,801,819,827		EE - B x 4~6 men	[Gantt Chart Data]																											

Task: [Blue bar] Milestone: [Black diamond] Project Summary: [Grey bar] Late: [Red bar] Critical Split: [Yellow bar] Manual Progress: [Dotted line] Milestone (Actual): [Red star]

Milestone, Tentative: [Blue circle] Summary: [Black circle] Manual Summary: [Grey bar] Critical: [Red bar] Progress: [Red bar] Slack (Float): [Blue line] Slack: [Blue line]



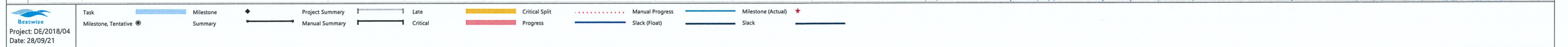
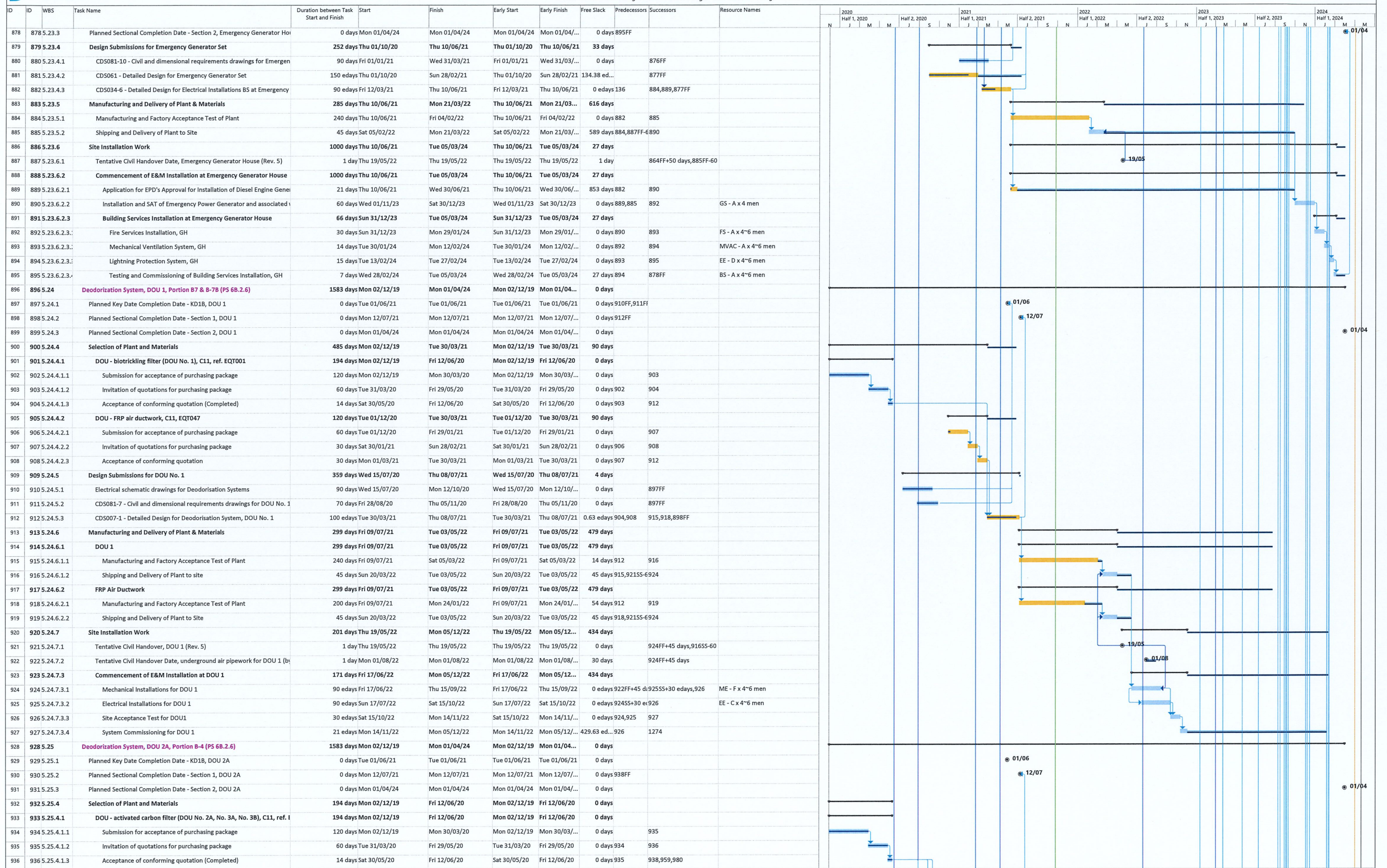
ID	ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Early Start	Early Finish	Free Slack	Predecessors	Successors	Resource Names	Gantt Chart (2020-2024)																											
819	819.5.21.7.3.3		Site Acceptance Test for E&M Equip for Chemical Dosing System	45 days	Mon 19/09/22	Wed 02/11/22	Mon 19/09/22	Wed 02/11/22	0 days	818	820	EE - A x 4~6 men	[Gantt Chart Data]																											
820	820.5.21.7.3.4		System Commissioning for E&M Equip for Chemical Dosing System	45 days	Thu 03/11/22	Sat 17/12/22	Thu 03/11/22	Sat 17/12/22	0 days	819	821		[Gantt Chart Data]																											
821	821.5.21.7.3.5		Risk Allowances for Completion of Processing Plant at Chemical Dosing System	7 edays	Sat 17/12/22	Sat 24/12/22	Sat 17/12/22	Sat 24/12/22	410.63 edays	820	1274		[Gantt Chart Data]																											
822	822.5.21.7.3.6		Building Services Installations at Chemical Dosing System areas	249 days	Fri 20/05/22	Mon 23/01/23	Fri 20/05/22	Mon 23/01/23	419 days				[Gantt Chart Data]																											
823	823.5.21.7.3.6.1		Lighting and Power Distribution System, Chem 1&2	120 days	Fri 20/05/22	Fri 16/09/22	Fri 20/05/22	Fri 16/09/22	9 days	814	828	BS - B x 4~6 men	[Gantt Chart Data]																											
824	824.5.21.7.3.6.2		Fire Services Installation, DG Stores	120 days	Fri 20/05/22	Fri 16/09/22	Fri 20/05/22	Fri 16/09/22	9 days	814	1210,1211,1201,828	FS - A x 4~6 men	[Gantt Chart Data]																											
825	825.5.21.7.3.6.3		Lightning Protection System, Chem 1&2	30 days	Fri 20/05/22	Sat 18/06/22	Fri 20/05/22	Sat 18/06/22	99 days	814	828	EE - D x 4~6 men	[Gantt Chart Data]																											
826	826.5.21.7.3.6.4		Mechanical Ventilation System, Chem 2	14 days	Fri 20/05/22	Thu 02/06/22	Fri 20/05/22	Thu 02/06/22	115 days	814	828	MVAC - A x 4~6 men	[Gantt Chart Data]																											
827	827.5.21.7.3.6.5		Plumbing Installation, Chem 1	7 days	Mon 19/09/22	Sun 25/09/22	Mon 19/09/22	Sun 25/09/22	0 days	818	828	Pb - A x 4~6 men	[Gantt Chart Data]																											
828	828.5.21.7.3.6.6		Testing and Commissioning of Building Services Installations, Chem 1&2	120 days	Mon 26/09/22	Mon 23/01/23	Mon 26/09/22	Mon 23/01/23	434 days	823,824,827,828	FF	BS - C x 2~4 men	[Gantt Chart Data]																											
829	829.5.22		Temporary Chemical Dosing System, Portion B7 & B-7B (PS 6B.2.3)	1344 days	Tue 28/07/20	Mon 01/04/24	Tue 28/07/20	Mon 01/04/24	0 days				[Gantt Chart Data]																											
830	830.5.22.1		Planned Key Date Completion Date - KD1B, Temp. Chem Dosing Sys	0 days	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	0 days	847FF,848FF			[Gantt Chart Data]																											
831	831.5.22.2		Planned Sectional Completion Date - Section 1, Temp. Chem Dosing Sys	0 days	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	0 days	849FF			[Gantt Chart Data]																											
832	832.5.22.3		Planned Sectional Completion Date - Section 2, Temp. Chem Dosing Sys	0 days	Mon 01/04/24	Mon 01/04/24	Mon 01/04/24	Mon 01/04/24	0 days				[Gantt Chart Data]																											
833	833.5.22.4		Selection of Suppliers for major plant and materials for Temp. Chemical Dosing System	150 days	Thu 01/10/20	Sat 27/02/21	Thu 01/10/20	Sat 27/02/21	668 days				[Gantt Chart Data]																											
834	834.5.22.4.1		Chemical Storage and Dosing - chemical storage tanks, C11, ref. EQT025	120 days	Thu 01/10/20	Thu 28/01/21	Thu 01/10/20	Thu 28/01/21	45 days				[Gantt Chart Data]																											
835	835.5.22.4.1.1		Submission for acceptance of purchasing package	60 days	Thu 01/10/20	Sun 29/11/20	Thu 01/10/20	Sun 29/11/20	0 days		836		[Gantt Chart Data]																											
836	836.5.22.4.1.2		Invitation of quotations for purchasing package	30 days	Mon 30/11/20	Tue 29/12/20	Mon 30/11/20	Tue 29/12/20	0 days	835	837		[Gantt Chart Data]																											
837	837.5.22.4.1.3		Acceptance of conforming quotation	30 days	Wed 30/12/20	Thu 28/01/21	Wed 30/12/20	Thu 28/01/21	0 days	836	849,852		[Gantt Chart Data]																											
838	838.5.22.4.2		Chemical Storage and Dosing - chemical dosing pumps, C11, ref. EQT026	150 days	Thu 01/10/20	Sat 27/02/21	Thu 01/10/20	Sat 27/02/21	668 days				[Gantt Chart Data]																											
839	839.5.22.4.2.1		Submission for acceptance of purchasing package	60 days	Thu 01/10/20	Sun 29/11/20	Thu 01/10/20	Sun 29/11/20	0 days		840		[Gantt Chart Data]																											
840	840.5.22.4.2.2		Invitation of quotations for purchasing package	60 days	Mon 30/11/20	Thu 28/01/21	Mon 30/11/20	Thu 28/01/21	0 days	839	841		[Gantt Chart Data]																											
841	841.5.22.4.2.3		Acceptance of conforming quotation	30 days	Fri 29/01/21	Sat 27/02/21	Fri 29/01/21	Sat 27/02/21	0 days	840	855		[Gantt Chart Data]																											
842	842.5.22.4.3		Chemical Storage and Dosing - transfer pumps, C11, ref. EQT026	120 days	Thu 01/10/20	Thu 28/01/21	Thu 01/10/20	Thu 28/01/21	698 days				[Gantt Chart Data]																											
843	843.5.22.4.3.1		Submission for acceptance of purchasing package	60 days	Thu 01/10/20	Sun 29/11/20	Thu 01/10/20	Sun 29/11/20	0 days		844		[Gantt Chart Data]																											
844	844.5.22.4.3.2		Invitation of quotations for purchasing package	30 days	Mon 30/11/20	Tue 29/12/20	Mon 30/11/20	Tue 29/12/20	0 days	843	845		[Gantt Chart Data]																											
845	845.5.22.4.3.3		Acceptance of conforming quotation	30 days	Wed 30/12/20	Thu 28/01/21	Wed 30/12/20	Thu 28/01/21	0 days	844	858		[Gantt Chart Data]																											
846	846.5.22.5		Design Submissions for Temporary Chemical Dosing System	275 days	Tue 28/07/20	Wed 28/04/21	Tue 28/07/20	Wed 28/04/21	75 days				[Gantt Chart Data]																											
847	847.5.22.5.1		Electrical schematic drawings for Temporary Chemical Dosing System	60 days	Tue 28/07/20	Fri 25/09/20	Tue 28/07/20	Fri 25/09/20	0 days		830FF		[Gantt Chart Data]																											
848	848.5.22.5.2		CDS081-6 - Civil and dimensional requirements drawings for Temporary Chemical Dosing System	70 days	Fri 28/08/20	Thu 05/11/20	Fri 28/08/20	Thu 05/11/20	0 days		830FF		[Gantt Chart Data]																											
849	849.5.22.5.3		CDS029 - Detailed Design for Electrical Installations for Temporary Chemical Dosing System	90 edays	Thu 28/01/21	Wed 28/04/21	Thu 28/01/21	Wed 28/04/21	75 edays	837	865,831FF		[Gantt Chart Data]																											
850	850.5.22.6		Manufacturing and Delivery of Plant & Materials	416 days	Fri 29/01/21	Sun 20/03/22	Fri 29/01/21	Sun 20/03/22	507 days				[Gantt Chart Data]																											
851	851.5.22.6.1		Chemical Storage Tanks, EQT025	416 days	Fri 29/01/21	Sun 20/03/22	Fri 29/01/21	Sun 20/03/22	507 days				[Gantt Chart Data]																											
852	852.5.22.6.1.1		Manufacturing and Factory Acceptance Test of Plant	180 days	Fri 29/01/21	Tue 27/07/21	Fri 29/01/21	Tue 27/07/21	191 days	837	853		[Gantt Chart Data]																											
853	853.5.22.6.1.2		Shipping and Delivery of Plant to site	45 days	Fri 04/02/22	Sun 20/03/22	Fri 04/02/22	Sun 20/03/22	20 days	852,861FF-6864			[Gantt Chart Data]																											
854	854.5.22.6.2		Chemical Dosing Pumps, EQT027	386 days	Sun 28/02/21	Sun 20/03/22	Sun 28/02/21	Sun 20/03/22	507 days				[Gantt Chart Data]																											
855	855.5.22.6.2.1		Manufacturing and Factory Acceptance Test of Plant	180 days	Sun 28/02/21	Thu 26/08/21	Sun 28/02/21	Thu 26/08/21	161 days	841	856		[Gantt Chart Data]																											
856	856.5.22.6.2.2		Shipping and Delivery of Plant to site	45 days	Fri 04/02/22	Sun 20/03/22	Fri 04/02/22	Sun 20/03/22	20 days	855,861FF-6864			[Gantt Chart Data]																											
857	857.5.22.6.3		Chemical Transfer Pumps, EQT026	416 days	Fri 29/01/21	Sun 20/03/22	Fri 29/01/21	Sun 20/03/22	507 days				[Gantt Chart Data]																											
858	858.5.22.6.3.1		Manufacturing and Factory Acceptance Test of Plant	180 days	Fri 29/01/21	Tue 27/07/21	Fri 29/01/21	Tue 27/07/21	191 days	845	859		[Gantt Chart Data]																											
859	859.5.22.6.3.2		Shipping and Delivery of Plant to site	45 days	Fri 04/02/22	Sun 20/03/22	Fri 04/02/22	Sun 20/03/22	20 days	858,861FF-6864			[Gantt Chart Data]																											
860	860.5.22.7		Site Installation Work	361 days	Sat 09/04/22	Wed 05/04/23	Sat 09/04/22	Wed 05/04/23	313 days				[Gantt Chart Data]																											
861	861.5.22.7.1		Tentative Civil Handover Date, Temporary Chemical Dosing (Rev. 5)	1 day	Thu 19/05/22	Thu 19/05/22	Thu 19/05/22	Thu 19/05/22	0 days		853FF-60 edays,856FF-60		[Gantt Chart Data]																											
862	862.5.22.7.2		Tentative Civil Handover Date, Chemical Pipe Trench (by others)	1 day	Sun 01/05/22	Sun 01/05/22	Sun 01/05/22	Sun 01/05/22	51 days		864FF+50 days		[Gantt Chart Data]																											
863	863.5.22.7.3		Commencement of E&M Installation at Temporary Chemical Dosing System	361 days	Sat 09/04/22	Wed 05/04/23	Sat 09/04/22	Wed 05/04/23	313 days				[Gantt Chart Data]																											
864	864.5.22.7.3.1		Mechanical Installations for E&M Equip. for Chemical Dosing System	90 edays	Sat 09/04/22	Fri 08/07/22	Sat 09/04/22	Fri 08/07/22	0 edays	862FF+50 edays,865SS+30 edays,866		ME - D x 2~4 men	[Gantt Chart Data]																											
865	865.5.22.7.3.2		Electrical Installations for E&M Equip. for Chemical Dosing System	90 edays	Mon 09/05/22	Sun 07/08/22	Mon 09/05/22	Sun 07/08/22	0 edays	864SS+30 edays,866		EE - A x 4~6 men	[Gantt Chart Data]																											
866	866.5.22.7.3.3		Site Acceptance Test for E&M Equip for Chemical Dosing System	30 edays	Sun 07/08/22	Tue 06/09/22	Sun 07/08/22	Tue 06/09/22	174 edays	864,865	867		[Gantt Chart Data]																											
867	867.5.22.7.3.4		System Commissioning for E&M Equip for Chemical Dosing System	30 edays	Mon 27/02/23	Wed 29/03/23	Mon 27/02/23	Wed 29/03/23	0 edays	866,874FF	868		[Gantt Chart Data]																											
868	868.5.22.7.3.5		Risk Allowances for Completion of Processing Plant at Chemical Dosing System	7 edays	Wed 29/03/23	Wed 05/04/23	Wed 29/03/23	Wed 05/04/23	308.63 edays	867	1274		[Gantt Chart Data]																											
869	869.5.22.7.3.6		Building Services Installations at Temp. Chemical Dosing System areas	314 days	Fri 20/05/22	Wed 29/03/23	Fri 20/05/22	Wed 29/03/23	313 days				[Gantt Chart Data]																											
870	870.5.22.7.3.6.1		Lighting and Power Distribution System, Temp. Chem	90 days	Fri 20/05/22	Wed 17/08/22	Fri 20/05/22	Wed 17/08/22	0 days	861	874,871	BS - A x 4~6 men	[Gantt Chart Data]																											
871	871.5.22.7.3.6.2		Fire Services Installation, DG Stores, Temp. Chem	90 days	Thu 18/08/22	Tue 15/11/22	Thu 18/08/22	Tue 15/11/22	0 days	870	1210,1211,874,872	FS - A x 4~6 men	[Gantt Chart Data]																											
872	872.5.22.7.3.6.3		Lightning Protection System, Temp. Chem	30 days	Wed 16/11/22	Thu 15/12/22	Wed 16/11/22	Thu 15/12/22	0 days	871	873	EE - D x 4~6 men	[Gantt Chart Data]																											
873	873.5.22.7.3.6.4		Mechanical Ventilation System, Temp. Chem	14 days	Fri 16/12/22	Thu 29/12/22	Fri 16/12/22	Thu 29/12/22	0 days	872	874	MVAC - A x 4~6 men	[Gantt Chart Data]																											
874	874.5.22.7.3.6.5		Testing and Commissioning of Building Services Installations, Temp. Chem	90 days	Fri 30/12/22	Wed 29/03/23	Fri 30/12/22	Wed 29/03/23	0 days	870,871,873,867FF		BS - C x 2~4 men	[Gantt Chart Data]																											
875	875.5.23		Emergency Generator House, Portion B7 & B-7B (PS 6B.6.6)	1279 days	Thu 01/10/20	Mon 01/04/24	Thu 01/10/20	Mon 01/04/24	0 days				[Gantt Chart Data]																											
876	876.5.23.1		Planned Key Date Completion Date - KD1B, Emergency Generator House	0 days	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	0 days	880FF			[Gantt Chart Data]																											
877	877.5.23.2		Planned Sectional Completion Date - Section 1, Emergency Generator House	0 days	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	0 days	881FF,882FF			[Gantt Chart Data]																											

Bestwise Project: DE/2018/04 Date: 28/09/21

Task Milestone Summary Project Summary Late Critical Critical Split Progress Manual Progress Milestone (Actual) Slack

Task Milestone Summary Project Summary Late Critical Critical Split Progress Manual Progress Milestone (Actual) Slack







ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Early Start	Early Finish	Free Slack	Predecessors	Successors	Resource Names	Gantt Chart (2020-2024)																																	
												2020		2021		2022		2023		2024																									
												Half 1, 2020	Half 2, 2020	Half 1, 2021	Half 2, 2021	Half 1, 2022	Half 2, 2022	Half 1, 2023	Half 2, 2023	Half 1, 2024																									
937	937.5.25.5	Design Submissions for DOU No. 2A	200 days	Tue 01/09/20	Sat 20/03/21	Tue 01/09/20	Sat 20/03/21	115 days				[Gantt bar for 937: Tue 01/09/20 to Sat 20/03/21]																																	
938	938.5.25.5.1	CDS007-2 - Detailed Design for Deodorisation System, DOU No. 2A	200 edays	Tue 01/09/20	Sat 20/03/21	Tue 01/09/20	Sat 20/03/21	0 edays	936	941,944,930FF		[Gantt bar for 938: Tue 01/09/20 to Sat 20/03/21]																																	
939	939.5.25.6	Manufacturing and Delivery of Plant & Materials	345 days	Sat 20/03/21	Sun 27/02/22	Sat 20/03/21	Sun 27/02/22	484 days				[Gantt bar for 939: Sat 20/03/21 to Sun 27/02/22]																																	
940	940.5.25.6.1	DOU 2A	345 days	Sat 20/03/21	Sun 27/02/22	Sat 20/03/21	Sun 27/02/22	484 days				[Gantt bar for 940: Sat 20/03/21 to Sun 27/02/22]																																	
941	941.5.25.6.1.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Sat 20/03/21	Thu 13/01/22	Sat 20/03/21	Thu 13/01/22	0 days	938	942		[Gantt bar for 941: Sat 20/03/21 to Thu 13/01/22]																																	
942	942.5.25.6.1.2	Shipping and Delivery of Plant to site	45 days	Fri 14/01/22	Sun 27/02/22	Fri 14/01/22	Sun 27/02/22	361 days	941	949		[Gantt bar for 942: Fri 14/01/22 to Sun 27/02/22]																																	
943	943.5.25.6.2	FRP Air Ductwork	345 days	Sat 20/03/21	Sun 27/02/22	Sat 20/03/21	Sun 27/02/22	484 days				[Gantt bar for 943: Sat 20/03/21 to Sun 27/02/22]																																	
944	944.5.25.6.2.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Sat 20/03/21	Thu 13/01/22	Sat 20/03/21	Thu 13/01/22	0 days	938	945		[Gantt bar for 944: Sat 20/03/21 to Thu 13/01/22]																																	
945	945.5.25.6.2.2	Shipping and Delivery of Plant to site	45 days	Fri 14/01/22	Sun 27/02/22	Fri 14/01/22	Sun 27/02/22	361 days	944	949		[Gantt bar for 945: Fri 14/01/22 to Sun 27/02/22]																																	
946	946.5.25.7	Tentative Civil Handover, DOU 2A (Rev. 5)	1 day	Thu 23/02/23	Thu 23/02/23	Thu 23/02/23	Thu 23/02/23	0 days				[Milestone for 946: Thu 23/02/23]																																	
947	947.5.25.8	Site Installation Work	231 days	Thu 23/02/23	Thu 12/10/23	Thu 23/02/23	Thu 12/10/23	123 days				[Gantt bar for 947: Thu 23/02/23 to Thu 12/10/23]																																	
948	948.5.25.8.1	Commencement of E&M Installation at DOU 2A	231 days	Thu 23/02/23	Thu 12/10/23	Thu 23/02/23	Thu 12/10/23	123 days	566			[Gantt bar for 948: Thu 23/02/23 to Thu 12/10/23]																																	
949	949.5.25.8.1.1	Mechanical Installations for DOU 2A	90 edays	Thu 23/02/23	Wed 24/05/23	Thu 23/02/23	Wed 24/05/23	0 edays	942,945	950	ME - F x 4~6 men	[Gantt bar for 949: Thu 23/02/23 to Wed 24/05/23]																																	
950	950.5.25.8.1.2	Electrical Installations for DOU 2A	90 edays	Wed 24/05/23	Tue 22/08/23	Wed 24/05/23	Tue 22/08/23	0 edays	949	951	EE - C x 4~6 men	[Gantt bar for 950: Wed 24/05/23 to Tue 22/08/23]																																	
951	951.5.25.8.1.3	Site Acceptance Test for E&M Equip for DOU 2A	30 edays	Tue 22/08/23	Thu 21/09/23	Tue 22/08/23	Thu 21/09/23	0 edays	970,971,95C952			[Gantt bar for 951: Tue 22/08/23 to Thu 21/09/23]																																	
952	952.5.25.8.1.4	System Commissioning Test for DOU 2A	21 edays	Thu 21/09/23	Thu 12/10/23	Thu 21/09/23	Thu 12/10/23	118.63 edays	951	1274		[Gantt bar for 952: Thu 21/09/23 to Thu 12/10/23]																																	
953	953.5.26	Deodorization System, DOU 3A, Portion B7 & B-7B (PS 6B.2.6)	1313 days	Fri 28/08/20	Mon 01/04/24	Fri 28/08/20	Mon 01/04/24	0 days				[Gantt bar for 953: Fri 28/08/20 to Mon 01/04/24]																																	
954	954.5.26.1	Planned Key Date Completion Date - KD1B, DOU 3A	0 days	Tue 01/06/21	Mon 01/06/21	Tue 01/06/21	Tue 01/06/21	0 days	958FF			[Milestone for 954: Tue 01/06/21]																																	
955	955.5.26.2	Planned Sectional Completion Date - Section 1, DOU 3A	0 days	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	0 days	959FF			[Milestone for 955: Mon 12/07/21]																																	
956	956.5.26.3	Planned Sectional Completion Date - Section 2, DOU 3A	0 days	Mon 01/04/24	Mon 01/04/24	Mon 01/04/24	Mon 01/04/24	0 days				[Milestone for 956: Mon 01/04/24]																																	
957	957.5.26.4	Design Submissions for DOU No. 3A	234 days	Fri 28/08/20	Mon 19/04/21	Fri 28/08/20	Mon 19/04/21	85 days				[Gantt bar for 957: Fri 28/08/20 to Mon 19/04/21]																																	
958	958.5.26.4.1	CDS081-8 - Civil and dimensional requirements drawings for DOU No. 3	200 days	Fri 28/08/20	Mon 15/03/21	Fri 28/08/20	Mon 15/03/21	0 days		954FF		[Gantt bar for 958: Fri 28/08/20 to Mon 15/03/21]																																	
959	959.5.26.4.2	CDS007-3 - Detailed Design for Deodorisation System, DOU No. 3A	200 edays	Thu 01/10/20	Mon 19/04/21	Thu 01/10/20	Mon 19/04/21	0 edays	936	962,965,955FF		[Gantt bar for 959: Thu 01/10/20 to Mon 19/04/21]																																	
960	960.5.26.5	Manufacturing and Delivery of Plant & Materials	225 days	Mon 19/04/21	Tue 30/11/21	Mon 19/04/21	Tue 30/11/21	634 days				[Gantt bar for 960: Mon 19/04/21 to Tue 30/11/21]																																	
961	961.5.26.5.1	DOU 3A	225 days	Mon 19/04/21	Tue 30/11/21	Mon 19/04/21	Tue 30/11/21	634 days				[Gantt bar for 961: Mon 19/04/21 to Tue 30/11/21]																																	
962	962.5.26.5.1.1	Manufacturing and Factory Acceptance Test of Plant	180 edays	Mon 19/04/21	Sat 16/10/21	Mon 19/04/21	Sat 16/10/21	0 edays	959	963		[Gantt bar for 962: Mon 19/04/21 to Sat 16/10/21]																																	
963	963.5.26.5.1.2	Shipping and Delivery of Plant to Site	45 edays	Sat 16/10/21	Tue 30/11/21	Sat 16/10/21	Tue 30/11/21	0 edays	962	970		[Gantt bar for 963: Sat 16/10/21 to Tue 30/11/21]																																	
964	964.5.26.5.2	FRP Air Ductwork	225 days	Mon 19/04/21	Tue 30/11/21	Mon 19/04/21	Tue 30/11/21	634 days				[Gantt bar for 964: Mon 19/04/21 to Tue 30/11/21]																																	
965	965.5.26.5.2.1	Manufacturing and Factory Acceptance Test of Plant	180 edays	Mon 19/04/21	Sat 16/10/21	Mon 19/04/21	Sat 16/10/21	0 edays	959	966		[Gantt bar for 965: Mon 19/04/21 to Sat 16/10/21]																																	
966	966.5.26.5.2.2	Shipping and Delivery of Plant to Site	45 edays	Sat 16/10/21	Tue 30/11/21	Sat 16/10/21	Tue 30/11/21	0 edays	965	970		[Gantt bar for 966: Sat 16/10/21 to Tue 30/11/21]																																	
967	967.5.26.6	Tentative Civil Handover, DOU 3A (Rev. 5)	1 day	Thu 19/05/22	Thu 19/05/22	Thu 19/05/22	Thu 19/05/22	0 days				[Milestone for 967: Thu 19/05/22]																																	
968	968.5.26.7	Site Installation Work	171 days	Tue 30/11/21	Fri 20/05/22	Tue 30/11/21	Fri 20/05/22	634 days				[Gantt bar for 968: Tue 30/11/21 to Fri 20/05/22]																																	
969	969.5.26.7.1	Commencement of E&M Installation at DOU 3A	171 days	Tue 30/11/21	Fri 20/05/22	Tue 30/11/21	Fri 20/05/22	634 days				[Gantt bar for 969: Tue 30/11/21 to Fri 20/05/22]																																	
970	970.5.26.7.1.1	Mechanical Installations for DOU 3A	120 edays	Tue 30/11/21	Wed 30/03/22	Tue 30/11/21	Wed 30/03/22	0 edays	966,963	971SS+30 edays,972,951	ME - F x 4~6 men	[Gantt bar for 970: Tue 30/11/21 to Wed 30/03/22]																																	
971	971.5.26.7.1.2	Electrical Installations for DOU 3A	90 edays	Thu 30/12/21	Wed 30/03/22	Thu 30/12/21	Wed 30/03/22	0 edays	970SS+30 edays,972,951		EE - D x 4~6 men	[Gantt bar for 971: Thu 30/12/21 to Wed 30/03/22]																																	
972	972.5.26.7.1.3	Site Acceptance Test for E&M Equip for DOU 3A	30 edays	Wed 30/03/22	Fri 29/04/22	Wed 30/03/22	Fri 29/04/22	0 edays	970,971	973		[Gantt bar for 972: Wed 30/03/22 to Fri 29/04/22]																																	
973	973.5.26.7.1.4	System Commissioning Test for DOU 3A	21 edays	Fri 29/04/22	Fri 20/05/22	Fri 29/04/22	Fri 20/05/22	629 edays	972	1274		[Gantt bar for 973: Fri 29/04/22 to Fri 20/05/22]																																	
974	974.5.27	Deodorization System, DOU 3B, Portion B-5B (PS 6B.2.6)	1265 days	Thu 15/10/20	Mon 01/04/24	Thu 15/10/20	Mon 01/04/24	0 days				[Gantt bar for 974: Thu 15/10/20 to Mon 01/04/24]																																	
975	975.5.27.1	Tentative Civil Handover Date, underground air pipework for DOU 3B (by	1 day	Wed 17/08/22	Wed 17/08/22	Wed 17/08/22	Wed 17/08/22	0 days		990FF+30 days,98455-60		[Milestone for 975: Wed 17/08/22]																																	
976	976.5.27.2	Planned Key Date Completion Date - KD1B, DOU 3B	0 days	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	0 days				[Milestone for 976: Tue 01/06/21]																																	
977	977.5.27.3	Planned Sectional Completion Date - Section 1, DOU 3B	0 days	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	0 days	980FF			[Milestone for 977: Mon 12/07/21]																																	
978	978.5.27.4	Planned Sectional Completion Date - Section 2, DOU 3B	0 days	Mon 01/04/24	Mon 01/04/24	Mon 01/04/24	Mon 01/04/24	0 days				[Milestone for 978: Mon 01/04/24]																																	
979	979.5.27.5	Design Submissions for DOU No. 3B	200 days	Thu 15/10/20	Mon 03/05/21	Thu 15/10/20	Mon 03/05/21	71 days				[Gantt bar for 979: Thu 15/10/20 to Mon 03/05/21]																																	
980	980.5.27.5.1	CDS007-4 - Detailed Design for Deodorisation System, DOU No. 3B	200 edays	Thu 15/10/20	Mon 03/05/21	Thu 15/10/20	Mon 03/05/21	0 edays	936	983,986,977FF		[Gantt bar for 980: Thu 15/10/20 to Mon 03/05/21]																																	
981	981.5.27.6	Manufacturing and Delivery of Plant & Materials	471 days	Mon 03/05/21	Wed 17/08/22	Mon 03/05/21	Wed 17/08/22	374 days				[Gantt bar for 981: Mon 03/05/21 to Wed 17/08/22]																																	
982	982.5.27.6.1	DOU 3B	471 days	Mon 03/05/21	Wed 17/08/22	Mon 03/05/21	Wed 17/08/22	374 days				[Gantt bar for 982: Mon 03/05/21 to Wed 17/08/22]																																	
983	983.5.27.6.1.1	Manufacturing and Factory Acceptance Test of Plant	180 edays	Mon 03/05/21	Sat 30/10/21	Mon 03/05/21	Sat 30/10/21	231 edays	980	984		[Gantt bar for 983: Mon 03/05/21 to Sat 30/10/21]																																	
984	984.5.27.6.1.2	Shipping and Delivery of Plant to Site	60 edays	Sat 18/06/22	Wed 17/08/22	Sat 18/06/22	Wed 17/08/22	0 edays	983,975SS-6990			[Gantt bar for 984: Sat 18/06/22 to Wed 17/08/22]																																	
985	985.5.27.6.2	FRP Air Ductwork	456 days	Mon 03/05/21	Tue 02/08/22	Mon 03/05/21	Tue 02/08/22	389 days				[Gantt bar for 985: Mon 03/05/21 to Tue 02/08/22]																																	
986	986.5.27.6.2.1	Manufacturing and Factory Acceptance Test of Plant	180 edays	Mon 03/05/21	Sat 30/10/21	Mon 03/05/21	Sat 30/10/21	231 edays	980	987		[Gantt bar for 986: Mon 03/05/21 to Sat 30/10/21]																																	
987	987.5.27.6.2.2	Shipping and Delivery of Plant to Site	45 edays	Sat 18/06/22	Tue 02/08/22	Sat 18/06/22	Tue 02/08/22	15 edays	986,975SS-6990			[Gantt bar for 987: Sat 18/06/22 to Tue 02/08/22]																																	
988	988.5.27.7	Site Installation Work	171 days	Wed 17/08/22	Sat 04/02/23	Wed 17/08/22	Sat 04/02/23	374 days				[Gantt bar for 988: Wed 17/08/22 to Sat 04/02/23]																																	
989	989.5.27.7.1	Commencement of E&M Installation at DOU 3B	171 days	Wed 17/08/22	Sat 04/02/23	Wed 17/08/22	Sat 04/02/23	374 days				[Gantt bar for 989: Wed 17/08/22 to Sat 04/02/23]																																	
990	990.5.27.7.1.1	Mechanical Installations for DOU 3B	120 edays	Wed 17/08/22	Thu 15/12/22	Wed 17/08/22	Thu 15/12/22	0 edays	975FF+30 edays,991SS+30 edays,992		ME - F x 4~6 men	[Gantt bar for 990: Wed 17/08/22 to Thu 15/12/22]																																	
991	991.5.27.7.1.2	Electrical Installations for DOU 3B	90 edays	Fri 16/09/22	Thu 15/12/22	Fri 16/09/22	Thu 15/12/22	0 edays	990SS+30 edays,992		EE - D x 4~6 men	[Gantt bar for 991: Fri 16/09/22 to Thu 15/12/22]																																	
992	992.5.27.7.1.3	Site Acceptance Test for E&M Equip for DOU 3B	30 edays	Thu 15/12/22	Sat 14/01/23	Thu 15/12/22	Sat 14/01/23	0 edays	990,991	993		[Gantt bar for 992: Thu 15/12/22 to Sat 14/01/23]																																	
993	993.5.27.7.1.4	System Commissioning Test for DOU 3B	21 edays	Sat 14/01/23	Sat 04/02/23	Sat 14/01/23	Sat 04/02/23	369 edays	992	1274		[Gantt bar for 993: Sat 14/01/23 to Sat 04/02/23]																																	
994	994.5.28	Flowmeter and Valve Chambers, Portion B7 & B-7B (PS 6B.2.13)	1278 days	Sun 01/11/20	Wed 01/05/24	Sun 01/11/20	Wed 01/05/24	0 days				[Gantt bar for 994: Sun 01/11/20 to Wed 01/05/24]																																	
995	995.5.28.1	Planned Key Date Completion Date - KD1B, Chambers	0 days	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	0 days	1000FF			[Milestone for 995: Tue 01/06/21]																																	

Bestwise Project: DE/2018/04 Date: 28/09/21

Task Milestone Summary Project Summary Manual Summary Late Critical Progress Manual Progress Slack (Float) Milestone (Actual) Slack



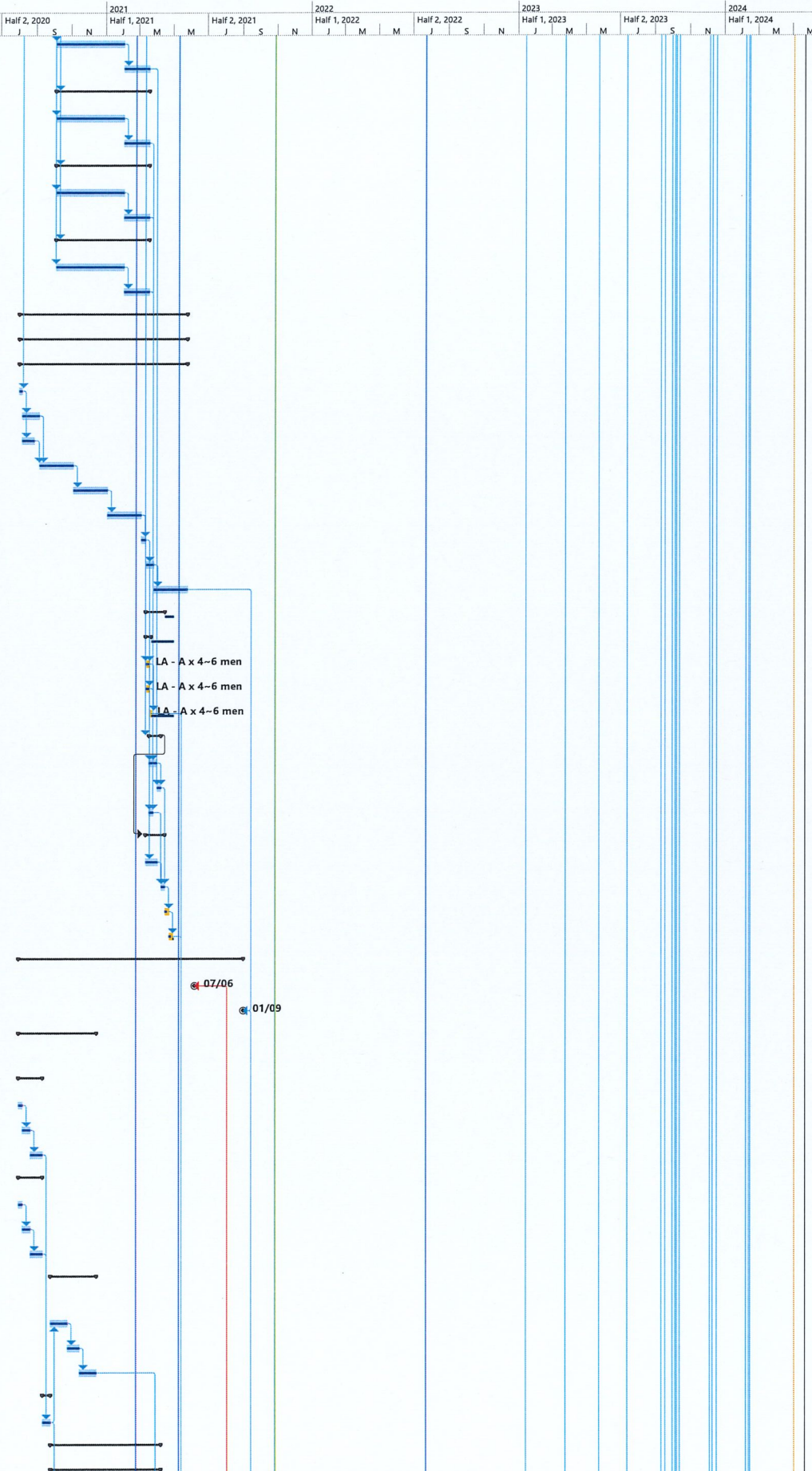
ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Early Start	Early Finish	Free Slack	Predecessors	Successors	Resource Names	Gantt Chart (2020-2024)																											
996	996 5.28.2	Planned Sectional Completion Date - Section 1, Chambers	0 days	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	0 days	1001FF			[Gantt Chart Bar]																											
997	997 5.28.3	Planned Sectional Completion Date - Section 2, Chambers	0 days	Mon 01/04/24	Mon 01/04/24	Mon 01/04/24	Mon 01/04/24	0 days				[Gantt Chart Bar]																											
998	998 5.28.4	Planned Sectional Completion Date - Section 4, Chambers	0 days	Wed 01/05/24	Wed 01/05/24	Wed 01/05/24	Wed 01/05/24	0 days				[Gantt Chart Bar]																											
999	999 5.28.5	Design Submissions for Valve and Flowmeter Chambers	210 days	Sun 01/11/20	Sat 29/05/21	Sun 01/11/20	Sat 29/05/21	0 days				[Gantt Chart Bar]																											
1000	1000 5.28.5.1	CDS081-9 - Civil and dimensional requirements drawings for Valve and	90 days	Mon 01/03/21	Sat 29/05/21	Mon 01/03/21	Sat 29/05/21	0 days		995FF		[Gantt Chart Bar]																											
1001	1001 5.28.5.2	CDS018 - Detailed Design for Flowmeter and Valve Chambers	90 days	Sun 01/11/20	Sat 30/01/21	Sun 01/11/20	Sat 30/01/21	0 days		1003,996FF		[Gantt Chart Bar]																											
1002	1002 5.28.6	Manufacturing and Delivery of Plant & Materials	225 days	Sat 30/01/21	Sat 11/09/21	Sat 30/01/21	Sat 11/09/21	734 days				[Gantt Chart Bar]																											
1003	1003 5.28.6.1	Manufacturing and Factory Acceptance Test of Plant	180 days	Sat 30/01/21	Wed 28/07/21	Sat 30/01/21	Wed 28/07/21	0 days	1001	1004		[Gantt Chart Bar]																											
1004	1004 5.28.6.2	Shipping and Delivery of Plant to Site	45 days	Thu 29/07/21	Sat 11/09/21	Thu 29/07/21	Sat 11/09/21	0 days	1003	1008		[Gantt Chart Bar]																											
1005	1005 5.28.7	Tentative Civil Handover, Chambers (Rev. 5)	1 day	Thu 19/05/22	Thu 19/05/22	Thu 19/05/22	Thu 19/05/22	0 days				[Gantt Chart Bar]																											
1006	1006 5.28.8	Site Installation Work	150 days	Sun 12/09/21	Tue 08/02/22	Sun 12/09/21	Tue 08/02/22	734 days				[Gantt Chart Bar]																											
1007	1007 5.28.8.1	Commencement of Valves and Flowmeters Installation at Chambers	150 days	Sun 12/09/21	Tue 08/02/22	Sun 12/09/21	Tue 08/02/22	734 days				[Gantt Chart Bar]																											
1008	1008 5.28.8.1.1	Installation of valves and flowmeters	90 days	Sun 12/09/21	Fri 10/12/21	Sun 12/09/21	Fri 10/12/21	0 days	1004	1009	ME - C x 4-6 men	[Gantt Chart Bar]																											
1009	1009 5.28.8.1.2	cables laying and terminations	60 days	Sat 11/12/21	Tue 08/02/22	Sat 11/12/21	Tue 08/02/22	729 days	1008	1274	EE - A x 4-6 men	[Gantt Chart Bar]																											
1010	1010 5.29	Underground Pipework, Modification and Connection Works, Portion B-9B (PS 6B.2.22)	1161 days	Mon 01/03/21	Sat 04/05/24	Mon 01/03/21	Sat 04/05/24	0 days				[Gantt Chart Bar]																											
1011	1011 5.29.1	Planned Key Date Completion Date - KD1B, UU	0 days	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	0 days	1015FF			[Gantt Chart Bar]																											
1012	1012 5.29.2	Planned Sectional Completion Date - Section 1, Underground Pipework	0 days	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	0 days	1016FF			[Gantt Chart Bar]																											
1013	1013 5.29.3	Planned Sectional Completion Date - Section 4, Underground Pipework	0 days	Wed 01/05/24	Wed 01/05/24	Wed 01/05/24	Wed 01/05/24	0 days	1026FF			[Gantt Chart Bar]																											
1014	1014 5.29.4	Design Submissions	90 days	Mon 01/03/21	Sun 30/05/21	Mon 01/03/21	Sun 30/05/21	3 days				[Gantt Chart Bar]																											
1015	1015 5.29.4.1	CDS015 - Detailed Design for Underground Pipework Modification and	90 days	Mon 01/03/21	Sun 30/05/21	Mon 01/03/21	Sun 30/05/21	2.38 edays		1011FF		[Gantt Chart Bar]																											
1016	1016 5.29.4.2	CDS016 - Detailed Design for Temporary Pumping System for maintaini	50 days	Mon 01/03/21	Tue 20/04/21	Mon 01/03/21	Tue 20/04/21	0 days		1018,1012FF		[Gantt Chart Bar]																											
1017	1017 5.29.5	Manufacturing and Delivery of Plant & Materials	1079 days	Tue 20/04/21	Tue 02/04/24	Tue 20/04/21	Tue 02/04/24	16 days				[Gantt Chart Bar]																											
1018	1018 5.29.5.1	Manufacturing and Factory Acceptance Test of Plant	180 days	Tue 20/04/21	Sat 16/10/21	Tue 20/04/21	Sat 16/10/21	854 days	1016	1019		[Gantt Chart Bar]																											
1019	1019 5.29.5.2	Shipping and Delivery of Plant to Site	45 days	Sun 18/02/24	Tue 02/04/24	Sun 18/02/24	Tue 02/04/24	16 days	1018,1020S:1024			[Gantt Chart Bar]																											
1020	1020 5.29.6	Tentative Civil Handover, Road (Rev. 5)	1 day	Thu 18/04/24	Thu 18/04/24	Thu 18/04/24	Thu 18/04/24	0 days		10195S-60 edays,1023		[Gantt Chart Bar]																											
1021	1021 5.29.7	Site Installation	16 days	Fri 19/04/24	Sat 04/05/24	Fri 19/04/24	Sat 04/05/24	0 days				[Gantt Chart Bar]																											
1022	1022 5.29.7.1	Commencement of underground pipework modification and connection wor	16 days	Fri 19/04/24	Sat 04/05/24	Fri 19/04/24	Sat 04/05/24	0 days				[Gantt Chart Bar]																											
1023	1023 5.29.7.1.1	Temporary Flow Diversion and Road Excavation Work	3 days	Fri 19/04/24	Sun 21/04/24	Fri 19/04/24	Sun 21/04/24	0 days	1020	1024		[Gantt Chart Bar]																											
1024	1024 5.29.7.1.2	Pipe Laying and connection works	7 days	Mon 22/04/24	Sun 28/04/24	Mon 22/04/24	Sun 28/04/24	0 days	1023,1019	1025		[Gantt Chart Bar]																											
1025	1025 5.29.7.1.3	Pressure Tests	3 days	Mon 29/04/24	Wed 01/05/24	Mon 29/04/24	Wed 01/05/24	0 days	1024	1026		[Gantt Chart Bar]																											
1026	1026 5.29.7.1.4	Make Good	3 days	Thu 02/05/24	Sat 04/05/24	Thu 02/05/24	Sat 04/05/24	0 days	1025	1013FF		[Gantt Chart Bar]																											
1027	1027 5.30	Temporary Filtrate Lifting Well and Eq. Tank, Portion B-3B (PS 6B.2.16)	450 days	Mon 02/03/20	Tue 25/05/21	Mon 02/03/20	Tue 25/05/21	0 days				[Gantt Chart Bar]																											
1028	1028 5.30.1	Selection of Suppliers for major plant and materials and Civil Subcontrac	196 days	Mon 02/03/20	Sun 13/09/20	Mon 02/03/20	Sun 13/09/20	0 days				[Gantt Chart Bar]																											
1029	1029 5.30.1.1	Mis - filtrate lift pumps and filtrate transfer pumps, C11, ref. EQT011	73 days	Mon 02/03/20	Wed 13/05/20	Mon 02/03/20	Wed 13/05/20	0 days				[Gantt Chart Bar]																											
1030	1030 5.30.1.1.1	Submission for acceptance of purchasing package	29 days	Mon 02/03/20	Mon 30/03/20	Mon 02/03/20	Mon 30/03/20	0 days		1031		[Gantt Chart Bar]																											
1031	1031 5.30.1.1.2	Invitation of quotations for purchasing package	30 days	Tue 31/03/20	Wed 29/04/20	Tue 31/03/20	Wed 29/04/20	0 days	1030	1032		[Gantt Chart Bar]																											
1032	1032 5.30.1.1.3	Acceptance of conforming quotation and acceptance for Manufacture (Com	14 days	Thu 30/04/20	Wed 13/05/20	Thu 30/04/20	Wed 13/05/20	0 days	1031	1051,1054		[Gantt Chart Bar]																											
1033	1033 5.30.1.2	Mis - Instrumentations	73 days	Mon 02/03/20	Wed 13/05/20	Mon 02/03/20	Wed 13/05/20	0 days				[Gantt Chart Bar]																											
1034	1034 5.30.1.2.1	Submission for acceptance of purchasing package	29 days	Mon 02/03/20	Mon 30/03/20	Mon 02/03/20	Mon 30/03/20	0 days		1035		[Gantt Chart Bar]																											
1035	1035 5.30.1.2.2	Invitation of quotations for purchasing package	30 days	Tue 31/03/20	Wed 29/04/20	Tue 31/03/20	Wed 29/04/20	0 days	1034	1036		[Gantt Chart Bar]																											
1036	1036 5.30.1.2.3	Acceptance of conforming quotation and acceptance for Manufactu	14 days	Thu 30/04/20	Wed 13/05/20	Thu 30/04/20	Wed 13/05/20	0 days	1035	1051,1057		[Gantt Chart Bar]																											
1037	1037 5.30.1.3	Mis - Pipework (To be provided by Mechanical Sub-Contractor)	42 days	Mon 03/08/20	Sun 13/09/20	Mon 03/08/20	Sun 13/09/20	0 days				[Gantt Chart Bar]																											
1038	1038 5.30.1.3.1	Submission for acceptance of purchasing package	7 days	Mon 03/08/20	Sun 09/08/20	Mon 03/08/20	Sun 09/08/20	0 days		1039		[Gantt Chart Bar]																											
1039	1039 5.30.1.3.2	Invitation of quotations for purchasing package	14 days	Mon 10/08/20	Sun 23/08/20	Mon 10/08/20	Sun 23/08/20	0 days	1038	1040		[Gantt Chart Bar]																											
1040	1040 5.30.1.3.3	Acceptance of conforming quotation and acceptance for Manufactu	21 days	Mon 24/08/20	Sun 13/09/20	Mon 24/08/20	Sun 13/09/20	0 days	1039	1051,1060		[Gantt Chart Bar]																											
1041	1041 5.30.1.4	Mis - Valve (To be provided by Mechanical Sub-Contractor)	42 days	Mon 03/08/20	Sun 13/09/20	Mon 03/08/20	Sun 13/09/20	0 days				[Gantt Chart Bar]																											
1042	1042 5.30.1.4.1	Submission for acceptance of purchasing package	7 days	Mon 03/08/20	Sun 09/08/20	Mon 03/08/20	Sun 09/08/20	0 days		1043		[Gantt Chart Bar]																											
1043	1043 5.30.1.4.2	Invitation of quotations for purchasing package	14 days	Mon 10/08/20	Sun 23/08/20	Mon 10/08/20	Sun 23/08/20	0 days	1042	1044		[Gantt Chart Bar]																											
1044	1044 5.30.1.4.3	Acceptance of conforming quotation and acceptance for Manufactu	21 days	Mon 24/08/20	Sun 13/09/20	Mon 24/08/20	Sun 13/09/20	0 days	1043	1051,1063		[Gantt Chart Bar]																											
1045	1045 5.30.1.5	Civil Work Subletting Package (Repeated WBS 5.13.17)	19 days	Tue 14/07/20	Sat 01/08/20	Tue 14/07/20	Sat 01/08/20	0 days				[Gantt Chart Bar]																											
1046	1046 5.30.1.5.1	Submission for acceptance of subletting package	3 days	Tue 14/07/20	Thu 16/07/20	Tue 14/07/20	Thu 16/07/20	0 days		1047		[Gantt Chart Bar]																											
1047	1047 5.30.1.5.2	Invitation of tender for subletting package	14 days	Fri 17/07/20	Thu 30/07/20	Fri 17/07/20	Thu 30/07/20	0 days	1046	1048		[Gantt Chart Bar]																											
1048	1048 5.30.1.5.3	Acceptance of conforming quotation and acceptance for Manufactu	2 days	Fri 31/07/20	Sat 01/08/20	Fri 31/07/20	Sat 01/08/20	0 days	1047	1054,1057,1060,1063,10		[Gantt Chart Bar]																											
1049	1049 5.30.2	Design Submissions for Temporary Filtrate Lifting Well and Eq. Tank	34 days	Tue 01/09/20	Sun 04/10/20	Tue 01/09/20	Sun 04/10/20	0 days				[Gantt Chart Bar]																											
1050	1050 5.30.2.1	CDS050-5 - Detailed Design for Lifting Appliances - Temp. Filtrate Eq. Sy	30 days	Tue 01/09/20	Thu 01/10/20	Tue 01/09/20	Thu 01/10/20	0 days	116	1079		[Gantt Chart Bar]																											
1051	1051 5.30.2.2	Design submission for E&M Installation works for temp. filtrate eq. syst	21 days	Mon 14/09/20	Sun 04/10/20	Mon 14/09/20	Sun 04/10/20	0 days	1032,1036,11053,1059,1056,1062			[Gantt Chart Bar]																											
1052	1052 5.30.3	Manufacturing and Delivery of Plant & Materials	165 days	Mon 05/10/20	Thu 18/03/21	Mon 05/10/20	Thu 18/03/21	0 days				[Gantt Chart Bar]																											
1053	1053 5.30.3.1	Filtrate Lift Pumps and Filtrate Transfer Pump, EQT011	165 days	Mon 05/10/20	Thu 18/03/21	Mon 05/10/20	Thu 18/03/21	0 days	1051			[Gantt Chart Bar]																											

Task Milestone Project Summary Late Critical Split Manual Progress Milestone (Actual) Slack Slack (Float)

Milestone, Tentative Summary Manual Summary Critical Progress Slack



ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Early Start	Early Finish	Free Slack	Predecessors	Successors	Resource Names	2020 Half 1, 2020	2020 Half 2, 2020	2021 Half 1, 2021	2021 Half 2, 2021	2022 Half 1, 2022	2022 Half 2, 2022	2023 Half 1, 2023	2023 Half 2, 2023	2024 Half 1, 2024
1054	1054.5.30.3.1.1	Manufacturing and Factory Acceptance Test of Plant	120 days	Mon 05/10/20	Mon 01/02/21	Mon 05/10/20	Mon 01/02/21	0 days	1048,1032	1055										
1055	1055.5.30.3.1.2	Shipping and Delivery of Plant to site (Delivered)	45 days	Tue 02/02/21	Thu 18/03/21	Tue 02/02/21	Thu 18/03/21	0 days	1054	1084										
1056	1056.5.30.3.2	<b>Instrumentations</b>	165 days	Mon 05/10/20	Thu 18/03/21	Mon 05/10/20	Thu 18/03/21	0 days	1051											
1057	1057.5.30.3.2.1	Manufacturing and Factory Acceptance Test of Plant	120 days	Mon 05/10/20	Mon 01/02/21	Mon 05/10/20	Mon 01/02/...	0 days	1048,1036	1058										
1058	1058.5.30.3.2.2	Shipping and Delivery of Plant to site	45 days	Tue 02/02/21	Thu 18/03/21	Tue 02/02/21	Thu 18/03/21	0 days	1057	1085										
1059	1059.5.30.3.3	<b>Pipework</b>	165 days	Mon 05/10/20	Thu 18/03/21	Mon 05/10/20	Thu 18/03/21	0 days	1051											
1060	1060.5.30.3.3.1	Manufacturing and Factory Acceptance Test of Plant	120 days	Mon 05/10/20	Mon 01/02/21	Mon 05/10/20	Mon 01/02/...	0 days	1048,1040	1061										
1061	1061.5.30.3.3.2	Shipping and Delivery of Plant to site	45 days	Tue 02/02/21	Thu 18/03/21	Tue 02/02/21	Thu 18/03/21	0 days	1060	1083										
1062	1062.5.30.3.4	<b>Valve</b>	165 days	Mon 05/10/20	Thu 18/03/21	Mon 05/10/20	Thu 18/03/21	0 days	1051											
1063	1063.5.30.3.4.1	Manufacturing and Factory Acceptance Test of Plant	120 days	Mon 05/10/20	Mon 01/02/21	Mon 05/10/20	Mon 01/02/...	0 days	1048,1044	1064										
1064	1064.5.30.3.4.2	Shipping and Delivery of Plant to site	45 days	Tue 02/02/21	Thu 18/03/21	Tue 02/02/21	Thu 18/03/21	0 days	1063	1083										
1065	1065.5.30.4	<b>Site Installation Work</b>	297 days	Sat 01/08/20	Tue 25/05/21	Sat 01/08/20	Tue 25/05/21	0 days												
1066	1066.5.30.4.1	<b>Commencement of Civil Construction and E&amp;M Installation at Temp. I</b>	297 days	Sat 01/08/20	Tue 25/05/21	Sat 01/08/20	Tue 25/05/21	0 days												
1067	1067.5.30.4.1.1	<b>Civil Construction Work</b>	297 days	Sat 01/08/20	Tue 25/05/21	Sat 01/08/20	Tue 25/05/21	0 days												
1068	1068.5.30.4.1.1.1	Civil on-site survey and report submission for acceptance	5 edays	Sat 01/08/20	Thu 06/08/20	Sat 01/08/20	Thu 06/08/20	0 edays	1048	1069,1070										
1069	1069.5.30.4.1.1.1	Civil structural design and drawing submission for acceptance	30 days	Fri 07/08/20	Sat 05/09/20	Fri 07/08/20	Sat 05/09/20	0 days	1068	1071										
1070	1070.5.30.4.1.1.1	Site Clearance, UU diversion and construction of U-channel	21 days	Fri 07/08/20	Thu 27/08/20	Fri 07/08/20	Thu 27/08/20	0 days	1068	1071										
1071	1071.5.30.4.1.1.1	ELS (Sheeting and Excavation)	60 days	Sun 06/09/20	Wed 04/11/20	Sun 06/09/20	Wed 04/11/...	0 days	1070,1069	1072										
1072	1072.5.30.4.1.1.1	Grouting Works	60 days	Thu 05/11/20	Sun 03/01/21	Thu 05/11/20	Sun 03/01/21	0 days	1071	1073										
1073	1073.5.30.4.1.1.1	RC structure works including cast-in items	60 days	Mon 04/01/21	Thu 04/03/21	Mon 04/01/21	Thu 04/03/21	0 days	1072	1082,1079,1074										
1074	1074.5.30.4.1.1.1	Removal Formwork and Flasework	8 days	Fri 05/03/21	Fri 12/03/21	Fri 05/03/21	Fri 12/03/21	0 days	1073	1079,1080,1083,1085,10										
1075	1075.5.30.4.1.1.1	Waterproofing	14 days	Sat 13/03/21	Fri 26/03/21	Sat 13/03/21	Fri 26/03/21	0 days	1074	1076										
1076	1076.5.30.4.1.1.1	Other architectural works and finishing works	60 days	Sat 27/03/21	Tue 25/05/21	Sat 27/03/21	Tue 25/05/21	0 days	1075	1093FF										
1077	1077.5.30.4.1.2	<b>E&amp;M Installation Work</b>	34 days	Sat 13/03/21	Thu 15/04/21	Sat 13/03/21	Thu 15/04/21	16 days												
1078	1078.5.30.4.1.2	<b>Installation of Lifting Appliances at Temporary Filtrate Lifting We</b>	10 days	Sat 13/03/21	Mon 22/03/21	Sat 13/03/21	Mon 22/03/...	40 days												
1079	1079.5.30.4.1.2.1	GF MR LA-09-01 SWL 1t	7 days	Sat 13/03/21	Fri 19/03/21	Sat 13/03/21	Fri 19/03/21	0 days	1073,1050,11081		LA - A x 4~6 men									
1080	1080.5.30.4.1.2.1	GF MR LA-09-02 SWL 1t	7 days	Sat 13/03/21	Fri 19/03/21	Sat 13/03/21	Fri 19/03/21	0 days	1074	1081	LA - A x 4~6 men									
1081	1081.5.30.4.1.2.1	Site Acceptance test and loading test of LA	3 days	Sat 20/03/21	Mon 22/03/21	Sat 20/03/21	Mon 22/03/...	40 days	1079,1080	1116FF	LA - A x 4~6 men									
1082	1082.5.30.4.1.2	<b>Mechanical Installations for Temp. Filtrate Lifting Well and Eq. T</b>	21 days	Fri 19/03/21	Thu 08/04/21	Fri 19/03/21	Thu 08/04/21	0 days	1073	1086FS-30 days										
1083	1083.5.30.4.1.2.1	Installation of pipework, chemical pipework and valves, EQT035	14 days	Fri 19/03/21	Thu 01/04/21	Fri 19/03/21	Thu 01/04/21	0 days	1074,1061,11084		ME - A x 4~6 men									
1084	1084.5.30.4.1.2.1	Installation of pumps	7 days	Fri 02/04/21	Thu 08/04/21	Fri 02/04/21	Thu 08/04/21	0 days	1083,1055	1088	ME - A x 4~6 men									
1085	1085.5.30.4.1.2.1	Installation of instrumentations, EQT035-3	7 days	Fri 19/03/21	Thu 25/03/21	Fri 19/03/21	Thu 25/03/21	0 days	1074,1058	1088	ME - A x 4~6 men									
1086	1086.5.30.4.1.2	<b>Electrical Installations for Temp. Filtrate Lifting Well and Eq. Tanl</b>	34 days	Sat 13/03/21	Thu 15/04/21	Sat 13/03/21	Thu 15/04/21	0 days	1082FS-30 d											
1087	1087.5.30.4.1.2.1	Installation of cable trays and cable containments	21 days	Sat 13/03/21	Fri 02/04/21	Sat 13/03/21	Fri 02/04/21	0 days	1074	1088	EE - A x 4~6 men									
1088	1088.5.30.4.1.2.1	Cables laying and terminations	7 days	Fri 09/04/21	Thu 15/04/21	Fri 09/04/21	Thu 15/04/21	0 days	1087,1084,11089		EE - A x 4~6 men									
1089	1089.5.30.4.1.3	Site Acceptance Test for E&M Equip at Filtrate Lifting Well and Eq. T	7 days	Fri 16/04/21	Thu 22/04/21	Fri 16/04/21	Thu 22/04/21	0 days	1088	1090										
1090	1090.5.30.4.1.4	System Commissioning for E&M Equip at Temp. Filtrate Lifting Well i	7 days	Fri 23/04/21	Thu 29/04/21	Fri 23/04/21	Thu 29/04/21	2 days	1089	1116FF										
1091	1091.5.31	<b>Existing PST No. 4 and No. 6, Portion B-3A (PS 6B.2.15)</b>	397 days	Sat 01/08/20	Wed 01/09/21	Sat 01/08/20	Wed 01/09/...	0 days												
1092	1092.5.31.1	Planned Key Date Completion Date - KD3B	0 days	Mon 07/06/21	Mon 07/06/21	Mon 07/06/21	Mon 07/06/...	0 days	1159FF											
1093	1093.5.31.2	Planned Sectional Completion Date - Section 3, PST No. 4 and No. 6	0 days	Wed 01/09/21	Wed 01/09/21	Wed 01/09/21	Wed 01/09/...	0 days	1076FF,118!											
1094	1094.5.31.3	<b>Selection of Suppliers for major plant and materials and Subcontractor for PST No. 4 and No. 6</b>	137 days	Sat 01/08/20	Tue 15/12/20	Sat 01/08/20	Tue 15/12/20	0 days												
1095	1095.5.31.3.1	Mis - Rotating Bridge Scrapers and associated materials, C11, ref. EQT037-1	42 days	Sat 01/08/20	Fri 11/09/20	Sat 01/08/20	Fri 11/09/20	0 days												
1096	1096.5.31.3.1.1	Submission for acceptance of purchasing package	7 days	Sat 01/08/20	Fri 07/08/20	Sat 01/08/20	Fri 07/08/20	0 days		1097										
1097	1097.5.31.3.1.2	Invitation of quotations for purchasing package	14 days	Sat 08/08/20	Fri 21/08/20	Sat 08/08/20	Fri 21/08/20	0 days	1096	1098										
1098	1098.5.31.3.1.3	Acceptance of conforming quotation (Completed)	21 days	Sat 22/08/20	Fri 11/09/20	Sat 22/08/20	Fri 11/09/20	0 days	1097	1108										
1099	1099.5.31.3.2	<b>Mis - Pipework, C11, ref. EQT037-2</b>	42 days	Sat 01/08/20	Fri 11/09/20	Sat 01/08/20	Fri 11/09/20	0 days												
1100	1100.5.31.3.2.1	Submission for acceptance of purchasing package	7 days	Sat 01/08/20	Fri 07/08/20	Sat 01/08/20	Fri 07/08/20	0 days		1101										
1101	1101.5.31.3.2.2	Invitation of quotations for purchasing package	14 days	Sat 08/08/20	Fri 21/08/20	Sat 08/08/20	Fri 21/08/20	0 days	1100	1102										
1102	1102.5.31.3.2.3	Acceptance of conforming quotation (Completed)	21 days	Sat 22/08/20	Fri 11/09/20	Sat 22/08/20	Fri 11/09/20	0 days	1101	1108										
1103	1103.5.31.3.3	<b>Subletting of Electrical and Mechanical Installation Work w/ supply of LCP</b>	81 days	Sat 26/09/20	Tue 15/12/20	Sat 26/09/20	Tue 15/12/20	0 days												
1104	1104.5.31.3.3.1	Submission for Subletting Package	30 days	Sat 26/09/20	Sun 25/10/20	Sat 26/09/20	Sun 25/10/20	0 days	1108	1105										
1105	1105.5.31.3.3.2	Invitation to tender	21 days	Mon 26/10/20	Sun 15/11/20	Mon 26/10/20	Sun 15/11/20	0 days	1104	1106										
1106	1106.5.31.3.3.3	Acceptance of conforming tender (Completed)	30 days	Mon 16/11/20	Tue 15/12/20	Mon 16/11/20	Tue 15/12/20	0 days	1105	1123										
1107	1107.5.31.4	<b>Design Submissions</b>	14 days	Sat 12/09/20	Fri 25/09/20	Sat 12/09/20	Fri 25/09/20	0 days												
1108	1108.5.31.4.1	Design submissions for retrofitting the existing PST No. 4 and No. 6	14 days	Sat 12/09/20	Fri 25/09/20	Sat 12/09/20	Fri 25/09/20	0 days	1098,1102	1111,1114,1104										
1109	1109.5.31.5	<b>Manufacturing and Delivery of Plant &amp; Materials</b>	195 days	Sat 26/09/20	Thu 08/04/21	Sat 26/09/20	Thu 08/04/21	0 days												
1110	1110.5.31.5.1	<b>Rotating Bridge Scrapers and associated materials</b>	195 days	Sat 26/09/20	Thu 08/04/21	Sat 26/09/20	Thu 08/04/21	0 days												



Task Milestone



Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 E&M Works for Sewage Treatment Facilities

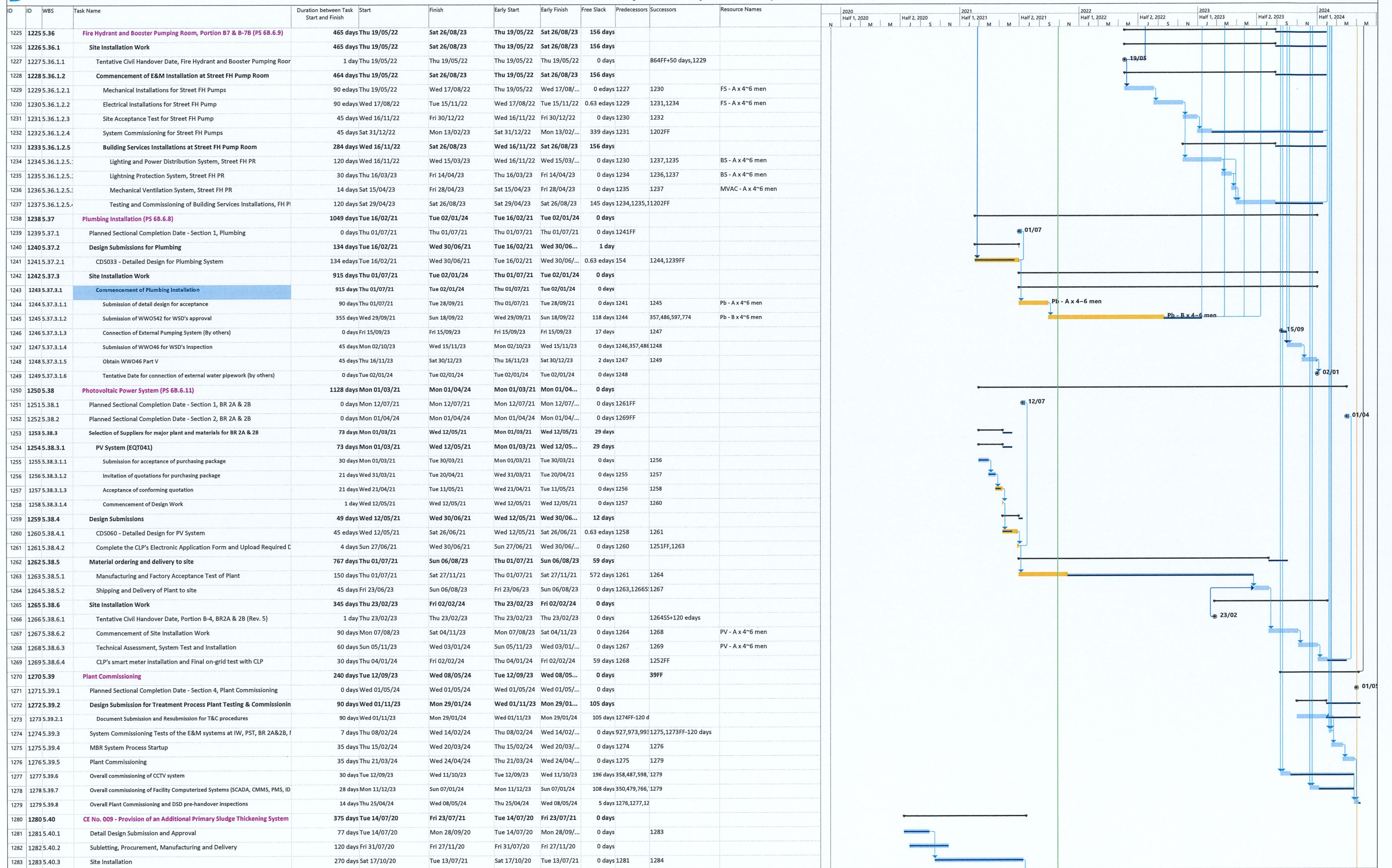
ID	ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Early Start	Early Finish	Free Slack	Predecessors	Successors	Resource Names	2020 Half 1, 2020	2020 Half 2, 2020	2021 Half 1, 2021	2021 Half 2, 2021	2022 Half 1, 2022	2022 Half 2, 2022	2023 Half 1, 2023	2023 Half 2, 2023	2024 Half 1, 2024		
1111	1111.5.31.5.1.1		Manufacturing and Factory Acceptance Test of Plant	150 days	Sat 26/09/20	Mon 22/02/21	Sat 26/09/20	Mon 22/02/21	0 days	1108	1112												
1112	1112.5.31.5.1.2		Shipping and Delivery of Plant to site (Rev. 8)	45 days	Tue 23/02/21	Thu 08/04/21	Tue 23/02/21	Thu 08/04/21	0 days	1111	1129												
1113	1113.5.31.5.2		Pipework	120 days	Sat 26/09/20	Sat 23/01/21	Sat 26/09/20	Sat 23/01/21	0 days														
1114	1114.5.31.5.2.1		Manufacturing and Factory Acceptance Test of Plant	90 days	Sat 26/09/20	Thu 24/12/20	Sat 26/09/20	Thu 24/12/20	0 days	1108	1115												
1115	1115.5.31.5.2.2		Shipping and Delivery of Plant to site	30 days	Fri 25/12/20	Sat 23/01/21	Fri 25/12/20	Sat 23/01/21	0 days	1114	1124												
1116	1116.5.31.6		Tentative Civil Handover, Filtrate Lifting Well and Eq. Tank (Completion of work)	1 day	Sat 01/05/21	Sat 01/05/21	Sat 01/05/21	Sat 01/05/21	0 days	1090FF,108													
1117	1117.5.31.7		Site Installation Work	300 days	Thu 01/10/20	Tue 27/07/21	Thu 01/10/20	Tue 27/07/21	0 days														
1118	1118.5.31.7.1		Commencement of retrofitting the existing PST No. 4 and No. 6	300 days	Thu 01/10/20	Tue 27/07/21	Thu 01/10/20	Tue 27/07/21	0 days														
1119	1119.5.31.7.1.1		Temporary flow diversion of Filtrate from PST No. 4,	1 day	Thu 01/10/20	Thu 01/10/20	Thu 01/10/20	Thu 01/10/20	0 days		1120												
1120	1120.5.31.7.1.2		Dismantle and Removal of E&M Equipment at PST No. 6	60 days	Fri 02/10/20	Mon 30/11/20	Fri 02/10/20	Mon 30/11/20	0 days	1119	1121												
1121	1121.5.31.7.1.3		Temporary flow diversion of Filtrate from PST No. 6	7 days	Tue 01/12/20	Mon 07/12/20	Tue 01/12/20	Mon 07/12/20	0 days	1120	1122												
1122	1122.5.31.7.1.4		Dismantle and Removal of E&M Equipment at PST No. 4	119 days	Tue 08/12/20	Mon 05/04/21	Tue 08/12/20	Mon 05/04/21	0 days	1121	1124												
1123	1123.5.31.7.1.5		Mechanical Installations of existing PSTs No. 4 (Completed)	56 days	Tue 06/04/21	Mon 31/05/21	Tue 06/04/21	Mon 31/05/21	2.5 days	1106													
1124	1124.5.31.7.1.5.1		Installation of PST influent feed pipe	5 days	Tue 06/04/21	Sat 10/04/21	Tue 06/04/21	Sat 10/04/21	0 days	1122,1115	1125	ME - A x 4~6 men											
1125	1125.5.31.7.1.5.2		Installation of circular baffle diffuser box	5 days	Sun 11/04/21	Thu 15/04/21	Sun 11/04/21	Thu 15/04/21	0 days	1124	1126	ME - A x 4~6 men											
1126	1126.5.31.7.1.5.3		Installation of scum baffle plates	5 days	Fri 16/04/21	Tue 20/04/21	Fri 16/04/21	Tue 20/04/21	0 days	1125	1127	ME - A x 4~6 men											
1127	1127.5.31.7.1.5.4		Installation of scum box with collection valve and pipework	5 days	Wed 21/04/21	Sun 25/04/21	Wed 21/04/21	Sun 25/04/21	0 days	1126	1128	ME - A x 4~6 men											
1128	1128.5.31.7.1.5.5		Installation of v-notched weir plate	7 days	Mon 26/04/21	Sun 02/05/21	Mon 26/04/21	Sun 02/05/21	0 days	1127	1129	ME - A x 4~6 men											
1129	1129.5.31.7.1.5.6		Installation of center bearing and slip ring assembly for rotating bridge	5 days	Mon 03/05/21	Fri 07/05/21	Mon 03/05/21	Fri 07/05/21	0 days	1128,1112	1130	ME - A x 4~6 men											
1130	1130.5.31.7.1.5.7		Installation of motor and gearbox assembly for rotating bridge	5 days	Sat 08/05/21	Wed 12/05/21	Sat 08/05/21	Wed 12/05/21	0 days	1129	1131	ME - A x 4~6 men											
1131	1131.5.31.7.1.5.8		Installation of rotating bridge sludge and scum scraper assembly	5 days	Thu 13/05/21	Mon 17/05/21	Thu 13/05/21	Mon 17/05/21	0 days	1130	1132,1134	ME - A x 4~6 men											
1132	1132.5.31.7.1.5.9		Installation of removable FRP covers for effluent channel	14 days	Tue 18/05/21	Mon 31/05/21	Tue 18/05/21	Mon 31/05/21	0 days	1131	1136	ME - A x 4~6 men											
1133	1133.5.31.7.1.6		Electrical Installations of existing PST No. 4	10 days	Tue 18/05/21	Thu 27/05/21	Tue 18/05/21	Thu 27/05/21	0 days		1136												
1134	1134.5.31.7.1.6.1		Installation of local control panels	5 days	Tue 18/05/21	Sat 22/05/21	Tue 18/05/21	Sat 22/05/21	0 days	1131	1135	EE - A x 4~6 men											
1135	1135.5.31.7.1.6.2		cable laying and terminations	5 days	Sun 23/05/21	Thu 27/05/21	Sun 23/05/21	Thu 27/05/21	0 days	1134	1136	EE - A x 4~6 men											
1136	1136.5.31.7.1.7		Site Acceptance Test for E&M Equip at existing PST No. 4	5 days	Tue 01/06/21	Sat 05/06/21	Tue 01/06/21	Sat 05/06/21	49 days	1133,1132,11159													
1137	1137.5.31.7.1.8		CNE-0229 - Removal of accumulated sludge inside PST No. 6	12 days	Wed 19/05/21	Sun 30/05/21	Wed 19/05/21	Sun 30/05/21	0 days		1147												
1138	1138.5.31.7.1.8.		Filtrate diversion to Temporary Filtrate Equalisation Tank	2 days	Wed 19/05/21	Thu 20/05/21	Wed 19/05/21	Thu 20/05/21	0 days		1139												
1139	1139.5.31.7.1.8.		Removal of floating scum / sludge inside PST No. 6	7 days	Fri 21/05/21	Thu 27/05/21	Fri 21/05/21	Thu 27/05/21	0 days	1138,1143	1140,1141												
1140	1140.5.31.7.1.8.		Clearance of blockage of PST No. 6 drain pipe	3 days	Fri 28/05/21	Sun 30/05/21	Fri 28/05/21	Sun 30/05/21	0 days	1139													
1141	1141.5.31.7.1.8.		Retrofitting Concrete Structure of PST No. 6	3 days	Fri 28/05/21	Sun 30/05/21	Fri 28/05/21	Sun 30/05/21	0 days	1139													
1142	1142.5.31.7.1.9		NCE-007 - Additional Contract Requirements for provision ICE's Certificates (RSE) on re-use of existing materials	8 days	Mon 14/06/21	Mon 21/06/21	Mon 14/06/21	Mon 21/06/21	0 days														
1143	1143.5.31.7.1.9.		Provision of ICE's Certificate	8 days	Mon 14/06/21	Mon 21/06/21	Mon 14/06/21	Mon 21/06/21	0 days		1139,1147												
1144	1144.5.31.7.1.10		NCE-008 - Additional Contract Requirements for provision ICE's Certificates on product design of E&M plant and materials.	14 days	Thu 24/06/21	Wed 07/07/21	Thu 24/06/21	Wed 07/07/21	0 days														
1145	1145.5.31.7.1.10		Provision of ICE's Certificate	14 days	Thu 24/06/21	Wed 07/07/21	Thu 24/06/21	Wed 07/07/21	0 days		1147												
1146	1146.5.31.7.1.11		Mechanical Installations of existing PST No. 6	48 days	Fri 04/06/21	Wed 21/07/21	Fri 04/06/21	Wed 21/07/21	0 days														
1147	1147.5.31.7.1.11		Installation of PST influent feed pipe	2 days	Thu 08/07/21	Fri 09/07/21	Thu 08/07/21	Fri 09/07/21	0 days	1137,1143,11148		ME - A x 4~6 men											
1148	1148.5.31.7.1.11		Installation of center bearing and slip ring assembly for rotating br	2 days	Sat 10/07/21	Sun 11/07/21	Sat 10/07/21	Sun 11/07/21	0 days	1147	1149,1152	ME - A x 4~6 men											
1149	1149.5.31.7.1.11		Installation of motor and gearbox assembly for rotating bridge	5 days	Mon 12/07/21	Fri 16/07/21	Mon 12/07/21	Fri 16/07/21	0 days	1148	1156,1150,1151	ME - A x 4~6 men											
1150	1150.5.31.7.1.11		Installation of rotating bridge sludge and scum scraper assembly	5 days	Sat 17/07/21	Wed 21/07/21	Sat 17/07/21	Wed 21/07/21	0 days	1149		ME - A x 4~6 men											
1151	1151.5.31.7.1.11		Installation of circular baffle diffuser box	2 days	Sat 17/07/21	Sun 18/07/21	Sat 17/07/21	Sun 18/07/21	0 days	1149		ME - A x 4~6 men											
1152	1152.5.31.7.1.11		Installation of v-notched weir plate	2 days	Fri 04/06/21	Sat 05/06/21	Fri 04/06/21	Sat 05/06/21	0 days	1148	1153,1154	ME - A x 4~6 men											
1153	1153.5.31.7.1.11		Installation of scum baffle plates	2 days	Sun 06/06/21	Mon 07/06/21	Sun 06/06/21	Mon 07/06/21	0 days	1152		ME - A x 4~6 men											
1154	1154.5.31.7.1.11		Installation of scum collection box	2 days	Sun 06/06/21	Mon 07/06/21	Sun 06/06/21	Mon 07/06/21	0 days	1152		ME - A x 4~6 men											
1155	1155.5.31.7.1.12		Electrical Installations of existing PSTs No. 6	6 days	Sat 17/07/21	Thu 22/07/21	Sat 17/07/21	Thu 22/07/21	0 days		1158												
1156	1156.5.31.7.1.12		Installation of local control panels	3 days	Sat 17/07/21	Mon 19/07/21	Sat 17/07/21	Mon 19/07/21	0 days	1149	1157												
1157	1157.5.31.7.1.12		cable laying and terminations	3 days	Tue 20/07/21	Thu 22/07/21	Tue 20/07/21	Thu 22/07/21	0 days	1156	1158												
1158	1158.5.31.7.1.13		Site Acceptance Test for E&M Equip at existing PST No. 6	2 days	Fri 23/07/21	Sat 24/07/21	Fri 23/07/21	Sat 24/07/21	0 days	1155,1157	1159												
1159	1159.5.31.7.1.14		System Commissioning for E&M Equip at existing PST No. 4 and No. 6	3 days	Sun 25/07/21	Tue 27/07/21	Sun 25/07/21	Tue 27/07/21	0 days	1136,1158	1092FF												
1160	1160.5.32		Existing Main Power House Electrical, Portion B-7A and B-7B (PS 6B.3.17)	42 days	Thu 11/06/20	Wed 22/07/20	Thu 11/06/20	Wed 22/07/20	0 days														
1161	1161.5.32.1		Planned Key Date Completion Date - KDA	0 days	Wed 22/07/20	Wed 22/07/20	Wed 22/07/20	Wed 22/07/20	0 days														
1162	1162.5.32.2		Design Submissions for Existing Emergency Generator House	15 days	Fri 12/06/20	Fri 26/06/20	Fri 12/06/20	Fri 26/06/20	0 days		1167												
1163	1163.5.32.2.1		Design submissions for E&M installation works of existing power house	15 days	Fri 12/06/20	Fri 26/06/20	Fri 12/06/20	Fri 26/06/20	0 days	184	1167												
1164	1164.5.32.3		Site Installation Work																				



ID	ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Early Start	Early Finish	Free Slack	Predecessors	Successors	Resource Names	Gantt Chart (2020-2024)																												
1167	1167	5.32.3.2.1	Site survey and preparation work	1 day	Sat 27/06/20	Sat 27/06/20	Sat 27/06/20	Sat 27/06/20	0 days	1163	1168		[Gantt Chart Bar]																												
1168	1168	5.32.3.2.2	Modification of existing emergency generator electrical works	3 days	Sun 28/06/20	Tue 30/06/20	Sun 28/06/20	Tue 30/06/20	0 days	1167	1169		[Gantt Chart Bar]																												
1169	1169	5.32.3.2.3	Test the new switchboard for on-site mobile generator	2 days	Wed 01/07/20	Thu 02/07/20	Wed 01/07/20	Thu 02/07/20	0 days	1168	1170		[Gantt Chart Bar]																												
1170	1170	5.32.3.2.4	Dismantling and removal the existing power & control cables	14 days	Fri 03/07/20	Thu 16/07/20	Fri 03/07/20	Thu 16/07/20	0 days	1169	1171		[Gantt Chart Bar]																												
1171	1171	5.32.3.2.5	Take down existing generator to DSD (Completed)	3 days	Fri 17/07/20	Sun 19/07/20	Fri 17/07/20	Sun 19/07/20	0 days	1170			[Gantt Chart Bar]																												
1172	1172	5.33	Existing Sludge Press House, Portion B-10 (PS 6B.2.11)	425 days	Wed 01/07/20	Sun 29/08/21	Wed 01/07/20	Sun 29/08/21	3 days				[Gantt Chart Bar]																												
1173	1173	5.33.1	Planned Key Date Completion Date - KD3B	0 days	Mon 07/06/21	Mon 07/06/21	Mon 07/06/21	Mon 07/06/21	0 days				[Gantt Chart Bar]																												
1174	1174	5.33.2	Selection of Suppliers for major plant and materials for Filter Presses	52 days	Wed 01/07/20	Fri 21/08/20	Wed 01/07/20	Fri 21/08/20	0 days				[Gantt Chart Bar]																												
1175	1175	5.33.2.1	Mis - new replacement filter plates and provision of filter cloths, C11, ref. EQT038	52 days	Wed 01/07/20	Fri 21/08/20	Wed 01/07/20	Fri 21/08/20	0 days				[Gantt Chart Bar]																												
1176	1176	5.33.2.1.1	Submission for acceptance of purchasing package	21 days	Wed 01/07/20	Tue 21/07/20	Wed 01/07/20	Tue 21/07/20	0 days		1177		[Gantt Chart Bar]																												
1177	1177	5.33.2.1.2	Invitation of quotations for purchasing package	10 days	Wed 22/07/20	Fri 31/07/20	Wed 22/07/20	Fri 31/07/20	0 days		1176	1178		[Gantt Chart Bar]																											
1178	1178	5.33.2.1.3	Acceptance of conforming quotation (Completed)	21 days	Sat 01/08/20	Fri 21/08/20	Sat 01/08/20	Fri 21/08/20	0 days		1177	1179		[Gantt Chart Bar]																											
1179	1179	5.33.3	Design submission for replacement of filter plates	7 edays	Fri 21/08/20	Fri 28/08/20	Fri 21/08/20	Fri 28/08/20	0 edays		1178	1181		[Gantt Chart Bar]																											
1180	1180	5.33.4	Manufacturing and Delivery of Plant & Materials	345 days	Sat 29/08/20	Sun 08/08/21	Sat 29/08/20	Sun 08/08/21	0 days				[Gantt Chart Bar]																												
1181	1181	5.33.4.1	Manufacturing and Factory Acceptance Test of Plant	300 days	Sat 29/08/20	Thu 24/06/21	Sat 29/08/20	Thu 24/06/21	0 days		1179	1182		[Gantt Chart Bar]																											
1182	1182	5.33.4.2	Shipping and Delivery of Plant to site	45 days	Fri 25/06/21	Sun 08/08/21	Fri 25/06/21	Sun 08/08/21	0 days		1181	1185		[Gantt Chart Bar]																											
1183	1183	5.33.5	Site Installation Work	21 days	Mon 09/08/21	Sun 29/08/21	Mon 09/08/21	Sun 29/08/21	3 days				[Gantt Chart Bar]																												
1184	1184	5.33.5.1	Commencement of replacement of filter plates	21 days	Mon 09/08/21	Sun 29/08/21	Mon 09/08/21	Sun 29/08/21	3 days				[Gantt Chart Bar]																												
1185	1185	5.33.5.1.1	Replacement of filter plates (On Hold)	21 days	Mon 09/08/21	Sun 29/08/21	Mon 09/08/21	Sun 29/08/21	3 days		1182	1093FF		[Gantt Chart Bar]																											
1186	1186	5.34	Fire Services Installation (PS 6B.6.9)	1248 days	Tue 01/12/20	Wed 01/05/24	Tue 01/12/20	Wed 01/05/24	0 days				[Gantt Chart Bar]																												
1187	1187	5.34.1	Planned Key Date Completion Date - KD1B, Fire	0 days	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	Tue 01/06/21	0 days		1191FF		[Gantt Chart Bar]																												
1188	1188	5.34.2	Planned Sectional Completion Date - Section 1, FSI	0 days	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	Mon 12/07/21	0 days		1192FF		[Gantt Chart Bar]																												
1189	1189	5.34.3	Planned Sectional Completion Date - Section 4, FSI	0 days	Wed 01/05/24	Wed 01/05/24	Wed 01/05/24	Wed 01/05/24	0 days		1207FF		[Gantt Chart Bar]																												
1190	1190	5.34.4	Design Submissions for FSI	334 days	Tue 01/12/20	Sat 30/10/21	Tue 01/12/20	Sat 30/10/21	0 days				[Gantt Chart Bar]																												
1191	1191	5.34.4.1	CDS081-11 - Civil and dimensional requirements drawings for Fire Servi	120 days	Tue 01/12/20	Tue 30/03/21	Tue 01/12/20	Tue 30/03/21	0 days		1187FF		[Gantt Chart Bar]																												
1192	1192	5.34.4.2	CDS049 - Detailed Design for Fire Services include AFA, FS, FH, Sprinkler	180 edays	Mon 03/05/21	Sat 30/10/21	Mon 03/05/21	Sat 30/10/21	0 edays		159	1196,1193,1188FF		[Gantt Chart Bar]																											
1193	1193	5.34.5	DG Stores Submissions to FSD for approval	120 days	Sun 31/10/21	Sun 27/02/22	Sun 31/10/21	Sun 27/02/22	690 days		1192	1202FF		[Gantt Chart Bar]																											
1194	1194	5.34.6	Site Installation Work	910 days	Sun 31/10/21	Sat 27/04/24	Sun 31/10/21	Sat 27/04/24	4 days				[Gantt Chart Bar]																												
1195	1195	5.34.6.1	Commencement of Fire Services Installation	910 days	Sun 31/10/21	Sat 27/04/24	Sun 31/10/21	Sat 27/04/24	4 days				[Gantt Chart Bar]																												
1196	1196	5.34.6.1.1	Design Review of Approved General Building Plan	126 days	Sun 31/10/21	Sat 05/03/22	Sun 31/10/21	Sat 05/03/22	0 days		1192	1197		[Gantt Chart Bar]																											
1197	1197	5.34.6.1.2	Submission of WWO542 for WSD's approval	270 days	Sun 06/03/22	Wed 30/11/22	Sun 06/03/22	Wed 30/11/22	310 days		1196	1198		[Gantt Chart Bar]																											
1198	1198	5.34.6.1.3	Submission of WWO46 for WSD's Inspection	30 days	Sat 07/10/23	Sun 05/11/23	Sat 07/10/23	Sun 05/11/23	0 days		1197,359,488,1199		[Gantt Chart Bar]																												
1199	1199	5.34.6.1.4	Obtain WWO46 Part V	60 days	Mon 06/11/23	Thu 04/01/24	Mon 06/11/23	Thu 04/01/24	0 days		1198	1202,1200		[Gantt Chart Bar]																											
1200	1200	5.34.6.1.5	FSD Inspection and Approval for MVAC	21 days	Fri 05/01/24	Thu 25/01/24	Fri 05/01/24	Thu 25/01/24	0 days		1210,1211,11,1203		[Gantt Chart Bar]																												
1201	1201	5.34.6.1.6	FSD Inspection and Approval for DG Stores	21 days	Wed 06/12/23	Tue 26/12/23	Wed 06/12/23	Tue 26/12/23	30 days		1210,1211,82,1203		[Gantt Chart Bar]																												
1202	1202	5.34.6.1.7	Submission of (FSI/314 & FSI/501) to FSD	14 days	Fri 05/01/24	Thu 18/01/24	Fri 05/01/24	Thu 18/01/24	7 days		1210,1211,11,1203		[Gantt Chart Bar]																												
1203	1203	5.34.6.1.8	Pre-inspection meeting with FSD	5 days	Fri 26/01/24	Tue 30/01/24	Fri 26/01/24	Tue 30/01/24	0 days		1202,1200,12,1204		[Gantt Chart Bar]																												
1204	1204	5.34.6.1.9	Initial inspection with FSD	15 days	Wed 31/01/24	Wed 14/02/24	Wed 31/01/24	Wed 14/02/24	0 days		1203	1205		[Gantt Chart Bar]																											
1205	1205	5.34.6.1.10	Document Checking	45 days	Thu 15/02/24	Sat 30/03/24	Thu 15/02/24	Sat 30/03/24	0 days		1204	1206		[Gantt Chart Bar]																											
1206	1206	5.34.6.1.11	Re-inspections with FSD	14 days	Sun 31/03/24	Sat 13/04/24	Sun 31/03/24	Sat 13/04/24	0 days		1205	1207		[Gantt Chart Bar]																											
1207	1207	5.34.6.1.12	Issue of acceptance memo by FSD	14 days	Sun 14/04/24	Sat 27/04/24	Sun 14/04/24	Sat 27/04/24	4 days		1206	1189FF		[Gantt Chart Bar]																											
1208	1208	5.34.6.1.13	Installation of FS Pumps and Sprinkler Pumps	60 days	Mon 03/04/23	Thu 01/06/23	Mon 03/04/23	Thu 01/06/23	127 days		1211	FS - A x 4*6 men		[Gantt Chart Bar]																											
1209	1209	5.34.6.1.14	Installation of Fire Hydrant and Booster Pumps	60 days	Mon 03/04/23	Thu 01/06/23	Mon 03/04/23	Thu 01/06/23	127 days		1211	FS - A x 4*6 men		[Gantt Chart Bar]																											
1210	1210	5.34.6.1.15	SAT for Manual and automatic fire detection and alarm system	60 days	Sat 07/10/23	Tue 05/12/23	Sat 07/10/23	Tue 05/12/23	0 days		359,488,599, 1202,1200,1201		[Gantt Chart Bar]																												
1211	1211	5.34.6.1.16	SAT for Fire hydrants, hose reels and street fire hydrant system	60 days	Sat 07/10/23	Tue 05/12/23	Sat 07/10/23	Tue 05/12/23	0 days		1208,1209,35,1202,1200,1201		[Gantt Chart Bar]																												
1212	1212	5.35	Fire Services Sprinkler Pumping Room, Portion B-7 & B-7B (PS 6B.6.9)	421 days	Thu 19/05/22	Thu 13/07/23	Thu 19/05/22	Thu 13/07/23	200 days				[Gantt Chart Bar]																												
1213	1213	5.35.1	Site Installation Work	421 days	Thu 19/05/22	Thu 13/07/23	Thu 19/05/22	Thu 13/07/23	200 days				[Gantt Chart Bar]																												
1214	1214	5.35.1.1	Tentative Civil Handover Date, FS Sprinkler Pump Room (Rev. 5)	1 day	Thu 19/05/22	Thu 19/05/22	Thu 19/05/22	Thu 19/05/22	0 days		1215,1220		[Gantt Chart Bar]																												
1215	1215	5.35.1.2	Commencement of E&M Installation at FS & Sprinkler Pump Room	420 days	Thu 19/05/22	Thu 13/07/23	Thu 19/05/22	Thu 13/07/23	200 days		1214		[Gantt Chart Bar]																												
1216	1216	5.35.1.2.1	Mechanical Installations for FS & Sprinkler Pumps	90 edays	Thu 19/05/22	Wed 17/08/22	Thu 19/05/22	Wed 17/08/22	0 edays		1217	FS - A x 4*6 men		[Gantt Chart Bar]																											
1217	1217	5.35.1.2.2	Electrical Installations for FS & Sprinkler Pumps	90 edays	Wed 17/08/22	Tue 15/11/22	Wed 17/08/22	Tue 15/11/22	0.63 edays		1216	1218,1221,1222,1223	FS - A x 4*6 men	[Gantt Chart Bar]																											
1218	1218	5.35.1.2.3	Site Acceptance Test for FS & Sprinkler Pumps	45 days	Wed 16/11/22	Fri 30/12/22	Wed 16/11/22	Fri 30/12/22	0 days		1217	1219		[Gantt Chart Bar]																											
1219	1219	5.35.1.2.4	System Commissioning for FS & Sprinkler Pumps	45 days	Sat 31/12/22	Mon 13/02/23	Sat 31/12/22	Mon 13/02/23	325 days		1218	1202		[Gantt Chart Bar]																											
1220	1220	5.35.1.2.5	Building Services Installations at FS & Sprinkler Pump Room	240 days	Wed 16/11/22	Thu 13/07/23	Wed 16/11/22	Thu 13/07/23	200 days		1214		[Gantt Chart Bar]																												
1221	1221	5.35.1.2.5.1	Lighting and Power Distribution System, Chem 1&2	120 days	Wed 16/11/22	Wed 15/03/23	Wed 16/11/22	Wed 15/03/23	0 days		1217	1224	BS - A x 4*6 men	[Gantt Chart Bar]																											
1222	1222	5.35.1.2.5.2	Lightning Protection System, FS & Sprinkler Pump Room	30 days	Wed 16/11/22	Thu 15/12/22	Wed 16/11/22	Thu 15/12/22	90 days		1217	1224	BS - A x 4*6 men	[Gantt Chart Bar]																											
1223	1223	5.35.1.2.5.3	Mechanical Ventilation System, FS & Sprinkler PR	14 days	Wed 16/11/22	Tue 29/11/22	Wed 16/11/22	Tue 29/11/22	106 days		1217	1224	MVAC - A x 4*6 men	[Gantt Chart Bar]																											
1224	1224	5.35.1.2.5.4	Testing and Commissioning of Building Services Installations, FS &	120 days	Thu 16/03/23	Thu 13/07/23	Thu 16/03/23	Thu 13/07/23	189 days		1221,1222,11202FF		[Gantt Chart Bar]																												

Task Milestone Project Summary Late Critical Split Manual Progress Milestone (Actual) Slack  
Milestone, Tentative Summary Manual Summary Critical Progress Slack (Float) Slack







Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 E&M Works for Sewage Treatment Facilities

ID	ID	WBS	Task Name	Duration between Task Start and Finish	Start	Finish	Early Start	Early Finish	Free Slack	Predecessors	Successors	Resource Names	Gantt Chart (2020-2024)																											
1284	1284.5.40.4		Testing and Commissioning (Rev. 15)	10 days	Wed 14/07/21	Fri 23/07/21	Wed 14/07/21	Fri 23/07/21	0 days	1283	1285FF		[Gantt Chart: 2020 Half 1, 2020 Half 2, 2021 Half 1, 2021 Half 2, 2022 Half 1, 2022 Half 2, 2023 Half 1, 2023 Half 2, 2024 Half 1]																											
1285	1285.5.40.5		Planned Completion Date	1 day	Fri 23/07/21	Fri 23/07/21	Fri 23/07/21	Fri 23/07/21	0 days	1284FF			[Gantt Chart: Milestone at 23/07]																											
1286	1286.6		Beam Plus Submissions	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	0 days				[Gantt Chart: Long duration task from 01/05/20 to 19/04/24]																											
1287	1287.6.1	SA10	SA10 - Environmental Management Plan	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: SA10 - Environmental Management Plan]																											
1288	1288.6.2	SA11	SA11 - Air Pollution During Construction	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: SA11 - Air Pollution During Construction]																											
1289	1289.6.3	SA12	SA12 - Noise During Construction	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: SA12 - Noise During Construction]																											
1290	1290.6.4	SA14	SA14 - Noise from Building Equipment	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: SA14 - Noise from Building Equipment]																											
1291	1291.6.5	SA15	SA15 - Light Pollution	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: SA15 - Light Pollution]																											
1292	1292.6.6	MAP1	MAP1 - Timber used for Temporary Works	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: MAP1 - Timber used for Temporary Works]																											
1293	1293.6.7	MAP2	MAP2 - Use of Non-CFC Based Refrigerants	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: MAP2 - Use of Non-CFC Based Refrigerants]																											
1294	1294.6.8	MAP3	MAP3 - Waste Management Plan	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: MAP3 - Waste Management Plan]																											
1295	1295.6.9	MA2	MA2 - Modular and Standardized Design	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: MA2 - Modular and Standardized Design]																											
1296	1296.6.10	MA8	MA8 - Ozone Depleting Substances	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: MA8 - Ozone Depleting Substances]																											
1297	1297.6.11	MA11	MA11 - Construction Waste Reduction	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: MA11 - Construction Waste Reduction]																											
1298	1298.6.12	EUP1	EUP1 - Minimum Energy Performance	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: EUP1 - Minimum Energy Performance]																											
1299	1299.6.13	EU1	EU1 - Reduction of CO2 Emissions	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: EU1 - Reduction of CO2 Emissions]																											
1300	1300.6.14	EU2	EU2 - Peak Electricity Demand Reduction	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: EU2 - Peak Electricity Demand Reduction]																											
1301	1301.6.15	EU6	EU6 - Renewable Energy Systems	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: EU6 - Renewable Energy Systems]																											
1302	1302.6.16	EU9	EU9 - Energy Efficient Appliances	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: EU9 - Energy Efficient Appliances]																											
1303	1303.6.17	EU10	EU10 - Testing and Commissioning	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: EU10 - Testing and Commissioning]																											
1304	1304.6.18	EU11	EU11 - Operation and Maintenance	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: EU11 - Operation and Maintenance]																											
1305	1305.6.19	EU12	EU12 - Meter and Monitoring	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: EU12 - Meter and Monitoring]																											
1306	1306.6.20	WUP1	WUP1 - Water Quality Survey	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: WUP1 - Water Quality Survey]																											
1307	1307.6.21	WUP2	WUP2 - Minimum Water Saving Performance	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: WUP2 - Minimum Water Saving Performance]																											
1308	1308.6.22	WU1 / WU6	WU1 / WU6 - Annual Water Use / Effluent Discharge to Foul Sewers	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: WU1 / WU6 - Annual Water Use / Effluent Discharge to Foul Sewers]																											
1309	1309.6.23	IEQP1	IEQP1 - Minimum Ventilation Performance	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: IEQP1 - Minimum Ventilation Performance]																											
1310	1310.6.24	IEQ1	IEQ1 - Security	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: IEQ1 - Security]																											
1311	1311.6.25	IEQ2	IEQ2 - Plumbing and Drainage	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: IEQ2 - Plumbing and Drainage]																											
1312	1312.6.26	IEQ3	IEQ3 - Biological Contamination	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: IEQ3 - Biological Contamination]																											
1313	1313.6.27	IEQ5	IEQ5 - Construction IAQ Management	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: IEQ5 - Construction IAQ Management]																											
1314	1314.6.28	IEQ6 / IEQ7	IEQ6 / IEQ7 - IAQ	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: IEQ6 / IEQ7 - IAQ]																											
1315	1315.6.29	IEQ9	IEQ9 - Increased Ventilation	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: IEQ9 - Increased Ventilation]																											
1316	1316.6.30	IEQ11	IEQ11 - Localised Ventilation	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: IEQ11 - Localised Ventilation]																											
1317	1317.6.31	IEQ12	IEQ12 - Ventilation in Common Areas	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: IEQ12 - Ventilation in Common Areas]																											
1318	1318.6.32	IEQ13	IEQ13 - Thermal Comfort in Air - Conditioned Premises	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: IEQ13 - Thermal Comfort in Air - Conditioned Premises]																											
1319	1319.6.33	IEQ16 / IEQ17	IEQ16 / IEQ17 - Interior Lighting in Normally Occupied Area / Interior Lighting in Areas not Normally Occupied	1450 days	Fri 01/05/20	Fri 19/04/24	Fri 01/05/20	Fri 19/04/24	19 days		39		[Gantt Chart: IEQ16 / IEQ17 - Interior Lighting in Normally Occupied Area / Interior Lighting in Areas not Normally Occupied]																											
1320	1320.7		Summary of compensation events notified	487 days	Tue 25/02/20	Fri 25/06/21	Tue 25/02/20	Fri 25/06/21	0 days				[Gantt Chart: Summary of compensation events notified]																											
1321	1321.7.1		Compensation Event (CE) No. 001, Special Arrangement in Reducing the Risk	1 day	Tue 25/02/20	Tue 25/02/20	Tue 25/02/20	Tue 25/02/20	0 days				[Gantt Chart: Compensation Event (CE) No. 001]																											
1322	1322.7.2		Compensation Event (CE) No. 002, the Contractor's Site Accommodation by	1 day	Mon 08/06/20	Mon 08/06/20	Mon 08/06/20	Mon 08/06/20	0 days				[Gantt Chart: Compensation Event (CE) No. 002]																											
1323	1323.7.3		Compensation Event (CE) No. 003, Designated Area for the Contractor's Site	1 day	Wed 22/04/20	Wed 22/04/20	Wed 22/04/20	Wed 22/04/20	0 days				[Gantt Chart: Compensation Event (CE) No. 003]																											
1324	1324.7.4		Compensation Event (CE) No. 005, Designated Area for the Contractor's Site	1 day	Wed 22/04/20	Wed 22/04/20	Wed 22/04/20	Wed 22/04/20	0 days				[Gantt Chart: Compensation Event (CE) No. 005]																											
1325	1325.7.5		Compensation Event (CE) No. 007, Employment of Temporary Staff under A	1 day	Fri 10/07/20	Fri 10/07/20	Fri 10/07/20	Fri 10/07/20	0 days				[Gantt Chart: Compensation Event (CE) No. 007]																											
1326	1326.7.6		Compensation Event (CE) No. 009, Provision of an Additional Primary Sludge	1 day	Wed 15/07/20	Wed 15/07/20	Wed 15/07/20	Wed 15/07/20	0 days				[Gantt Chart: Compensation Event (CE) No. 009]																											
1327	1327.7.7		Compensation Event (CE) No. 011, Dismantling, relocating, disconnecting an	1 day	Wed 14/04/21	Wed 14/04/21	Wed 14/04/21	Wed 14/04/21	0 days				[Gantt Chart: Compensation Event (CE) No. 011]																											
1328	1328.7.8		NCE-PPMI-0202 (CE) Revised GA for F.S. & Sprinkler Pumping Room and Emergency Generator Room	1 day	Fri 18/12/20	Fri 18/12/20	Fri 18/12/20	Fri 18/12/20	0 days				[Gantt Chart: NCE-PPMI-0202 (CE) Revised GA for F.S. & Sprinkler Pumping Room and Emergency Generator Room]																											
1329	1329.7.9		NCE-PPMI-0203 (CE) Revised General Arrangement for Temp. Chemical Syst	1 day	Tue 15/12/20	Tue 15/12/20	Tue 15/12/20	Tue 15/12/20	0 days				[Gantt Chart: NCE-PPMI-0203 (CE) Revised General Arrangement for Temp. Chemical Syst]																											
1330	1330.7.10		NCE-PPMI-0204 (CE) Revised GA Layout Plan for DO Sys. No. 3A	1 day	Fri 18/12/20	Fri 18/12/20	Fri 18/12/20	Fri 18/12/20	0 days				[Gantt Chart: NCE-PPMI-0204 (CE) Revised GA Layout Plan for DO Sys. No. 3A]																											
1331	1331.7.11		NCE-PPMI-0205 (CE) Provision of Louvre Panel for Outdoor AC Units at Contractor's Site Accommodation	1 day	Mon 17/05/21	Mon 17/05/21	Mon 17/05/21	Mon 17/05/21	0 days				[Gantt Chart: NCE-PPMI-0205 (CE) Provision of Louvre Panel for Outdoor AC Units at Contractor's Site Accommodation]																											
1332	1332.7.12		NCE-PPMI-0206 (CE) Modification of Feeders of the existing switchboards at Inlet Work and Provision of MCB Distribution Boards and Cables for Sidewide Submersible Pumps	1 day	Wed 23/06/21	Wed 23/06/21	Wed 23/06/21	Wed 23/06/21	0 days				[Gantt Chart: NCE-PPMI-0206 (CE) Modification of Feeders of the existing switchboards at Inlet Work and Provision of MCB Distribution Boards and Cables for Sidewide Submersible Pumps]																											
1333	1333.7.13		NCE-PPMI-0207 (CE) Modification of Feeders of the existing switchboards at Inlet Consolidation House and Provision of MCB Distribution Boards and Cables for Sidewide Submersible Pumps	1 day	Wed 23/06/21	Wed 23/06/21	Wed 23/06/21	Wed 23/06/21	0 days				[Gantt Chart: NCE-PPMI-0207 (CE) Modification of Feeders of the existing switchboards at Inlet Consolidation House and Provision of MCB Distribution Boards and Cables for Sidewide Submersible Pumps]																											
1334	1334.7.14		NCE-PPMI-0208 (CE) Modification of Feeders of the existing switchboards at Membrane Facilities Building and Provision of MCB Distribution Boards and Cables for Sidewide Submersible Pumps	1 day	Fri 25/06/21	Fri 25/06/21	Fri 25/06/21	Fri 25/06/21	0 days				[Gantt Chart: NCE-PPMI-0208 (CE) Modification of Feeders of the existing switchboards at Membrane Facilities Building and Provision of MCB Distribution Boards and Cables for Sidewide Submersible Pumps]																											

Bestwise Project: DE/2018/04 Date: 28/09/21

Task Milestone, Tentative

Milestone Summary

Project Summary Manual Summary

Late Critical

Critical Split Progress

Manual Progress Slack (Float)

Milestone (Actual)

Slack





Item	Major Activities & Submission in coming 3 months	Time					Progress (E&M contract)				Action	Remarks / Status
		Contract Planned Commencement Date	Anticipated / Actual Commencement Date	Contract Planned Finish Date	Anticipated / Actual Finish Date	% of time elapsed based on "updated date")	Unit	Total Quantity	Completed Quantity	Actual Progress %		
<b>Drawing Submission for Key Dates</b>												
KD1A: Submission of civil and dimensional requirement drawing, electrical schematic drawings, etc. from formation level up to +8mPD in accordance with the contract requirement of Contract No. DC/2018/07 to carry out civil works construction	KD1A: Submission of Civil Requirement Drawing (Final)	8/28/2020	9/18/2020	11/5/2020	11/5/2020	Task Completed	no.	26	26	100%		
	KD1A: Submission of Electrical Schematic Drawing (Final)	7/15/2020	7/15/2020	11/5/2020	11/5/2020	Task Completed	no.	11	11	100%		
	KD1A: 6 November 2020											
KD1B: Submission of remaining civil and dimensional requirement drawings, electrical schematic drawing, etc. in accordance with the contract requirement of Contract No. DC/2018/07 to carry out civil works construction	KD1B: Submission of Civil Requirement Drawing (First Draft)	9/30/2020	9/28/2020	12/30/2020	3/31/2021	Task Completed	no.	47	47	100%		
	KD1B: Submission of Civil Requirement Drawing (Final)	11/6/2020	11/5/2020	6/4/2021	6/4/2021	Task Completed	no.	47	47	100%		All the CWR Drawings were submitted.
	KD1B: 4 June 2021											
KD3B: 6B.2.15 Operation Restoration of Existing Primary Sedimentation Tank (PST) No. 4 and 6	KD3B: Submission of onsite survey report	7/11/2020	7/20/2020	7/16/2020	7/30/2021	Task Completed				100%	Bestwise	- Onsite survey conducted from 20 July 2020 to 22 July 2020. Bestwise submitted survey report on 5 August 2020. AECOM commented on 19 Aug 2020. Bestwise to resubmit upon conducting the remaining onsite survey. (Done) - Bestwise revised survey plan for remaining onsite checking of PST No. 6 on 1 Sep 2020. After discussion with plant operator, the remaining survey would be conducted after the dismantling work of PSTs. Formal survey record for PST No.4 was submitted on 24 May 2021. - Remaining survey (level of bridge & scraper) for PST 6 completed. - Formal survey report shall be submitted on 30 Jul 2021.
	KD3B: Acceptance of onsite survey report	7/17/2020	8/6/2020	7/23/2020	8/6/2021	Task Completed				-		Acceptance for the center point, vertical and horizontal alignment of ductfoot installation of PST No.4 shall subject to joint site meeting conducted on 2 June 2021. Refer to E-RISC no. 000014A & 000016 result for details.
	KD3B: System Commissioning for PST No. 4 & 6	N/A	6/22/2021	N/A	9/3/2021	Task Completed				100%		Wet test (2nd) for PST#6 completed on 3 Sep 2021 and pre-handover inspection arranged on 30 Aug 2021. Defect list (final) received on 17 Sep 2021 and to be rectified by 13 Oct 2021. Site demo shall be carried out on 13 Oct 2021.
	KD3B: 9 June 2021											
<b>Section 1 of Works</b>												
Construction of Temporary Filtrate Equalisation System	Construction of minor civil works under PMI 014	22/08/2020 -> 22/12/2020*	10/5/2020	10/15/2020	3/31/2021	Task Completed				100%	Bestwise	Utilities survey report of lifting well and EQ tank were submitted on 23 Sept 2020 and 29 Sept 2020. AECOM commented lifting well on 29 Sept 2020.
	RC Structure Works of lifting well	11/7/2020	1/12/2021	12/30/2020	2/25/2021	Task Completed				100%		
	Construction of concrete plinth for filtrate EQ tank	1/23/2021	2/8/2021	2/1/2021	2/26/2021	Task Completed				100%		
	Offsite fabrication and delivery of filtrate EQ tank	10/31/2020	1/16/2021	2/2/2021	3/4/2021	Task Completed				100%		First batch of filtrate EQ tank panel was delivered on 4 Mar 2021.
	Onsite assembly of filtrate EQ tank	2/2/2021	3/1/2021	3/12/2021	4/16/2021	Task Completed				100%		
	Mechanical Installation	3/17/2021	3/30/2021	4/12/2021	5/14/2021	Task Completed				-		
	Electrical Installation	3/13/2021	3/29/2021	4/15/2021	11/30/2021	84%				-		PLC programme for water spray system (stage 1) is on-going, motorized gate valve for stage 2 under PMI is being fabricated and the delivery lead time is 3.5 months.
Testing and Commissioning	4/15/2021	4/22/2021	5/1/2021	11/30/2021	82%				-		Auto mode (without water spray system) is adopted, water spray system (stage 2) under PMI shall be commenced after delivery of motorized gate valve.	
6B.2.1 Inlet Works	Submission of Contractor's Design for Inlet Works No. 1	9/6/2020	11/16/2020	5/14/2021	12/31/2021	83%				-	Bestwise	Finalized design calculations for Inlet Works no.1 shall be submitted by 31 Dec 2021.
	Submission of P&M Submission	9/6/2020	9/7/2020	5/14/2021	12/31/2021	85%						P&M0003 (rev.3) for coarse screen and fine screen was submitted on 10 Feb 2021. AECOM accepted subject to comments on 16 Feb 2021. P&M submission (rev. 1) for inlet pumps was submitted on 10 Feb 2021. AECOM accepted subject to comments on 1 Apr 2021. P&M (rev.1) for penstock and actuator was submitted on 28 Jan 2021. AECOM commented on 12 Mar 2021. Finalized material submissions for Inlet Works no.1 shall be submitted by 31 Dec 2021.
	Submission of P&ID Drawing	9/6/2020	9/6/2020	5/14/2021	12/29/2020	Task Completed						PID (rev.B) submitted on 13 Nov 2020. AECOM accepted subject to comments on 29 Dec 2020.



	Submission of GA Drawing	9/6/2020	1/5/2021	5/14/2021	12/31/2021	80%						E&M GA submission submitted on 6 Feb 2021. AECOM commented on 19 Feb 2021. Bestwise resubmitted DWG-0082 Rev.1 on 9 July 2021. Electrical GA submitted on 7 Apr 2021. AECOM commented on 21 Apr 2021. Bestwise resubmitted DWG-0095 Rev.1 on 3 July 2021 and accepted by AECOM. Finalized drawings for Inlet Works no.1 shall be submitted by 31 Dec 2021.
	Submission of Electrical Drawing	9/6/2020	1/15/2021	5/14/2021	12/31/2021	80%						Electrical SLD submitted on 5 Feb 2021. AECOM commented on 20 Feb 2021. Bestwise to resubmit. Finalized drawings for Inlet Works no.1 shall be submitted by 31 Dec 2021.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	1/21/2022	63%				-		
6B.2.2 Primary Sedimentation Tank No. 1-4	Submission of Contractor's Design for Primary Sedimentation Tanks No. 1-4	9/6/2020	12/28/2020	5/14/2021	5/31/2022	57%				-	Bestwise	PFD (rev.B) under DWG0004 submitted on 22 June 2021. Finalized design calculations for PST shall be submitted by 31 May 2022.
	Submission of P&M Submission	9/6/2020	11/26/2020	5/14/2021	5/31/2022	60%						Plant and Material (P&M0044) submission (Rev. 0) for primary sludge pump was submitted on 5 Feb 2021. AECOM commented on 1 Apr 2021. Bestwise to resubmit. Finalized material submissions for PST shall be submitted by 31 May 2022.
	Submission of P&ID Drawing	9/6/2020	10/2/2020	5/14/2021	6/24/2021	Task Completed						PID under DWG0037 (rev.1) submitted on 24 June 2021 and is accepted by AECOM.
	Submission of GA Drawing	9/6/2020	2/3/2021	5/14/2021	5/31/2022	54%						Mechanical GA was submitted on 19 Jun 2021. Electrical GA under DWG0103 (rev.1) was submitted on 6 Jul 2021 and is accepted by AECOM. Finalized drawings for PST shall be submitted by 31 May 2022.
	Submission of Electrical Drawing	9/6/2020	1/15/2021	5/14/2021	5/31/2022	56%						Electrical SLD submitted on 5 Feb 2021. AECOM commented on 20 Feb 2021. Bestwise to resubmit. Finalized drawings for PST shall be submitted by 31 May 2022.
	Acceptance of submission	5/15/2021	4/2/2021	5/29/2021	6/21/2022	45%				-		
6B.2.3 Chemical Storage and Dosing System	Submission of Contractor's Design for Chemical Dosing System (CDS006)	9/6/2020	1/7/2021	5/14/2021	10/31/2021	97%				-	Bestwise	Design calculation (rev.0) of CHS1 and TCHS submitted on 2 Sep 2020 and 28 Aug 2020, AECOM commented on 24 Sep and 6 Oct 2020, Bestwise submitted CDS0060 on 15 Jul 2021 and CDS0044 on 19 Jul 2021. Finalized design calculation for chemical systems shall be submitted by 30 Sep 2021.
	Submission of P&M Submission	9/6/2020	9/6/2020	5/14/2021	10/31/2021	98%						Finalized material submissions for chemical system shall be submitted by 30 Sep 2021.
	Submission of P&ID Drawing	9/6/2020	12/11/2020	5/14/2021	6/29/2021	Task Completed						PID resubmitted under DWG0053 (rev.1) on 28 Jun 2021, DWG0057 (rev.1) on 29 Jun 2021 and DWG0058 (rev.1) on 29 Jun 2021.
	Submission of GA Drawing	9/6/2020	2/8/2021	5/14/2021	10/31/2021	96%						Electrical GA drawings for CS1 under DWG0096 submitted on 10 April 2021. AECOM accepted subject to comments on 17 Apr 2021. Mechanical GA drawings for CS1 submitted on 1 April 2021. AECOM commented on 24 April 2021. Bestwise resubmitted DWG0093 (rev.1) on 30 Jun 2021 and is accepted by AECOM. Mechanical GA for Temp CS submitted on 12 Jun 2021. Finalized drawings for chemical systems shall be submitted by 30 Sep 2021.
	Submission of Electrical Drawing	9/6/2020	1/15/2021	5/14/2021	10/31/2021	97%						Electrical SLD submitted on 5 Feb 2021. AECOM commented on 20 Feb 2021. Bestwise to resubmit. Finalized drawings for chemical system shall be submitted by 30 Sep 2021.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	10/21/2021	100%				-		
6B.2.4 Membrane Bioreactor (MBR) System - Bio Reactor 2A and 2B	Submission of Contractor's Design for Bioreactor 2A and 2B (CDS004)	9/6/2020	1/12/2021	5/14/2021	6/30/2022	53%				-	Bestwise	PFD (rev.1) submitted on 3 Nov 2020. AECOM accepted on 7 Dec 2020 subject to comment. MBR system process and design calculation (rev.2) submitted on 6 Nov 2020. AECOM accepted on 17 Nov 2020 subject to comments. Electrical CDS submitted on 23 Jun 2021. Finalized design calculations shall be submitted by 30 June 2022.
	Submission of P&M Submission	9/6/2020	11/26/2020	5/14/2021	6/30/2022	57%						P&M0053 Mixed Liquor Return (MLR) Pump was resubmitted formally on 17 Jun 2021. Finalized material submission shall be submitted by 30 June 2022.
	Submission of P&ID Drawing	9/6/2020	11/2/2020	5/14/2021	7/2/2021	Task Completed						PID (Rev.1) under DWG0042 resubmitted on 6 July 2021.
	Submission of GA Drawing	9/6/2020	2/17/2021	5/14/2021	6/30/2022	49%						Mechanical GA under DWG0132 submitted on 26 Jun 2021 and is accepted by AECOM. Electrical GA submitted on 23 Jun 2021. Finalized drawing shall be submitted by 30 June 2022.
	Submission of Electrical Drawing	9/6/2020	1/15/2021	5/14/2021	6/30/2022	53%						Electrical SLD submitted on 5 Feb 2021. AECOM commented on 20 Feb 2021. Bestwise to resubmit. Finalized drawing shall be submitted by 30 June 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	7/21/2022	37%				-		

6B.2.4 Membrane Bioreactor (MBR) System - Membrane Filtration System No. 2 (MFB No. 2)	Submission of Contractor's Design for Membrane Filtration System (CDS005)	9/6/2020	1/11/2021	5/14/2021	6/30/2022	53%				-	Bestwise	PFID (rev.1) submitted on 3 Nov 2020. AECOM accepted on 10 Dec 2020 subject to comment. MBR system process and design calculation (rev.2) submitted on 6 Nov 2020. AECOM accepted on 17 Nov 2020 subject to comments. Finalized design calculations shall be submitted by 30 June 2022.	
	Submission of P&M Submission	9/6/2020	11/19/2020	5/14/2021	6/30/2022	57%						P&M (rev.0) for penstock and actuator was submitted on 20 Nov 2020. AECOM commented on 5 Jan 2021. Bestwise to resubmit P&M0050 (rev. 0) for membrane tank drain pump was submitted on 5 Mar 2021. AECOM commented on 29 Mar 2021. Bestwise resubmitted formally on 19 Jun 2021. P&M0072 (rev. 0) for membrane module was submitted on 20 Apr 2021. AECOM commented on 20 May 2021, Bestwise to re-submit. P&M0069 (rev.0) for permeate pump was submitted on 4 Mar 2021. AECOM commented on 23 Apr 2021. Bestwise resubmitted formally on 19 Jun 2021. P&M0047 (rev. 1) for RAS pump was resubmitted on 17 Apr 2021. AECOM commented on 12 May 2021, Bestwise resubmitted formally on 19 Jun 2021. P&M0073 & 0074 (rev.0) for aeration blower and air scouring blower was submitted to AECOM formally on 19 Jun 2021. Finalized material submission shall be submitted by 30 June 2022.	
	Submission of P&ID Drawing	9/6/2020	10/30/2020	5/14/2021	7/2/2021	Task Completed							DWG0049 (Rev.1) was resubmitted on 2 Jul 2021.
	Submission of GA Drawing	3/31/2021	2/18/2021	5/14/2021	6/30/2022	49%							DWG0121 (rev.1) was resubmitted to AECOM on 17 Jul 2021 Finalized drawings shall be submitted by 30 June 2022.
	Submission of Electrical Drawing	4/15/2021	1/15/2021	5/14/2021	6/30/2022	53%							Electrical SLD submitted on 5 Feb 2021. AECOM commented on 20 Feb 2021. Bestwise to resubmit. Electrical GA under DWG0079 (rev.1) was resubmitted on 8 Jul 2021. Finalized drawings shall be submitted by 30 June 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	7/21/2022	37%					-		
6B.2.6 Deodorisation System (EQT-001 - Deodorization Unit)	Tender award (C11)	4/25/2020	4/25/2020	5/12/2020	5/12/2020	Task Completed				100%	Bestwise	Bestwise submitted tender report on 13 May 2020. AECOM commented on 23 July 2020, Bestwise to resubmit.	
	Acceptance of tender award (C11)	5/13/2020	5/13/2020	5/21/2020	5/21/2020	Task Completed				100%			
	Submission of Contractor's Design for Deodorisation System , DOU No. 1 (CDS0019 & CDS0045 )	9/6/2020	9/6/2020	5/14/2021	12/31/2021	85%					-		Design Calculation (Rev.0) was submitted on 24 Nov 2020. AECOM commented on 6 Jan 2021, Bestwise to resubmit. Bestwise submitted CDS0045 on 3 June 2021. Finalized design shall be submitted by 31 Dec 2021. (follow Inlet Works)
	Submission of P&ID Drawing of DOU No. 1	9/6/2020	8/5/2020	5/14/2021	7/2/2021	Task Completed					-	Bestwise	Bestwise resubmitted rev.3 on 29 Mar 2021. AECOM accepted subject to comments on 13 Apr 2021.
	Submission of GA Drawing of DOU No. 1	9/6/2020	9/6/2020	5/14/2021	12/31/2021	85%							GA submitted on 21 Jun 2021 Finalized drawings shall be submitted by 31 Dec 2021. (follow Inlet Works)
	Submission of Electrical Drawing of DOU No. 1	3/21/2021	1/30/2021	5/14/2021	12/31/2021	79%							Control wiring diagrams was resubmitted on 1 April 2021. AECOM commented on 23 Apr 2021. Bestwise to resubmit. Finalized drawings shall be submitted by 31 Dec 2021. (follow Inlet Works)
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	1/21/2022	63%					-		
	Submission of Contractor's Design for Deodorisation System , DOU No. 2A (CDS0019 & CDS0048)	9/6/2020	9/6/2020	5/14/2021	6/30/2022	62%					-		Design Calculation (Rev.0) was submitted on 24 Nov 2020. AECOM commented on 6 Jan 2021, Bestwise to resubmit. Bestwise submitted CDS0048 on 17 June 2021. Finalized design shall be submitted by 30 June 2022. (follow BR2A2B)
	Submission of P&ID Drawing of DOU No. 2A	9/6/2020	8/5/2020	5/14/2021	7/2/2021	Task Completed					-	Bestwise	Bestwise resubmitted rev.3 on 29 Mar 2021. AECOM accepted subject to comments on 13 Apr 2021.
	Submission of GA Drawing of DOU No. 2A	9/6/2020	8/3/2020	5/14/2021	6/30/2022	64%					-	Bestwise	Bestwise submitted (rev.1) on 30 Oct 2020. AECOM commented on 16 Dec 2020. Bestwise to resubmit. Finalized drawing shall be submitted by 30 June 2022. (follow BR2A2B)
	Submission of Electrical Drawing of DOU No. 2A	3/21/2021	1/26/2021	5/14/2021	6/30/2022	52%							Bestwise submitted (rev.0) on 26 Jan 2021, AECOM commented on 4 Feb 2021. Bestwise to resubmit. Finalized drawing shall be submitted by 30 June 2022. (follow BR2A2B)
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	7/21/2022	37%					-		
	Submission of Contractor's Design for Deodorisation System , DOU No. 3A (CDS0019)	9/6/2020	9/6/2020	5/14/2021	10/31/2021	98%					-		Design Calculation (Rev.0) was submitted on 24 Nov 2020. AECOM commented on 6 Jan 2021, Bestwise to resubmit. Finalized design shall be submitted by 30 Sep 2021.
	Submission of P&ID Drawing of DOU No. 3A	9/6/2020	8/5/2020	5/14/2021	7/2/2021	Task Completed					-	Bestwise	Bestwise resubmitted rev.3 on 29 Mar 2021. AECOM accepted subject to comments on 13 Apr 2021.
	Submission of GA Drawing of DOU No. 3A	9/6/2020	7/8/2020	5/14/2021	10/31/2021	98%					-	Bestwise	Bestwise submitted (rev.1) on 28 Oct 2020. AECOM commented on 16 Dec 2020. Bestwise resubmitted on 24 June 2021. Finalized drawing submitted by 30 Sep 2021.
Submission of Electrical Drawing of DOU No. 3A	3/21/2021	2/26/2021	5/14/2021	10/31/2021	96%							Bestwise submitted on 17 Apr 2021. AECOM commented on 27 Apr 2021. Bestwise to resubmit. GA submitted on 24 Jun 2021 Finalized drawing submitted by 30 Sep 2021.	
Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	10/31/2021	94%								
Submission of Contractor's Design for Deodorisation System , DOU No. 3B (CDS0019 & CDS0049)	9/6/2020	9/6/2020	5/14/2021	6/30/2022	62%							Design Calculation (Rev.0) was submitted on 24 Nov 2020. AECOM commented on 6 Jan 2021, Bestwise to resubmit. Bestwise submitted CDS0049 on 18 June 2021. Finalized design shall be submitted by 30 June 2022.	

	Submission of P&ID Drawing of DOU No. 3B	9/6/2020	8/5/2020	5/14/2021	7/2/2021	Task Completed					-	Bestwise	Bestwise resubmitted rev.3 on 29 Mar 2021. AECOM accepted subject to comments on 13 Apr 2021.
	Submission of GA Drawing of DOU No. 3B	9/6/2020	9/6/2020	5/14/2021	6/30/2022	62%							Bestwise submitted DWG0081 (rev.0) on 5 Feb 2021. AECOM commented on 12 Mar 2021. Bestwise to resubmit. Finalized drawing shall be submitted by 30 June 2022.
	Submission of Electrical Drawing of DOU No. 3B	3/21/2021	2/22/2021	5/14/2021	6/30/2022	49%							GA submitted on 24 Jun 2021 Finalized drawing shall be submitted by 30 June 2022.
	Acceptance of submission	5/15/2021	5/15/2021	5/29/2021	7/21/2022	37%					-		
04SC008 - Design, Supply and Installation of detailed design for lifting appliances	Acceptance of tender award (C9)	-	-	-	7/6/2020	Task Completed					100%	-	AECOM accepted tender report on 6 July 2020.
	Submission of detailed design for lifting appliances for Inlet Works No. 1 (CDS050-1)	9/6/2020	12/5/2020	9/6/2020	12/31/2021	82%							DWG 0055 (Rev.0) was submitted on 13 Mar 2021. AECOM commented on 20 Apr 2021. Bestwise to resubmit. Bestwise submitted P&M0025 on 15 June 2021. Finalized design shall be submitted by 31 Dec 2021.
	Submission of detailed design for lifting appliances for Primary Sedimentation Tanks (CDS050-2)	9/6/2020	12/5/2020	9/6/2020	5/31/2022	59%							DWG 0054 (Rev.0) was submitted on 18 Jan 2021. AECOM commented on 9 Mar 2021. Bestwise to resubmit. Finalized design shall be submitted by 31 May 2022.
	Submission of detailed design for lifting appliances for BR 2A and 2B (CDS050-3)	9/6/2020	12/5/2020	9/6/2020	5/31/2022	59%							DWG 0065 (Rev.0) was submitted on 18 Jan 2021. AECOM commented on 9 Mar 2021. Bestwise to resubmit. Finalized design shall be submitted by 31 May 2022.
	Submission of detailed design for lifting appliances for MFB (CDS050-4)	9/6/2020	12/5/2020	9/6/2020	5/31/2022	59%							DWG 0066 (Rev.1) was submitted on 1 Mar 2021. AECOM commented on 5 Mar 2021. Bestwise to resubmit. Finalized design shall be submitted by 31 May 2022.
	Submission of detailed design for lifting appliances for Temporary Filtration Tank (CDS050-5)	9/6/2020	12/5/2020	9/6/2020	5/21/2021	Task Completed							DWG 0051 (Rev.2) was resubmitted on 7 May 2021 and acceptance by AECOM subject to condition on 21 May 2021. Bestwise submitted P&M0021 on 21 June 2021.
Building Services System	Submission for MVAC system	N/A	12/10/2020	N/A	6/30/2022	56%							Design calculations and drawings for inlet works was submitted on 16 Dec 2020. AECOM commented on 15 Jan 2021 and 20 Jan 2021. Design calculations and drawings for PST was submitted on 30 Dec 2020. AECOM commented on 22 Jan 2021 and 26 Jan 2021. Design calculations and drawings for MFB2 was submitted on 29 Jan 2021. AECOM commented on 26 Mar 2021. Subletting package resubmitted by 18 Mar 2021. AECOM accepted on 19 Mar 2021. Finalized design shall be submitted by 30 June 2022.
	Submission for Fire Services System	N/A	3/15/2021	N/A	6/30/2022	47%							Subletting Package to be resubmitted by 31 Mar 2021. AECOM accepted on 9 Apr 2021. Drawings: Inlet Works: submitted on 8 June 2021. PST 1-4: submitted on 23 Jun 2021 BR2A & 2B: submitted on 8 Jun 2021 MFB 2: submitted on 8 Jun 2021 Finalized design shall be submitted by 30 June 2022.
	Submission for Plumbing and Drainage System	N/A	3/15/2021	N/A	6/30/2022	47%							Subletting Package resubmitted by 10 Mar 2021. AECOM accepted on 12 Mar 2021. Tender invitation was conducted on 15 Mar 2021 and closed on 26 Mar 2021. Finalized design shall be submitted by 30 June 2022.
	Submission for Electrical Services System	N/A	12/10/2020	N/A	6/30/2022	56%							GA for lighting was submitted on 18 Dec 2020. AECOM commented on 6 Jan 2021. Bestwise to resubmit. GA for small power system was submitted in 8 Feb 2021. AECOM commented on 3 Mar 2021. Bestwise to resubmit. Finalized design shall be submitted by 30 June 2022.
	Submission of ELV system	N/A	1/8/2021	N/A	9/30/2022	45%							GA for CCTV was resubmitted on 16 Mar 2021. AECOM commented on 30 Mar 2021. Bestwise resubmitted on 25 Jun 2021. Finalized design shall be submitted by 30 Sep 2022.
	Submission for PV system	N/A	3/15/2021	N/A	6/30/2022	47%							Tender package was submitted to AECOM. Finalized design shall be submitted by 30 June 2022.
SCADA System & PMS	Submission for SCADA system	N/A	2/11/2021	N/A	8/31/2022	45%							Revised SCADA structure was provided via email on 9 Apr 2021 and tender package is under preparation. Finalized design shall be submitted by 31 Aug 2022.
	Submission for PMS system	N/A	3/8/2021	N/A	8/31/2022	42%							Tender package to be resubmitted on 29 June 2021. Finalized design shall be submitted by 31 Aug 2022.
	Submission for CMMS & IDMS system	N/A	6/1/2021	N/A	8/31/2022	31%							Finalized design shall be submitted by 31 Aug 2022.
<b>Subcontracting</b>													
Temporary Primary Sludge Thickener and its accessories (Sub-programme was provided by Bestwise)	Submission of subletting package (C9) for acceptance	15/05/2020 ->	8/14/2020	15/05/2020 -	8/27/2020	Task Completed					100%	Bestwise	- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020.
	Acceptance of subletting package (C9) (Mech)	30/05/2020 ->	8/15/2020	15/06/2020 ->	9/16/2020	Task Completed					100%		- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020.



Tender invitation (C9) (Mech)	15/06/2020->15/8/2020*	9/9/2020	22/06/2020->22/8/2020*	10/14/2020	Task Completed				100%		- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - Tender invitation for FRP Tank was conducted on 9 Sep 2020, tender returned on 16 Sep 2020. - Tender invitation for mechanical installation was conducted on 29 Sept 2020, tender returned on 14 Oct 2020.
Tender award (C9) (Mech)	22/06/2020->22/8/2020*	9/17/2020	29/06/2020->29/8/2020*	10/22/2020	Task Completed				100%		- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - Tender report for FRP Tank was submitted on 24 Sep 2020 and accepted on 9 Oct 2020. - Tender report for mechanical installation submitted on 22 Oct 2020 and accepted on 16 Nov 2020.
Acceptance of tender award (C9) (Mech)	-	-	-	11/16/2020	Task Completed				100%		
Submission of subletting package (C9) for acceptance (Elect)	15/05/2020 -> 15/7/2020*	12/9/2020	15/05/2020 -> 30/11/2020*	1/28/2021	Task Completed				100%		- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - Bestwise resubmitted subcontracting package of electrical installation on 28 Jan 2021
Acceptance of subletting package (C9) (Elect)	30/05/2020 -> 30/7/2020*	1/29/2021	15/06/2020 -> 15/8/2020*	2/1/2021	Task Completed				100%		- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020.
Tender invitation (C9) (Elect)	15/06/2020->15/8/2020*	2/1/2021	22/06/2020->22/8/2020*	2/11/2021	Task Completed				100%		- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - Tender invitation commenced on 1 Feb 2021 and returned on 11 Feb 2021
Tender award (C9) (Elect)	22/06/2020->22/8/2020*	2/11/2021	29/06/2020->29/8/2020*	2/23/2021	Task Completed				100%		- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - Tender report target submitted on 23 Feb 2021 and accepted on 24 Feb 2021
Acceptance of tender award (C9) (Elect)	-	-	-	2/26/2021	Task Completed				100%		
Tender invitation (C11)	30/04/2020->15/07/2020*	4/30/2020	30/06/2020->15/09/2020*	11/18/2020	Task Completed				100%	Bestwise	- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - Tender invitation of Primary Sludge Thickener commenced on 22 April 2020 and tender was received on 29 April 2020. Tender queries was requested on 5 May 2020 and received on 7 May 2020. Tender report was commented by PM and resubmitted on 22 May 2020. Accepted by AECOM on 12 Jun 2020. - Tender Invitation of process pumps for the thickening system was commenced on 5 Jun 2020 and tenders were received on 10 June 2020. Tender report submitted to PM on 2 July 2020. - Tender Invitation of activated carbon filter was commenced on 22 Oct 2020 and to be returned on 2 Nov 2020. Tender report submitted on 5 Nov 2020 and accepted on 16 Nov 2020 - Tender Invitation of FRP platform was commenced on 13 Nov 2020 and to be returned on 20 Nov 2020. Tender report submitted on 30 Nov 2020 and accepted on 11 Jan 2020 - Tender Invitation of instrument was commenced on 18 Nov 2020 and to be returned on 25 Nov 2020. Tender report submitted on 30 Nov 2020 - Based on the control philosophy agreed on 23 Dec 2020, motorized and solenoid valves were selected
Tender award (C11)	15/05/2020->29/07/2020*	5/30/2020	15/07/2020->	11/30/2020	Task Completed				100%		- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020.
Acceptance of tender award (C11)	-	-	-	9/18/2020					-		
Design Submission	03/07/2020 -> 15/07/2020*	8/5/2020	21/09/2020->02/10/2020*	5/10/2021	Task Completed				100%	Bestwise	- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - Design submission of Process Pumps (Rev.3) resubmitted on 14 Apr 2021, AECOM accepted with comments on 7 May 2021. - Design submission of electrical calculation (rev.2) was resubmitted on 29 Apr 2021. AECOM accepted with comments on 10 May 2021. - Control Philosophy (Rev.2) resubmitted on 5 Mar 2021. AECOM accepted subject to comments on 26 Mar 2021.
Plant and Material Submission	21/07/2020 -> 30/07/2020*	7/21/2020	31/08/2020 -> 31/10/2020*	6/30/2021	Task Completed					Bestwise	- *=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - Plant and Material submission of primary sludge thickener was resubmitted on 1 Sep 2020 (Rev. 3) and AECOM accepted on 8 Sep 2020. - Plant and Material submission P&M0002 (Rev.2) of process pumps was submitted on 5 August 2020 and AECOM commented on 26 Aug 2020, Bestwise to re-submitted to AECOM. - Plant and Material submission (Rev.0) for valves was submitted on 16 Nov 2020. AECOM accepted on 14 Dec 2020 subject to comments - Plant and Material submission (Rev.1) for DI pipes and fittings was resubmitted on 3 Dec 2020. AECOM accepted on 14 Dec 2020 - Plant and Material submission (Rev.0) for primary sludge equalization tank was submitted on 5 Feb 2021. AECOM accepted subject to comments on 25 Feb 2021. - Plant and Material submission (Rev.0) for activated carbon filter was submitted on 28 Jan 2021. AECOM accepted subject to comments on 5 Feb 2021. - Plant and Material submission (Rev. 1) for instruments was resubmitted on 13 Mar 2021. AECOM accepted subject to comments on 7 Apr 2021.

Drawing Submission	03/07/2020 -> 30/07/2020*	8/3/2020	21/09/2020 - > 21/11/2020*	2/10/2021	Task Completed				100%	Bestwise	-*=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - PFD, P&ID, Schematic GA (Rev.3) resubmitted on 22 Jan 2021 according to the finalized control philosophy. AECOM accepted subject to comment on 29 Jan 2021. - Electrical drawing - Bestwise resubmitted electrical drawing (Rev.5) on 22 Mar 2021. AECOM accepted on 16 Apr 2021.
Material Manufacturing	31/07/2020 -> 30/09/2020*	8/4/2020	21/10/2020 - > 21/12/2020*	4/20/2021	Task Completed				100%		-*=Corresponding PMI No.009 and CE No.009 were issued by AECOM on 14 July 2020. CE was implemented on 15 July 2020. - Manufacturing instruction of PS thickener was issued on 3 August 2020. - Manufacturing instruction of process pumps was issued on 24 September 2020 - Electrical sub-contractor is awarded and manufacturing LCP
Material Delivery	05/09/2020 ->	11/4/2020	16/11/2020 -	6/21/2021	Task Completed						
Mechanical Installation	01/10/2020 -> 01/12/2020*	2/2/2021	15/11/2020 - > 15/01/2021*	5/17/2021	Task Completed				-		
Offsite Fabrication and Delivery of FRP Tank		1/16/2021		4/7/2021	Task Completed				100%		First batch to be delivered on 23 Mar 2021
Onsite Installation of FRP Tank		4/7/2021		7/30/2021	Task Completed						Water filling to tank completed; Tank hydraulic test completed.
Electrical Installation	01/10/2020 -> 01/12/2020*	3/19/2021	15/11/2020 - > 15/01/2021*	7/19/2021	Task Completed				-		Energize of all LCPs on 24 May 2021 and isolated prior to system commissioning.
Testing and Commissioning	15/11/2020 -> 15/01/2021*	5/8/2021	22/11/2020 - > 22/01/2021*	10/28/2021	96%				-		The commissioning test shall be started on 25 Oct 2021 and completed on 28 Oct 2021; the installation of FRP maintenance platform shall be completed on 22 Oct 2021 while wash water infeed pipe connection shall be completed on 31 Oct 2021.
Modification of Existing Emergency Generator Electrical Works	Submission of subletting package (C9) for acceptance	10/15/2020	10/15/2020	10/31/2020	12/11/2020	Task Completed			100%		
	Acceptance of subletting package (C9)	11/1/2020	11/5/2020	11/15/2020	1/2/2021	Task Completed			100%		
	Tender invitation (C9)	11/16/2020	1/26/2021	11/30/2020	2/5/2021	Task Completed			100%		Tender invitation commenced on 26 Jan 2021, and returned on 5 Feb 2021
	Tender award (C9)	11/30/2020	2/18/2021	12/7/2020	2/18/2021	Task Completed			100%		Tender report was submitted on 18 Feb 2021 and accepted on 26 Feb 2021
	Acceptance of tender award (C9)	12/8/2020	2/18/2021	12/15/2020	2/26/2021	Task Completed			100%		
	Design Submission	12/15/2020	3/15/2021	1/15/2021	4/23/2021	Task Completed			100%		DWG-0100 was submitted on 23 Apr 2021. AECOM accepted with comments on 30 Apr
	Transportation of existing dismantled genset no. 2 (Genset No.2) to subcontractor (Click Ltd.)'s workshop	3/9/2021	3/9/2021	3/9/2021	3/9/2021	Task Completed			100%		
	Drawing submission (Drawing of General Layout for Existing 600kVA Genset Container)	4/23/2021	4/23/2021	4/30/2021	4/30/2021	Task Completed			100%		
	Drawing submission (Cable route ,general arrangement, etc)	5/14/2021	5/28/2021	5/21/2021	5 July 2021	Task Completed			100%		
	Material submission P431 P&M-0087	21 May 2021	19 June 2021	28 May 2021	12 July 2021	Task Completed			100%		
	Fabrication of container at PRC	21 June 2021	21 June 2021	TBC	8/12/2021	Task Completed			100%		
	Container deliver to HK	TBC	8/12/2021	8/10/2021	8/12/2021	Task Completed			100%		
	Off site modification work at HK factory	TBC	8/16/2021	8/24/2021	8/24/2021	Task Completed			100%		
	FAT plan of modified Genset No.2 P431 MS-036	7/12/2021	7/12/2021	8/20/2021	8/20/2021	Task Completed			100%		
	FAT of Genset No.2 after modification works	8/25/2021	8/25/2021	8/25/2021	8/25/2021	Task Completed			100%		
	Installation Work of I-beam Support	8/26/2021	8/26/2021	8/26/2021	8/26/2021	Task Completed			100%		
	Transportation of Genset No. 2 to existing power house in SWHSTW and completion of the Genset No.2 installation on I-beam supporting frame	8/27/2021	8/27/2021	8/27/2021	8/27/2021	Task Completed			100%		
	Provision of one (1) can of 160L diesel and a diesel hand pump placed at diesel daily tank of Genset No.1 for standby top up (PPMI-012 item L) Location to be coordinated and advised by SWHSTW operator DSD/ST1	7/27/2021	7/27/2021	8/31/2021							Location to be further coordinated with DSD.
	Modification works of existing switchboard	9/1/2021	9/1/2021	9/8/2021	9/8/2021	Task Completed			100%		
	Cables (including control cable and power cables) laying and installation of cable containment, busbar chamber	7/21/2021	7/30/2021	9/8/2021	9/8/2021	Task Completed			100%		
Supply of busbar chamber/ connection box	8/10/2021	8/10/2021	9/3/2021	9/3/2021	Task Completed			100%			
Completion of all Genset cables and cable termination work to existing power house in SWHSTW after the completion of Genset No. 2 installation work	9/1/2021	9/1/2021	9/8/2021	9/8/2021	Task Completed			100%			
Delivery of dummy load and self-test	9/9/2021	9/9/2021	9/14/2021	9/15/2021	Task Completed			100%			
SAT and T&C (witness by AECOM and DSD/ST1) Please allow 1 week advance notice for coordination with DSD/ST1, e.g. genset signal start, etc.)	9/15/2021	9/15/2021	9/15/2021	9/16/2021	Task Completed			100%			

Plant and Materials (Marking Scheme)											
PS Clause no. 6B.2.1 Inlet Pump	Tender award	6/5/2020	9/19/2020	10/5/2020	10/7/2020	Task Completed				100%	Technical Submission Evaluation Report was submitted on 5 Oct 2020, Tender report was submitted on 7 Oct 2020. AECOM noted on 8 Oct 2020.
	Acceptance of tender award	6/19/2020	10/17/2020	10/19/2020	11/15/2020	Task Completed				-	
PS Clause no. 6B.2.4 MBR Pre-treatment Screen	Acceptance of marking scheme by the PM	5/15/2020	8/20/2020	9/15/2020	9/1/2020	Task Completed				100%	AECOM accepted on 1 Sep 2020
	Tender invitation	5/29/2020	11/20/2020	9/29/2020	12/11/2020	Task Completed				100%	Tender invitation was conducted on 20 Nov 2020 and returned on 11 Dec 2020. Tender
	Tender award	6/5/2020	12/13/2020	10/5/2020	3/3/2021	Task Completed				100%	Technical Submission Evaluation Report was submitted on 12 Jan 2021. AECOM noted on 22 Jan 2021. Tender Report was submitted on 4 Feb 2021, AECOM commented on 19 Feb 2021, Bestwise submitted supplementary information on 26 Feb 2021. AECOM noted on 3 Mar
PS Clause no. 6B.2.4 Air Diffusion System	Acceptance of marking scheme by the PM	5/15/2020	8/20/2020	9/15/2020	9/1/2020	Task Completed				100%	AECOM accepted on 1 Sep 2020, subject to conditions.
	Tender invitation	5/29/2020	2/17/2021	9/29/2020	3/12/2021	Task Completed				100%	Procurement package would follow the approved format (i.e. aeration blower) Tender invitation was conducted on 17 Feb 2021. Addendum No. 1 was issued on 18 Feb 2021. Tender return date was extended from 26 Feb 2021 to 12 Mar 2021. Tender returned on 12 Mar 2021
	Tender award	6/5/2020	3/18/2021	10/5/2020	4/20/2021	Task Completed				-	Technical Submission Evaluation Report was submitted on 18 Mar 2021. AECOM noted on 30 Mar 2021. Tender Report was submitted on 8 Apr 2021. LOI was issued to supplier.
	Acceptance of tender award	6/19/2020	2/20/2021	10/19/2020	3/12/2021	Task Completed				-	
PS Clause no. 6B.2.4 BR Aeration Blower	Acceptance of marking scheme by the PM	5/28/2020	8/20/2020	9/28/2020	9/1/2020	Task Completed				100%	AECOM accepted on 1 Sep 2020
	Tender invitation	6/11/2020	2/3/2021	10/12/2020	3/3/2021	Task Completed				100%	Procurement package was submitted to AECOM under CGS-066. AECOM replied on 29 Jan 2021. Tender invitation was conducted on 3 Feb 2021. Tender returned on 3 Mar 2021
	Tender award	6/18/2020	3/4/2021	10/19/2020	4/12/2021	Task Completed				-	Technical Submission Evaluation Report was submitted on 10 Mar 2021. AECOM noted on 19 Mar 2021. Tender Report was submitted on 24 Mar 2021. LOI was issued to supplier.
	Acceptance of tender award	7/2/2020	3/4/2021	11/2/2020	3/25/2021	Task Completed				-	AECOM accepted on 1 Sep 2020, subject to conditions.
PS Clause no. 6B.2.4 Membrane Modules, Cassettes / Racks	Tender award	6/18/2020	10/6/2020	10/19/2020	11/2/2020	Task Completed				100%	Technical Submission Evaluation Report was submitted on 14 Oct 2020, Tender report was submitted on 2 Nov 2020. AECOM noted on 4 Nov 2020.
	Acceptance of tender award	7/2/2020	11/3/2020	11/2/2020	11/24/2020	Task Completed				-	
PS Clause no. 6B.2.4 RAS Pump	Tender award	6/18/2020	10/30/2020	10/19/2020	12/2/2020	Task Completed				100%	Technical Submission Evaluation Report was submitted on 6 Nov 2020. Tender report was submitted on 24 Nov 2020, AECOM noted on 2 Dec 2020.
	Acceptance of tender award	7/2/2020	11/21/2020	11/2/2020	12/12/2020	Task Completed				-	