



Lam Environmental Services Limited

Contract No. SPW 12/2021
Shek Wu Hui Effluent Polishing Plant – Main Works
Monthly EM&A Report (March2024)

CONTRACT NO. SPW 12/2021
SHEK WU HUI EFFLUENT POLISHING PLANT – MAIN WORKS
UNDER FURTHER ENVIRONMENTAL PERMIT NO. FEP-
02/474/2013
MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT
MARCH 2024

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Contract No. SPW 13/2021

Shek Wu Hui Effluent Polishing Plant – Main Work

Monthly Environmental Monitoring & Audit Report

March 2024

(April 2024)

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EXECUTIVE SUMMARY

- i. This is the Environmental Monitoring and Audit (EM&A) Monthly Report – **March 2024** 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 **31st** 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 **1 March 2024 to 31 March 2024**. 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
- Pipe jacking
- Sewage, utility and pipe works
- Road works
- ABWF works
- ELS

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

- RC works
- ABWF works
- Pipe laying

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

- Civil Works at Portion B-1 (Sidestream)
- Pump & Pipework installation at Portion B-1 (Sidestream)
- Installation of E&M Plant Equipment (Sidestream)
- Installation of EOT & Monorail at Portion B-1 (Sidestream)
- Electrical Installation at Workshop No.2
- MVAC Installation at Workshop No.2
- LV switchboard installation at Workshop No.2
- Electrical Installation at SDB
- Plumbing System Installation at SDB
- MVAC System Installation at SDB
- FS System Installation at SDB
- Delivery & Jointing of FRP Tanks at SDB

- Installation of CHP Acoustic Enclosure at CHP
- Installation of Lifting Appliances at CHP
- Steam Boiler System Installation at CHP
- FS Systems Installation at CHP
- Delivery for Ferric Chloride Storage Tanks Installation
- THP System Installation at THP
- Bio-gas Holding Tank Installation at BGHT
- Sludge Cooler Delivery & Installation at SDT
- Installation of FRP Walkway and Platform at SDT
- Installation of H2S Removal System at SDT
- SAT of Penstock and Stoplogs at SPS
- Installation of pipework at SAS Pumping Station

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

- E&M works for Leachate Pre-treatment Plant at existing compressor house, BR No 3&4 and MFB1
- E&M works at Portion B-5, MFB2.
- E&M works at Portion B-7, including DOU No.3A, Emergency Generator House and FS & Sprinkler Pumping Room, Chemical System No.1, Street Fire Hydrant & Booster Pump Room and Temporary Chemical System

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.
- v. 24-hr TSP monitoring at AM1a* scheduled on 8th March 2024 was suspended due to power supply failure and has been resumed on 14th March 2024.

Noise Monitoring

- vi. Noise monitoring was conducted at three noise monitoring stations once per week in the reporting month.
- vii. No action or limit level exceedance was recorded in this reporting period.

Ecological Monitoring

- viii. 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.

- ix. [No Action or Limit level was triggered in the reporting month.](#)

Site Inspections and Audit

- x. The Environmental Team (ET) conducted weekly site inspections on [5\(DE/2018/03 and DE/2018/04\)](#), [7\(DC/2018/06 and DC/2018/07\)](#), [12\(DE/2018/03 and DE/2018/04\)](#), [14\(DC/2018/06 and DC/2018/07\)](#), [19 and 26 March 2024](#) and biweekly landscape inspection on [5 and 19 March 2024](#). IEC attended the joint site inspection on [26 March 2024](#). No non-compliance was found during the site inspection while reminders on environmental measures were recommended.

Complaints, Notifications of Summons and Successful Prosecutions

- xi. [No](#) environmental complaint, notification of summons and successful prosecution regarding the construction works was recorded in the reporting period.

Reporting Changes

- xii. [There are no particular reporting changes.](#)

Future Key Issues

- xiii. 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](#)
- [Pipe jacking](#)
- [Sewage, utility and pipe works](#)
- [Road works](#)
- [ABWF works](#)
- [ELS](#)

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

- [RC works](#)

- Pile laying

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

- Civil Works at Portion B-1 (Sidestream)
- Pump & Pipework installation at Portion B-1 (Sidestream)
- Installation of E&M Plant Equipment (Sidestream)
- Installation of EOT & Monorail at Portion B-1 (Sidestream)
- Electrical Installation at Workshop No.2
- MVAC Installation at Workshop No.2
- LV Switch Board Installation at Workshop No.2
- Installation of lift at Workshop No.2 & SDB
- MVAC Installation at SDB
- Plumbing System Installation at SDB
- FS System Installation at SDB
- Electrical Installation at SDB
- Delivery & Jointing of FRP Tanks at SDB
- Bio-gas Holding Tank Installation
- THP System Installation at THP
- Steam Boiler System Installation at CHP
- Installation of CHP Acoustic Enclosure at CHP
- Installation of Pipework and Pumps at SAS Pumping Station
- Sludge Cooler Delivery & Installation at SDT
- Installation of FRP Walkway and Platform at SDT
- Installation of H₂S Removal System at SDT
- Penstock and Stoplogs installation at SPS

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

- E&M works for Leachate Pre-treatment Plant at existing compressor house, BR No 3&4 and MFB1
- E&M works at Portion B-5, MFB2.
- E&M works at Portion B-7, including DOU No.3A, Emergency Generator House and FS & Sprinkler Pumping Room, Chemical System No.1, Street Fire Hydrant & Booster Pump Room and Temporary Chemical System.
- E&M works at Portion B-4, BR 2A & 2B.
- E&M works at Portion B-2, Inlet Works.
- E&M works at Portion B-3, PST No. 1-4.

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 (m^3 /day) at Average Dry Weather Flow (ADWF). In 2001, Stage II of SWHSTW was completed with design capacity enhanced to 80,000 m^3 /day at ADWF. In 2009, the expansion of SWHSTW was completed and its design capacity was increased to 93,000 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 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. Li Lin	2594 7463
AECOM	Supervisor Representative	Resident Engineer	Ms. Ada Chan	3907 1134
Kwan Lee - Chun Wo Joint Venture	Contractor (DC/2018/06)	Environmental Manager	Mr. Clarence Yeung	3758 8551
		Assistance Environmental Engineer	Mr. Timothy To	6203 7133
	Contractor (DC/2018/07)	Environmental Engineer	Ms. Barbara Yiu	9758 2034
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)	Ms. Claudine Lee	9612 9229
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. The layout plans showing the locations of reported construction activities, key PME used for the works contracts and site record photos are shown in [Appendix 2.1](#).

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
- Pipe jacking
- Sewage, utility and pipe works
- Road works
- ABWF works
- ELS

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

- RC works
- ABWF works
- Pile laying

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

- Civil Works at Portion B-1 (Sidestream)
- Pump & Pipework installation at Portion B-1 (Sidestream)
- Installation of E&M Plant Equipment (Sidestream)
- Installation of EOT & Monorail at Portion B-1 (Sidestream)
- Electrical Installation at Workshop No.2
- MVAC Installation at Workshop No.2
- LV switchboard installation at Workshop No.2
- Electrical Installation at SDB
- Plumbing System Installation at SDB
- MVAC System Installation at SDB
- FS System Installation at SDB
- Delivery & Jointing of FRP Tanks at SDB
- Installation of CHP Acoustic Enclosure at CHP
- Installation of Lifting Appliances at CHP
- Steam Boiler System Installation at CHP
- FS Systems Installation at CHP
- Delivery for Ferric Chloride Storage Tanks Installation

- THP System Installation at THP
- Bio-gas Holding Tank Installation at BGHT
- Sludge Cooler Delivery & Installation at SDT
- Installation of FRP Walkway and Platform at SDT
- Installation of H2S Removal System at SDT
- SAT of Penstock and Stoplogs at SPS
- Installation of pipework at SAS Pumping Station

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

- E&M works for Leachate Pre-treatment Plant at existing compressor house, BR No 3&4 and MFB1
- E&M works at Portion B-5, MFB2.
 E&M works at Portion B-7, including DOU No.3A, Emergency Generator House and FS & Sprinkler Pumping Room, Chemical System No.1, Street Fire Hydrant & Booster Pump Room and Temporary Chemical System

2.3.2 The number of key PME and their working locations are shown in **Table 2.2**.

Table 2.2 Summary of key PME and working locations of works contracts

Works Contract	Key PME	Number	Working locations
DC/2018/06	Excavator	1	Section 4
	Scissor lift platform	4	SDB and CHP
	Roller	1	Section 4
DC/2018/07	Excavator	8	Area D, Inlet, PST, SAS, MFB
	Generator	3	PST, Inlet, MFB
	Tower crane	-	-
	Enertainer	-	-
DE/2018/03	Generator	7	Sidestream, THP and Bio-gas Tank
DE/2018/04	Generator	1	DOU3A

2.3.3 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
- Pipe jacking
- Sewage, utility and pipe works
- Road works
- ABWF works
- ELS

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

- RC works
- Pile Laying

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

- Civil Works at Portion B-1 (Sidestream)
- Pump & Pipework installation at Portion B-1 (Sidestream)
- Installation of E&M Plant Equipment (Sidestream)
- Installation of EOT & Monorail at Portion B-1 (Sidestream)
- Electrical Installation at Workshop No.2
- MVAC Installation at Workshop No.2
- LV Switch Board Installation at Workshop No.2
- Installation of lift at Workshop No.2 & SDB
- MVAC Installation at SDB
- Plumbing System Installation at SDB
- FS System Installation at SDB
- Electrical Installation at SDB
- Delivery & Jointing of FRP Tanks at SDB
- Bio-gas Holding Tank Installation
- THP System Installation at THP
- Steam Boiler System Installation at CHP
- Installation of CHP Acoustic Enclosure at CHP
- Installation of Pipework and Pumps at SAS Pumping Station
- Sludge Cooler Delivery & Installation at SDT
- Installation of FRP Walkway and Platform at SDT

- Installation of H2S Removal System at SDT
- Penstock and Stoplogs installation at SPS

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

- E&M works for Leachate Pre-treatment Plant at existing compressor house, BR No 3&4 and MFB1
- E&M works at Portion B-5, MFB2.
- E&M works at Portion B-7, including DOU No.3A, Emergency Generator House and FS & Sprinkler Pumping Room, Chemical System No.1, Street Fire Hydrant & Booster Pump Room and Temporary Chemical System.
- E&M works at Portion B-4, BR 2A & 2B.
- E&M works at Portion B-2, Inlet Works.
- E&M works at Portion B-3, PST No. 1-4.

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
Environmental Permit	FEP-02/474/2013	15 Feb 2018	N/A	Valid
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
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-RN1419-12	9 Jan 2024	8 May 2024	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
Environmental Permit	FEP-02/474/2013	15 Feb 2018	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation	449210	23 Sep 2019	N/A	Valid
Water Pollution Ordinance Licence	WT00035727-2020	1 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-RN1419-23	9 Jan 2024	8 May 2024	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
Environmental Permit	FEP-02/474/2013	15 Feb 2018	N/A	Valid
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
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-RN0035-24	9 Jan 2024	22 Apr 2024	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
Environmental Permit	FEP-02/474/2013	15 Feb 2018	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation	460181	17 Sep 2020	N/A	Valid
Billing Account for Disposal of Construction Waste	703621912	2 Jan 2020	N/A	Valid
Registration as a Chemical Waste Producer	5213-624-B2592-01	7 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](#).

3.2 Summary of submission status under FEP-02/474/2013

3.2.1 A summary of the current status on submission under FEP-02/474/2013 is shown in **Table 3.5**.

Table 3.5 Summary of submission status under FEP-02/474/2013

EP Condition	Submission	Status
Condition 1.12	Commencement date of construction of the Project	Notified EPD on 8 Oct 2019
Condition 2.3 & 3.1	Updated EM&A Manual	The Manual was confirmed of no further comments by EPD on 17 Jan 2020
Condition 2.4	Management Organization of Main Construction Companies for Contract No.DC/2018/06	Informed EPD on 19 Nov 2019
Condition 2.4	Management Organization of Main Construction Companies for Contract No. DC/2018/07	Informed EPD on 20 Dec 2019
Condition 2.4	Management Organization of Main Construction Companies for Contract No. DE/2018/03	Informed EPD on 19 Feb 2020
Condition 2.4	Management Organization of Main Construction Companies for Contract No. DE/2018/04	Informed EPD on 15 Feb 2020
Condition 2.4	Replacement of Environmental Team Leader	Informed EPD on 13 Sep 2021
Condition 2.4	Replacement of Independent Environmental Checker	Informed EPD on 13 Sep 2021
Condition 2.5	Location Plans for Contract No. DC/2018/06	Deposited to EPD on 19 Nov 2019
Condition 2.5	Location Plans for Contract No. DC/2018/07	Deposited to EPD on 20 Dec 2019
Condition 2.5	Location Plans for Contract No. DE/2018/03	Deposited to EPD on 15 Feb 2020
Condition 2.5	Location Plans for Contract No. DE/2018/04	Deposited to EPD on 18 Sep 2020
Condition 2.6	Submission of Landscape Plan	Revised version was certified by ET on 5 Mar 2024
Condition 3.3	Baseline Monitoring Report (Ecology)	The Report was first submitted to IEC for review on 22 Nov 2019, and verified on 29 Nov 2019
Condition 3.3	Baseline Monitoring Report	The Report will be submitted to EPD at least 6 weeks before the commencement of corresponding parts of landscape and visual mitigation measures of the Project

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 ⁽¹⁾	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	Expiry Date
Integrated Sound Level Meter	Nti XL2	A2A-15269-EO	9-Mar-2025
	Larson Davis LxT1	0003737	11-May-2024
Acoustic Calibrator	LD CAL200	13098	11-Mar-2025

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
AM1	House No. 15, Wai Loi Tsuen	1-hour TSP
AM2	Fu Tei Au	1-hour TSP
AM1a* ⁽¹⁾	Site boundary of the Shek Wu Hui STW (East), Roof floor of the control room of SWHSTW	24-hour TSP
AM2a	Site boundary of the Shek Wu Hui STW (North)	24-hour TSP

(1) Due to close proximity to construction works and heavy machines, presence of physical barrier and safety concerns, find adjustment for the location of AM1a was proposed in accordance to Section 2.2.4.6 of the EM&A Manual. It was adjusted from the ground level near the control room of SWHSTW to the roof floor of that control room. The proposal has sought approval from ER and IEC, and agreement from EPD in May 2022.

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 m³ 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 cm²;
- (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	Expiry Date
Portable direct reading dust meter	Met One BT- 645	C15621 C15625	11-Jun-2024
Calibration Kit	Tisch Environmental (Calibration Model: TE-5025A)	3166	31-Mar-2024

High Volume Sampler	Tisch Total Suspended Particulate Mass Flow	2036	1-May-2024
	Controlled High Volume Air Sampler (Model no. G3101)	1807	1-Apr-2024
Wind Anemometer	YGY-FSXY1	YG 21071630T0924	13-Sept-2024

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

WIND DATA

4.2.10. 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 (µgm-3)	Limit Level (µgm-3)
24-hour TSP Level	Site boundary of the Shek Wu Hui STW (East), Root Floor	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

- 4.3.1. 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.
- 4.3.2. The monitoring should be conducted by the ET and supervised by a qualified ecologist who will be a member of the ET.

MONITORING LOCATIONS

- 4.3.3. Transect and point count surveys were proposed within the 500m boundary of Ng Tung River, Sheung Yue River and Shek Sheung River of the assessment area. Three transects and seven-point count locations during high and low tides were applied. These locations are shown in [Figure 4.3](#) and summarized in [Table 4.8](#) The photo of each transect is provided in [Appendix 5.5](#).

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
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MONITORING PARAMETERS, FREQUENCY AND DURATION

4.3.4. Monitoring surveys were conducted on a weekly basis at both high and low tides (it is considered high tide when tidal levels are above 1.5m and low tide when tidal level are below 1.5m at Tsim Bei Tsui Station). The magnitude of how much above or below 1.5m was subject to tidal conditions of that week as it varied throughout different times of the year. Nonetheless, the high and low tide relative to that week’s tidal condition were taken into consideration. The ecological monitoring schedule is shown in [Appendix 5.1](#).

MONITORING METHODOLOGY

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

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

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

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

ANALYTICAL METHODOLOGY

4.3.9. 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

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

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

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 – 4.4](#) respectively.
- 5.0.2 The environmental 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 are shown in **Table 5.1** and [Appendix 5.2](#).

Table 5.1 Summary Table of Noise Monitoring Results

Monitoring Location	Range, Leq (30min) dB(A)	Limit Level
NM1	55.1 – 58.5	75 dB
NM2	48.9 – 58.6	
NM3	58.8 – 62.7	

Remark: +3dB(A) façade correction included

- 5.1.2 No action or limit level exceedance was recorded in this reporting month.
- 5.1.3 According to our field observations, the major noise source identified were nearby road traffic and human activities.
- 5.1.4 The noise monitoring result measured in reporting month was similar to previous months. The noise monitoring result was slightly varied in the reporting month, and no increasing trend was identified due to the construction works conducted in the reporting month. No correlation between the project’s construction work and the monitoring data was identified.

5.2 Air Quality 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 **Table 5.2**, **Table 5.3** and [Appendix 5.3](#).

Table 5.2 Summary Table of 1-hour TSP Monitoring Results

Monitoring Station	Concentration (µg/m3)		Action Level, (µg/m3)	Limit Level, (µg/m3)
	Average	Range		
AM1	71	22 – 134	320	500
AM2	60	20 – 124	322	500

Table 5.3 Summary Table of 24-hour TSP Monitoring Results

Monitoring Station	Concentration (µg/m3)		Action Level, (µg/m3)	Limit Level, (µg/m3)
	Average	Range		
AM1a*	80	56 – 109	189	500
AM2a	68	44 - 106	187	500

- 5.2.2 No action or limit level exceedance was recorded in this reporting period.
- 5.2.3 According to our field observations, the major dust source identified were nearby road traffic.
- 5.2.4 The air quality monitoring result measured in reporting month was similar to previous months. The air quality monitoring result was slightly varied in the reporting month, and no increasing trend was identified due to the construction works conducted in the reporting month. No correlation between the project’s construction work and the monitoring data was identified.
- 5.2.5 24-hr TSP monitoring at AM1a* scheduled on 8th March 2024 was suspended due to power supply failure and has been resumed on 14th March 2024.

5.3 Ecology Monitoring Results

5.3.1 For this reporting month, the numbers of species and individuals recorded were provided in **Table 5.4** and the abundance of representative species were shown in **Table 5.5**.

Table 5.4 Total Bird Species and Abundance in the Reporting Month

	Number of Species	Abundance
All Avifauna	37	1111
Waterbirds	14	250

Table 5.5 Abundance of Representative Waterbirds in the Reporting Month

Species Name	Common Name	Chinese Name	Abundance
<i>Egretta garzetta</i>	Little Egret	小白鷺	62
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	22
<i>Ardeola bacchus</i>	Chinese Pond Heron	池鷺	31
<i>Phalacrocorax carbo</i>	Great Cormorant	普通鸕鶿	14
<i>Ardea alba</i>	Great Egret	大白鷺	20
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	51
Total			200

Ecological Analysis

5.3.2 The result of student t-tests for all waterbirds and representative waterbirds are compiled in **Table 5.6** and **Table 5.7** respectively. Further details are provided in **Appendix 5.4**.

Table 5.6 T-test Result for All Waterbirds in the Reporting Month

T-values of Data in Reporting Month			Confidence Level (Critical Value)	
			95%	99%
Abundance	Monthly	0.524	✓	✓
	Seasonal	-0.409	✓	✓

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 5.7 T-test Result for Representative Waterbirds in the Reporting Month

Common Name of Representative Waterbird	T-value	Confidence Level (Critical Value)		T-value	Confidence Level (Critical Value)		Overall**
	Monthly	95% (-2.353)	99% (-4.541)	Seasonal	95% (-2.353)	99% (-4.541)	
Little Egret	-0.933	✓	✓	0.133	✓	✓	✓
Grey Heron	1.640	✓	✓	-4.919	X	X	✓
Chinese Pond Heron	-0.571	✓	✓	-0.571	✓	✓	✓
Great Cormorant	0.210	✓	✓	-1.469	✓	✓	✓
Great Egret	0.686	✓	✓	0.000	✓	✓	✓
Eastern Cattle Egret	0.708	✓	✓	1.652	✓	✓	✓

Remarks:

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

X = 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.

**According to section 7.2 of the approved ecological baseline report, action/Limit level shall be triggered if reduction in bird abundance is found in both the respective month and season.

- 5.3.3 No Action Level and Limit Level was triggered for ecological monitoring in the reporting month.
- 5.3.4 Site observation in the reporting month shows that construction activities are similar to previous months. The photos are provided in [Appendix 5.5](#).
- 5.3.5 In recent months, it is found that there are different construction sites for example excavation and sheet-piling, and human activities including cycling, fishing, grazing and landscape planting around the project site. The photos are provided in Appendix 5.5. These construction and human activities may affect activities of the waterbird. Although, there is no significant impact reduction in number of waterbirds, but it is recommended that construction site should continue keeping the good site practice to minimize disturbance caused to waterbirds.

Observations

5.3.6 Waterbird behaviour observed during ecological monitoring are listed below:

- Flying
- Foraging
- Soaring
- Resting
- Fighting

5.3.7 The anthropogenic activities observed during ecological monitoring are listed in **Table 5.8**.

Table 5.8 Observations during Ecological Monitoring in the Reporting Month

Location(s)	Observations	
	Project Related	Non-project Related
T1 (PC1, PC2)	N/A	Human Activities such as Cycling, Grazing and Fishing Construction activities such as excavation, and breaking works
T2 (PC3, PC4)	Construction activities such as generator & welding works, Scaffolding, sedimentation tank, Excavation and crane	Human Activities such as Fishing, Cycling, Grazing and Landscape Planting Construction activities such as Sheet-piling, generator & welding works, Scaffolding, sedimentation tank, Excavation, crane and breaking works
PC5	Construction activities such as Excavation and crane	Construction activities such as Excavation, Sheet-piling, generator and breaking works
T3 (PC6, PC7)	Construction activities such as Sheet-piling	Human Activities such as Cycling, Grazing and Fishing Construction activities such as Excavation, Sheet-piling, generator & welding works, Scaffolding, lifting works

5.4 Waste Management

5.4.1 The quantities of waste for disposal in the Reporting Period are summarized in **Table 5.9** to **5.12**. The Monthly Summary Waste Flow Table is shown in [Appendix 5.9](#). Whenever possible, materials were reused on-site as far as practicable.

Table 5.9 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 (2024)
Hard Rock and Large Broken Concrete (Inert) (in '000m ³)	0.000	0.000	0.000
Reused in this Contract (Inert) (in '000m ³)	0.000	0.000	0.000
Reused in other Projects (Inert) (in '000m ³)	0.000	0.000	0.000
Disposal as Public Fill (Inert) (in '000m ³)	0.000	0.144	0.233
Metals (in '000kg)	0.000	0.000	0.000
Paper / Cardboard Packing (in '000kg)	0.000	0.000	0.000
Plastics (in '000kg)	0.000	0.000	0.000
Chemical Wastes (in '000kg)	0.000	0.000	0.000
General Refuses (in '000m ³)	0.030	0.021	0.062

Table 5.10 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 (2024)
Hard Rock and Large Broken Concrete (Inert) (in '000m ³)	0.000	0.000	0.000

Waste Type	Quantity (Previous month)	Quantity (Reporting month)	Annual Cumulative Quantity (2024)
Reused in this Contract (Inert) (in '000m ³)	0.000	0.000	0.000
Reused in other Projects (Inert) (in '000m ³)	0.000	0.000	0.000
Disposal as Public Fill (Inert) (in '000m ³)	0.425	1.793	2.707
Metals (in '000kg)	0.000	0.000	0.000
Paper / Cardboard Packing (in '000kg)	0.000	0.000	0.000
Plastics (in '000kg)	0.000	0.000	0.000
Chemical Wastes (in '000kg)	0.000	0.000	0.000
General Refuses (in '000m ³)	0.141	0.165	0.428

Table 5.11 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 (2024)
Hard Rock and Large Broken Concrete (Inert) (in '000kg)	0.000	0.000	0.000
Reused in this Contract (Inert) (in '000kg)	0.000	0.000	0.000
Reused in other Projects (Inert) (in '000kg)	0.000	0.000	0.000
Disposal as Public Fill (Inert) (in '000m ³)	0.000	0.000	0.000
Metals (in '000kg)	0.000	0.000	0.000

Waste Type	Quantity (Previous month)	Quantity (Reporting month)	Annual Cumulative Quantity (2024)
Paper / Cardboard Packing (in '000kg)	0	0	0
Plastics (in '000kg)	0.000	0.000	0.000
Chemical Wastes (in '000kg)	0.000	0.000	0.000
General Refuses (in '000kg)	21.68	16.04	78.77

Table 5.12 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 (2024)
Hard Rock and Large Broken Concrete (Inert) (in '000kg)	0.000	0.000	0.000
Reused in this Contract (Inert) (in '000kg)	0.000	0.000	0.000
Reused in other Projects (Inert) (in '000m ³)	0.000	0.000	0.000
Disposal as Public Fill (Inert) (in '000m ³)	0.000	0.000	0.000
Metals (in '000kg)	0.000	0.000	0.000
Paper / Cardboard Packing (in '000kg)	0.000	0.000	0.000
Plastics (in '000kg)	0.000	0.000	0.000
Chemical Wastes (in '000kg)	0.000	0.000	0.000
General Refuses (in '000kg)	0.000	0.000	1.69

6 Compliance Audit

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

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

6.1 Noise Monitoring

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

6.2 Air Quality Monitoring

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

6.2.2 24-hr TSP monitoring at AM1a* scheduled on 8th March 2024 was suspended due to power supply failure and has been resumed on 14th March 2024.

6.3 Ecological Monitoring

6.3.1 No action Level or Limit level was triggered for ecological monitoring in the reporting month.

6.4 Review of the Reasons for and the Implications of Non-compliance

6.4.1 No environmental non-compliance was recorded in the reporting month

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

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

7 Environmental Site Audit

7.1.1. Within this reporting month, weekly environmental site audits were conducted on 5(DE/2018/03 and DE/2018/04), 7(DC/2018/06 and DC/2018/07), 12(DE/2018/03 and DE/2018/04), 14(DC/2018/06 and DC/2018/07), 19 and 26 March 2024 and biweekly landscape inspection on 5 and 19 March 2024. IEC attended the joint site inspection on 26 March 2024.

7.1.2. 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
20240314_1	14-Mar-2024	Dust suppression measures should be provided to the dusty site surface area.	Water spraying has been provided to the site surface area.	Rectified on 19 Mar 2024
20240314_2	14-Mar-2024	The Contractor was reminded that all vehicles should be cleared before leaving the site to minimize the deposition of soil debris on public road.	Soil debris on public access road has been cleared and the vehicle wheel washing facilities have been checked and reviewed.	Rectified on 19 Mar 2024
20240319_1	19-Mar-2024	Drip tray should be provided for chemical containers.	The chemical container has been removed.	Rectified on 26 Mar 2024
20240319_2	19-Mar-2024	Waste should be disposed regularly.	Waste has been disposed.	Rectified on 26 Mar 2024
20240326_1	26-Mar-2024	The contractor was reminded to provide water spraying to the stockpile.	Water spraying has been provided to the stockpile and site surface area.	Rectified on 3 Apr 2024

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

Item	Date	Reminder(s)/ Observation(s)	Action taken by Contractor	Outcome
20240307_2	7-Mar-2024	The haul road near Inlet should keep wet to suppress dust emission.	Water spraying has been provided to the haul road near Inlet.	Rectified on 14 Mar 2024

20240307_3	7-Mar-2024	Bunding/ sandbag barriers should be provided to the designated discharge point to prevent discharge of site runoff.	Sandbag barriers have been provided to the designated discharge point.	Rectified on 14 Mar 2024
20240314_3	14-Mar-2024	Dust suppression measures should be provided for dusty stockpile and site surface area.	Water spraying has been provided to the dusty stockpile and site surface area.	Rectified on 19 Mar 2024
20240319_3	19-Mar-2024	The broken noise barrier should be replaced for the hydraulic breaker (near Inlet).	The broken noise barrier has been replaced for the hydraulic breaker (near Inlet).	Rectified on 26 Mar 2024
20240326_2	26-Mar-2024	Waste should be disposed regularly.	Waste has been disposed.	Rectified on 3 Apr 2024

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

Item	Date	Reminder(s)/ Observation(s)	Action taken by Contractor	Outcome
20240305_1	5-Mar-2024	Waste should be properly stored/ disposed regularly (Sidestream).	Waste has been disposed (Sidestream).	Rectified on 12 Mar 2024
20240312_1	12-Mar-2024	Waste should be disposed regularly (Gate 2).	Waste has been disposed (Gate 2).	Rectified on 19 Mar 2024
20240326_1	26-Mar-2024	Waste should be disposed regularly.	Pending for Contractor's rectification.	N/A
20240326_4	26-Mar-2024	Drip tray should be provided for chemical containers.	Pending for Contractor's rectification.	N/A

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

- 8.1.1. No environmental complaint, notification of summons and successful prosecution regarding construction works was recorded in the reporting period.
- 8.1.2. The details environmental complaints for the Project are summarized by complaint log in [Appendix 8.1](#).
- 8.1.3. 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	5
March 2024	0
Total	5

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
Total	-	0	0

9 Conclusion

- 9.1.1. 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.
- 9.1.2. 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.
- 9.1.3. 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 Month

Contract No.	Key Construction Works	Recommended Mitigation Measures
DC/2018/06	<ul style="list-style-type: none"> • RC works • Pipe jacking • Sewage, utility and pipe works • Road works • ABWF works • ELS 	<ul style="list-style-type: none"> • Implement proper dust mitigation measures on dusty surface, stockpiles and related dusty works • Implement proper measures to prevent excavated material, silt or debris being deposited or washed into existing drainage systems and waterbodies • Implement proper noise mitigation measures to prevent potential noise nuisances to nearby sensitive receivers • Proper maintenance of the on-site drainage system • Provision of protection to ensure no runoff out of site area or direct discharge into public drainage system • Good site practices should be adopted to check for any accumulation of waste materials on site and dispose waste materials at designated areas. • Segregate and store different types of waste to enhance reuse or recycling of materials and their proper disposal • Ensure all on-site regulated machines have displayed valid NRMM labels and the

Contract No.	Key Construction Works	Recommended Mitigation Measures
		<p>application of ULSD as fuel for diesel-powered machinery.</p>
DC/2018/07	<ul style="list-style-type: none"> • RC works • Pile laying 	<ul style="list-style-type: none"> • Implement proper dust mitigation measures on dusty surface and stockpiles • Implement proper measures to prevent excavated material, silt or debris being deposited or washed into existing drainage systems and waterbodies • Implement proper noise mitigation measures to prevent potential noise nuisances to nearby sensitive receivers, especially screening noise during piling related activities • Proper maintenance of the on-site drainage system • Provision of protection to ensure no runoff out of site area or direct discharge into public drainage system • Good site practices should be adopted to check for any accumulation of waste materials on site and dispose waste materials at designated areas. • Segregate and store different types of waste to enhance reuse or recycling of materials and their proper disposal. • Ensure all on-site regulated machines have displayed valid NRMM labels and the application of ULSD as fuel for diesel-powered machinery.

Contract No.	Key Construction Works	Recommended Mitigation Measures
DE/2018/03	<ul style="list-style-type: none"> • Civil Works at Portion B-1 (Sidestream) • Pump & Pipework installation at Portion B-1 (Sidestream) • Installation of E&M Plant Equipment (Sidestream) • Installation of EOT & Monorail at Portion B-1 (Sidestream) • Electrical Installation at Workshop No.2 • MVAC Installation at Workshop No.2 • LV Switch Board Installation at Workshop No.2 • Installation of lift at Workshop No.2 & SDB • MVAC Installation at SDB • Plumbing System Installation at SDB • FS System Installation at SDB • Electrical Installation at SDB • Delivery & Jointing of FRP Tanks at SDB • Bio-gas Holding Tank Installation • THP System Installation at THP • Steam Boiler System Installation at CHP • Installation of CHP Acoustic Enclosure at CHP • Installation of Pipework and Pumps at SAS Pumping Station 	<ul style="list-style-type: none"> • Implement proper noise mitigation measures to prevent potential noise nuisances to nearby sensitive receivers • Implement proper waste mitigation measures to prevent accidental leakage of chemical • Good site practices should be adopted to check for any accumulation of waste materials on site and dispose waste materials at designated areas. • Proper maintenance of the on-site drainage system • Segregate and store different types of waste to enhance reuse or recycling of materials and their proper disposal. • Ensure all on-site regulated machines have displayed valid NRMM labels and the application of ULSD as fuel for diesel-powered machinery.

Contract No.	Key Construction Works	Recommended Mitigation Measures
	<ul style="list-style-type: none"> • Sludge Cooler Delivery & Installation at SDT • Installation of FRP Walkway and Platform at SDT • Installation of H2S Removal System at SDT • Penstock and Stoplogs installation at SPS 	
DE/2018/04	<ul style="list-style-type: none"> • E&M works for Leachate Pre-treatment Plant at existing compressor house, BR No 3&4 and MFB1 • E&M works at Portion B-5, MFB2. • E&M works at Portion B-7, including DOU No.3A, Emergency Generator House and FS & Sprinkler Pumping Room, Chemical System No.1, Street Fire Hydrant & Booster Pump Room and Temporary Chemical System. • E&M works at Portion B-4, BR 2A & 2B. • E&M works at Portion B-2, Inlet Works. • E&M works at Portion B-3, 	<ul style="list-style-type: none"> • Good site practices should be adopted to check for any accumulation of waste materials on site and dispose waste materials at designated areas. • Segregate and store different types of waste to enhance reuse or recycling of materials and their proper disposal. • Implement proper dust mitigation measures during the demolition of existing compressor house. • Implement proper noise mitigation measures to prevent potential noise nuisances to nearby sensitive receivers. • Ensure all on-site regulated machines have displayed valid NRMM labels and the application of ULSD as fuel for diesel-powered machinery.

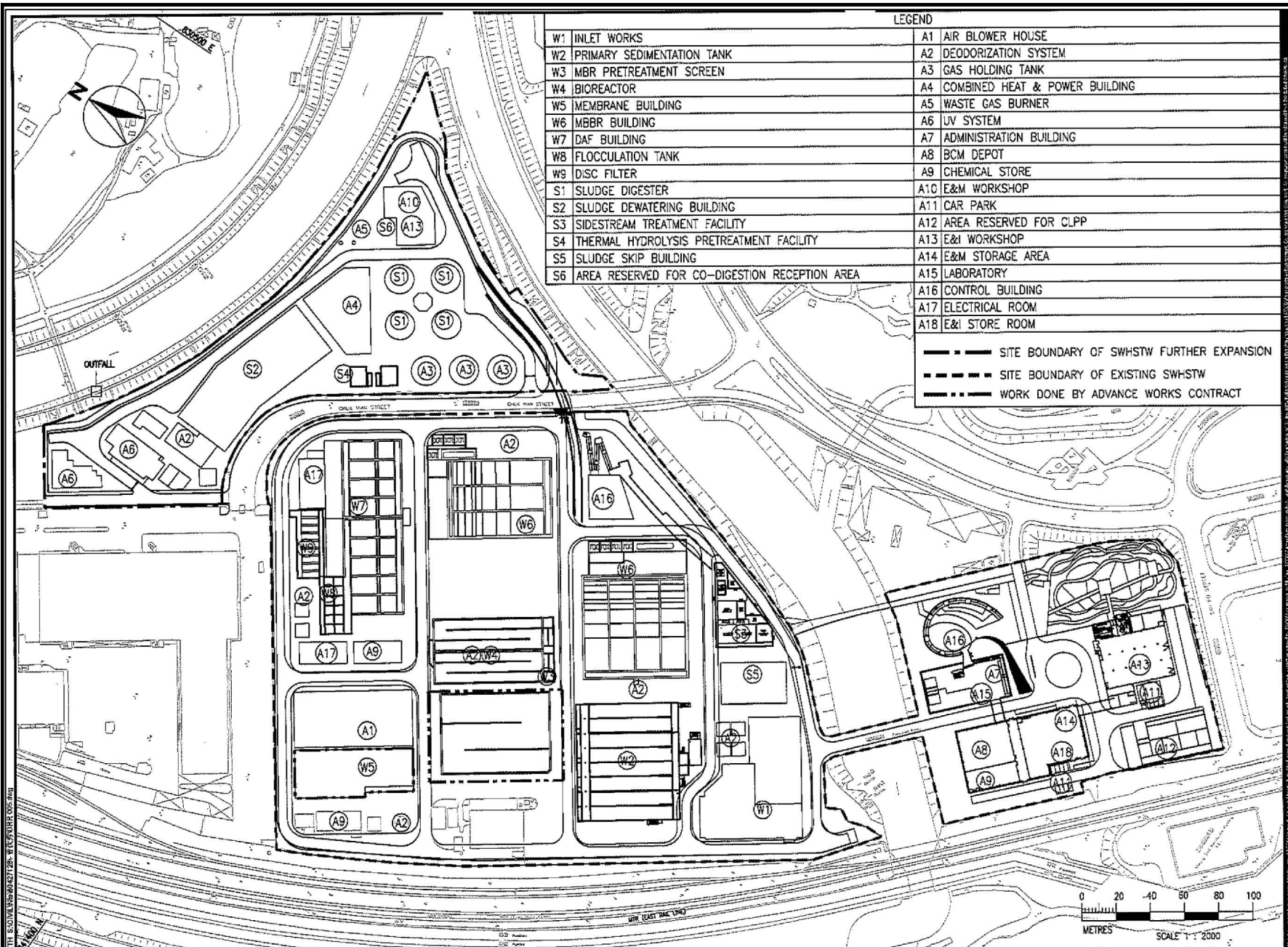


Contract No.	Key Construction Works	Recommended Mitigation Measures
	PST No. 1-4.	



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	

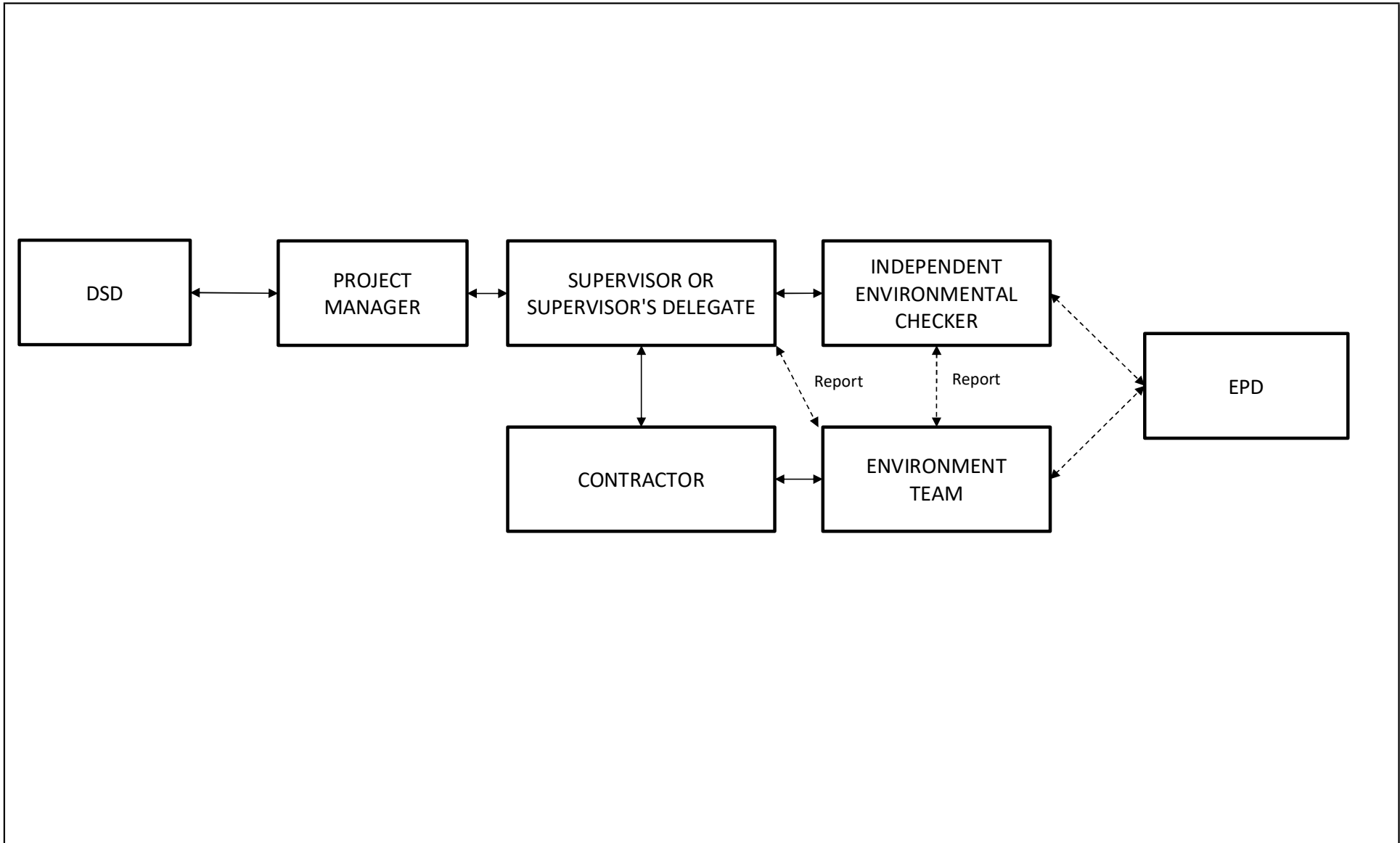
Shek Wu Hui Effluent Polishing Plant
 General Site Layout of SWHEPP

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 - Project Organisation For Environmental Monitoring and Audit	SCALE	N.T.S.	DATE	Sep 2019
	CHECK	JW	DRAWN	SY
	JOB NO.		FIGURE NO.	1.2

Figure 4.1

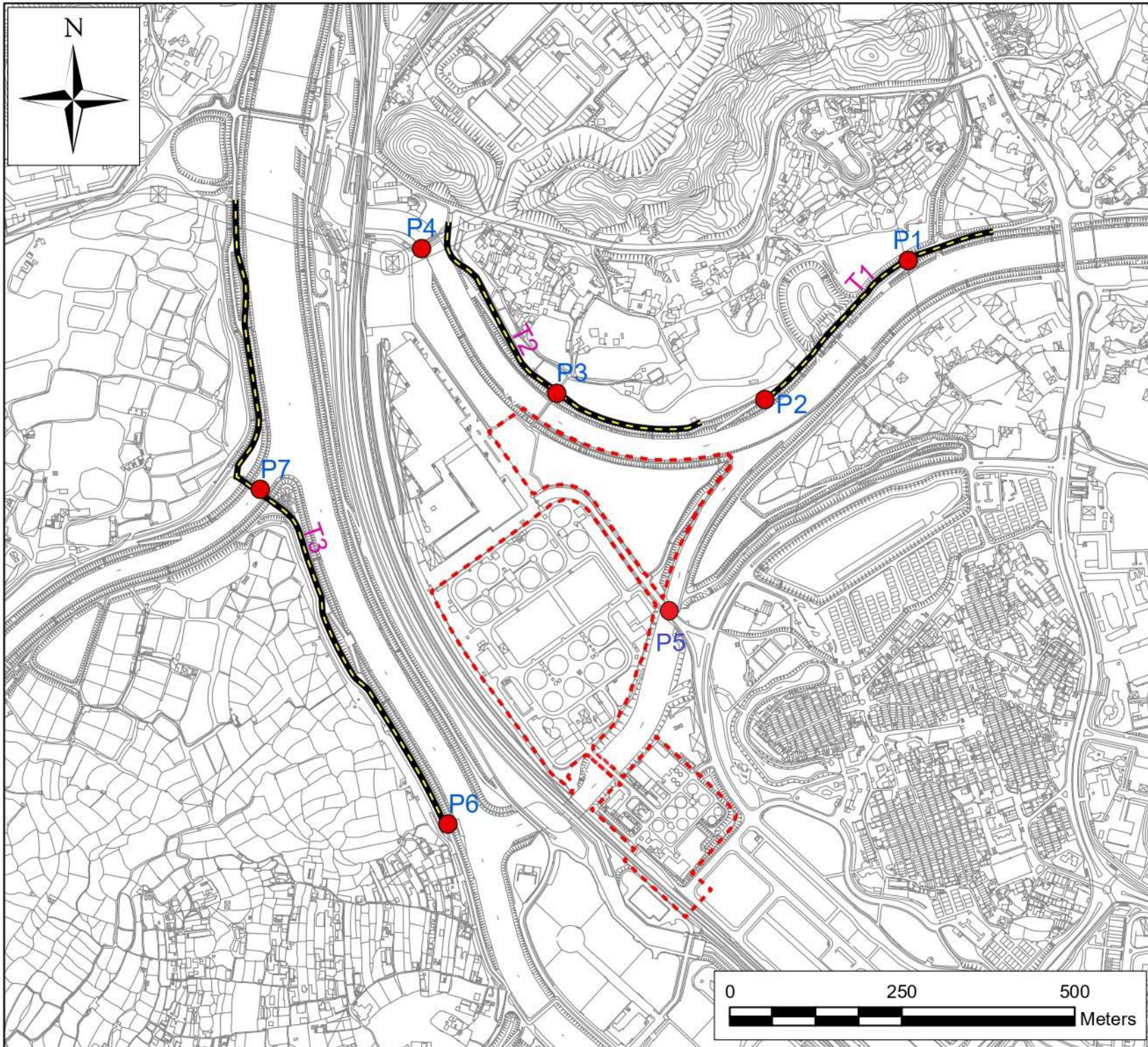
Locations of Noise Monitoring Stations

Figure 4.2

Locations of Air Quality Monitoring Stations

Figure 4.3

Locations of Ecological Monitoring Stations



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

PREPARED BY
Lam Environmental Services Limited
 19/F Remex Centre
 42 Wong Chuk Hang Road,
 Hong Kong
 Telephone: (852) 2882-3939
 Facsimile: (852) 2882-3331
 E-mail: info@lamenviro.com
 Website: <http://www.lamenviro.com>

CONTRACT NO.
SPW 12/2021

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

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



Appendix 2.1

Layout Plan of Construction Activities and Site Record Photos





Lam Environmental Services Limited

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


Site Record Photos



DC/2018/06

		
SD&THP	CHP	SDB

DC/2018/07

			
BR2	MFB	PST	Inlet



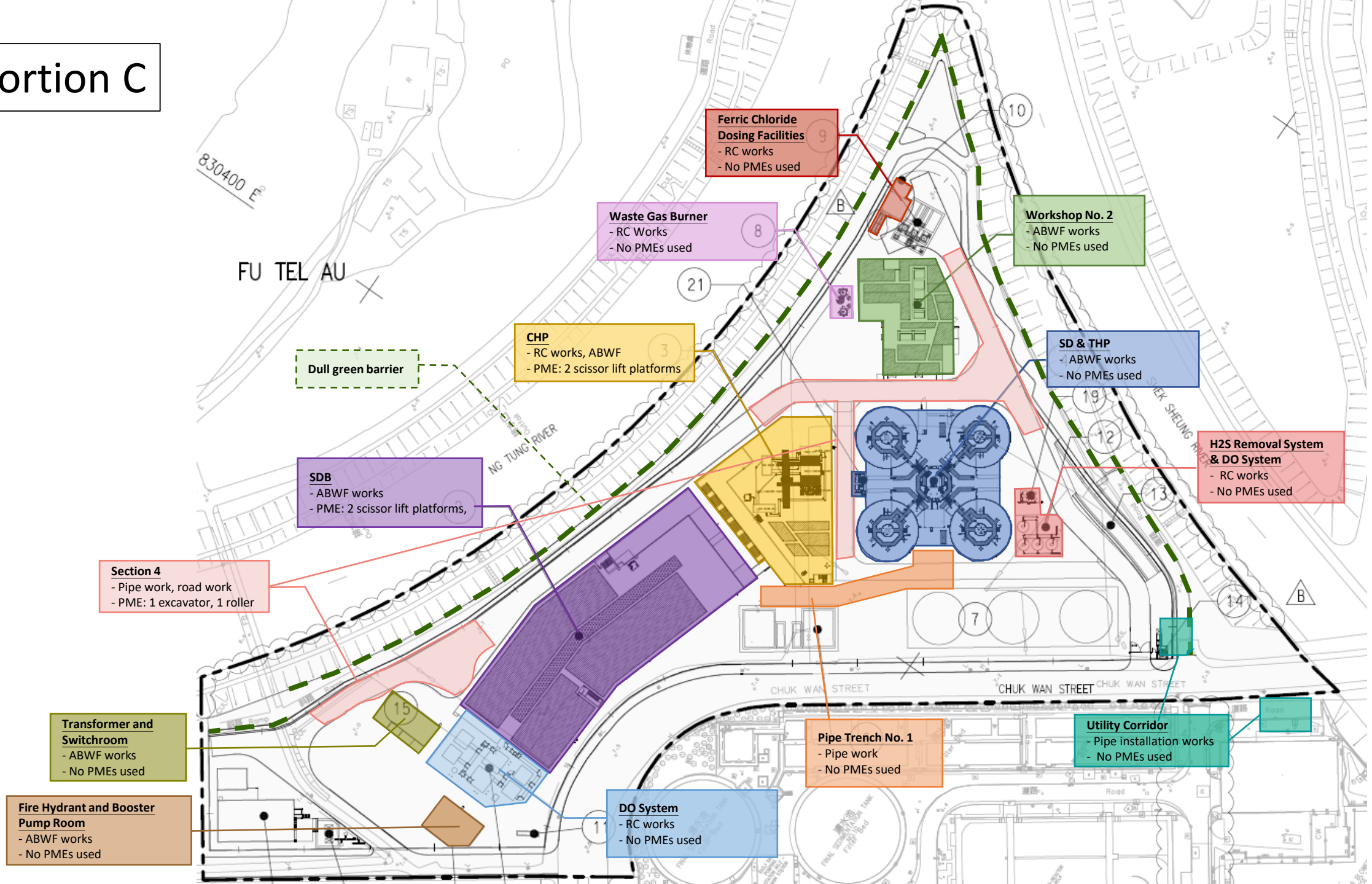
DE/2018/03

			
Sidestream	Bio Gas Tank	THP	Workshop No. 2

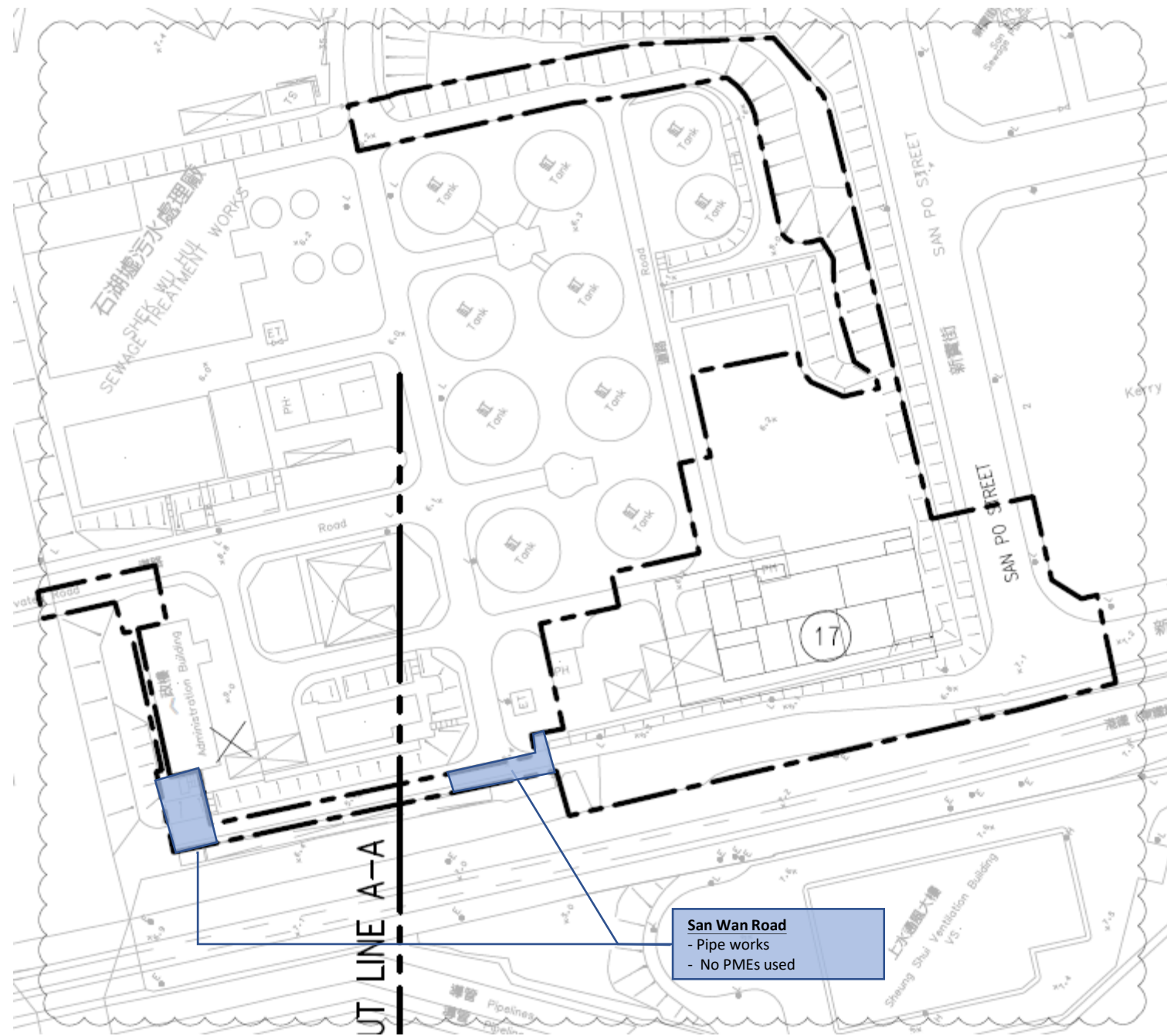
DE/2018/04

		
Compressor House	MFB	DOU

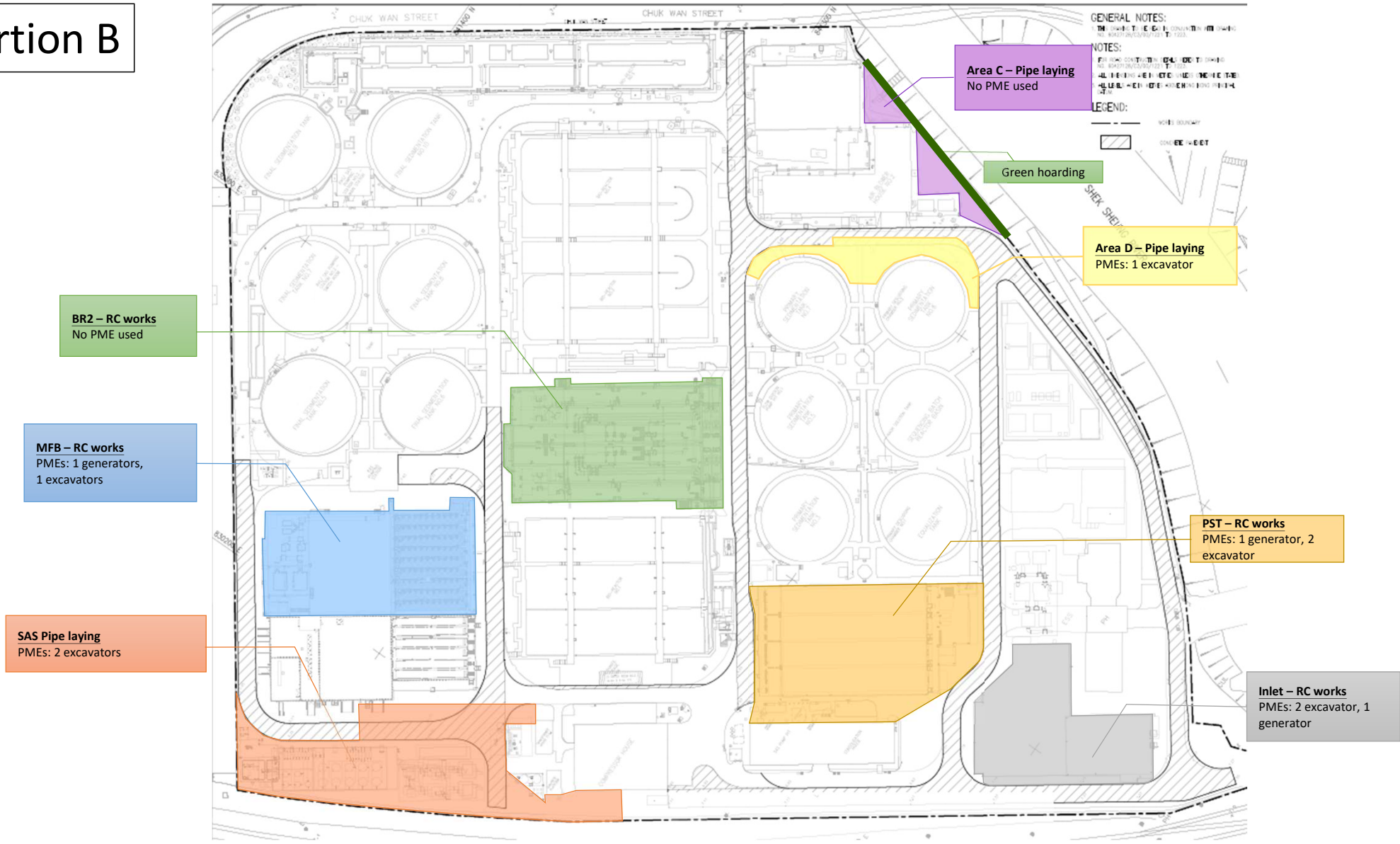
Portion C



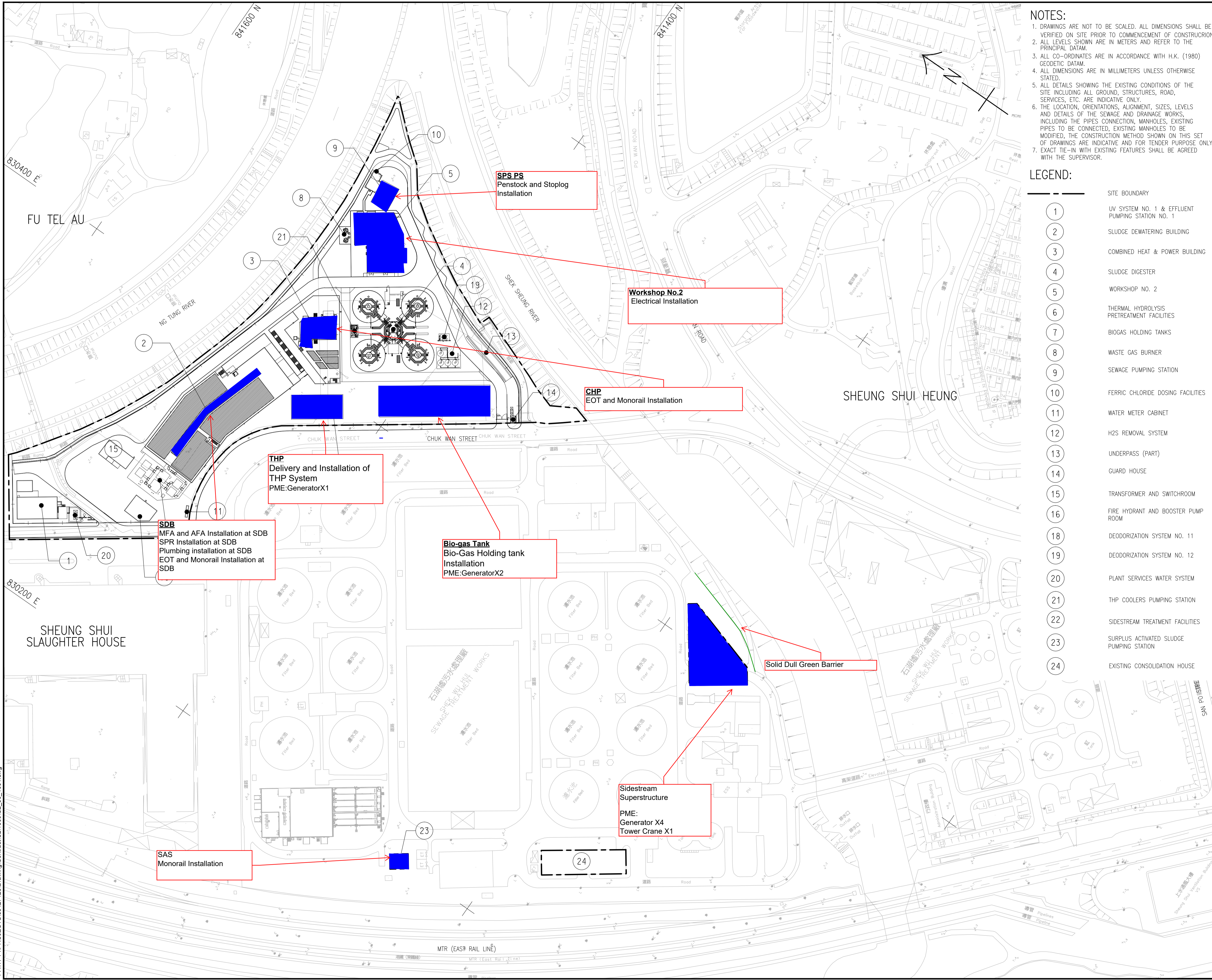
Portion A



Portion B



Plot File by: GuoX 26/03/2019
 PATH: P:\PROJECTS\60427128\Drawing\Contract\C21000\C2_00_1001.dwg
 Project Management Initials: Designer: KYTM Checked: TLST Approved: ELIM
 ISO A1 594mm x 841mm



NOTES:

1. DRAWINGS ARE NOT TO BE SCALED. ALL DIMENSIONS SHALL BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. ALL LEVELS SHOWN ARE IN METERS AND REFER TO THE PRINCIPAL DATUM.
3. ALL CO-ORDINATES ARE IN ACCORDANCE WITH H.K. (1980) GEODETIC DATUM.
4. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
5. ALL DETAILS SHOWING THE EXISTING CONDITIONS OF THE SITE INCLUDING ALL GROUND, STRUCTURES, ROAD, SERVICES, ETC. ARE INDICATIVE ONLY.
6. THE LOCATION, ORIENTATIONS, ALIGNMENT, SIZES, LEVELS AND DETAILS OF THE SEWAGE AND DRAINAGE WORKS, INCLUDING THE PIPES CONNECTION, MANHOLES, EXISTING PIPES TO BE CONNECTED, EXISTING MANHOLES TO BE MODIFIED, THE CONSTRUCTION METHOD SHOWN ON THIS SET OF DRAWINGS ARE INDICATIVE AND FOR TENDER PURPOSE ONLY.
7. EXACT TIE-IN WITH EXISTING FEATURES SHALL BE AGREED WITH THE SUPERVISOR.

LEGEND:

①	SITE BOUNDARY
②	UV SYSTEM NO. 1 & EFFLUENT PUMPING STATION NO. 1
③	SLUDGE DEWATERING BUILDING
④	COMBINED HEAT & POWER BUILDING
⑤	SLUDGE DIGESTER
⑥	WORKSHOP NO. 2
⑦	THERMAL HYDROLYSIS PRETREATMENT FACILITIES
⑧	BIOGAS HOLDING TANKS
⑨	WASTE GAS BURNER
⑩	SEWAGE PUMPING STATION
⑪	FERRIC CHLORIDE DOSING FACILITIES
⑫	WATER METER CABINET
⑬	H2S REMOVAL SYSTEM
⑭	UNDERPASS (PART)
⑮	GUARD HOUSE
⑯	TRANSFORMER AND SWITCHROOM
⑰	FIRE HYDRANT AND BOOSTER PUMP ROOM
⑱	DEODORIZATION SYSTEM NO. 11
⑲	DEODORIZATION SYSTEM NO. 12
⑳	PLANT SERVICES WATER SYSTEM
㉑	THP COOLERS PUMPING STATION
㉒	SIDESTREAM TREATMENT FACILITIES
㉓	SURPLUS ACTIVATED SLUDGE PUMPING STATION
㉔	EXISTING CONSOLIDATION HOUSE



PROJECT
 SHEK WU HUI EFFLUENT POLISHING PLANT

CONTRACT TITLE
 SHEK WU HUI EFFLUENT POLISHING PLANT - MAIN WORKS STAGE 1 - SIDESTREAM TREATMENT FACILITIES AND E&M WORKS FOR SLUDGE TREATMENT FACILITIES

CLIENT
 渠務署
 Drainage Services Department

CONSULTANT
 AECOM Asia Company Ltd.
 www.aecom.com

SUB-CONSULTANTS
 分判工程師/顧問公司

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.
1	MAR. 19	TENDER DRAWING	TLST

SCALE
 A1 1:1000

DIMENSION UNIT
 METRES

KEY PLAN

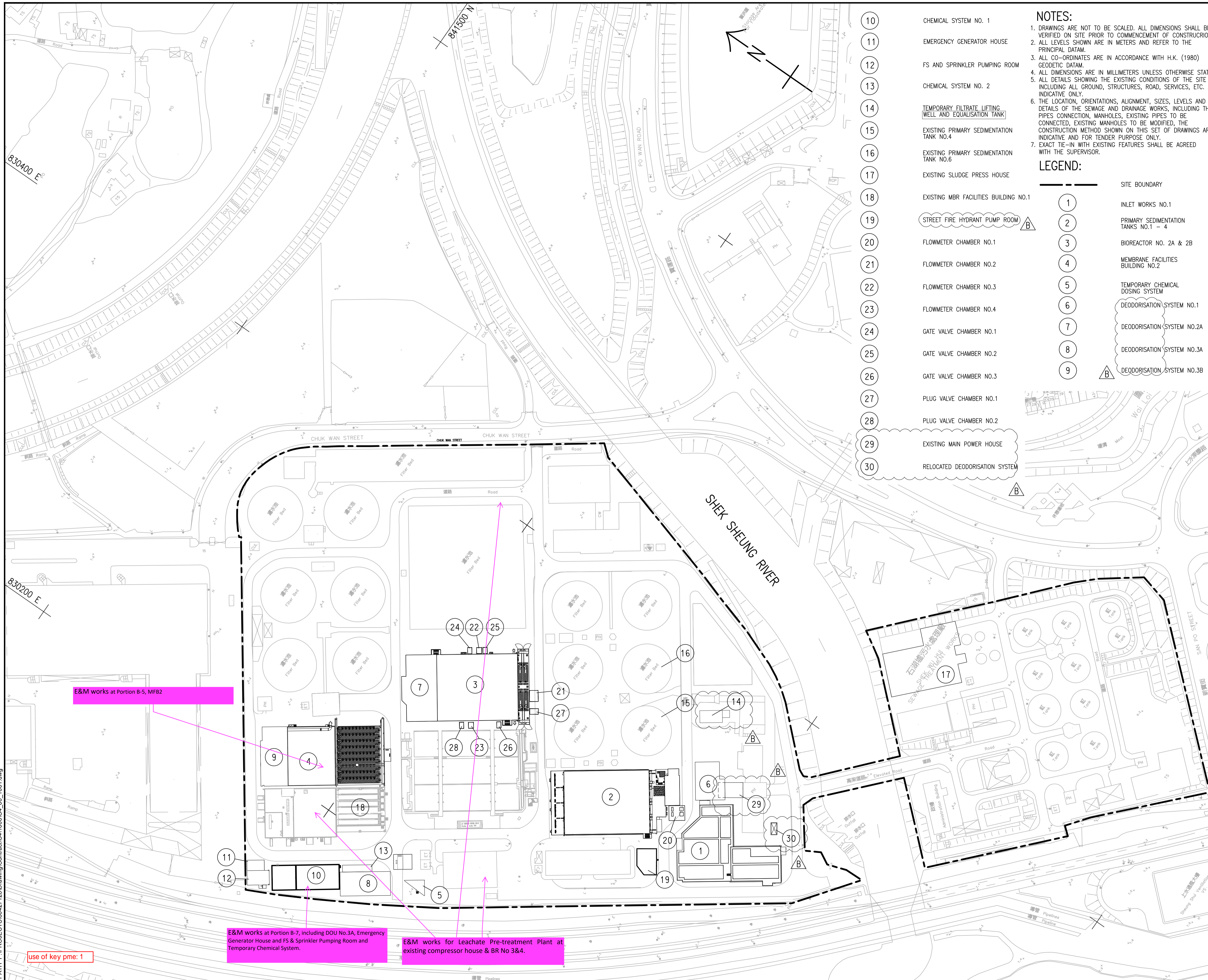
PROJECT NO.
 60427128

CONTRACT NO.
 DE/2018/03

SHEET TITLE
 SHEK WU HUI EFFLUENT POLISHING PLANT GENERAL LAYOUT PLAN

SHEET NUMBER
 60427128/C2/00/1001

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- 10 CHEMICAL SYSTEM NO. 1
- 11 EMERGENCY GENERATOR HOUSE
- 12 FS AND SPRINKLER PUMPING ROOM
- 13 CHEMICAL SYSTEM NO. 2
- 14 TEMPORARY FILTRATE LIFTING WELL AND EQUALISATION TANK
- 15 EXISTING PRIMARY SEDIMENTATION TANK NO.4
- 16 EXISTING PRIMARY SEDIMENTATION TANK NO.6
- 17 EXISTING SLUDGE PRESS HOUSE
- 18 EXISTING MBR FACILITIES BUILDING NO.1
- 19 STREET FIRE HYDRANT PUMP ROOM
- 20 FLOWMETER CHAMBER NO.1
- 21 FLOWMETER CHAMBER NO.2
- 22 FLOWMETER CHAMBER NO.3
- 23 FLOWMETER CHAMBER NO.4
- 24 GATE VALVE CHAMBER NO.1
- 25 GATE VALVE CHAMBER NO.2
- 26 GATE VALVE CHAMBER NO.3
- 27 PLUG VALVE CHAMBER NO.1
- 28 PLUG VALVE CHAMBER NO.2
- 29 EXISTING MAIN POWER HOUSE
- 30 RELOCATED DEODORISATION SYSTEM

NOTES:

1. DRAWINGS ARE NOT TO BE SCALED. ALL DIMENSIONS SHALL BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
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7. EXACT TIE-IN WITH EXISTING FEATURES SHALL BE AGREED WITH THE SUPERVISOR.

- LEGEND:**
- 1 SITE BOUNDARY
 - 2 INLET WORKS NO.1
 - 3 PRIMARY SEDIMENTATION TANKS NO.1 - 4
 - 4 BIOREACTOR NO. 2A & 2B
 - 5 MEMBRANE FACILITIES BUILDING NO.2
 - 6 TEMPORARY CHEMICAL DOSING SYSTEM
 - 7 DEODORISATION SYSTEM NO.1
 - 8 DEODORISATION SYSTEM NO.2A
 - 9 DEODORISATION SYSTEM NO.3A
 - 10 DEODORISATION SYSTEM NO.3B

AECOM

PROJECT
 SHEK WU HUI EFFLUENT POLISHING PLANT

CONTRACT TITLE
 SHEK WU HUI EFFLUENT POLISHING PLANT - MAIN WORKS STAGE 1 - E&M WORKS FOR SEWAGE TREATMENT FACILITIES

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ISSUE/REVISION

REV	DATE	DESCRIPTION	CHK.
B	AUG. 19	TENDER ADDENDUM NO. 3	TLST
A	JUL. 19	TENDER ADDENDUM NO. 2	TLST
-	APR. 19	TENDER DRAWING	TLST

STATUS
 階段

SCALE
 比例: A1 1:1000

DIMENSION UNIT
 尺寸單位: METRES

KEY PLAN
 索引圖

PROJECT NO.
 項目編號: 60427128

CONTRACT NO.
 合約編號: DE/2018/04

SHEET TITLE
 圖紙名稱: GENERAL LAYOUT PLAN

SHEET NUMBER
 圖紙編號: 60427128/C4/00/1001B

E&M works at Portion B-5, MFB2

E&M works at Portion B-7, including DOU No.3A, Emergency Generator House and FS & Sprinkler Pumping Room and Temporary Chemical System.

E&M works for Leachate Pre-treatment Plant at existing compressor house & BR No 3&4.

use of key pme: 1

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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
Air Quality Monitoring							
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"> 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; 	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"> Any dusty material remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; 						*
	<ul style="list-style-type: none"> A stockpile of dusty material should not be extended beyond the pedestrian barriers, fencing or traffic cones; 						^
	<ul style="list-style-type: none"> 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; 						^
	<ul style="list-style-type: none"> 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; 						^

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"> 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. 						^
	<ul style="list-style-type: none"> 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; 						*
	<ul style="list-style-type: none"> 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; 						^
	<ul style="list-style-type: none"> 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; 						^
	<ul style="list-style-type: none"> 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; 						^
	<ul style="list-style-type: none"> Any skip hoist for material transport should be totally enclosed by impervious sheeting; 						^
	<ul style="list-style-type: none"> 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; 						^
	<ul style="list-style-type: none"> Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; 						^

	<ul style="list-style-type: none"> • 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 						^
	<ul style="list-style-type: none"> • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shortcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies 						^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Remark
Noise Impact							
S3.4.1.1	Use of movable barrier, enclosure, acoustic mat and quiet plant. Use of wooden frames barrier with a small-cantilevered upper portion of superficial density not less than 14kg/m ² on a skid footing with 25mm thick internal sound absorptive lining.	To minimize construction noise impact arising from the Project at the affected noise sensitive receivers (NSRs)	Contractor	Work Sites	Construction phase of 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"> • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program. • Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program. • Mobile plant, if any, should be sited as far away from NSRs as possible. • Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. • Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. • Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities. 	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work Sites	Construction 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
Ecological Impact							
S4.2.1.1	Solid dull green noise/visual barriers of at least 2m high shall be erected and maintained between active works area and all areas of ecological importance.	Minimize noise and human disturbances during construction phase.	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM	^
S4.2.1.2	Avoid unnecessary lighting.	Minimize mortality impacts on birds.	Design / Contractor/ Plant Operator	Work Sites	Construction 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"> Temporary sewerage and drainage to be designed and installed to collect wastewater and prevent it from entering water bodies; 	Avoid, minimise and mitigate impact on water quality	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM	^
	<ul style="list-style-type: none"> 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; 						^
	<ul style="list-style-type: none"> 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; 						^

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"> 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; 						^
	<ul style="list-style-type: none"> Proper locations for discharge outlets of temporary wastewater treatment facilities well away from sensitive receivers should be identified; 						^
	<ul style="list-style-type: none"> Adequate lateral support should be erected where necessary in order to prevent soil/mud from slipping into water bodies; 						^
	<ul style="list-style-type: none"> Site boundaries should be clearly marked and any works beyond the boundary strictly prohibited; 						^
	<ul style="list-style-type: none"> 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; 						^
	<ul style="list-style-type: none"> Excavation profiles should be properly designed and executed with attention to the relevant requirements for environment, health and safety; 						^
	<ul style="list-style-type: none"> 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 						^
	<ul style="list-style-type: none"> contaminated soil to minimize contaminated runoff and construction materials should be properly covered and located away from nearby water bodies; and 						^
	<ul style="list-style-type: none"> Supply of suitable clean backfill material after excavation, if required. 						^

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>• Speed control for the trucks carrying contaminated materials should be enforced; <li>• Vehicle wheel washing facilities at construction sites' exit points should be established and used, where necessary; and <li>• Other measures as detailed in this schedule. 						<p>^</p> <p>^</p> <p>^</p> <p>^</p>

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
Water Quality Impact							
S5.2.2.1	<p><u>Construction Site Runoff</u> Practices and measures provided in the Practice Note for Professional Persons on Construction Site Drainage, (PROPECC PN1/94) should be followed where applicable.</p>	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	Sewage from Workforce						
S5.2.2.3	<ul style="list-style-type: none"> Portable chemical toilets and sewage holding tanks should be provided for handling the construction sewage generated by the workforce. A licensed Contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance; 	Handling of site sewage	Contractors	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3	EIAO-TM, WPCO, EIAO	^
	<ul style="list-style-type: none"> Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the Project. Regular environmental audit on construction site should be conducted in order to provide an effective control of any malpractices and achieve continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the Project would not cause water quality impact after undertaking all required measures 						^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Remark
Waste Management							
S6.2.2.1	Good Site Practices and Waste Reduction Measures <ul style="list-style-type: none"> Nomination of an approved person, such as a site manager, to be responsible for the implementation of good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site; Training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling; Provision of sufficient waste disposal points and regular collection for disposal; Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; An Environmental Management Plan (EMP) should be prepared by the contractor and submitted to the Supervisor for approval. 	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	Waste Reduction Measures <ul style="list-style-type: none"> Segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal; Proper storage and site practices to minimize the potential for damage and contamination of construction materials; Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; Sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc.); and Provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling. 	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"> Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; 						^
	<ul style="list-style-type: none"> Stockpiling area should be provided with covers and water spraying system to prevent materials from windblown or being washed away; and 						^
	<ul style="list-style-type: none"> Different locations should be designated to stockpile each material to enhance reuse. 						^
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"> Remove waste in timely manner; 						^
	<ul style="list-style-type: none"> Employ the trucks with cover or enclosed containers for waste transportation; 						^
	<ul style="list-style-type: none"> Obtain relevant waste disposal permits from the appropriate authorities; and 						^
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"> Maintain temporary stockpiles and reuse excavated fill material for backfilling; 						^
	<ul style="list-style-type: none"> Carry out on-site sorting; 						^
	<ul style="list-style-type: none"> Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; 						^
	<ul style="list-style-type: none"> 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 						^
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"> The Contractor should recycle as much as possible of the C&DM on-site. Public fill and C&DM waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. For example, concrete and masonry can be crushed and used as fill, and steel reinforcing bar can be used by scrap steel mills. Different areas of the work sites should be designated for such segregation and storage. The use of wooden hoardings shall not be allowed. An alternative material, such as metal, aluminium or alloy etc, could be used. Government has developed a charging policy for the disposal of waste to landfill at present. It will provide additional incentive to reduce the volume of generated waste and ensure proper segregation to allow reuse of the inert material on site when implemented. In order to minimize the impacts of the demolition works, the generated wastes must be cleared as quickly as possible after demolition. Therefore, the demolition and clearance works should be undertaken simultaneously. To facilitate proper segregation of inert and non-inert C&D material arising from demolition works, selective demolition method should be adopted. 	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"> If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producers. Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste contractor. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. 	Control the chemical waste and ensure proper storage, handling and disposal	Contractor	Work Sites	Construction phase of 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"> • General refuse should be stored in enclosed bins separately from construction and chemical wastes. • Recycling bins should also be placed to encourage recycling. • Preferably enclosed and covered areas should be provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean. • A reputable waste collector should be employed to remove general refuse on a daily basis. 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	Work Sites	Construction phase of 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
Landscape and Visual							
S7.3.1.1	Good Site Practices Measures <ul style="list-style-type: none"> For areas unavoidably disturbed by the Project on a short term basis e.g. works areas, the general principle to try and restore these to their former state to suit future land use, should be adhered to. 	Minimize the impact to the landscape and visual	Contractor	Work Sites	Prior to construction and construction phase		N/A
	<ul style="list-style-type: none"> With regard to topsoil, where identified, it should be stripped, treated appropriately, and where suitable and practical stored for re-use in the construction of the soft landscape works such as roadside amenity strips, and open space sites. 						N/A
S7.3.2.1	MM4 - Tree Protection & Preservation <ul style="list-style-type: none"> Existing trees to be retained within the Project Site should be carefully protected during construction. In particular Old and Valuable Trees (OVTs) will be preserved according to ETWB TC (Works) No. 29/2004. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in Contractor's works areas. A detailed tree survey will be carried out for the Tree Removal Application (TRA) process which will be carried out at the later detailed design stage of the Project. The detailed tree survey will propose which trees should be retained, transplanted or felled and will include details of tree protection measures for those trees to be retained. 	Protect and Preserve Trees	Designer / Contractor	Work Sites	Prior to construction and construction phase	ETWB TCW No. 29/2004 and DEVB TC(W) No.7/2015	^

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"> Trees unavoidably affected by the Project works should be transplanted where practical. Trees should be transplanted straight to their final receptor site and not held in a temporary nursery as far as possible. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, where applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme. A detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBTC No. 2/2004 and DEVB TC(W) No. 7/2015 and final locations of transplanted trees should be agreed prior to commencement of the work. For trees associated with highways e.g. roadside planting along highways, that are unavoidably affected and should be transplanted, HyD HQ/GN/13 'Interim Guidelines for Tree Transplanting Works under Highways Department's Vegetation Maintenance Ambit' should be referred to. 	Transplant Trees where suitable for transplantation	Designer / Contractor	Work Sites where possible. Otherwise consider offsite locations	Prior to construction, construction phase and operation phase	DEVB TC(W) No. 7/2015 and ETWB TCW No.2/2004 HyD HQ/GN/13 Interim Guidelines for Tree Transplanting Works under Highways Department's Vegetation Maintenance Ambit	N/A
S7.3.2.1	<p>MM6 - Slope Landscaping</p> <ul style="list-style-type: none"> 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 charter. Woodland tree seedings and/or shrubs should be planted where slope gradient and site conditions allow. 	To avoid substantial slope cutting and fill slopes. To prevent erosion and subsequent loss of landscape resources and character. To ensure 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
	<ul style="list-style-type: none"> In addition, landscape planting should be provided for the retaining structures associated with modified slopes where conditions allow. All slope landscaping 						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"> 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. 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. 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. 	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	MM9 - Vertical Greening <ul style="list-style-type: none"> Planting of climbers to grow up vertical surfaces were appropriate. 	Soften hard surfaces and facilities	Designer / Contractor	On appropriate structures	Prior to construction, construction phase and operation phase	ETWB TCW No.11/2004 – Cyber Manual for Greening	N/A
S7.3.2.1	MM10 - Green Roof <ul style="list-style-type: none"> Roof greening where appropriate should be established on proposed buildings as per the guidelines stated. These guidelines provide further details including information regarding structural loading, design, maintenance, etc. considerations as well as providing information on what types of plants might be suitable. 	Reduce exposure to untreated concrete surfaces and particularly mitigate visual impact to visually sensitive receivers (VSRs) at high levels. Provide greening	Designer / Contractor	On appropriate buildings	Prior to construction, construction phase and operation phase	CIBSE HK Branch, Technical Guidelines for Green Roof Systems in Hong Kong (2011); ArchSD/Urbis Study on Green Roof Application in HK (2007)	N/A

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	What requirements or standards for the measure to achieve	Remark
S7.3.2.1	MM11 - Screen Planting <ul style="list-style-type: none"> Tall screen/buffer trees and shrubs should be planted. This measure may additionally form part of the compensatory planting. 	To screen proposed structures such as roads and buildings. Improve compatibility with the surrounding environment and create a pleasant pedestrian environment	Designer / Contractor	Along roads, around suitable built structures, or around VSRs to contain their view out to the structures.	Prior to construction, construction phase and operation phase	ETWB TCW No. 10/2013 and 3/2006	N/A
S7.3.2.1	MM16 - Screen Hoarding <ul style="list-style-type: none"> 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)] 	To screen undesirable views of the works site.	Designer	Work Sites	Construction phase		^
S7.3.2.1	MM17 - Light Control <ul style="list-style-type: none"> Construction day and night time lighting should be controlled to minimize glare impact to adjacent VSRs during the Construction phase. Street and night time lighting shall also be controlled to minimize glare impact to adjacent VSRs during the operation phase. 	To minimize glare impact to adjacent VSRs.	Designer / Contractor	Work Sites and/or the Plant	Construction phase and operation phase		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: March 31, 2023	Rootsmeter S/N: 438320	Ta: 294	°K
Operator: Jim Tisch		Pa: 749.0	mm Hg
Calibration Model #: TE-5025A	Calibrator S/N: 3166		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4500	3.2	2.00
2	3	4	1	1.0210	6.4	4.00
3	5	6	1	0.9120	8.0	5.00
4	7	8	1	0.8710	8.8	5.50
5	9	10	1	0.7170	12.8	8.00

Data Tabulation					
Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H (Ta/Pa)}$ (y-axis)
0.9947	0.6860	1.4135	0.9957	0.6867	0.8860
0.9905	0.9701	1.9990	0.9915	0.9711	1.2530
0.9883	1.0837	2.2349	0.9893	1.0848	1.4009
0.9873	1.1335	2.3440	0.9883	1.1346	1.4693
0.9819	1.3695	2.8270	0.9829	1.3709	1.7720
QSTD	m=	2.07036	QA	m=	1.29643
	b=	-0.00719		b=	-0.00451
	r=	0.99999		r=	0.99999

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

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

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



Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : AM1a*
 Equipment no. : 2036

Calibration Date : 4-Jan-24
 Calibration Due Date : 3-Mar-24

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	290	Kelvin	Pressure, P _a
			1021 mmHg

Orifice Transfer Standard Information					
Equipment No.	3166	Slope, m _c	2.07036	Intercept, b _c	-0.00719
Last Calibration Date	31-Mar-23	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	30-Mar-24				

Calibration of TSP						
Calibration Point	Manometer Reading H (inches of water)			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	(up)	(down)	(difference)			
1	1.2	1.2	2.4	0.7649	28	28.4912
2	2.3	2.3	4.6	1.0576	35	35.6140
3	3.2	3.2	6.4	1.2468	42	42.7368
4	4.5	4.5	9.0	1.4779	50	50.8772
5	5.3	5.3	10.6	1.6036	56	56.9824

By Linear Regression of Y on X

Slope, m = 33.9611 Intercept, b = 1.1625

Correlation Coefficient* = 0.9936

Calibration Accepted = Yes/Ne**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : Serial No.:2036

Calibrated by : William Cheung
 Date : 4-Jan-24

Checked by : Derek Lo
 Date : 4-Jan-24



Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : AM1a*
 Equipment no. : 2036

Calibration Date : 1-Mar-24
 Calibration Due Date : 1-May-24

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	286	Kelvin	Pressure, P _a
			1021 mmHg

Orifice Transfer Standard Information					
Equipment No.	3166	Slope, m _c	2.07036	Intercept, b _c	-0.00719
Last Calibration Date	31-Mar-23	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	30-Mar-24				

Calibration of TSP						
Calibration Point	Manometer Reading H (inches of water)			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	(up)	(down)	(difference)			
1	1.5	1.5	3.0	0.8607	28	28.6898
2	2.2	2.2	4.4	1.0416	35	35.8622
3	3.5	3.5	7.0	1.3129	42	43.0346
4	4.5	4.5	9.0	1.4882	50	51.2317
5	5.6	5.6	11.2	1.6597	56	57.3795

By Linear Regression of Y on X

Slope, m = 35.3578 Intercept, b = -1.7574

Correlation Coefficient* = 0.9966

Calibration Accepted = Yes/Ne**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : Serial No.:2036

Calibrated by : William Cheung
 Date : 1-Mar-24

Checked by : Derek Lo
 Date : 1-Mar-24



Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : SWH-AM2a
 Equipment no. : 1807

Calibration Date : 2-Feb-24
 Calibration Due Date : 1-Apr-24

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	295	Kelvin	Pressure, P _a
			1017 mmHg

Orifice Transfer Standard Information					
Equipment No.	3166	Slope, m _c	2.07036	Intercept, b _c	-0.00719
Last Calibration Date	31-Mar-23	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	30-Mar-24				

Calibration of TSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	(up)	(down)	(difference)			
1	1.8	1.8	3.6	0.9262	30	30.2072
2	2.6	2.6	5.2	1.1125	38	38.2624
3	3.6	3.6	7.2	1.3085	45	45.3107
4	4.4	4.4	8.8	1.4462	50	50.3453
5	5.7	5.7	11.4	1.6456	55	55.3798

By Linear Regression of Y on X

Slope, m = 35.2302 Intercept, b = -1.4681

Correlation Coefficient* = 0.9953

Calibration Accepted = Yes/Ne**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : Serial No.:1807

Calibrated by : William Cheung
 Date : 2-Feb-24

Checked by : Derek Lo
 Date : 2-Feb-24

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: 1.3.0

Serial Number: C15621 81113 0.2.4

Calibrated By: J. Walker AT28 Cal. Date: 07/07/2022

Quality Inspector: Anni Chiske Date: 07/07/2022

Calibration Hz/ $\mu\text{g}/\text{m}^3$: 7.02

Final Test

Flow (2.0 L/M): Pass

Ambient T (C) 23.8

RH, % 38.7

Serial Communication: Pass

BT-645 Conc.: 412.3 Standard Conc.: 414.4

Calibration Standards

Standards	Manufacturer	Model	SN	Cal Due
RMS Multimeter	Fluke	189 Multimeter	94060816	11/08/2022
RH & TEMPERATURE	Met One Instruments	083E-1-35	GP-679	05/17/2023
Primary Flow Meter	TSI	4040	40401945009	01/31/2023
Digital Dust Indicator	SIBATA	LD-3	476795	08/23/2022

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.



DECLARATION OF CONFORMITY

Manufacturer: Met One Instruments, Inc.
1600 Washington Blvd.
Grants Pass, OR 97526

Model Name: BT-645
Type of Equipment Nephelometer

We declare under our sole responsibility that the equipment referenced above is in conformity with the following Directives and Standards.

Applicable Directives:

EMC	2014/30/EU Electromagnetic Compatibility
RoHS	2011/65/EU Restriction on the Use of Certain Hazardous Substances

Standards of Conformity:

EMC Emissions:	EN 61326-1:2013 Class A (Industrial)
EMC Immunity:	EN 61326-1:2013 Industrial
RoHS Requirements:	EN 50581:2012

Test Methods:

Radiated Emissions	CISPR 11:2015
Conducted Emissions	CISPR 11:2015
ESD	EN 61000-4-2:2009
Radiated Immunity	EN 61000-4-3:2006
EFT	EN 61000-4-4:2012
Surge	EN 61000-4-5:2014
Conducted Immunity	EN 61000-4-6:2014
Magnetic Field Immunity	EN 61000-4-8:2010
Voltage Interrupts / Dips	EN 61000-4-11:2004

Date of Issue: June 23, 2020

Signed: _____

Thomas L. Pottberg
President

Met One Instruments, Inc.
1600 Washington Blvd., Grants Pass, OR 97526
Tel: 541.471.7111 | Fax: 541.471.7116
www.metone.com



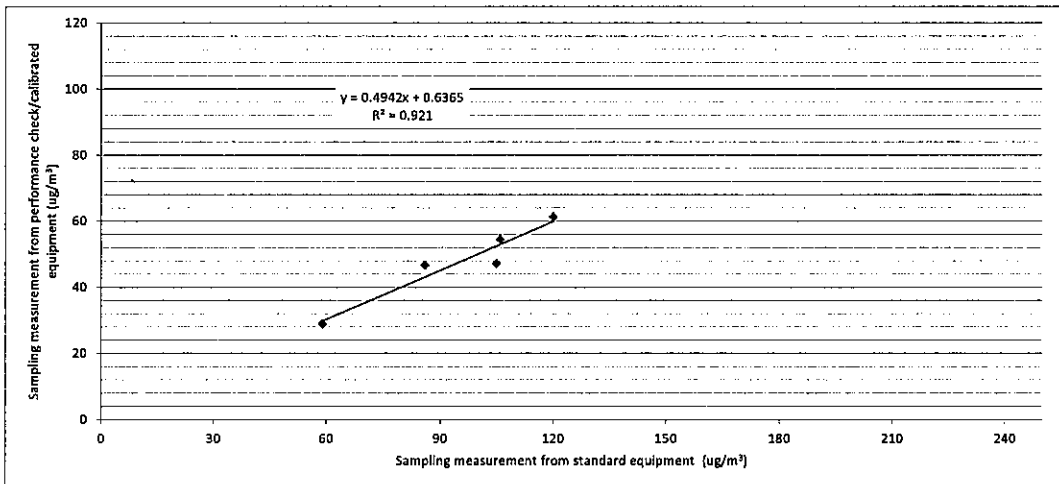
Equipment	Portable Dust Meter	Standard Equipment (High Volume Sampler)
Manufacturer	MET ONE INSTRUMENTS	TISCH
Model Number	BT-645	TE-5170
Serial Number	C15621	2493
Date	9-Jun-23	24-May-23
Location	GCE laboratory calibration area - 6 Ko Shan Rd., Hung Hom, KL	

Portable Dust Meter Performance Check Results

Check Point	Date & Time	Mean Temp (°C)	Mean Pressure (hPa)	Concentration in ug/m ³	Concentration in ug/m ³
				(Standard equipment) (X - Axis)	(Performance Check / Calibrated equipment) (Y - Axis)
1	9/6/2023 9:36 -10:36	29	1004	59	29
2	9/6/2023 10:38 -11:38	29	1004	120	61
3	9/6/2023 11:40 - 12:40	29	1004	106	54
4	9/6/2023 12:42 - 13:42	29	1004	86	47
5	9/6/2023 13:45 - 14:45	29	1004	105	47

Linear Regression of Y on X

Slope (K- factor) : 1.9000
 Correlation Coefficient : 0.9597
 Validity of Performance Check / Calibration Record : 8/6/2024



Operator: *[Signature]*

Date: 12/6/2023

Checked by: *[Signature]*

Date: 12/6/2023

Met One Instruments, Inc.
1600 NW Washington Blvd, Grants Pass, OR
TEL (541) 471-7111 Fax (541) 471-7116

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: 1.3.0

Serial Number: C15625 81113 0.2.4

Calibrated By: J. Walker AT28 Cal. Date: 07/07/2022

Quality Inspector: Conni Chruske Date: 07/07/2022

Calibration Hz/ $\mu\text{g}/\text{m}^3$: 7.04

Final Test

Flow (2.0 L/M): Pass Ambient T (C) 23.8

RH, % 38.7

Serial Communication: Pass

BT-645 Conc.: 424.53 Standard Conc.: 424.54

Calibration Standards

Standards	Manufacturer	Model	SN	Cal Due
RMS Multimeter	Fluke	189 Multimeter	94060816	11/08/2022
RH & TEMPERATURE	Met One Instruments	083E-1-35	GP-679	05/17/2023
Primary Flow Meter	TSI	4040	40401945009	01/31/2023
Digital Dust Indicator	SIBATA	LD-3	476795	08/23/2022

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.



DECLARATION OF CONFORMITY

Manufacturer: Met One Instruments, Inc.
1600 Washington Blvd.
Grants Pass, OR 97526

Model Name: BT-645
Type of Equipment Nephelometer

We declare under our sole responsibility that the equipment referenced above is in conformity with the following Directives and Standards.

Applicable Directives:

EMC	2014/30/EU Electromagnetic Compatibility
RoHS	2011/65/EU Restriction on the Use of Certain Hazardous Substances

Standards of Conformity:

EMC Emissions:	EN 61326-1:2013 Class A (Industrial)
EMC Immunity:	EN 61326-1:2013 Industrial
RoHS Requirements:	EN 50581:2012

Test Methods:

Radiated Emissions	CISPR 11:2015
Conducted Emissions	CISPR 11:2015
ESD	EN 61000-4-2:2009
Radiated Immunity	EN 61000-4-3:2006
EFT	EN 61000-4-4:2012
Surge	EN 61000-4-5:2014
Conducted Immunity	EN 61000-4-6:2014
Magnetic Field Immunity	EN 61000-4-8:2010
Voltage Interrupts / Dips	EN 61000-4-11:2004

Date of Issue: June 23, 2020

Signed: _____

Thomas L. Pottberg
President

Met One Instruments, Inc.
1600 Washington Blvd., Grants Pass, OR 97526
Tel: 541.471.7111 | Fax: 541.471.7116
www.metone.com



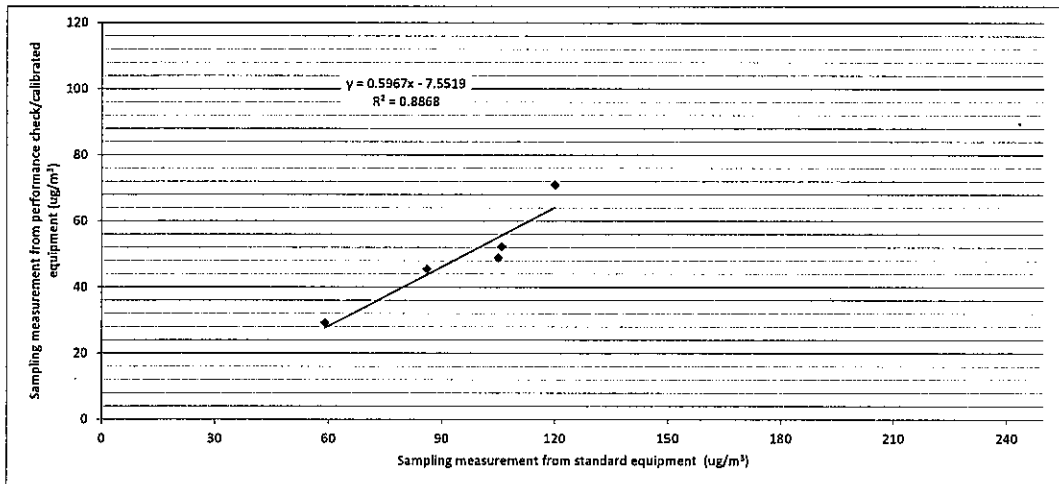
Equipment	Portable Dust Meter	Standard Equipment (High Volume Sampler)
Manufacturer	MET ONE INSTRUMENTS	TISCH
Model Number	BT-645	TE-5170
Serial Number	C15625	2493
Date	9-Jun-23	24-May-23
Location	GCE laboratory calibration area - 6 Ko Shan Rd., Hung Hom, KL	

Portable Dust Meter Performance Check Results

Check Point	Date & Time	Mean Temp (°C)	Mean Pressure (hPa)	Concentration in ug/m ³ (Standard equipment) (X - Axis)	Concentration in ug/m ³ (Performance Check / Calibrated equipment) (Y - Axis)
1	9/6/2023 9:36 -10:36	29	1004	59	29
2	9/6/2023 10:38 -11:38	29	1004	120	71
3	9/6/2023 11:40 - 12:40	29	1004	106	52
4	9/6/2023 12:42 - 13:42	29	1004	86	45
5	9/6/2023 13:45 - 14:45	29	1004	105	49

Linear Regression of Y on X

Slope (K- factor) : 1.5000
 Correlation Coefficient : 0.9417
 Validity of Performance Check / Calibration Record : 8/6/2024



Operator: Wm Fan
 Checked by: Ho Kan Chuen

Date: 12/6/2023
 Date: 12/6/2023



CERTIFICATE OF CALIBRATION

Certificate No.: 23CA0308 01 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone	Preamp
Manufacturer:	Nti	,	Nti Andio	
Type/Model No.:	XL2	,	MC230A	MA220
Serial/Equipment No.:	A2A-15269-EO	,	A16673	8034
Adaptors used:	-	,		

Item submitted by

Customer Name: Lam Environmental Services Limited.
Address of Customer: -
Request No.: -
Date of receipt: 08-Mar-2023

Date of test: 09-Mar-2023

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2023	CIGISMEC
Signal generator	DS 360	61227	08-Jun-2023	CEPREI

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 55 ± 10 %
Air pressure: 1010 ± 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 $\pm 20\%$.
- 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 responsess of the Sound Level Meter.

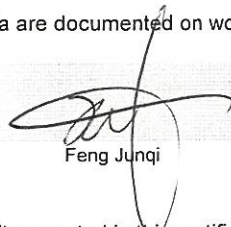
Test results

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: 13-Mar-2023

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.:

23CA0308 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	
Time 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 ³ at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 ⁴ 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.

Calibrated by:

Date:

Fung Chi Yip
09-Mar-2023

- End -

Checked by:

Date:

Chan Yuk Yiu
13-Mar-2023

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

Page 1 of 6

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 09-Mar-2023
Microphone type: MC230A Serial No. A16673
Report: 23CA0308 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	11.5	dB
Noise level in C weighting	15.4	dB
Noise level in Lin	20.4	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	74.0	74.0	0.7	0.0	0.0
69.0	69.0	69.0	0.7	0.0	0.0
64.0	64.0	64.0	0.7	0.0	0.0
59.0	59.0	59.0	0.7	0.0	0.0
54.0	54.0	54.0	0.7	0.0	0.0
49.0	49.0	49.0	0.7	0.0	0.0
44.0	44.0	44.0	0.7	0.0	0.0
39.0	39.0	39.0	0.7	0.0	0.0
34.0	34.1	34.1	0.7	0.1	0.1
33.0	33.1	33.1	0.7	0.1	0.1



Test Data for Sound Level Meter

Page 2 of 6

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 09-Mar-2023
Microphone type: MC230A Serial No. A16673

Report: 23CA0308 01

32.0	32.2	32.2	0.7	0.2	0.2
31.0	31.2	31.2	0.7	0.2	0.2
30.0	30.3	30.3	0.7	0.3	0.3

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
40-140	94.0	94.0	0.7	0.0
20-120	94.0	94.0	0.7	0.0
0-100	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
40-140	51.0	51.7	0.7	0.7
	138.0	138.0	0.7	0.0
20-120	30.0	30.3	0.7	0.3
	118.0	118.0	0.7	0.0
0-100	30.0	30.0	0.7	0.0
	98.0	98.0	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	54.4	1.5	1.5	-0.2
63.1	94.0	67.8	67.7	1.5	1.5	-0.1
125.9	94.0	77.9	77.8	1.0	1.0	-0.1
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	89.5	3.0	6.0	-0.2

Frequency weighting C:

Frequency	Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
				+	-	
Hz	dB	dB	dB			dB



Test Data for Sound Level Meter

Page 3 of 6

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 09-Mar-2023
Microphone type: MC230A Serial No. A16673

Report: 23CA0308 01

1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	91.0	90.8	1.5	1.5	-0.2
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	93.9	1.0	1.0	-0.1
501.2	94.0	94.0	94.0	1.0	1.0	0.0
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	87.6	3.0	6.0	-0.2

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	93.8	1.5	1.5	-0.2
63.1	94.0	94.0	93.9	1.5	1.5	-0.1
125.9	94.0	94.0	93.9	1.0	1.0	-0.1
251.2	94.0	94.0	93.9	1.0	1.0	-0.1
501.2	94.0	94.0	93.9	1.0	1.0	-0.1
1995.0	94.0	94.0	93.9	1.0	1.0	-0.1
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	93.9	3.0	6.0	-0.1

Note: No corrections for the frequency response of the microphone, instrument case and windshield are made to the sound level meter.

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	111.9	1.0	1.0	0.0



Test Data for Sound Level Meter

Page 4 of 6

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 09-Mar-2023
Microphone type: MC230A Serial No. A16673

Report: 23CA0308 01

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	Response to 10 ms	Response to 100 us	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
119.0	119.0	119.5	2.0	0.5

Negative polarities:

Ref. level	Response to 10 ms	Response to 100 us	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
119.0	119.0	119.5	2.0	0.5

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	118.0+6.6	118.0	117.9	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
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
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



Test Data for Sound Level Meter

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 09-Mar-2023
Microphone type: MC230A Serial No. A16673
Report: 23CA0308 01

msec	dB	dB	dB	+/- dB	dB	
1000	90.0	90.0	90.0	1.0	0.0	60s integ.
10000	80.0	80.0	80.0	1.0	0.0	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

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
121.5	120.5	117.5	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
127.5	126.5	86.5	86.5	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



Test Data for Sound Level Meter

Page 6 of 6

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 09-Mar-2023

Microphone type: MC230A Serial No. A16673

Report: 23CA0308 01

1000	94.0	94.0	0.0	0.0	0.0
125	77.9	77.9	1.0	1.0	0.0
8000	92.9	92.6	1.5	3.0	-0.3

-----END-----



CERTIFICATE OF CALIBRATION

Certificate No.: 24CA0307 02-01 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone	Preamp
Manufacturer:	Nti	,	Nti Andio	Nti Andio
Type/Model No.:	XL2	,	MC230A	MA220
Serial/Equipment No.:	A2A-15269-EO	,	A16673	8034
Adaptors used:	-	,		

Item submitted by

Customer Name: Lam Environmental Services Limited.
Address of Customer: -
Request No.: -
Date of receipt: 07-Mar-2024

Date of test: 09-Mar-2024

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	28-Aug-2024	CIGISMEC
Signal generator	DS 360	61227	28-Jun-2024	CEPREI

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 55 ± 10 %
Air pressure: 1010 ± 5 hPa

Test specifications

- 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.
- 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 $\pm 20\%$.
- 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 responses of the Sound Level Meter.

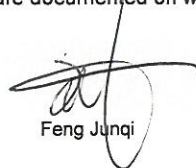
Test results

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.

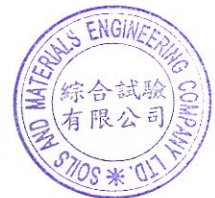
Approved Signatory:



Feng Junqi

Date: 11-Mar-2024

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.: 24CA0307 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	
		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	
	Lin	Pass	0.3	
Time weightings	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 ³ at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 ⁴ 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.

Calibrated by:

Date:

Fung Chi Yip
09-Mar-2024

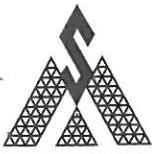
- End -

Checked by:

Date:

Chan Yuk Yiu
11-Mar-2024

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

Page 1 of 6

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 09-Mar-2024
 Microphone type: MC230A Serial No. A16673

Report: 24CA0307 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	15.4	dB
Noise level in Lin	21.9	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	74.0	74.0	0.7	0.0	0.0
69.0	69.0	69.0	0.7	0.0	0.0
64.0	64.0	64.0	0.7	0.0	0.0
59.0	59.0	59.0	0.7	0.0	0.0
54.0	54.0	54.0	0.7	0.0	0.0
49.0	49.0	49.0	0.7	0.0	0.0
44.0	44.0	44.0	0.7	0.0	0.0
39.0	39.1	39.1	0.7	0.1	0.1
34.0	34.1	34.1	0.7	0.1	0.1
33.0	33.2	33.2	0.7	0.2	0.2



Test Data for Sound Level Meter

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 09-Mar-2024
 Microphone type: MC230A Serial No. A16673

Report: 24CA0307 02-01

32.0	32.2	32.2	0.7	0.2	0.2
31.0	31.2	31.2	0.7	0.2	0.2
30.0	30.3	30.3	0.7	0.3	0.3

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
40-140	94.0	94.0	0.7	0.0
20-120	94.0	94.0	0.7	0.0
0-100	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
40-140	50.0	50.7	0.7	0.7
	138.0	138.0	0.7	0.0
20-120	30.0	30.3	0.7	0.3
	118.0	118.0	0.7	0.0
0-100	30.0	30.0	0.7	0.0
	98.0	98.0	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	54.6	1.5	1.5	0.0
63.1	94.0	67.8	67.7	1.5	1.5	-0.1
125.9	94.0	77.9	77.9	1.0	1.0	0.0
251.2	94.0	85.4	85.4	1.0	1.0	0.0
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	89.5	3.0	6.0	-0.2

Frequency weighting C:

Frequency	Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
				+	-	
Hz	dB	dB	dB			dB



Test Data for Sound Level Meter

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 09-Mar-2024
Microphone type: MC230A Serial No. A16673
Report: 24CA0307 02-01

1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	91.0	90.8	1.5	1.5	-0.2
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
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	87.6	3.0	6.0	-0.2

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

Note: No corrections for the frequency response of the microphone, instrument case and windshield are made to the sound level meter.

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	111.9	1.0	1.0	0.0



Test Data for Sound Level Meter

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 09-Mar-2024
 Microphone type: MC230A Serial No. A16673

Report: 24CA0307 02-01

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	Response to 10 ms	Response to 100 us	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
119.0	119.0	119.7	2.0	0.7

Negative polarities:

Ref. level	Response to 10 ms	Response to 100 us	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
119.0	119.0	119.7	2.0	0.7

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	118.0+6.6	118.0	117.9	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
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
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



Test Data for Sound Level Meter

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 09-Mar-2024
 Microphone type: MC230A Serial No. A16673

Report: 24CA0307 02-01

msec	dB	dB	dB	+/- dB	dB	
1000	90.0	90.0	89.9	1.0	-0.1	60s integ.
10000	80.0	80.0	80.0	1.0	0.0	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

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
121.4	120.4	117.4	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
127.5	126.5	86.5	86.5	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



Test Data for Sound Level Meter

Page 6 of 6

Sound level meter type: XL2 Serial No. A2A-15269-EO Date 09-Mar-2024
Microphone type: MC230A Serial No. A16673

Report: 24CA0307 02-01

1000	94.0	94.0	0.0	0.0	0.0
125	77.9	78.0	1.0	1.0	0.1
8000	92.9	92.9	1.5	3.0	0.0

-----END-----



CERTIFICATE OF CALIBRATION

Certificate No.: 23CA0508 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.:	0003737	,	340739	042622
Adaptors used:	-	,	-	-

Item submitted by

Customer Name: Lam Environmental Services Limited.
Address of Customer: -
Request No.: -
Date of receipt: 08-May-2023

Date of test: 11-May-2023

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2023	CIGISMEC
Signal generator	DS 360	61227	08-Jun-2023	CEPREI

Ambient conditions

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

Test specifications

- 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.
- 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%.
- 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: 13-May-2023

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.: 23CA0508 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	
	C	Pass	0.8	2.1
	Lin	Pass	1.6	2.2
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	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 Frequency weightings	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	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 ³ at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 ⁴ 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:

Date:

Fung Chi Yip
11-May-2023

Checked by:

Date:

Chan Yuk Yiu
13-May-2023

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.



Sound level meter type: LxT1 Serial No. 0003737 Date 11-May-2023
 Microphone type: 377B02 Serial No. 340739
 Report: 23CA0508 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 13.3 dB
 Noise level in Lin 22.2 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	74.0	74.0	0.7	0.0	0.0
69.0	69.0	69.0	0.7	0.0	0.0
64.0	64.0	64.0	0.7	0.0	0.0
59.0	59.0	59.0	0.7	0.0	0.0
54.0	54.0	54.0	0.7	0.0	0.0
49.0	49.0	49.0	0.7	0.0	0.0
44.0	44.0	44.0	0.7	0.0	0.0
39.0	39.0	39.0	0.7	0.0	0.0
34.0	34.0	34.0	0.7	0.0	0.0
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. 0003737 Date 11-May-2023
 Microphone type: 377B02 Serial No. 340739

Report: 23CA0508 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 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	54.6	54.5	1.5	1.5	-0.1
63.1	94.0	67.8	67.7	1.5	1.5	-0.1
125.9	94.0	77.9	77.9	1.0	1.0	0.0
251.2	94.0	85.4	85.4	1.0	1.0	0.0
501.2	94.0	90.8	90.8	1.0	1.0	0.0
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	89.6	3.0	6.0	-0.1

Frequency weighting C:

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	91.0	90.9	1.5	1.5	-0.1
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

Sound level meter type: LxT1 Serial No. 0003737 Date 11-May-2023
Microphone type: 377B02 Serial No. 340739

Report: 23CA0508 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	93.9	1.0	1.0	-0.1
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

Sound level meter type: LxT1 Serial No. 0003737 Date 11-May-2023
 Microphone type: 377B02 Serial No. 340739

Report: 23CA0508 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	119.5	2.0	0.5

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	113.8	0.5	-0.2

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)		
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)		
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	89.8	1.0	-0.2	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. 0003737 Date 11-May-2023
Microphone type: 377B02 Serial No. 340739 Report: 23CA0508 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	57.9	1.7	-0.1

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	67.9	1.7	-0.1

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
115.0	114.0	111.0	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
121.5	120.5	80.5	80.4	2.2	-0.1

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	Measured (dB)	+	-	
1000	94.0	94.0	94.0	0.0	0.0	0.0
125	77.9	77.9	77.9	1.0	1.0	0.0
8000	92.9	90.4	90.4	1.5	3.0	-2.5

-----END-----



CERTIFICATE OF CALIBRATION

Certificate No.: 23CA0317 02-04

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: Larson Davis
Type/Model No.: CAL200
Serial/Equipment No.: 13098
Adaptors used: -

Item submitted by

Customer: Lam Environmental Services Limited.
Address of Customer: -
Request No.: -
Date of receipt: 17-Mar-2023

Date of test: 20-Mar-2023

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	23-May-2023	SCL
Preamplifier	B&K 2673	2743150	28-Jun-2023	CEPREI
Measuring amplifier	B&K 2610	2346941	30-Jun-2023	CEPREI
Signal generator	DS 360	61227	08-Jun-2023	CEPREI
Digital multi-meter	34401A	US36087050	30-May-2023	CEPREI
Audio analyzer	8903B	GB41300350	06-Jul-2023	CEPREI
Universal counter	53132A	MY40003662	13-Jun-2023	CEPREI

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 55 ± 10 %
Air pressure: 1010 ± 5 hPa

Test specifications

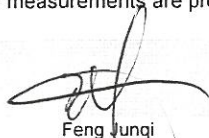
- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results 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: 21-Mar-2023

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.: 23CA0317 02-04

Page: 2 of 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

(Output level in dB re 20 μ Pa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	93.82	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz STF = 0.011 dB

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz Actual Frequency = 999.9 Hz

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz TND = 0.7 %

Estimated expanded uncertainty 0.7 %

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.

Calibrated by:

Date:

Fung Chi Yip

20-Mar-2023

- End -

Checked by:

Date:

Chan Yuk Yiu

21-Mar-2023

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.



CERTIFICATE OF CALIBRATION

Certificate No.: 24CA0307 02-02

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: Larson Davis
Type/Model No.: CAL200
Serial/Equipment No.: 13098
Adaptors used: -

Item submitted by

Customer: Lam Environmental Services Limited.
Address of Customer: -
Request No.: -
Date of receipt: 07-Mar-2024

Date of test: 11-Mar-2024

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	3257888	15-Aug-2024	SCL
Preamplifier	B&K 2673	3353200	13-Jun-2024	CEPREI
Measuring amplifier	B&K 2610	2346941	13-Jun-2024	CEPREI
Signal generator	DS 360	61227	28-Jun-2024	CEPREI
Digital multi-meter	34401A	US36087050	01-Jun-2024	CEPREI
Audio analyzer	8903B	GB41300350	13-Jun-2024	CEPREI
Universal counter	53132A	MY40003662	07-Jun-2024	CEPREI

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 55 ± 10 %
Air pressure: 1010 ± 5 hPa

Test specifications

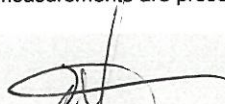
- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results 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.

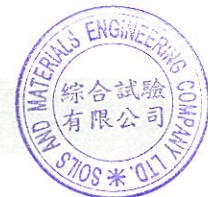
Details of the performed measurements are presented on page 2 of this certificate.

Approved Signatory:


Feng Junqi

Date: 12-Mar-2024

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.: 24CA0307 02-02

Page: 2 of 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	(Output level in dB re 20 μ Pa)
			Estimated Expanded Uncertainty dB
1000	94.00	93.75	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz STF = 0.007 dB

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz Actual Frequency = 999.9 Hz

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz TND = 1.0 %

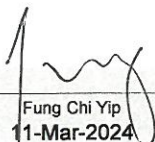
Estimated expanded uncertainty 0.7 %

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:

Date:


Fung Chi Yip
11-Mar-2024

Checked by:

Date:


Chan Yuk Yiu
12-Mar-2024

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.



Wind Station Performance Check Record

Type : Weather Station
Manufacturer : 武汉辰云科技有限公司
Model Number : YGY-FSXY1
Serial Number : YG 21071630T0924
Performance Check Date : 18-Sep-2023

Performance Check Results

Wind Speed Range (m/s)	Reading Value (V1, m/s)	Anemometer Value (V2, m/s)	Difference (V1 - V2, m/s)
Zero Check	0.0	0.0	0.0
1 - 2	1.5	1.8	-0.3
3 - 4	4.2	4.4	-0.2
5 - 6	5.5	5.3	0.2
7 - 8	7.7	7.5	0.2

Wind Direction (°)	Reading Value (W1, °)	Compass Value (W2, °)	Difference (W1 - W2, °)
0	0	0	0
90	90	90	0
180	183	180	3
270	268	270	-2

Test Reference:

1. Wind Speed Check - Speed reading checked on-site against anemometer logged value.
2. Wind Direction Check - Direction reading checked on on-site against compass marked reading.

Conducted by: Harry Po

Checked by: William Cheung



Wind Station Performance Check Record

Type : Weather Station
Manufacturer : 武汉辰云科技有限公司
Model Number : YGY-FSXY1
Serial Number : YG 21071630T0924
Performance Check Date : 14-Mar-2024

Performance Check Results

Wind Speed Range (m/s)	Reading Value (V1, m/s)	Anemometer Value (V2, m/s)	Difference (V1 - V2, m/s)
Zero Check	0.0	0.0	0.0
1 - 2	1.7	1.8	-0.1
3 - 4	3.6	3.5	0.1
5 - 6	5.7	5.3	0.4
7 - 8	7.9	7.4	0.5

Wind Direction (°)	Reading Value (W1, °)	Compass Value (W2, °)	Difference (W1 - W2, °)
0	0	0	0
90	88	90	-2
180	179	180	-1
270	270	270	0

Test Reference:

1. Wind Speed Check - Speed reading checked on-site against anemometer logged value.
2. Wind Direction Check - Direction reading checked on on-site against compass marked reading.

Conducted by: Harry Po

Checked by: William Cheung



Appendix 4.3

Wind Data

Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
1-Mar-24	00:00	2.3	45(NE)
	01:00	1.3	156(SSE)
	02:00	1.5	188(S)
	03:00	4.3	71(ENE)
	04:00	1.5	82(E)
	05:00	2.9	79(E)
	06:00	2.1	117(ESE)
	07:00	1.9	116(ESE)
	08:00	2.3	35(NE)
	09:00	1.7	237(WSW)
	10:00	3.9	52(NE)
	11:00	4.1	80(E)
	12:00	3.3	155(SSE)
	13:00	1.5	63(ENE)
	14:00	3.1	72(ENE)
	15:00	2.9	81(E)
	16:00	5.7	53(NE)
	17:00	5.9	61(ENE)
	18:00	3.7	56(NE)
	19:00	5.7	89(E)
	20:00	3.9	58(ENE)
	21:00	2.1	327(NNW)
	22:00	2.9	65(ENE)
23:00	4.1	94(E)	
2-Mar-24	00:00	2.5	64(ENE)
	01:00	3.3	212(SSW)
	02:00	3.5	84(E)
	03:00	3.3	58(ENE)
	04:00	6.3	94(E)
	05:00	5.7	57(ENE)
	06:00	3.3	79(E)
	07:00	4.1	63(ENE)
	08:00	2.9	55(NE)
	09:00	2.9	60(ENE)
	10:00	2.3	169(S)
	11:00	1.5	34(NE)
	12:00	1.5	138(SE)
	13:00	2.3	96(E)
	14:00	0.5	266(W)
	15:00	0.7	77(ENE)
	16:00	1.7	294(WNW)
	17:00	0.5	231(SW)
	18:00	1.7	62(ENE)
	19:00	0.0	37(NE)
	20:00	0.5	70(ENE)
	21:00	1.7	86(E)
	22:00	0.7	136(SE)
23:00	1.7	165(SSE)	

Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
3-Mar-24	00:00	1.1	130(SE)
	01:00	1.9	178(S)
	02:00	0.0	70(ENE)
	03:00	0.0	130(SE)
	04:00	0.7	79(E)
	05:00	0.7	111(ESE)
	06:00	0.9	85(E)
	07:00	1.3	93(E)
	08:00	1.9	91(E)
	09:00	1.9	117(ESE)
	10:00	1.1	32(NNE)
	11:00	1.9	117(ESE)
	12:00	1.3	137(SE)
	13:00	3.5	107(ESE)
	14:00	3.3	78(ENE)
	15:00	0.5	193(SSW)
	16:00	1.3	126(SE)
	17:00	0.7	229(SW)
	18:00	2.7	101(E)
	19:00	2.3	155(SSE)
	20:00	1.9	83(E)
	21:00	3.3	151(SSE)
	22:00	2.5	151(SSE)
23:00	1.5	154(SSE)	
4-Mar-24	00:00	2.3	104(ESE)
	01:00	3.7	106(ESE)
	02:00	2.1	124(SE)
	03:00	3.5	147(SSE)
	04:00	3.7	106(ESE)
	05:00	1.3	295(WNW)
	06:00	3.9	136(SE)
	07:00	3.9	111(ESE)
	08:00	4.3	82(E)
	09:00	1.3	116(ESE)
	10:00	2.3	113(ESE)
	11:00	2.1	78(ENE)
	12:00	0.0	273(W)
	13:00	1.1	306(NW)
	14:00	0.5	105(ESE)
	15:00	1.5	326(NW)
	16:00	2.3	142(SE)
	17:00	1.5	120(ESE)
	18:00	1.5	78(ENE)
	19:00	2.5	118(ESE)
	20:00	0.0	30(NNE)
	21:00	1.3	131(SE)
	22:00	1.3	101(E)
23:00	0.0	294(WNW)	

Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
5-Mar-24	00:00	0.0	68(ENE)
	01:00	0.0	241(WSW)
	02:00	1.1	265(W)
	03:00	0.5	260(W)
	04:00	0.0	333(NNW)
	05:00	1.5	97(E)
	06:00	1.7	130(SE)
	07:00	0.0	133(SE)
	08:00	0.0	202(SSW)
	09:00	0.9	109(ESE)
	10:00	2.3	83(E)
	11:00	1.9	265(W)
	12:00	1.1	272(W)
	13:00	1.3	310(NW)
	14:00	3.1	293(WNW)
	15:00	1.1	111(ESE)
	16:00	1.7	272(W)
	17:00	1.5	298(WNW)
	18:00	1.3	63(ENE)
	19:00	1.3	286(WNW)
	20:00	0.0	248(WSW)
	21:00	2.7	302(WNW)
	22:00	0.9	280(W)
23:00	0.0	234(SW)	
6-Mar-24	00:00	0.0	159(SSE)
	01:00	0.0	95(E)
	02:00	0.0	70(ENE)
	03:00	0.0	97(E)
	04:00	0.0	106(ESE)
	05:00	0.0	106(ESE)
	06:00	0.0	101(E)
	07:00	0.0	128(SE)
	08:00	0.0	36(NE)
	09:00	0.0	117(ESE)
	10:00	0.0	126(SE)
	11:00	0.0	355(N)
	12:00	0.0	230(SW)
	13:00	0.0	102(ESE)
	14:00	0.9	322(NW)
	15:00	0.0	294(WNW)
	16:00	1.5	138(SE)
	17:00	2.1	145(SE)
	18:00	1.5	29(NNE)
	19:00	0.5	263(W)
	20:00	2.5	143(SE)
	21:00	2.5	104(ESE)
	22:00	0.0	336(NNW)
23:00	5.3	47(NE)	

Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
7-Mar-24	00:00	1.1	273(W)
	01:00	2.9	70(ENE)
	02:00	3.3	81(E)
	03:00	5.9	51(NE)
	04:00	2.9	76(ENE)
	05:00	2.7	41(NE)
	06:00	0.0	43(NE)
	07:00	3.3	43(NE)
	08:00	0.0	59(ENE)
	09:00	0.0	66(ENE)
	10:00	0.0	26(NNE)
	11:00	0.0	236(SW)
	12:00	3.5	59(ENE)
	13:00	1.5	233(SW)
8-Mar-24	14:00	No data available due to power failure, data extracted from the Hong Kong Observatory Ta Kwu Ling Wind Station were provided instead	
	15:00		
	16:00		
	17:00		
	18:00		
	19:00		
	20:00		
	21:00		
	22:00		
	23:00		
	00:00		
	01:00		
	02:00		
	03:00		
04:00			
05:00			
06:00			
07:00			
08:00			
09:00			
10:00			
11:00			
12:00			
13:00			
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15:00			
16:00			
17:00			
18:00			
19:00			
20:00			
21:00			
22:00			
23:00			

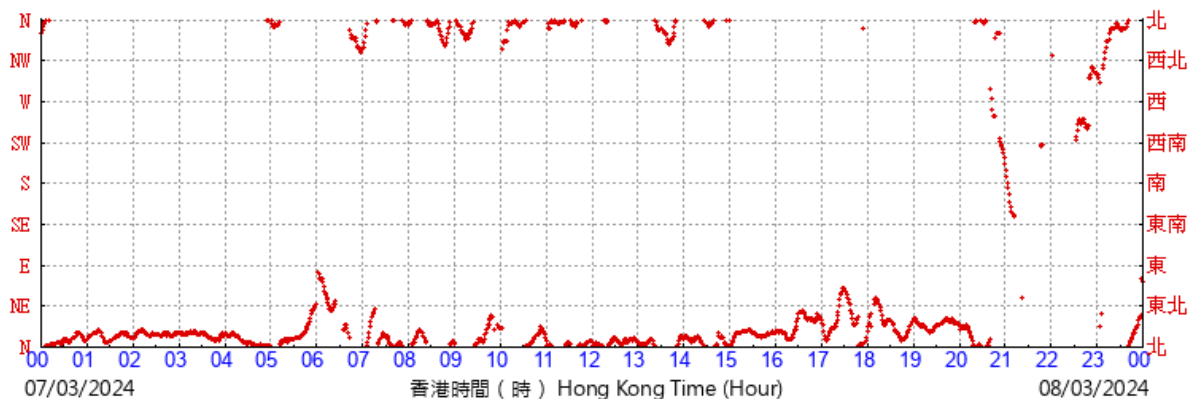
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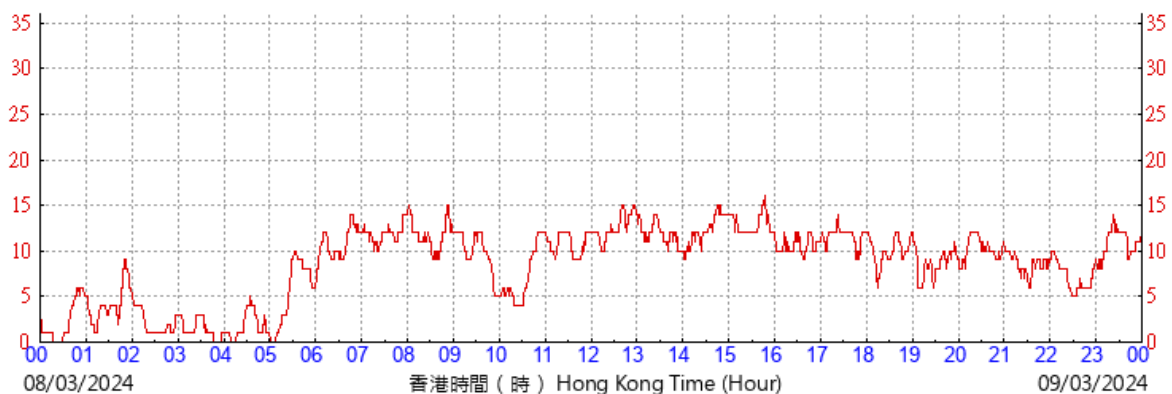
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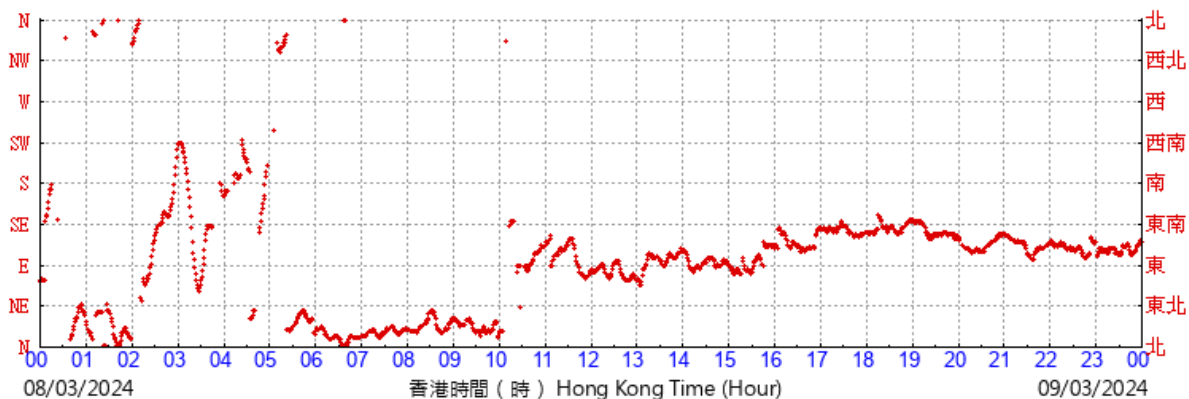
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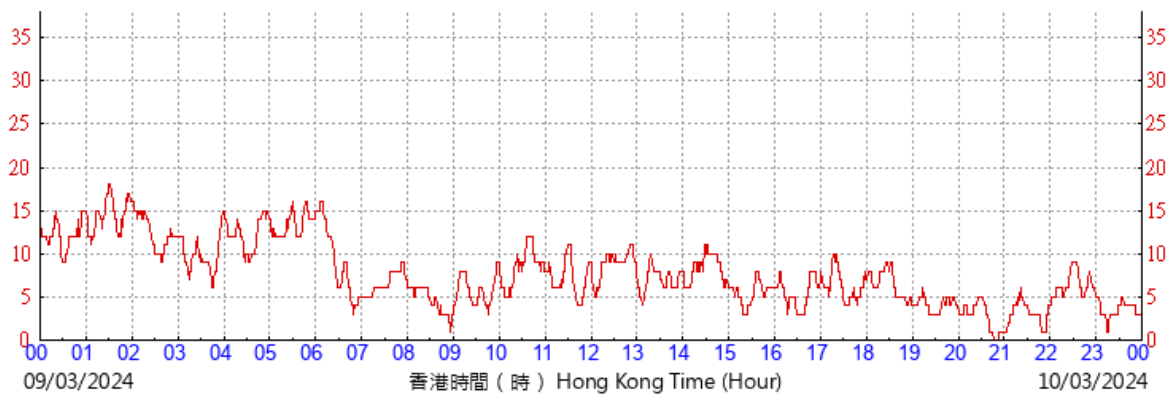
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Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
9-Mar-24	00:00	No data available due to power failure, data extracted from the Hong Kong Observatory Ta Kwu Ling Wind Station were provided instead	
	01:00		
	02:00		
	03:00		
	04:00		
	05:00		
	06:00		
	07:00		
	08:00		
	09:00		
	10:00		
	11:00		
	12:00		
	13:00		
	14:00		
	15:00		
	16:00		
	17:00		
	18:00		
	19:00		
	20:00		
	21:00		
	22:00		
	23:00		
10-Mar-24	00:00	No data available due to power failure, data extracted from the Hong Kong Observatory Ta Kwu Ling Wind Station were provided instead	
	01:00		
	02:00		
	03:00		
	04:00		
	05:00		
	06:00		
	07:00		
	08:00		
	09:00		
	10:00		
	11:00		
	12:00		
	13:00		
	14:00		
	15:00		
	16:00		
	17:00		
	18:00		
	19:00		
	20:00		
	21:00		
	22:00		
	23:00		

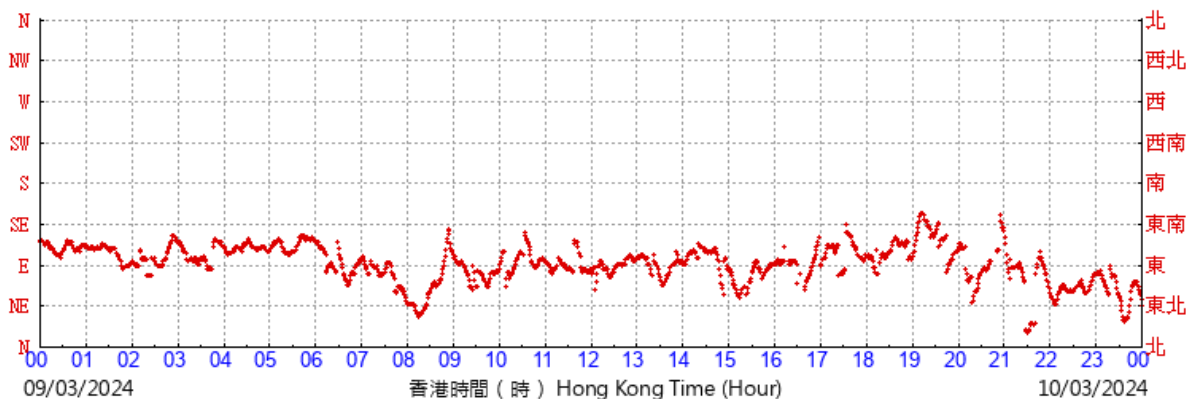
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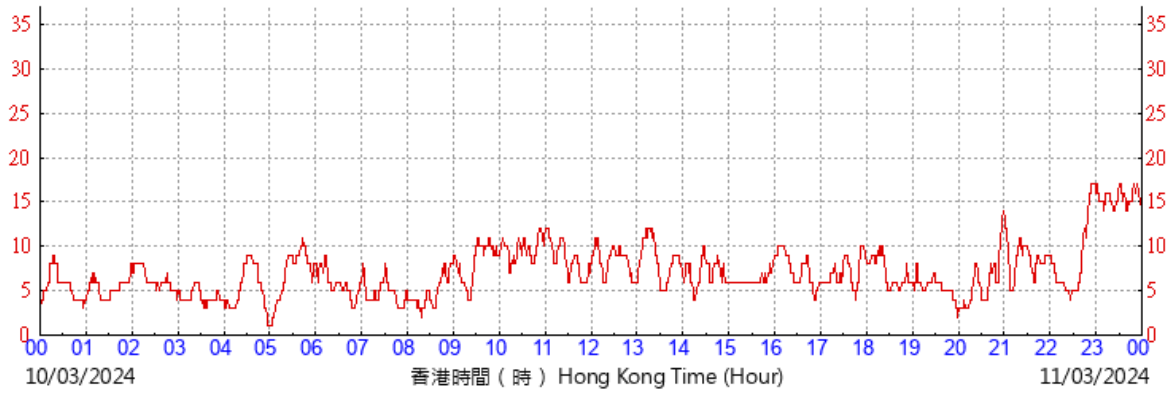
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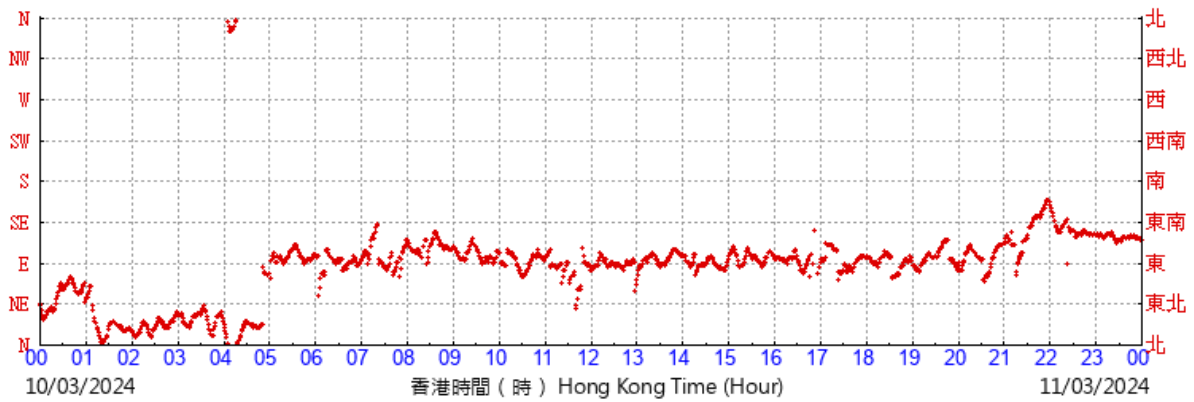
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(於香港時間11/03/2024 00 時 00 分更新) (Updated at 00:00H on 11/03/2024)



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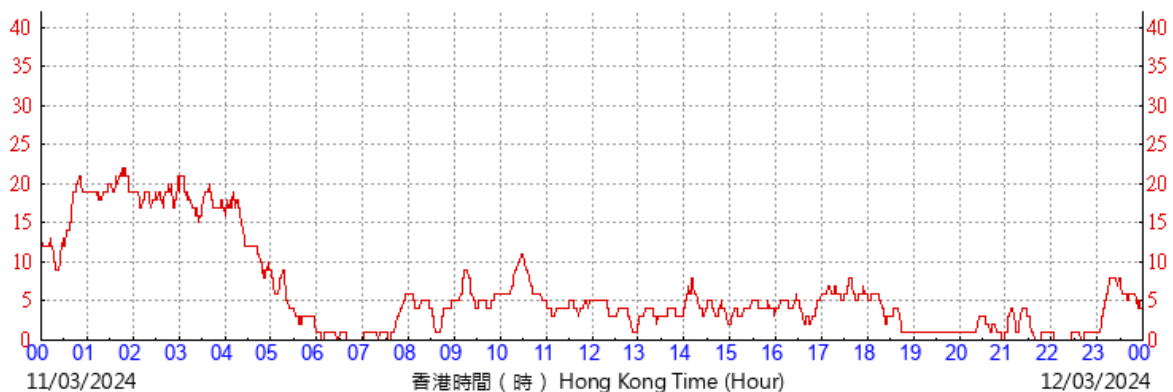
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Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)		
11-Mar-24	00:00	No data available due to power failure, data extracted from the Hong Kong Observatory Ta Kwu Ling Wind Station were provided instead			
	01:00				
	02:00				
	03:00				
	04:00				
	05:00				
	06:00				
	07:00				
	08:00				
	09:00				
	10:00				
	11:00				
	12:00				
	13:00				
14:00					
15:00					
16:00					
17:00					
18:00					
19:00					
20:00					
21:00					
22:00					
23:00					
12-Mar-24	00:00			No data available due to power failure, data extracted from the Hong Kong Observatory Ta Kwu Ling Wind Station were provided instead	
	01:00				
	02:00				
	03:00				
	04:00				
	05:00				
	06:00				
	07:00				
	08:00				
	09:00				
	10:00				
	11:00				
	12:00				
	13:00				
14:00					
15:00					
16:00					
17:00					
18:00					
19:00					
20:00					
21:00					
22:00					
23:00					

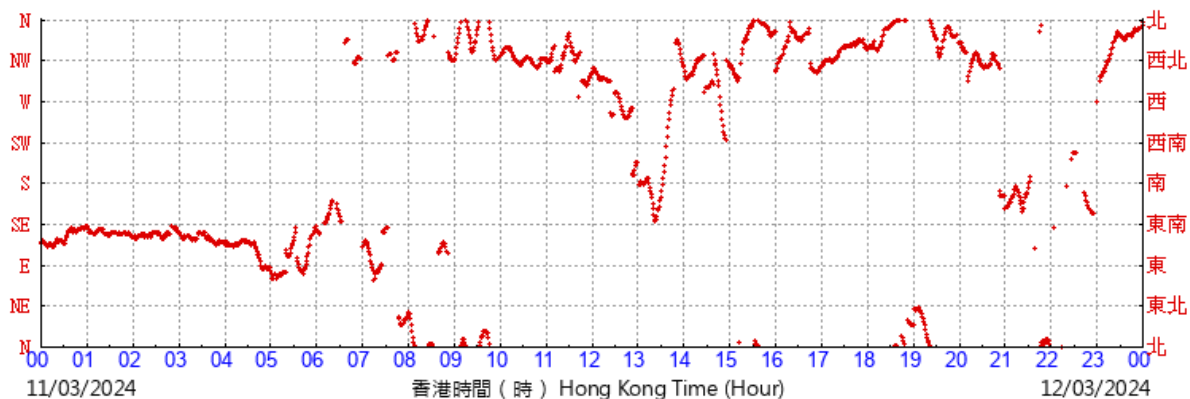
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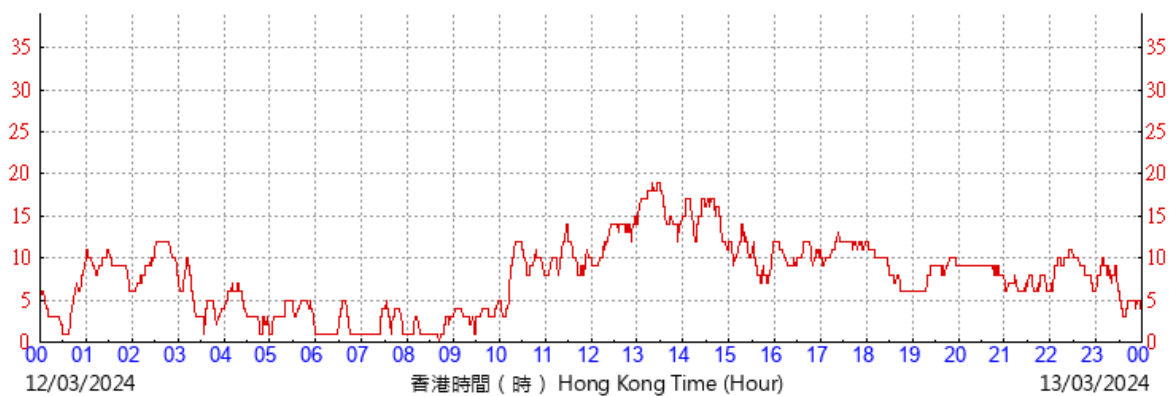
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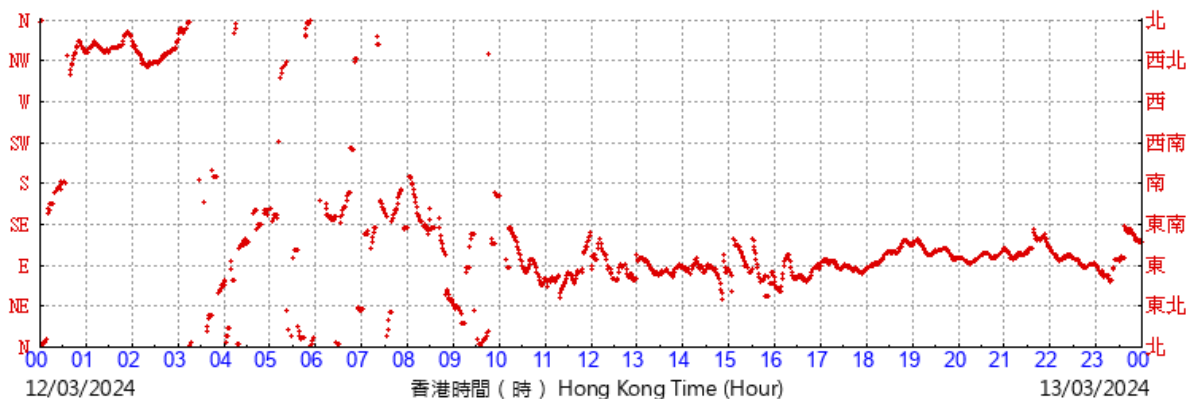
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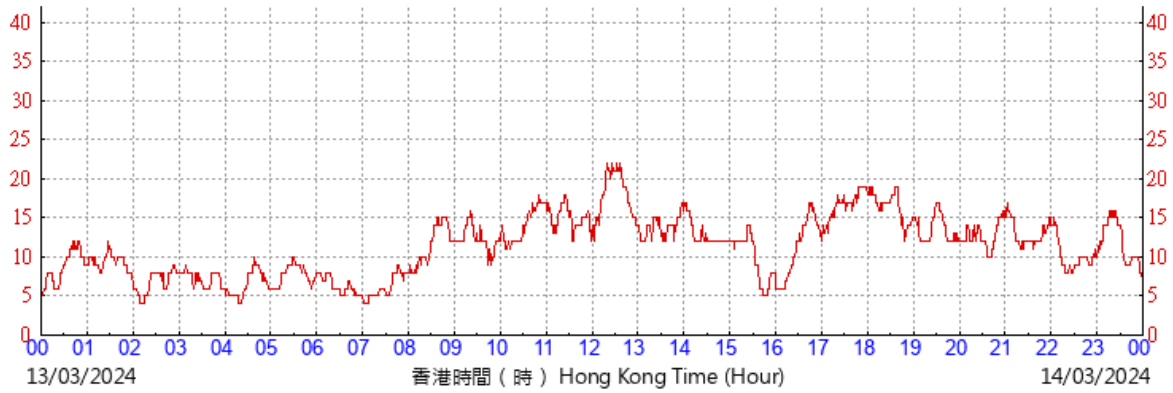
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Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)	
13-Mar-24	00:00	No data available due to power failure, data extracted from the Hong Kong Observatory Ta Kwu Ling Wind Station were provided instead		
	01:00			
	02:00			
	03:00			
	04:00			
	05:00			
	06:00			
	07:00			
	08:00			
	09:00			
	10:00			
	11:00			
	12:00			
	13:00			
	14:00			
15:00				
13-Mar-24	16:00	1.5	73(ENE)	
	17:00	2.5	144(SE)	
	18:00	2.1	36(NE)	
	19:00	4.5	106(ESE)	
	20:00	0.9	286(WNW)	
	21:00	1.7	86(E)	
	22:00	4.3	85(E)	
	23:00	1.7	165(SSE)	
	14-Mar-24	00:00	1.9	66(ENE)
		01:00	3.1	71(ENE)
		02:00	1.9	128(SE)
		03:00	1.5	99(E)
		04:00	1.3	102(ESE)
		05:00	1.3	78(ENE)
		06:00	1.1	59(ENE)
07:00		1.7	76(ENE)	
08:00		1.1	83(E)	
09:00		2.3	189(S)	
10:00		6.9	102(ESE)	
11:00		2.3	111(ESE)	
12:00		1.5	283(WNW)	
13:00		1.3	148(SSE)	
14:00		2.3	91(E)	
15:00		2.5	75(ENE)	
16:00		2.1	89(E)	
17:00		3.1	80(E)	
18:00		3.1	91(E)	
19:00		1.9	64(ENE)	
20:00		0.0	175(S)	
21:00		0.9	81(E)	
22:00		1.5	111(ESE)	
23:00	1.1	52(NE)		

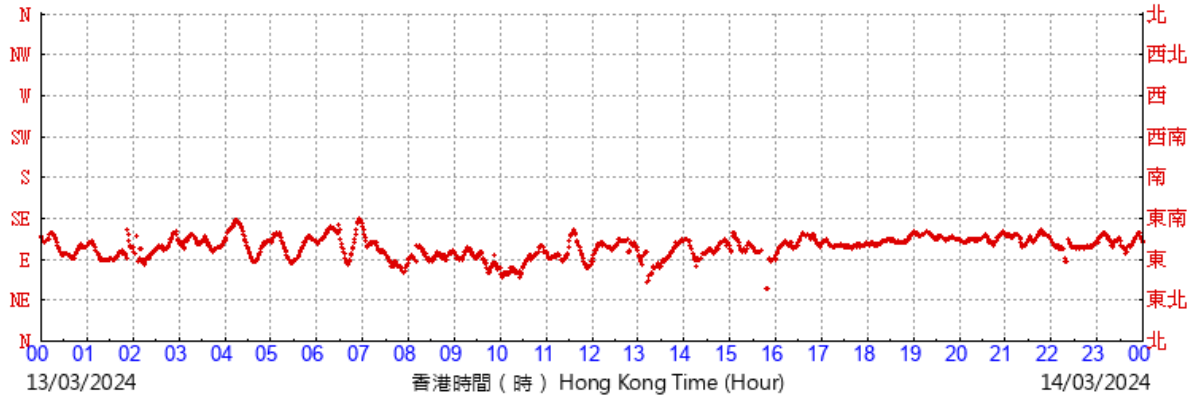
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Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
15-Mar-24	00:00	1.1	83(E)
	01:00	1.1	148(SSE)
	02:00	1.1	109(ESE)
	03:00	0.7	82(E)
	04:00	1.1	46(NE)
	05:00	3.5	80(E)
	06:00	1.9	58(ENE)
	07:00	0.9	57(ENE)
	08:00	1.3	177(S)
	09:00	0.7	72(ENE)
	10:00	2.7	133(SE)
	11:00	2.5	154(SSE)
	12:00	3.3	122(ESE)
	13:00	1.5	70(ENE)
	14:00	1.5	314(NW)
	15:00	1.7	77(ENE)
	16:00	0.7	66(ENE)
	17:00	0.9	56(NE)
	18:00	0.9	335(NNW)
	19:00	0.9	327(NNW)
	20:00	1.7	38(NE)
	21:00	0.7	125(SE)
	22:00	2.9	97(E)
23:00	1.7	109(ESE)	
16-Mar-24	00:00	4.1	95(E)
	01:00	0.9	148(SSE)
	02:00	2.1	99(E)
	03:00	0.0	63(ENE)
	04:00	0.0	237(WSW)
	05:00	1.7	89(E)
	06:00	1.1	100(E)
	07:00	0.5	17(NNE)
	08:00	0.9	122(ESE)
	09:00	0.5	189(S)
	10:00	1.5	133(SE)
	11:00	0.7	25(NNE)
	12:00	2.9	56(NE)
	13:00	0.7	239(WSW)
	14:00	0.5	245(WSW)
	15:00	2.9	105(ESE)
	16:00	0.7	120(ESE)
	17:00	2.3	120(ESE)
	18:00	1.1	59(ENE)
	19:00	0.9	332(NNW)
	20:00	1.7	86(E)
	21:00	0.7	134(SE)
	22:00	1.7	99(E)
23:00	1.3	113(ESE)	

Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
17-Mar-24	00:00	1.3	109(ESE)
	01:00	0.7	120(ESE)
	02:00	0.7	96(E)
	03:00	1.1	81(E)
	04:00	0.5	90(E)
	05:00	1.5	90(E)
	06:00	0.0	122(ESE)
	07:00	0.0	32(NNE)
	08:00	0.5	55(NE)
	09:00	1.5	56(NE)
	10:00	1.1	238(WSW)
	11:00	1.1	117(ESE)
	12:00	2.3	72(ENE)
	13:00	1.9	307(NW)
	14:00	1.7	214(SW)
	15:00	0.0	239(WSW)
	16:00	1.5	132(SE)
	17:00	0.9	171(S)
	18:00	1.1	267(W)
	19:00	0.0	283(WNW)
	20:00	0.0	217(SW)
	21:00	0.0	146(SE)
	22:00	0.7	93(E)
23:00	0.0	100(E)	
18-Mar-24	00:00	0.0	120(ESE)
	01:00	0.0	50(NE)
	02:00	0.0	66(ENE)
	03:00	0.0	280(W)
	04:00	0.0	268(W)
	05:00	0.0	254(WSW)
	06:00	0.0	165(SSE)
	07:00	0.0	226(SW)
	08:00	1.3	98(E)
	09:00	0.9	77(ENE)
	10:00	0.7	150(SSE)
	11:00	2.5	60(ENE)
	12:00	2.3	125(SE)
	13:00	1.9	64(ENE)
	14:00	1.1	184(S)
	15:00	2.9	70(ENE)
	16:00	2.3	83(E)
	17:00	3.5	136(SE)
	18:00	1.9	123(ESE)
	19:00	2.9	135(SE)
	20:00	0.9	129(SE)
	21:00	3.1	68(ENE)
	22:00	0.9	87(E)
23:00	1.5	116(ESE)	

Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
19-Mar-24	00:00	1.5	39(NE)
	01:00	1.1	45(NE)
	02:00	2.1	81(E)
	03:00	1.9	45(NE)
	04:00	0.7	119(ESE)
	05:00	1.5	315(NW)
	06:00	2.7	84(E)
	07:00	2.5	30(NNE)
	08:00	2.3	97(E)
	09:00	4.3	57(ENE)
	10:00	1.5	177(S)
	11:00	2.7	88(E)
	12:00	1.5	146(SE)
	13:00	2.1	154(SSE)
	14:00	4.3	42(NE)
	15:00	1.7	101(E)
	16:00	3.7	87(E)
	17:00	1.9	25(NNE)
	18:00	0.7	36(NE)
	19:00	1.1	149(SSE)
	20:00	1.3	38(NE)
	21:00	1.1	89(E)
	22:00	1.5	2(N)
	23:00	2.1	62(ENE)
20-Mar-24	00:00	1.9	87(E)
	01:00	2.3	50(NE)
	02:00	2.3	120(ESE)
	03:00	3.7	84(E)
	04:00	2.7	41(NE)
	05:00	2.3	60(ENE)
	06:00	1.1	53(NE)
	07:00	1.5	85(E)
	08:00	2.3	84(E)
	09:00	3.3	100(E)
	10:00	2.3	54(NE)
	11:00	2.5	106(ESE)
	12:00	2.7	32(NNE)
	13:00	1.1	206(SSW)
	14:00	3.1	161(SSE)
	15:00	0.7	315(NW)
	16:00	3.7	99(E)
	17:00	2.7	164(SSE)
	18:00	1.3	175(S)
	19:00	0.9	194(SSW)
	20:00	2.9	109(ESE)
	21:00	2.1	116(ESE)
	22:00	1.9	87(E)
	23:00	2.1	83(E)

Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
21-Mar-24	00:00	1.7	101(E)
	01:00	3.5	63(ENE)
	02:00	1.7	83(E)
	03:00	2.5	56(NE)
	04:00	0.9	89(E)
	05:00	0.7	64(ENE)
	06:00	1.1	124(SE)
	07:00	0.9	116(ESE)
	08:00	1.3	140(SE)
	09:00	2.7	77(ENE)
	10:00	4.3	93(E)
	11:00	1.3	209(SSW)
	12:00	2.3	76(ENE)
	13:00	1.3	94(E)
	14:00	3.1	187(S)
	15:00	1.7	189(S)
	16:00	1.7	120(ESE)
	17:00	1.1	211(SSW)
	18:00	1.5	122(ESE)
	19:00	2.3	83(E)
	20:00	1.7	52(NE)
	21:00	0.7	162(SSE)
	22:00	1.7	82(E)
	23:00	0.9	93(E)
22-Mar-24	00:00	2.7	38(NE)
	01:00	2.3	51(NE)
	02:00	1.5	121(ESE)
	03:00	1.5	83(E)
	04:00	2.5	87(E)
	05:00	1.7	46(NE)
	06:00	0.7	83(E)
	07:00	1.1	94(E)
	08:00	1.5	124(SE)
	09:00	1.5	107(ESE)
	10:00	1.1	141(SE)
	11:00	2.5	126(SE)
	12:00	1.5	196(SSW)
	13:00	2.5	115(ESE)
	14:00	1.9	174(S)
	15:00	1.7	81(E)
	16:00	0.9	198(SSW)
	17:00	0.9	208(SSW)
	18:00	1.5	73(ENE)
	19:00	2.1	101(E)
	20:00	2.3	74(ENE)
	21:00	1.5	93(E)
	22:00	0.7	175(S)
	23:00	0.5	320(NW)

Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
23-Mar-24	00:00	1.7	95(E)
	01:00	1.1	41(NE)
	02:00	1.3	67(ENE)
	03:00	0.5	58(ENE)
	04:00	0.0	162(SSE)
	05:00	0.9	96(E)
	06:00	0.7	0(N)
	07:00	0.0	234(SW)
	08:00	1.7	116(ESE)
	09:00	2.7	192(SSW)
	10:00	1.7	84(E)
	11:00	1.3	49(NE)
	12:00	1.1	100(E)
	13:00	2.9	128(SE)
	14:00	1.1	298(WNW)
	15:00	5.1	179(S)
	16:00	2.9	241(WSW)
	17:00	1.5	256(WSW)
	18:00	0.7	162(SSE)
	19:00	1.9	92(E)
	20:00	0.9	182(S)
	21:00	0.0	149(SSE)
	22:00	1.3	179(S)
23:00	1.1	126(SE)	
24-Mar-24	00:00	0.5	286(WNW)
	01:00	1.3	228(SW)
	02:00	0.7	253(WSW)
	03:00	0.0	168(SSE)
	04:00	0.0	287(WNW)
	05:00	0.0	6(N)
	06:00	0.0	30(NNE)
	07:00	0.9	93(E)
	08:00	1.1	86(E)
	09:00	0.9	187(S)
	10:00	1.9	124(SE)
	11:00	1.5	181(S)
	12:00	2.5	235(SW)
	13:00	2.5	201(SSW)
	14:00	0.0	309(NW)
	15:00	2.9	187(S)
	16:00	2.7	253(WSW)
	17:00	2.3	184(S)
	18:00	1.9	101(E)
	19:00	0.7	90(E)
	20:00	1.3	275(W)
	21:00	0.0	162(SSE)
	22:00	0.9	82(E)
23:00	0.0	169(S)	

Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
25-Mar-24	00:00	1.3	57(ENE)
	01:00	1.7	41(NE)
	02:00	0.0	50(NE)
	03:00	0.0	179(S)
	04:00	0.0	321(NW)
	05:00	0.0	0(N)
	06:00	0.0	296(WNW)
	07:00	0.0	58(ENE)
	08:00	1.1	344(NNW)
	09:00	0.0	267(W)
	10:00	2.9	279(W)
	11:00	0.7	278(W)
	12:00	2.3	288(WNW)
	13:00	1.5	310(NW)
	14:00	1.7	187(S)
	15:00	2.5	310(NW)
	16:00	1.3	310(NW)
	17:00	1.7	289(WNW)
	18:00	1.1	325(NW)
	19:00	1.3	252(WSW)
	20:00	0.0	199(SSW)
	21:00	0.0	204(SSW)
	22:00	0.0	338(NNW)
23:00	0.0	180(S)	
26-Mar-24	00:00	0.9	262(W)
	01:00	1.3	262(W)
	02:00	0.0	294(WNW)
	03:00	0.0	86(E)
	04:00	0.0	268(W)
	05:00	0.0	268(W)
	06:00	0.0	243(WSW)
	07:00	0.9	296(WNW)
	08:00	0.0	141(SE)
	09:00	0.9	74(ENE)
	10:00	1.5	267(W)
	11:00	1.5	143(SE)
	12:00	1.7	85(E)
	13:00	0.0	238(WSW)
	14:00	1.7	314(NW)
	15:00	1.3	213(SSW)
	16:00	1.3	86(E)
	17:00	0.9	295(WNW)
	18:00	0.0	227(SW)
	19:00	0.7	141(SE)
	20:00	0.9	125(SE)
	21:00	0.7	226(SW)
	22:00	1.3	111(ESE)
23:00	2.3	106(ESE)	

Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
27-Mar-24	00:00	2.7	96(E)
	01:00	1.9	121(ESE)
	02:00	2.1	86(E)
	03:00	2.3	125(SE)
	04:00	2.7	136(SE)
	05:00	1.5	118(ESE)
	06:00	2.9	167(SSE)
	07:00	2.1	144(SE)
	08:00	2.5	136(SE)
	09:00	2.3	169(S)
	10:00	1.9	107(ESE)
	11:00	3.3	135(SE)
	12:00	1.1	102(ESE)
	13:00	3.3	138(SE)
	14:00	1.7	158(SSE)
	15:00	3.7	148(SSE)
	16:00	1.7	249(WSW)
	17:00	1.9	103(ESE)
	18:00	1.3	285(WNW)
	19:00	1.3	172(S)
	20:00	1.1	133(SE)
	21:00	1.3	144(SE)
	22:00	2.5	153(SSE)
23:00	1.1	113(ESE)	
28-Mar-24	00:00	1.3	101(E)
	01:00	3.3	96(E)
	02:00	1.3	54(NE)
	03:00	1.9	82(E)
	04:00	1.7	133(SE)
	05:00	0.0	106(ESE)
	06:00	0.0	89(E)
	07:00	0.9	139(SE)
	08:00	0.0	306(NW)
	09:00	0.0	116(ESE)
	10:00	0.5	294(WNW)
	11:00	1.5	311(NW)
	12:00	0.0	283(WNW)
	13:00	2.1	301(WNW)
	14:00	2.7	328(NNW)
	15:00	2.5	312(NW)
	16:00	1.7	298(WNW)
	17:00	2.5	324(NW)
	18:00	0.7	301(WNW)
	19:00	0.7	307(NW)
	20:00	0.0	297(WNW)
	21:00	0.0	311(NW)
	22:00	1.1	274(W)
23:00	0.0	284(WNW)	

Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
29-Mar-24	00:00	0.0	310(NW)
	01:00	0.0	348(NNW)
	02:00	0.0	267(W)
	03:00	0.0	307(NW)
	04:00	0.0	309(NW)
	05:00	0.0	306(NW)
	06:00	0.0	297(WNW)
	07:00	0.0	310(NW)
	08:00	0.0	302(WNW)
	09:00	0.0	324(NW)
	10:00	0.0	11(N)
	11:00	0.0	244(WSW)
	12:00	1.9	130(SE)
	13:00	0.9	334(NNW)
	14:00	2.5	330(NNW)
	15:00	1.1	303(WNW)
	16:00	3.7	316(NW)
	17:00	0.5	284(WNW)
	18:00	1.3	29(NNE)
	19:00	1.1	127(SE)
	20:00	0.0	143(SE)
	21:00	1.5	44(NE)
	22:00	0.0	166(SSE)
23:00	0.0	299(WNW)	
30-Mar-24	00:00	1.3	83(E)
	01:00	0.0	88(E)
	02:00	0.0	293(WNW)
	03:00	2.5	118(ESE)
	04:00	0.0	322(NW)
	05:00	0.0	91(E)
	06:00	0.0	137(SE)
	07:00	0.0	165(SSE)
	08:00	0.0	115(ESE)
	09:00	0.0	102(ESE)
	10:00	1.5	216(SW)
	11:00	0.0	259(W)
	12:00	2.3	259(W)
	13:00	1.7	281(W)
	14:00	2.1	265(W)
	15:00	1.5	197(SSW)
	16:00	0.0	281(W)
	17:00	1.3	277(W)
	18:00	4.1	257(WSW)
	19:00	0.7	308(NW)
	20:00	0.0	299(WNW)
	21:00	1.5	198(SSW)
	22:00	1.7	238(WSW)
23:00	0.0	283(WNW)	

Wind Speed and Wind Direction

Date	Time	Wind Speed (m/s)	Wind Direction (degree)
31-Mar-24	00:00	0.0	261(W)
	01:00	0.0	246(WSW)
	02:00	0.0	347(NNW)
	03:00	0.0	342(NNW)
	04:00	0.0	346(NNW)
	05:00	0.0	171(S)
	06:00	0.0	187(S)
	07:00	0.0	294(WNW)
	08:00	0.9	347(NNW)
	09:00	1.5	284(WNW)
	10:00	0.0	221(SW)
	11:00	0.0	338(NNW)
	12:00	0.0	182(S)
	13:00	1.1	259(W)
	14:00	0.7	294(WNW)
	15:00	0.5	226(SW)
	16:00	3.7	265(W)
	17:00	0.0	307(NW)
	18:00	1.5	314(NW)
	19:00	0.0	286(WNW)
	20:00	1.1	214(SW)
	21:00	0.0	242(WSW)
	22:00	0.0	223(SW)
	23:00	1.3	286(WNW)



Appendix 5.1

Monitoring Schedule for Reporting Month and Next Reporting Month



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

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

Remarks

- 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.
- Due to power supply failure, 24 hr TSP AQM at AM1a* scheduled on 8 Mar 2024 was suspended, and was resumed on 14 Mar 2024



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

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

Remarks

- 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.



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

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

Remarks

- 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

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)									
04/03/2024	11:30	Cloudy	0.0	55.1	57.2	51.0	63.4	55.1	75
15/03/2024	9:20	Fine	0.0	58.5	60.7	54.3	63.4	58.5	75
21/03/2024	9:40	Fine	0.0	57.4	61.3	51.8	63.4	57.4	75
27/03/2024	9:00	Fine	0.0	58.2	60.5	53.8	63.4	58.2	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)									
04/03/2024	9:40	Cloudy	0.0	58.5	60.6	55.2	58.0	48.9	75
15/03/2024	10:40	Fine	0.0	57.7	59.7	54.1	58.0	57.7	75
21/03/2024	14:30	Fine	0.0	61.3	61.6	56.1	58.0	58.6	75
27/03/2024	9:45	Fine	0.0	57.6	58.9	53.2	58.0	57.6	75

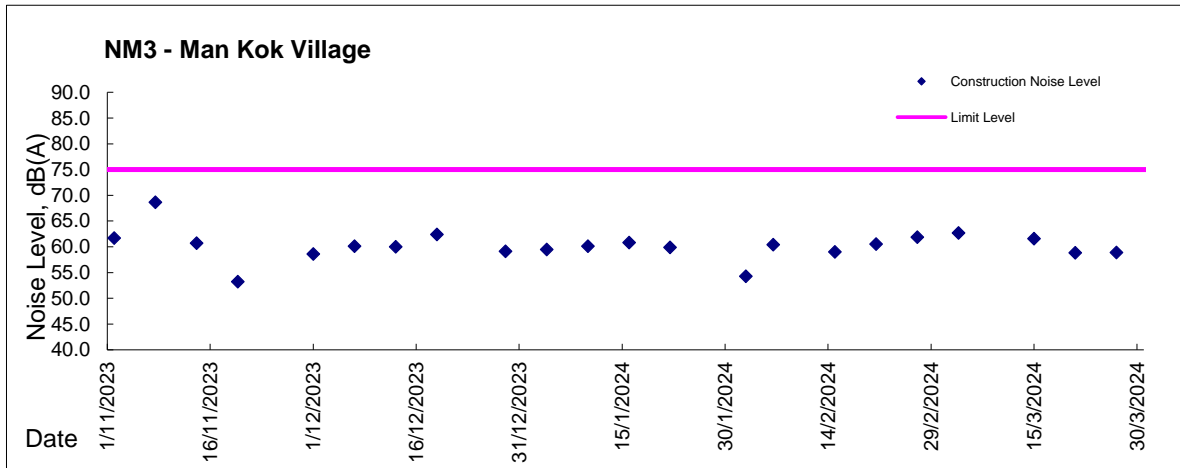
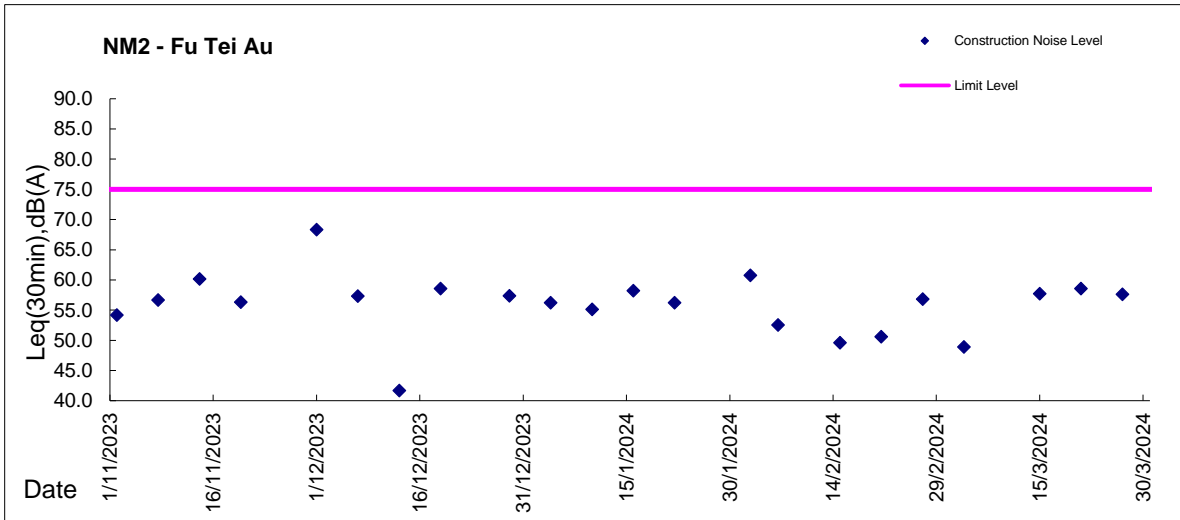
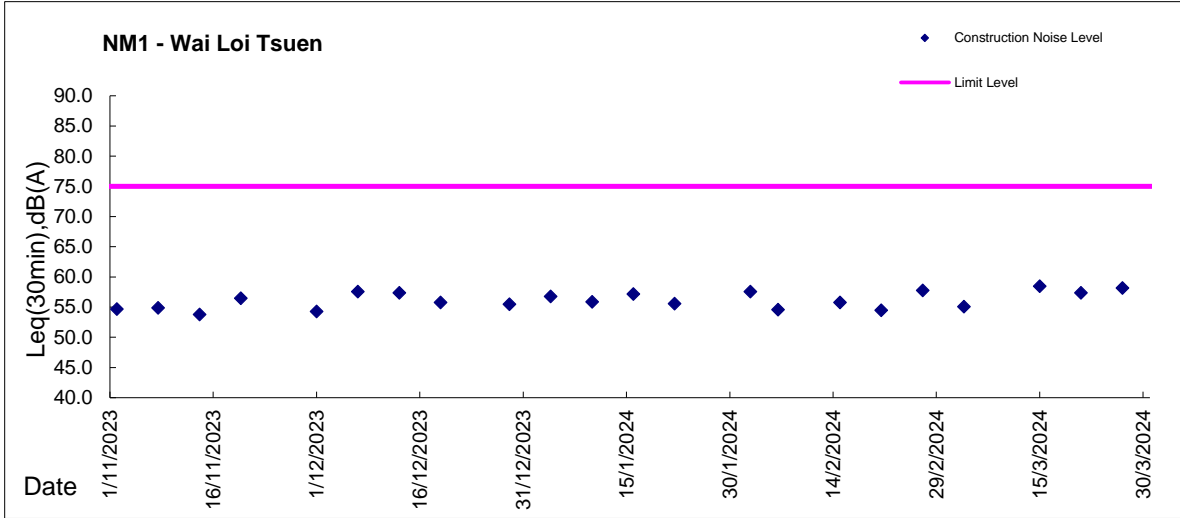
Location: NM3 - G/F, Man kok Village

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)									
04/03/2024	10:20	Cloudy	0.0	62.7	65.2	53.6	63.4	62.7	75
15/03/2024	10:00	Fine	0.0	61.6	64.0	53.2	63.4	61.6	75
21/03/2024	13:50	Fine	0.0	64.7	66.4	51.6	63.4	58.8	75
27/03/2024	17:15	Fine	0.0	58.9	61.6	51.6	63.4	58.9	75

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



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 ($\mu\text{g}/\text{m}^3$)	Model No.	Serial No.
4-Mar-24	Cloudy	9:17	95	Met One BT- 645	C15621
4-Mar-24	Cloudy	10:18	54		
4-Mar-24	Cloudy	11:18	31		
9-Mar-24	Cloudy	9:06	134		
9-Mar-24	Cloudy	10:06	106		
9-Mar-24	Cloudy	11:07	92		
15-Mar-24	Fine	7:44	114		
15-Mar-24	Fine	8:45	97		
15-Mar-24	Fine	9:46	92		
21-Mar-24	Fine	8:34	22		
21-Mar-24	Fine	9:35	24		
21-Mar-24	Fine	10:36	22		
27-Mar-24	Fine	13:07	57		
27-Mar-24	Fine	14:07	60		
27-Mar-24	Fine	15:08	60		



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 ($\mu\text{g}/\text{m}^3$)	Model No.	Serial No.
4-Mar-24	Cloudy	9:28	88	Met One BT- 645	C15625
4-Mar-24	Cloudy	10:29	41		
4-Mar-24	Cloudy	11:31	31		
9-Mar-24	Cloudy	9:16	124		
9-Mar-24	Cloudy	10:17	105		
9-Mar-24	Cloudy	11:18	86		
15-Mar-24	Fine	8:06	103		
15-Mar-24	Fine	9:07	88		
15-Mar-24	Fine	10:08	83		
21-Mar-24	Fine	8:45	22		
21-Mar-24	Fine	9:47	21		
21-Mar-24	Fine	10:48	20		
27-Mar-24	Fine	12:53	31		
27-Mar-24	Fine	13:54	31		
27-Mar-24	Fine	14:55	31		



Location: AM1a* - Site boundary of the Shek Wu Hui STW (East), Roof floor of the control room of SWHSTW
 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 ³ /min			Total Volume, m ³	TSP Level, ug/m ³	Model No.	Serial No.		
			Initial	Final	Initial	Final		Initial	Final	Initial, Qsi	Final, Qsf		Average								
02-Mar-24	8:00	Cloudy	1022.2	1017.3	12.0	16.1	AM1a 24hr_008025	2.6804	2.7879	18131.94	18155.94	24.00	1.35	1.34	1.34	1937	56	G3101	2036		
08-Mar-24	24hr-TSP monitoring was suspended due to power failure																				
14-Mar-24	8:00	Fine	1017.3	1017.2	19.8	20.2	AM1a 24hr_008027	2.67	2.8751	18155.94	18179.94	24.00	1.31	1.31	1.31	1889	109				
20-Mar-24	8:00	Fine	1022.4	1017.9	20.8	20.7	AM1a 24hr_008029	2.6465	2.7994	18179.94	18203.94	24.00	1.31	1.31	1.31	1890	81				
26-Mar-24	8:00	Fine	1017.0	1018.5	26.2	22.4	AM1a 24hr_008032	2.6582	2.7966	18203.94	18227.94	24.00	1.28	1.29	1.28	1848	75				
28-Mar-24	8:00	Fine	1013.9	1013.8	25.5	26.4	AM1a 24hr_008034	2.6618	2.806	18227.94	18251.94	24.00	1.28	1.28	1.28	1842	78				

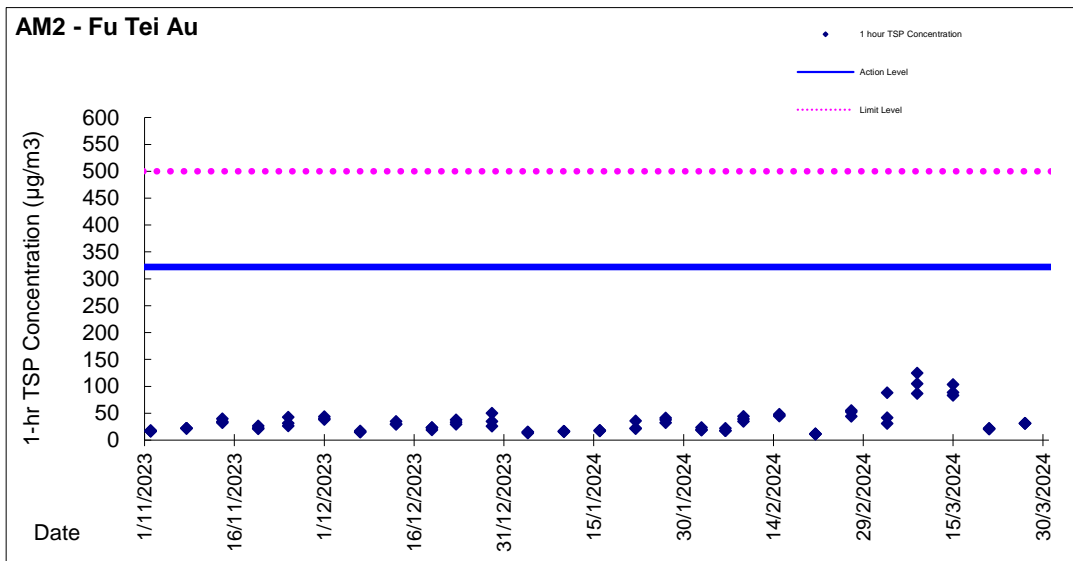
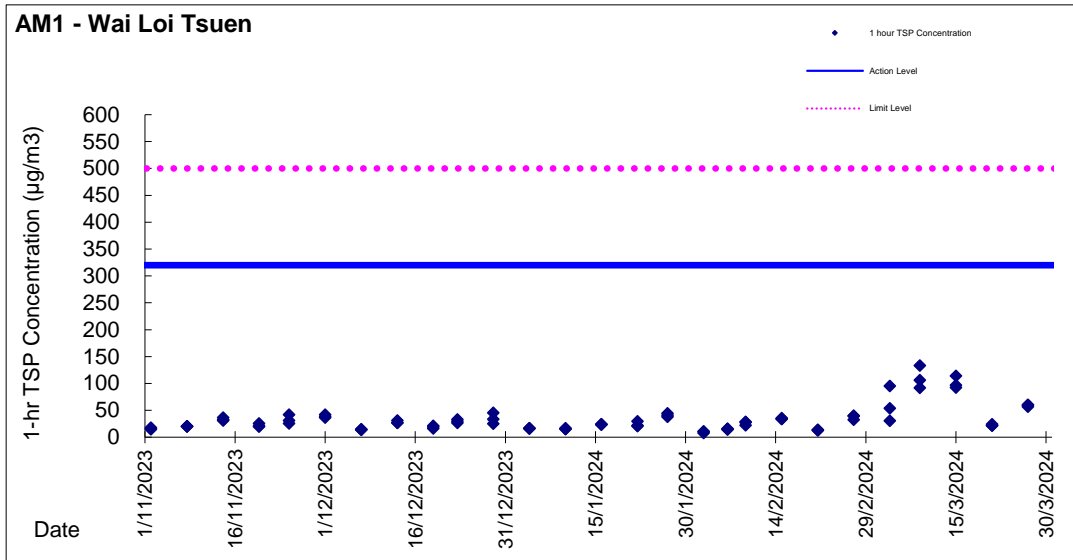


Location: AM2a - Site Boundary of the Shek Wu Hui STW (North)
 Impact Monitoring Result on 24-hour TSP monitoring

Date	Sampling Time	Weather Condition	Pressure, hPa		Temp., °C		Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m ³ /min			Total Volume, m ³	TSP Level, ug/m ³	Model No.	Serial No.
			Initial	Final	Initial	Final		Initial	Final	Initial, Qsi	Final, Qsf		Average						
02-Mar-24	8:00	Cloudy	1022.2	1017.3	12.0	16.1	AM2a_24hr_008026	2.6737	2.7715	11539.97	11563.97	24.00	1.53	1.52	1.53	2201	44	G3101	1807
08-Mar-24	8:00	Cloudy	1018.8	1019.4	18.8	16.6	AM2a_24hr_008028	2.6923	2.8269	11563.97	11587.97	24.00	1.50	1.50	1.50	2159	62		
14-Mar-24	8:00	Fine	1017.3	1017.2	19.8	20.2	AM2a_24hr_008030	2.6716	2.9008	11587.97	11611.97	24.00	1.50	1.49	1.49	2153	106		
20-Mar-24	8:00	Fine	1022.4	1017.9	20.8	20.7	AM2a_24hr_008031	2.6632	2.8220	11611.97	11635.97	24.00	1.50	1.49	1.50	2153	74		
26-Mar-24	8:00	Fine	1017.0	1018.5	26.2	22.4	AM2a_24hr_008033	2.6520	2.7830	11635.97	11659.97	24.00	1.49	1.49	1.49	2144	61		
28-Mar-24	8:00	Fine	1013.9	1013.8	25.5	26.4	AM2a_24hr_008035	2.6646	2.7864	11659.97	11683.97	24.00	1.49	1.48	1.48	2138	57		

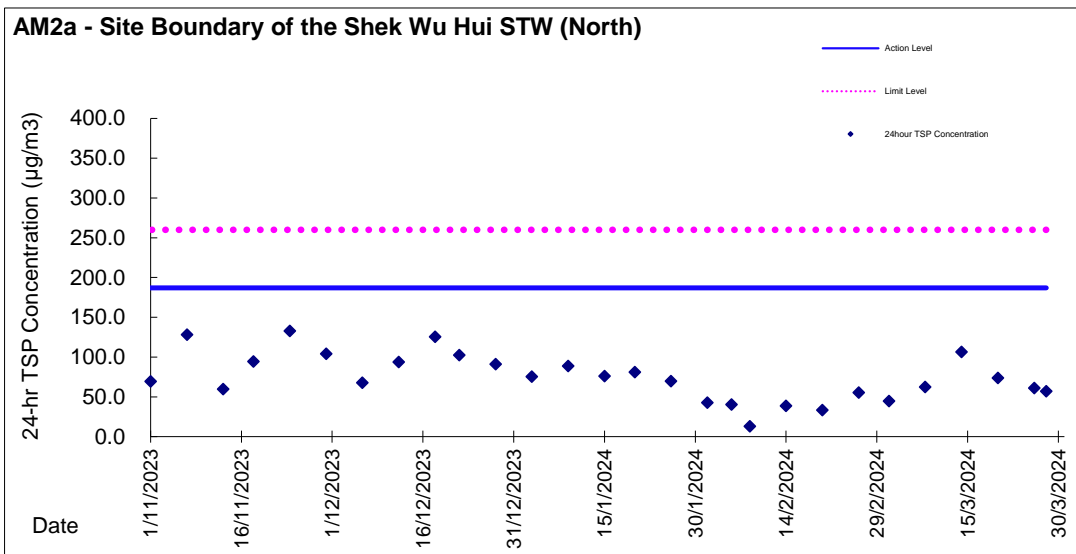
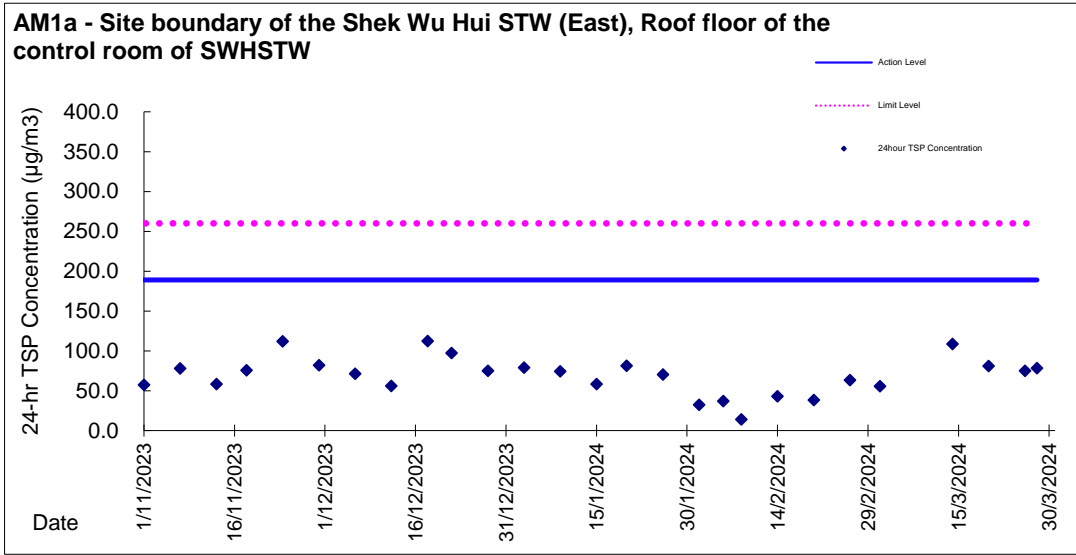


Graphic Presentation of TSP Result





Graphic Presentation of TSP Result





Appendix 5.4

Details of Ecological Monitoring Results in the Reporting Month

Summary data of the Ecological Monitoring

Scientific Names	Common Names	Chinese Names	Waterbird	Point Count Abundance	Transect Count Abundance
<i>Ardeola bacchus</i>	Chinese Pond Heron	池鷺	X	31	+++++
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	X	51	+++++
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	X	22	+++
<i>Ardea alba</i>	Great Egret	大白鷺	X	20	++
<i>Egretta garzetta</i>	Little Egret	小白鷺	X	62	+++++
<i>Phalacrocorax carbo</i>	Great Cormorant	普通鸕鶿	X	14	++
<i>Milvus migrans</i>	Black Kite	黑鳶	X	8	+
<i>Amauornis phoenicurus</i>	White-breasted Waterhen	白胸苦惡鳥	X	4	+
<i>Himantopus himantopus</i>	Black-winged Stilt	黑翅長腳鸕	X	11	++
<i>Tringa stagnatilis</i>	Marsh Sandpiper	澤鸕	X	2	+
<i>Actitis hypoleucos</i>	Common Sandpiper	磯鸕	X	19	+++
<i>Spilopelia chinensis</i>	Spotted Dove	珠頸斑鳩		43	+++++
<i>Eudynamis scolopaceus</i>	Asian Koel	噪鸕		37	+++++
<i>Halcyon smyrnensis</i>	White-throated Kingfisher	白胸翡翠	X	1	+
<i>Ceryle rudis</i>	Pied Kingfisher	斑魚狗	X	1	+
<i>Dicrurus macrocerus</i>	Black Drongo	黑卷尾		1	+

Scientific Names	Common Names	Chinese Names	Waterbird	Point Count Abundance	Transect Count Abundance
<i>Urocissa erythroryncha</i>	Red-billed Blue Magpie	紅嘴藍鵲		5	+
<i>Pica pica</i>	Eurasian Magpie	喜鵲		6	+
<i>Corvus torquatus</i>	Collared Crow	白頸鴉	X	4	+
<i>Corvus macrorhynchos</i>	Large-billed Crow	大嘴烏鴉		8	+
<i>Parus cinereus</i>	Cinereous Tit	蒼背山雀		2	+
<i>Pycnonotus jocosus</i>	Red-whiskered Bulbul	紅耳鶇		60	+++++
<i>Pycnonotus sinensis</i>	Chinese Bulbul	白頭鶇		30	++++
<i>Hirundo rustica</i>	Barn Swallow	家燕		30	+++
<i>Phylloscopus fuscatus</i>	Dusky Warbler	褐柳鶇		1	+
<i>Phylloscopus proregulus</i>	Pallas's Leaf Warbler	黃腰柳鶇		3	+
<i>Phylloscopus inornatus</i>	Yellow-browed Warbler	黃眉柳鶇		5	+
<i>Prinia flaviventris</i>	Yellow-bellied Prinia	黃腹鷓鴣		4	+
<i>Prinia inornata</i>	Plain Prinia	純色鷓鴣		3	+
<i>Orthotomus sutorius</i>	Common Tailorbird	長尾縫葉鶇		13	++
<i>Garrulax perspicillatus</i>	Masked Laughingthrush	黑臉噪鶇		39	+++++
<i>Zosterops japonicus</i>	Japanese White- eye	暗綠繡眼鳥		16	+

Scientific Names	Common Names	Chinese Names	Waterbird	Point Count Abundance	Transect Count Abundance
<i>Acridotheres crisatellus</i>	Crested Myna	八哥		293	+++++
<i>Gracupica nigricollis</i>	Black-collared Starling	黑領椋鳥		59	+++++
<i>Copsychus saularis</i>	Oriental Magpie Robin	鵲鴝		6	+
<i>Passer montanus</i>	Eurasian Tree Sparrow	樹麻雀		14	+++
<i>Motacilla alba</i>	White Wagtail	白鵲鴝		33	+++++

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	4/3/2024	11:30	H	113	247	24
		9:15	L	134		24
2	12/3/2024	13:15	H	108	256	22
		15:30	L	148		24
3	21/3/2024	10:15	H	107	212	19
		14:00	L	105		22
4	28/3/2024	13:30	H	118	246	21
		15:30	L	128		23

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	4/3/2024	12:15	H	44	83
		10:00	L	39	
2	12/3/2024	13:15	H	16	39
		15:30	L	23	
3	21/3/2024	10:15	H	25	47
		14:00	L	22	
4	28/3/2024	13:30	H	31	55
		15:30	L	24	

Remarks: H: High Tide; L: Low Tide

T-Test Analysis for All Waterbirds

Baseline Data

Monthly Average Abundance (March)	48.13
Seasonal Average Abundance (Winter 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:

H₀: The data collected in the reporting month falls within the normal distribution when compared to the baseline monitoring data;

H₁: 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 H₀.

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)

T-values of Data in Reporting Month			Confidence Level (Critical Value)	
			95% (-2.353)	99% (-4.541)
Abundance	Monthly	0.524	✓	✓
	Seasonal	-0.409	✓	✓

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 d

Abundance of Representative Waterbirds from Point Count										
Representative Species			Recorded Abundance					Average	Baseline Data	
Species Name	Common Name	Chinese Name	Week 1	Week2	Week 3	Week 4	Total		Avg (Mar)	Avg (winter)
<i>Egretta garzetta</i>	Little Egret	小白鷺	15	15	20	12	62	16	19	15
<i>Ardea cinerea</i>	Grey Heron	蒼鷺	8	3	6	5	22	6	3	13
<i>Ardeola bacchus</i>	Chinese Pond Heron	池鷺	12	8	5	6	31	8	9	9
<i>Phalacrocorax carbo</i>	Great Cormorant	普通鸕鶿	11	3	0	0	14	4	3	7
<i>Ardea alba</i>	Great Egret	大白鷺	5	6	2	7	20	5	4	5
<i>Bubulcus coromandus</i>	Eastern Cattle Egret	牛背鷺	23	2	6	20	51	13	9	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:

H₀: The data collected in the reporting month falls within the normal distribution when compared to the baseline monitoring data;

H₁: 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 H₀.

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	-0.933	✓	✓	0.133	✓	✓	✓
Grey Heron	1.640	✓	✓	-4.919	X	X	✓
Chinese Pond Heron	-0.571	✓	✓	-0.571	✓	✓	✓
Great Cormorant	0.210	✓	✓	-1.469	✓	✓	✓
Great Egret	0.686	✓	✓	0.000	✓	✓	✓
Eastern Cattle Egret	0.708	✓	✓	1.652	✓	✓	✓

Remarks:

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

X = 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 5.5
Photo Record of Ecological
Monitoring***

Conditions of Rivers



Sheung Yue River – Survey Point 7 (Taken on 28 Mar 2024)



Shek Sheung River – Survey Point 6 (Taken on 28 Mar 2024)



Shek Sheung River - Survey Point 5 (Taken on 4 Mar 2024)



Ng Tung River - Survey Point 4 (Taken on 12 Mar 2024)

Human Activities & Site Conditions



Construction Activities (Ng Tung River)
(Project-related, taken on 4 Mar 2024)



Construction Activities (Shek Sheung River)
(Project-related, taken on 12 Mar 2024)



Construction Activities (Sheung Yue River)
(Non-project-related, taken on 21 Mar 2024)



Construction Activities (Ng Tung River)
(Non-Project-related, taken on 28 Mar 2024)



Human Activities (Sheung Yue River)
(Non-project-related, taken on 21 Mar 2024)



Human Activities (Ng Tung River)
(Non-project-related, taken on 12 Mar 2024)



Human Activities (Sheung Yue River)
(Non-project-related, taken on 12 Mar 2024)



Construction Activities (Ng Tung River)
(Non-Project-related, taken on 21 Mar 2023)



Construction Activities (Sheung Yue River)
(Non-project-related, taken on 4 Mar 2024)



Construction Activities (Sheung Yue River)
(Non-project-related, taken on 28 Mar 2024)

Waterbird Species



Grey Heron



Collared Crow



Eastern Cattle Egret



Great Egret



Black-winged Stilt



Waterbird in Shek Sheung River



Appendix 5.9

Monthly Summary Waste Flow Table

Monthly Summary Waste Flow Table for 2024

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	0.089	0.000	0.000	0.000	0.089	0.072	0.000	0.000	0.000	0.000	0.011
Feb	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030
Mar	0.144	0.000	0.000	0.000	0.144	0.012	0.000	0.000	0.000	0.000	0.021
Apr											
May											
Jun											
Sub-total	0.233	0.000	0.000	0.000	0.233	0.084	0.000	0.000	0.000	0.000	0.062
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	0.233	0.000	0.000	0.000	0.233	0.084	0.000	0.000	0.000	0.000	0.062

- Notes:
1. Assume the density of soil fill is 2 ton/m3.
 2. Assume the density of rock and broken concrete is 2.5 ton/m3.
 3. Assume the density of general refuse is 0.9 ton/m3.
 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 non-inert C&D wastes are disposed at NENT.
 7. The quantities of C&D material disposed at Public Fill Facilities and Landfill was until 19/10/2023.

Monthly Summary Waste Flow Table for 2024

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan	0.489	0.000	0.000	0.000	0.489	0.012	0.00	0.000	0.000	0.000	0.122
Feb	0.425	0.000	0.000	0.000	0.425	0.120	0.00	0.000	0.000	0.000	0.141
Mar	1.793	0.000	0.000	0.000	1.793	0.731	0.00	0.000	0.000	0.000	0.165
Apr	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
May	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
Jun	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
Sub-total	2.707	0.000	0.000	0.000	2.707	0.863	0.000	0.000	0.000	0.000	0.428
Jul	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
Aug	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
Sep	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
Oct	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
Nov	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
Dec	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000
Total	2.707	0.000	0.000	0.000	2.707	0.863	0.000	0.000	0.000	0.000	0.428

- Notes:
1. Assume the density of soil fill and special waste (i.e. sediment from DSD sedimentation tank) is 2 ton/m³.
 2. Assume the density of rock and broken concrete is 2.5 ton/m³
 3. Assume the density of general refuse is 0.9 ton/m³
 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 **2024** (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan	0	0	0	0	0	0	0	0	0	0	41.05T
Feb	0	0	0	0	0	0	0	0	0	0	21.68T
Mar	0	0	0	0	0	0	0	0	0	0	16.04T
Apr											
May											
June											
Sub-total	0	0	0	0	0	0	0	0	0	0	78.77T
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total	0	0	0	0	0	0	0	0	0	0	78.77T



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

Event and Action Plan for Construction Dust Monitoring

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



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

Event and Action Plan for Ecological Monitoring

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

Event and Action Plan for Landscape and Visual

Event	Action			
	ET	IEC	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Inform the Contractor, IEC and ER; 2. Discuss remedial actions with IEC, ER and Contractor 3. Monitor remedial actions until rectification has been completed. 	<ol style="list-style-type: none"> 1. Check inspection report; 2. Check Contractor's working method; 3. Discuss with ET, ER and Contractor on possible remedial measures; 4. Advise ER on effectiveness of proposed remedial measures.. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify source and investigate the non-conformity; 2. Implement remedial measures; 3. Amend working methods agreed with ER as appropriate; 4. Rectify damage and undertake any necessary replacement.
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC, ER, EPD; 3. Discuss inspection frequency; 4. Discuss remedial actions with IEC, ER and Contractor; 5. Monitor remedial actions until rectification has been completed; 6. If non-conformity stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check inspection report; 2. Check Contractor's working method; 3. Discuss with ET, ER and Contractor on possible remedial measures; 4. Advise ER on effectiveness of proposed remedial measures. 	<ol style="list-style-type: none"> 1. Notify the Contractor; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify source and investigate the non-conformity; 2. Implement remedial measures; 3. Amend working methods agreed with ER as appropriate; 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by ER until the non-conformity is abated.



Appendix 6.2

Summary of Notification of Exceedance



Appendix 8.1

Complaint Log



Summary of 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">- Employed suction truck and dump truck to clear the silt and mud at Shek Sheung River- Arranged to repair the wastewater treatment system- Installed additional sedimentation tanks and wastewater treatment system to increase the on-site treatment capacity- Clean the slurry sediment released from the outlet regularly by suction trucks- Avoid damage of underground drains and pipes caused by existing construction works- Avoid illegal discharge from the Site into foul drains and manholes	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">- Ensured only PMEs with valid NRMM label were used on-site- Conducted regular visual checking against emission quality of exhaust pipe of equipment by using the Ringlemann Chart- Used ULSD for diesel-powered equipment- Provided water spraying and water sprinklers system for haul road access and demolition works- Used battery powered solution to provide power to the tower crane- Provided cover for all rubbish bins on-site- Separated general refuse from construction waste	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">- Ensured only PMEs with valid NRMM label were used on-site- Conducted regular visual checking against emission quality of exhaust pipe of equipment by using the Ringlemann Chart- Used ULSD for diesel-powered equipment- Used battery powered solution to provide power to the tower crane- Carried out plant maintenance in a timely manner	Closed
20220304	4 March 2022	EPD	SWHEPP	Odour nuisance	<p>The complainant alleged the odour nuisance was sourced from the construction site of Shek Wu Hui Effluent Polishing Plant on 4 March 2022. Thus, all four contracts (Contract Nos. DC/2018/06, DC/2018/07, DE/2018/03 and DE/2018/04) were involved in the complaint investigation.</p> <p>After investigation, no construction activities undertaken by all four contracts was associated with the odour nuisance received on 4 March 2022. Nevertheless, the contractors were reminded and recommended to:</p> <ul style="list-style-type: none">• Ensure only equipment with valid NRMM label is allowed to be used at site and regular maintenance of equipment• Provide regular visual checking against emission quality of exhaust pipe of equipment by using the Ringlemann Chart• Use ULSD as fuel for diesel-powered equipment• Maintain proper segregation and storage of general refuse	Closed



Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
231214	14 December 2023	EPD	BR2 of SWHEPP; SWHSTW Administration Building	Air Pollution & Water Pollution	<p>EPD received a complaint on 19 December 2023, mentioned that dust netting was not provided to a building known as BR2 under the construction by Contract DC/2018/07; also polluting effluent was being discharged by a construction site near the SWHSTW Administration Building.</p> <p>Upon the receipt of the complaint, BR2 has just finishing forming the first layer of building structure and dust netting is about to be provided, major works included formwork erection and removal. No significant air quality impact has been made by the works as no action nor limit level exceedance of air quality monitoring was recorded at AM1 and AM1a* which are the closest impact air quality monitoring stations to BR2.</p> <p>For the illegal discharge issue, ET did not observed the discharge of wastewater at the concerned location after the receipt of the complaint. Works carried out and water quality mitigation measures implemented by each Contractor were also investigated, no non-compliance was observed. Yet one observation related to water quality has been made during the weekly environmental site inspection on 14 December 2023 to Contact DC/2018/07 and Contactor of DC/2018/07 has immediately rectified the situation.</p> <p>After the receipt of the complaint, Contractor of DC/2018/07 has taken the following actions:</p> <ul style="list-style-type: none">• Provision of effective dust screening or netting to enclose the scaffolding of building under construction• All wastewater generated on site should be properly treated before discharge <p>ET also reminded all Contractors to implement the following measures:</p> <ul style="list-style-type: none">• Regular maintenance of sedimentation tanks and Wetsep to ensure their effectiveness for treating wastewater generated on site• Provision of sandbags, bunds or other effective	Closed



Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					<p>measures to U-channels, manholes and gully to prevent direct discharge of site runoff</p> <ul style="list-style-type: none">• Provide water spraying on haul road to suppress dust emission, frequency of water spraying should also be reviewed to keep the road surface wet at all time.	

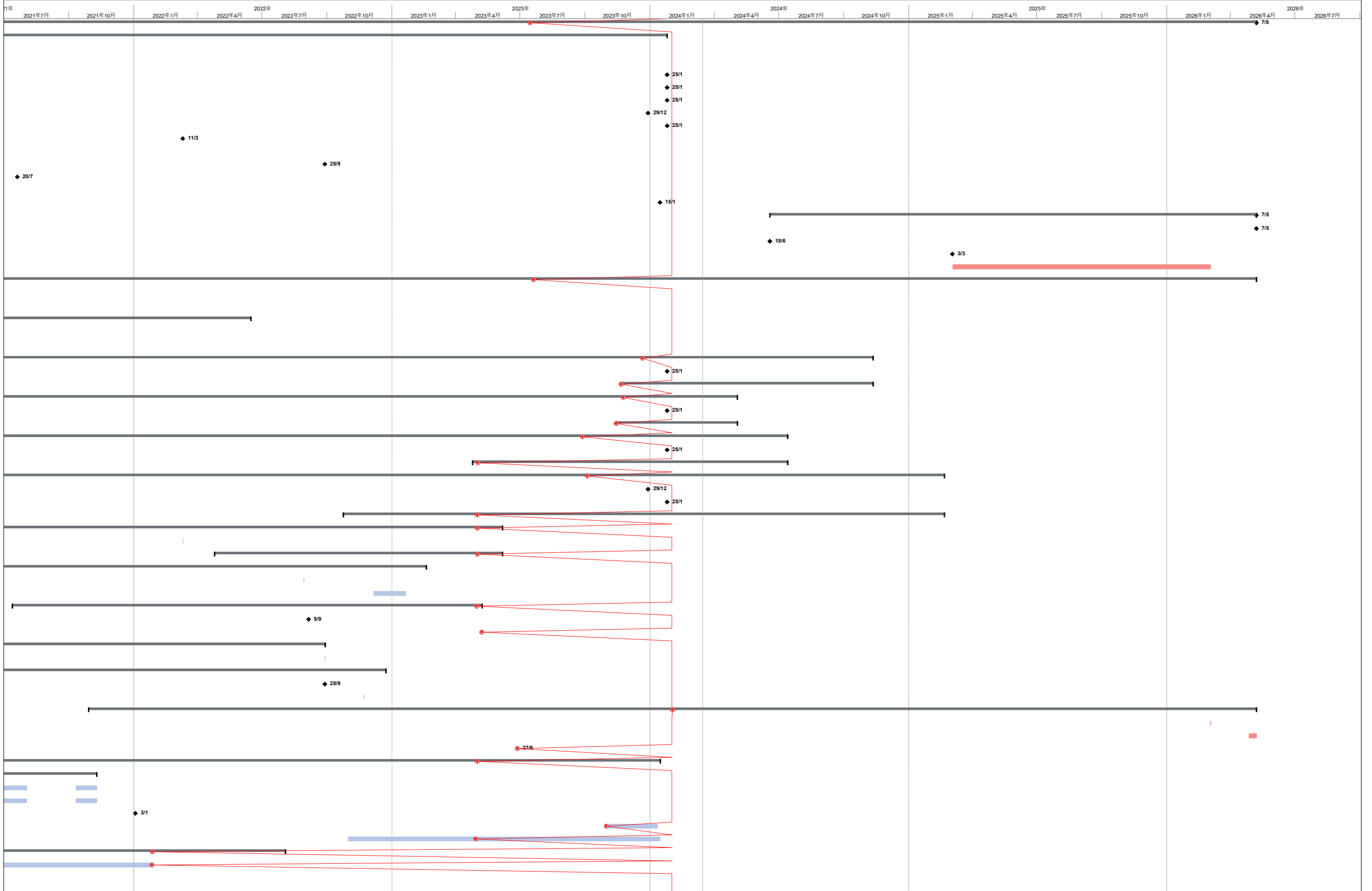


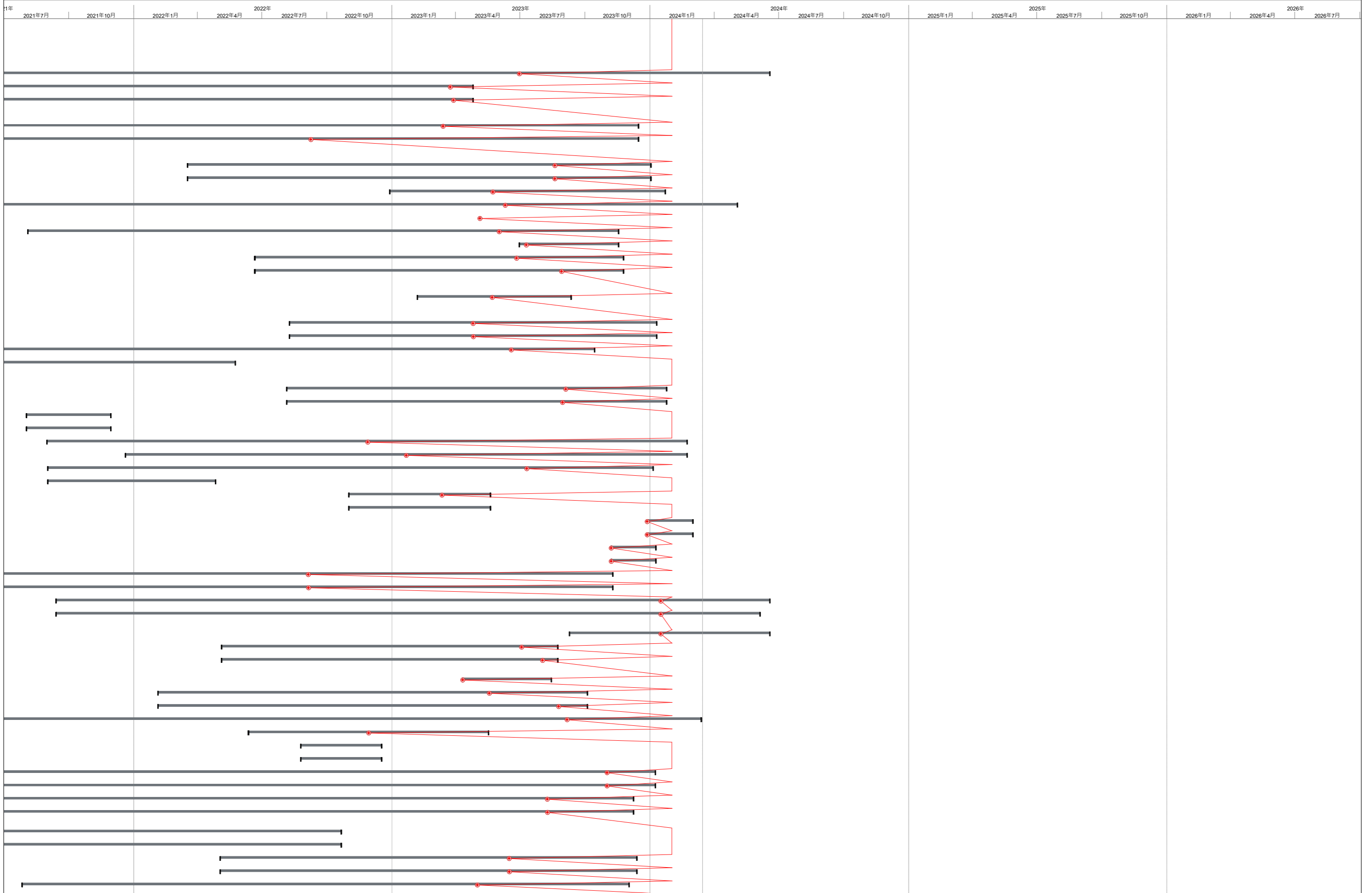
Appendix 9.1

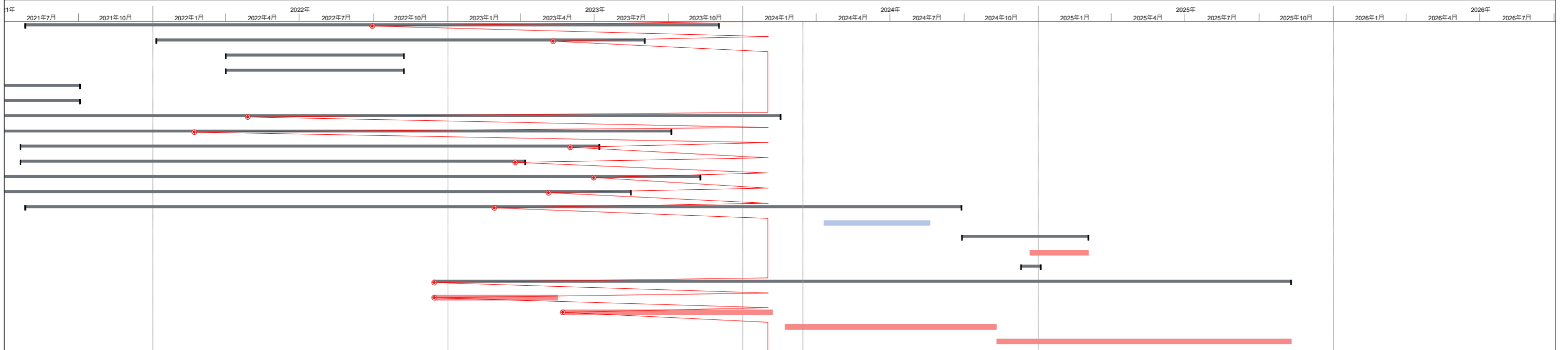
Construction Programme of Individual Contracts

識別碼	Activity ID	Key Date	NCE/(EWPMI)/(CE)	Task Name	工期	開始時間	完成時間	實際開始時間	實際完成時間	前置任務	後續任務	總寬限時間	Risk Allowance	完成百分比	9年											
															2019年7月	2019年10月	2020年1月	2020年4月	2020年7月	2020年10月	2021年1月	2021年4月	2021年7月	2021年10月	2022年1月	2022年4月
40	PD-1000			Planned Completion	2292 days	2020年1月28日 星期二	2026年5月7日 星期四	年1月28日 星期二-2020	NA			-65 days		49%												
41	PCD-1000			Planned Completion - Key Dates (cal. day)	1211 days	2020年9月30日 星期三	2024年1月25日 星期四	年9月30日 星期三-2020	年1月25日 星期四-2024			0 days		100%												
42	PKD-1010	KD1A		KD1A completion of AR3 in Portion B-1	0 days	2020年9月30日 星期三	2020年9月30日 星期三	年9月30日 星期三-2020	年9月30日 星期三-2020 290FF		21FF, 56FF	0 days		100%												
43	PCD-1020	KD1B		KD1B completion of utilities diversion for commencement of Inlet Works No. 1 in Portion B-2	0 days	2021年1月22日 星期五	2021年1月22日 星期五	年1月22日 星期五-2021	年1月22日 星期五-2021 373FF, 355FF		22FF, 56FF, 2227	0 days		100%												
44	PCD-1030	KD1C		KD1C completion of civil and structural works of Inlet Works No.1 in Portion B-2	0 days	2024年1月25日 星期四	2024年1月25日 星期四	年1月25日 星期四-2024	年1月25日 星期四-2024 480FF, 1104FF, 1120FF		23FF, 56FF	0 days		100%												
45	PCD-1040	KD1D		KD1D completion of civil and structural works of Primary Sedimentation Tanks in Portion B-3	0 days	2024年1月25日 星期四	2024年1月25日 星期四	年1月25日 星期四-2024	年1月25日 星期四-2024 591FF		24FF, 56FF	0 days		100%												
46	PCD-1050	KD1E		KD1E completion of civil and structural works of Bioreactor in Portion B-4	0 days	2024年1月25日 星期四	2024年1月25日 星期四	年1月25日 星期四-2024	年1月25日 星期四-2024 698FF		25FF, 56FF	0 days		100%												
47	PCD-1060	KD1F		KD1F completion of civil and structural works of MFB from B2 floor to 1st floor level in Portion B-5	0 days	2023年12月29日 星期五	2023年12月29日 星期五	年12月29日 星期五-2023	年12月29日 星期五-2023 881FF		26FF, 56FF	0 days		100%												
48	PCD-1070	KD1G		KD1G completion of civil and structural works of MFB in Portion B-5	0 days	2024年1月25日 星期四	2024年1月25日 星期四	年1月25日 星期四-2024	年1月25日 星期四-2024 882FF		27FF, 56FF	0 days		100%												
49	PCD-1080	KD1H		KD1H completion of civil and structural works of SAS Pumping Station in Portion B-6	0 days	2022年3月11日 星期五	2022年3月11日 星期五	年3月11日 星期五-2022	年3月11日 星期五-2022 928FF, 925FF		28FF, 56FF	0 days		100%												
50	PCD-1090	KD1I		KD1I completion alternation works for existing Power House in Portion B-7A	0 days	2021年1月29日 星期五	2021年1月29日 星期五	年1月29日 星期五-2021	年1月29日 星期五-2021 1129FF		29FF, 56FF	0 days		100%												
51	PCD-1100	KD1J		KD1J completion of auxiliary facilities in Portion B-7	0 days	2022年9月28日 星期三	2022年9月28日 星期三	年9月28日 星期三-2022	年9月28日 星期三-2022 1062FF, 1086FF, 1069FF		30FF, 56FF	0 days		100%												
52	PCD-1110	KD2A		KD2A completion of effluent pipes to UV system and connection to its downstream in Portion B-9	0 days	2021年7月20日 星期二	2021年7月20日 星期二	年7月20日 星期二-2021	年7月20日 星期二-2021 1135FF, 1133FF		31FF, 57FF	0 days		100%												
53	PCD-1120	KD2B		KD2B completion of air supply main alternation to existing air blower house No.2 in Portion B-8A	0 days	2021年3月26日 星期五	2021年3月26日 星期五	年3月26日 星期五-2021	年3月26日 星期五-2021 1122FF, 1126FF, 1127FF		32FF, 57FF	0 days		100%												
54	PCD-1130	KD3A		KD3A completion of all utilities and road works in Portion B-9A	0 days	2024年1月15日 星期一	2024年1月15日 星期一	年1月15日 星期一-2024	年1月15日 星期一-2024 1131FF, 1130FF		33FF	0 days		100%												
55	PCD-1000			Planned Completion Date (cal. Day)	688 days	2024年6月18日 星期二	2026年5月7日 星期四	NA	NA			-57 days		0%												
56	PCD-1010	SW1		Section 1 of the Works	0 days	2026年5月7日 星期四	2026年5月7日 星期四	NA	NA	1120FF, 931FF, 1048FF, 35FF		-659 days		0%												
57	PCD-1020	SW2		Section 2 of the Works	0 days	2024年6月18日 星期二	2024年6月18日 星期二	NA	NA	693FF, 694FF, 695FF, 6936FF		-557 days		0%												
58	PCD-1030	SW3		Section 3 of the Works	0 days	2025年3月3日 星期一	2025年3月3日 星期一	NA	NA	2255FF, 2256FF, 1131FF, 37FF, 59		-114 days		0%												
59	PCD-1040	DLP		Defects Liability Period	365 days	2025年3月4日 星期二	2026年3月3日 星期二	NA	NA	58	38FF	-114 days		0%												
275	C-1000			Construction Works (Working day)	2363 days	2019年11月18日 星期一	2026年5月7日 星期四	年11月18日 星期一-2019	NA			-65 days		70%												
281	CAR-0000			Access Road (AR3), B-1	238 days	2019年12月12日 星期四	2020年9月30日 星期三	年12月12日 星期四-2019	年9月30日 星期三-2020 4, 230		1222SS	0 days		100%												
290	CAR-3000	KD1A		Roadworks	133 days	2020年4月24日 星期五	2020年9月30日 星期三	年4月24日 星期五-2020	年9月30日 星期三-2020 200, 289, 288		42FF	0 days		100%												
291	CIW-0000			Inlet Works No.1, B-2	754 days	2019年11月26日 星期二	2022年6月15日 星期三	年11月26日 星期二-2019	年6月15日 星期三-2022			0 days		100%												
332	CIW-1510	KD1B		Division of Tank Drain MHD9.5 (approx. 70m CHES1 & CHES2)	405 days	2019年11月26日 星期二	2021年4月10日 星期六	年11月26日 星期二-2019	年4月10日 星期六-2021 360		393	0 days		100%												
391	CIW-2500	KD1B		Conditions to be met for KD1B	0 days	2021年1月22日 星期五	2021年1月22日 星期五	年1月22日 星期五-2021	年1月22日 星期五-2021 389		390	0 days		100%												
392	CIW-3000			Inlet Works No.1 Building (1)	1232 days	2020年9月15日 星期二	2024年11月11日 星期一	年9月15日 星期二-2020	NA 6			407 days		68%												
480	CIW-3700	KD1C		Allow access to Contractor DE/2018/04 for E&M installation and T&C works	0 days	2024年1月25日 星期四	2024年1月25日 星期四	年1月25日 星期四-2024	年1月25日 星期四-2024 445, 462, 476, 446		44FF	0 days		100%												
494	CIW-4000	SW1		ABWF Works	289 days	2023年11月21日 星期二	2024年11月11日 星期一	年11月21日 星期二-2023	NA 265, 215		56FF	-30 days		0%												
502	CPS-0000			Primary Sedimentation Tanks, B-3 (2)	1319 days	2019年11月18日 星期一	2024年5月3日 星期五	年11月18日 星期一-2019	NA 8			565 days		81%												
591	CPS-9000	KD1D		Allow access to Contractor DE/2018/04 for E&M installation and T&C works	0 days	2024年1月25日 星期四	2024年1月25日 星期四	年1月25日 星期四-2024	年1月25日 星期四-2024 536FS+27 days		45FF	0 days		100%												
596	CPS-10000	SW1		ABWF works + BS works	137 days	2023年11月14日 星期二	2024年5月3日 星期五	年11月14日 星期二-2023	NA 265, 215		56FF	61 days		0%												
604	CBR-0000			Bioreactors No.2A & 2B, B-4 (3)	1125 days	2020年9月23日 星期三	2024年7月13日 星期六	年9月23日 星期三-2020	NA 9			507 days		69%												
698	CBR-18000	KD1E		Allow access to Contractor DE/2018/04 for E&M installation and T&C works	0 days	2024年1月25日 星期四	2024年1月25日 星期四	年1月25日 星期四-2024	年1月25日 星期四-2024 667FS+45 days		46FF	0 days		100%												
702	CBR-21000	SW1		ABWF Works + BS Works	362 days	2023年4月25日 星期二	2024年7月13日 星期六	年4月25日 星期二-2023	NA 265, 215		56FF	3 days		1%												
708	CMF-0000			Membrane Facilities Building No.2, B-5 (4)	1523 days	2020年1月6日 星期一	2026年2月20日 星期四	年1月6日 星期一-2020	NA 2			322 days		69%												
881	CMF-8000	KD1F		Allow access to Contractor DE/2018/04 for E&M installation and T&C works (from B1 to 1/F)	0 days	2023年12月29日 星期五	2023年12月29日 星期五	年12月29日 星期五-2023	年12月29日 星期五-2023 859, 831, 851		47FF	0 days		100%												
882	CMF-8100	KD1G		Allow access to Contractor DE/2018/04 for E&M installation and T&C works (from 1/F to Roof)	0 days	2024年1月25日 星期四	2024年1月25日 星期四	年1月25日 星期四-2024	年1月25日 星期四-2024 789FS+18 days		48FF	0 days		100%												
883	CMF-9000	SW1		ABWF works + BS works	694 days	2022年10月24日 星期一	2026年2月20日 星期四	年10月24日 星期一-2022	NA 265, 215		56FF	-182 days		2%												
901	CSA-0000			SAS Pumping Station, B-6 (12)	934 days	2020年4月9日 星期四	2023年6月6日 星期二	年4月9日 星期四-2020	NA 11			330 days		98%												
928	CSA-8000	KD1H		Allow access to Contractor DE/2018/03 for E&M installation and T&C works	1 day	2022年3月11日 星期五	2022年3月11日 星期五	年3月11日 星期五-2022	年3月11日 星期五-2022 927		49FF, 929SS-1 day	0 days		100%												
931	CSA-9000	SW1		ABWF works + BS works	331 days	2022年4月25日 星期一	2023年6月6日 星期二	年4月25日 星期一-2022	NA 930		56FF	330 days		93%												
943	CFS-1000		301	Fire Services Sprinkler Pumping Room & Emergency Generator House (9)*10)**	534 days	2021年5月4日 星期二	2023年2月18日 星期六	年5月4日 星期二-2021	年2月18日 星期六-2023			0 days		100%												
986	CFS-5000	KD1J		Allow access to Contractor DE/2018/04 for E&M installation and T&C works	1 day	2022年8月29日 星期一	2022年8月29日 星期一	年8月29日 星期一-2022	年8月29日 星期一-2022 961		51FF, 987SS-1 day	0 days		100%												
1000	CFS-6100	SW1		Inspection and Handover	37 days	2022年12月6日 星期一	2023年1月20日 星期五	年12月6日 星期一-2022	年1月20日 星期五-2023 998, 999		56FF	0 days		100%												
1001	CCS-1000		295, 297	Chemical System No.1 (8)*	539 days	2021年7月13日 星期二	2023年5月8日 星期一	年7月13日 星期二-2021	NA			354 days		99%												
1036	CCS-1900	KD1J		Allow access to Contractor DE/2018/04 for E&M installation and T&C works	0 days	2022年9月5日 星期一	2022年9月5日 星期一	年9月5日 星期一-2022	年9月5日 星期一-2022 1038		51FF, 1043, 1042	0 days		100%												
1048	CCS-2050	SW1		Inspection and Handover	1 day	2023年5月8日 星期一	2023年5月8日 星期一	NA	NA	1047	56FF	354 days		0%												
1049	CDS-0000			Deodorization System No.3A (7)*	387 days	2021年6月11日 星期五	2022年9月28日 星期三	年6月11日 星期五-2021	年9月28日 星期三-2022			0 days		100%												
1062	CDS-7000	KD1J		Allow access to Contractor DE/2018/04 for E&M installation and T&C works	1 day	2022年9月28日 星期三	2022年9月28日 星期三	年9月28日 星期三-2022	年9月28日 星期三-2022 1061		51FF, 1066	0 days		100%												
1063	CTC-0000			Temporary Chemical Dosing System (5)	466 days	2021年6月3日 星期四	2022年12月23日 星期五	年6月3日 星期四-2021	年12月23日 星期五-2022			0 days														

識別碼	Activity ID	Key Date	NCE/(EW/PMI)/(CE)	Task Name	工期	開始時間	完成時間	實際開始時間	實際完成時間	前置任務	後續任務	總寬限期	Risk Allowance	完成百分比	2020年											
															2019年7月	2019年10月	2020年1月	2020年4月	2020年7月	2020年10月	2021年1月	2021年4月	2021年7月	2021年10月	2022年1月	2022年4月
1878	CS2-25100a	SW2		Workfront G6a: Process Pipe CHN, CHPSW-1, CHSS1, CHSS2	700 days	2021年7月27日星期二	2023年12月2日星期六	年7月27日星期二2021		NA 1900	1940	-349 days		5%												
1889	CS2-25100b	SW2		Workfront G6b: Process Pipe CHN, CHPSW-1, CHSS1, CHSS2	491 days	2022年1月6日星期三	2023年9月1日星期五	年1月6日星期三2022		NA 1784SS+36 days		-105 days		38%												
1904	CS2-26000	SW2		Sewerage and utilities in Workfront H1	178 days	2022年4月1日星期五	2022年11月7日星期一	年4月1日星期五2022	年11月7日星期一2022			0 days		100%												
1905	CS2-26100	SW2		Process Pipe CHSS1, CHSS2 CH181-254	178 days	2022年4月1日星期五	2022年11月7日星期一	年4月1日星期五2022	年11月7日星期一2022	1850SS+21 days		0 days		100%												
1916	CS2-27000	SW2		Sewerage and utilities in Workfront I1	370 days	2020年7月8日星期三	2021年10月2日星期六	年7月8日星期三2020	年10月2日星期六2021			0 days		100%												
1917	CS2-27100	SW2		Process Pipe CHS CH0-72, CHR CH 57-132	370 days	2020年7月8日星期三	2021年10月2日星期六	年7月8日星期三2020	年10月2日星期六2021			0 days		100%												
1928	CS2-28000	SW2		Sewerage and utilities in Workfront I2	1072 days	2020年7月8日星期三	2024年2月16日星期五	年7月8日星期三2020		NA		-349 days		40%												
1929	CS2-28100	SW2		Process Pipe CHR CH0-26	963 days	2020年7月8日星期三	2023年10月4日星期三	年7月8日星期三2020		NA		-240 days		55%												
1945	CS2-29000	SW2		Sewerage and utilities in Workfront I3	581 days	2021年7月21日星期三	2023年7月7日星期五	年7月21日星期三2021		NA	2215	0 days		97%												
1946	CS2-29100	SW2	294,286,2	Construction of manhole MHFB51A, MHFB51, MHFB52, PSW3	509 days	2021年7月21日星期三	2023年4月6日星期四	年7月21日星期三2021		NA		0 days		97%												
1983	CS2-30000	SW2		Sewerage and utilities in Workfront I4	722 days	2021年6月5日星期六	2023年11月9日星期四	年6月5日星期六2021		NA	2204,1212,2226,2227	0 days		72%												
1986	CS2-30100	SW2	230,238,2	Construction of Process Pipes CHPSW3; CHDO1, chemical trench	651 days	2021年6月5日星期六	2023年8月15日星期二	年6月5日星期六2021		NA		-3 days		61%												
2022	CS3-0000	*		Remaining drainage and utilities (Section 3)	942 days	2021年7月27日星期二	2024年9月27日星期五	年7月27日星期二2021		NA	2239,58FF	-95 days		28%												
2237	CS3CK-PMI-496g	SW3	496	ABWF works + BS works	90 days	2024年4月10日星期三	2024年8月19日星期一		NA	NA 2236	58FF	57.2 days		0%												
2238	CRW-0000	*		Road Works (Section 3)	130 days	2024年9月28日星期六	2025年3月3日星期一		NA	NA	58FF	-95 days		0%												
2249	CRW-2000	SW3		Footpath Road Pavement	60 days	2024年12月21日星期六	2025年3月3日星期一		NA	NA 2248SS+5 days	58FF	-95 days		0%												
2250	CRW-2100	SW3		Signages	20 days	2024年12月10日星期二	2025年1月3日星期五		NA	NA 2247SS	58FF	-45 days		0%												
2253	CLW-0000	*		Landscaping Works (Section 3)	873 days	2022年12月16日星期四	2026年11月9日星期日	年12月16日星期四2022		NA 16		0 days		0%												
2254	CLW-1000	SW3		Irrigation System	120 days	2022年12月15日星期四	2023年5月16日星期二	年12月15日星期四2022		NA	2255,58FF	0 days		0%												
2255	CLW-2000	SW3		Hard Landscaping Works	214 days	2023年5月23日星期二	2024年2月6日星期二		NA	NA 2254	58FF,2256FS+10 days	0 days	5	0%												
2256	CLW-3000	SW3		Soft Landscaping Works	214 days	2024年2月22日星期四	2024年11月9日星期六		NA	NA 2255FS+10 days	2257,58FF	0 days	5	0%												
2257	CLW-4000	DLP		Establishment Works (365 days)	365 days	2024年11月10日星期日	2025年11月9日星期日		NA	NA 2256,217	60FF	0 days	5	0%												











Activity ID	Activity Name	Remaining Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	Time Risk Allowance	2020												2021												2022												2023												2024												2025											
SWH - Main Works Stage 1 Sidestream Treatment Facilities & E											582	11-Oct-19 A	24-Sep-25	31-Oct-21	24-Sep-25	0																																																																		
Contract Data											582	11-Oct-19 A	24-Sep-25	24-May-22	24-Sep-25	0																																																																		
Starting Date & Completion Date											582	11-Oct-19 A	24-Sep-25	24-May-22	24-Sep-25	0																																																																		
CD1000	Contract Date (LOA)	0	11-Oct-19 A			24-May-22			CD1010, S1P1000,																																																																									
CD1010	Starting Date	0	23-Oct-19 A			24-May-22			CD1000	S1D1040, AD1050,																																																																								
CD1020	Whole Contract Period (1626 days from starting date)	44	23-Oct-19 A	04-Apr-24	21-Feb-24	04-Apr-24	0	CD1010	CD1040, CD1030																																																																									
CD1030	Extension of Time Granted (Total 152days)	152	05-Apr-24	03-Sep-24*	05-Apr-24	03-Sep-24	0	CD1020	CD1040																																																																									
CD1040	Completion Date for the whole of the Works	0		24-Sep-25		24-Sep-25	0	CD1020, CD1010,																																																																										
Access Date											1	23-Oct-19 A	21-Feb-24	24-May-22	24-Sep-25	581																																																																		
AD1000	Portion C-1A (within 480 to 550 days from starting date)	0	23-Oct-19 A	24-Apr-21 A	27-Mar-23	27-Mar-23		CD1010	AD1010																																																																									
AD1010	Planned Access Date for Portion C-1A (Partial Access)	0	24-Apr-21 A	24-Apr-21 A	27-Mar-23	27-Mar-23		CD1010, AD1000	PL1470, S4C1010																																																																									
AD1020	Planned Access Date for Portion C-1A (Access for Remaining Area)	0	12-May-21 A	12-May-21 A	27-Mar-23	27-Mar-23			S4C1010																																																																									
AD1030	Portion C-2A (within 705 to 795 days from starting date) (SS by NCE-NCE-288, within 705 to 831 days from starting date)	0	23-Oct-19 A	30-Jan-22 A	24-Sep-25	24-Sep-25		CD1010	AD1040																																																																									
AD1040	Planned Access Date for Portion C-2A	0	09-Sep-22 A	09-Sep-22 A	24-Sep-25	24-Sep-25		CD1010, AD1030																																																																										
AD1050	Portion C-2B (within 765 to 855 days from starting date) (SS by NCE-NCE-286, within 765 to 880 days from starting date)	0	23-Oct-19 A	20-Mar-22 A	12-Apr-23	12-Apr-23		CD1010	AD1060																																																																									
AD1060	Planned Access Date for Portion C-2B	0	07-Dec-22 A	07-Dec-22 A	12-Apr-23	12-Apr-23		CD1010, AD1050	S5CHPC1020																																																																									
AD1070	Portion C-2C (within 715 to 805 days from starting date) (SS by NCE-NCE-287, within 715 to 934 days from starting date)	0	23-Oct-19 A	13-May-22 A	11-Feb-23	11-Feb-23		CD1010	AD1080																																																																									
AD1080	Planned Access Date for Portion C2-C	0	20-Jul-23 A	20-Jul-23 A	11-Feb-23	11-Feb-23		CD1010, AD1070	S5DIGC1040, S5DIGC1210																																																																									
AD1090	Portion C-2D (within 825 to 945 days from starting date)	0	23-Oct-19 A	24-May-22 A	24-May-22	24-May-22		CD1010	AD1100																																																																									
AD1100	Planned Access Date for Portion C-2D	1	21-Feb-24	21-Feb-24*	24-May-22	24-May-22	-638	AD1090	S5BIOC1020, S5BIOC1030,																																																																									
AD1110	Portion C-3 (within 615 to 705 days from starting date) (SS by NCE-NCE-273, within 615 to 815 days from starting date)	0	23-Oct-19 A	31-Dec-21 A	24-Jun-23	24-Jun-23		CD1010	AD1120																																																																									
AD1120	Planned Access Date for Portion C-3 (SS by NCE-NCE-273)	0	31-Dec-21 A	31-Dec-21 A	24-Jun-23	24-Jun-23		AD1110, S2D1110	KD1060, S5WS2C1000,																																																																									
AD1130	Portion B-1 (within 285 to 345 days from starting date)	0	23-Oct-19 A	30-Sep-20 A	30-Dec-23	30-Dec-23		CD1010	AD1140																																																																									
AD1140	Planned Access Date for Portion B-1	0	30-Sep-20 A	30-Sep-20 A	30-Dec-23	30-Dec-23		AD1130	KD1030, S3C1020,																																																																									
AD1150	Portion B-2a (within 615 to 705 days from starting date) (SS by NCE-NCE-219, within 771 to 891 days from starting date)	0	23-Oct-19 A	23-Mar-22 A	29-Mar-23	29-Mar-23		CD1010	AD1160																																																																									
AD1160	Planned Access Date for Portion B-2a (SS by NCE-NCE-219)	0	23-Mar-22 A	23-Mar-22 A	29-Mar-23	29-Mar-23		AD1150	S5SASC1010, S5SASC1000																																																																									
AD1170	Portion B-2b (within 615 to 705 days from starting date) (SS by NCE-NCE-219)	0	23-Oct-19 A	24-Sep-21 A	24-Sep-25	24-Sep-25																																																																												
AD1180	Planned Access Date for Portion B-2b (SS by NCE-NCE-219)	0	24-Sep-21 A	24-Sep-21 A	24-Sep-25	24-Sep-25																																																																												
AD1190	Works Area WA1-B (starting date)	0	23-Oct-19 A	23-Oct-19 A	16-Jan-23	16-Jan-23		CD1010	AD1200																																																																									
AD1200	Planned Access Date for Works Area WA1-B	0	23-Oct-19 A	23-Oct-19 A	16-Jan-23	16-Jan-23		CD1010, AD1190	PL1000, PL1020																																																																									
AD1210	Works Area WA3 (starting date)	0	23-Oct-19 A	23-Oct-19 A	13-Mar-25	13-Mar-25		CD1010	AD1220																																																																									
AD1220	Planned Access Date for Works Area WA3	0	23-Oct-19 A	23-Oct-19 A	13-Mar-25	13-Mar-25		CD1010, AD1210	PL1000, PL1030																																																																									
Key Dates											295	23-Oct-19 A	11-Dec-24	26-Apr-23	24-Sep-25	287																																																																		
Contractual Completion (Include Implemented CE)											59	23-Oct-19 A	19-Apr-24	26-Apr-23	24-Sep-25	523																																																																		
KD1000	KD1A Submission of Civil Requirement Dwgs, Elec. Schematic Dwgs of UV System No.1 and Effluent Pumping Station No.1	0	23-Oct-19 A	05-May-20 A	26-Apr-23	26-Apr-23		CD1010, S1D1040,	CD1040, S4P1040																																																																									
KD1010	KD2A Submission of Civil Requirement Dwgs, Elec. Schematic Dwgs of SD Bldg, SD & DC, CHP Bldg, Workshop No.2, etc.	0	23-Oct-19 A	04-Jun-20 A	24-Sep-25	24-Sep-25		CD1010, S2D1080,	KD1020																																																																									
KD1020	KD2B Submission of Remaining Civil Requirement Dwgs, Elec. Schematic Dwgs of SD Bldg, SD & DC, CHP Bldg, etc.	0	23-Oct-19 A	16-Jan-21 A	24-Sep-25	24-Sep-25		CD1010, S2D1120,	SC21110																																																																									
KD1030	KD3A Completion of Phase 1 Commissioning of Sidestream Treatment Facilities (1140d after Portion B-1 Access)	0	30-Sep-20 A	14-Nov-23 A	21-Feb-24	21-Feb-24		AD1140	KD1040																																																																									
KD1040	Extension of Time Granted for KD3A (Total 157days)	59	15-Nov-23 A	19-Apr-24	21-Feb-24	19-Apr-24	0	KD1030	KD1050, SC31120																																																																									
KD1050	Revised Completion Date for KD3A	0		19-Apr-24*		19-Apr-24	0	KD1040																																																																										

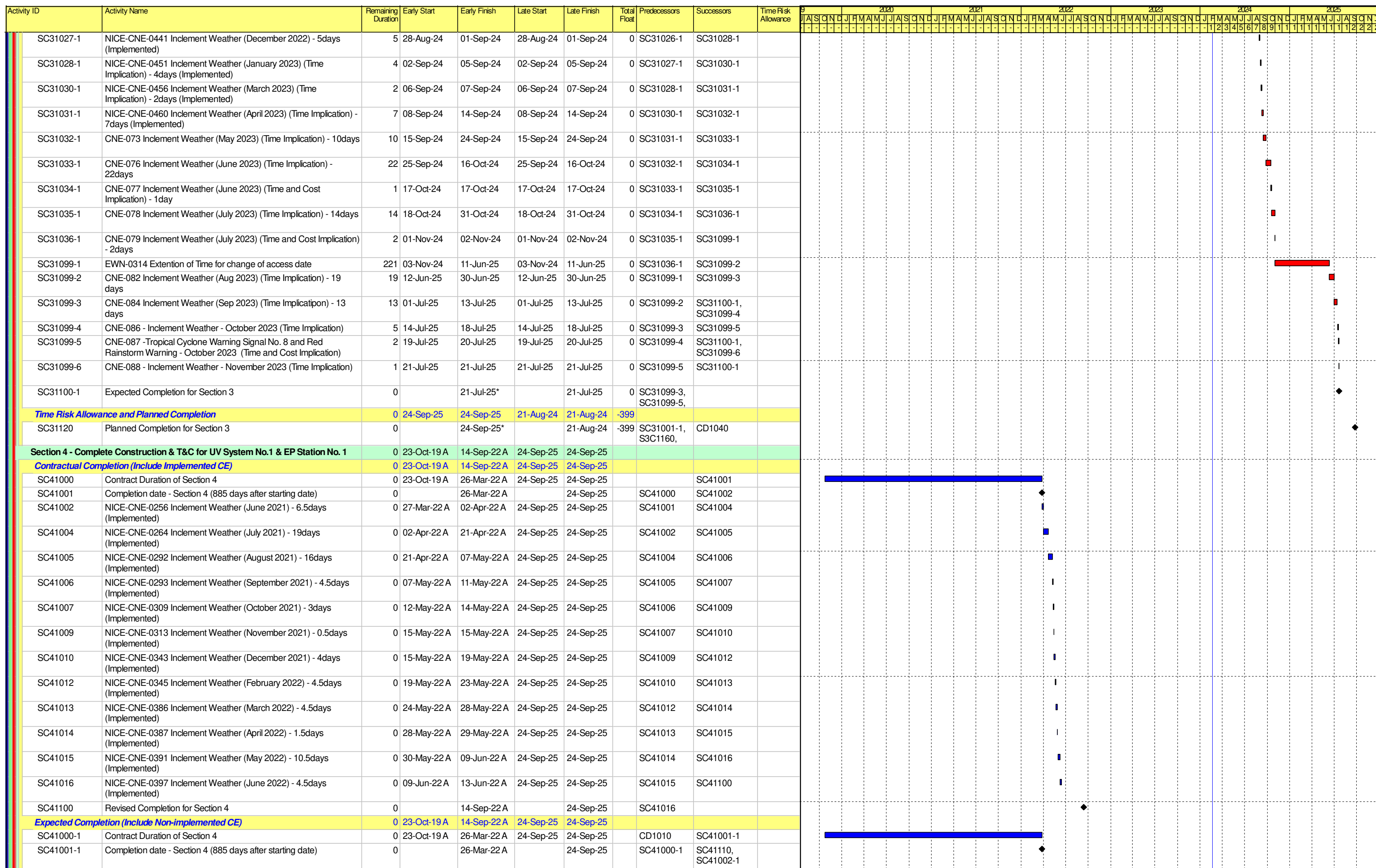
	File Name: DE/2018/03 RP R43 Layout: DE1803 RP (Feb 2024) - WBS Page 1 of 61	 Remaining Work  Critical Activity  Milestone  Actual Progress	Contract No. DE/2018/03 Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1 Sidestream Treatment Facilities and E&M Works for Sludge Treatment Facilities Revised Programme - as at 20 February 2024		Date	Revision	Checked	Approved
			31-Oct-23	Rev.39	IM/LT	KM		
			30-Nov-23	Rev.40	IM/LT	KM		
			31-Dec-23	Rev.41	IM/LT	KM		
			31-Jan-24	Rev.42	IM/LT	KM		
		29-Feb-24	Rev.43	IM/LT	KM			

Activity ID	Activity Name	Remaining Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	Time Risk Allowance	Gantt Chart (2020-2025)																							
KD1060	KD5A - Completion of BS Fitting at CLP Sub-Station at Workshop No.2 (245d after Portion C-3 Access)(Impacted by NCE-273)	0	31-Dec-21 A	02-Sep-22 A	24-Sep-25	24-Sep-25		AD1120, S5WS2C101C			[Gantt Chart]																							
Expected Completion (Include Non-implemented CE)		159	30-Sep-20 A	28-Jul-24	21-Feb-24	28-Jul-24	0				[Gantt Chart]																							
KD1030-1	KD3A Completion of Phase 1 Commissioning of Sidestream Treatment Facilities (1140d after Portion B-1 Access)	0	30-Sep-20 A	14-Nov-23 A	21-Feb-24	21-Feb-24		AD1140	KD1040-1		[Gantt Chart]																							
KD1040-1	Extension of Time Granted for KD3A (Total 157 days)	59	15-Nov-23 A	19-Apr-24	21-Feb-24	19-Apr-24	0	KD1030-1	KD1045, SC31120		[Gantt Chart]																							
KD1045	Extension of Time for KD3A - Non-implemented (Total 100days)	100	20-Apr-24	28-Jul-24	20-Apr-24	28-Jul-24	0	KD1040-1	KD1050-1		[Gantt Chart]																							
KD1050-1	Expected Completion Date for KD3A	0		28-Jul-24*		28-Jul-24	0	KD1045			[Gantt Chart]																							
Planned Completion		0	02-Sep-22 A	11-Dec-24	19-Apr-24	24-Sep-25	287				[Gantt Chart]																							
KD1050-2	Planned Completion Date for KD3A	0		11-Dec-24*		19-Apr-24	-236	S3T1230	SC31120		[Gantt Chart]																							
KD1060-1	Planned Completion Date for KD5A	0		02-Sep-22 A		24-Sep-25		AD1120, S5WS2C101C			[Gantt Chart]																							
Completion Date		582	23-Oct-19 A	24-Sep-25	21-Feb-24	24-Sep-25	0				[Gantt Chart]																							
Section 1 - Complete All Design at UV System No.1 & EP Station No. 1		0	23-Oct-19 A	08-Aug-20 A	24-Sep-25	24-Sep-25					[Gantt Chart]																							
SC11000	Contract Duration of Section 1	0	23-Oct-19 A	08-Aug-20 A	24-Sep-25	24-Sep-25		CD1010	SC11100		[Gantt Chart]																							
SC11100	Completion date - Section 1 (290 days after starting date)	0		08-Aug-20 A		24-Sep-25		SC11000	SC11120		[Gantt Chart]																							
Time Risk Allowance and Planned Completion		0	08-Aug-20 A	08-Aug-20 A	24-Sep-25	24-Sep-25					[Gantt Chart]																							
SC11110	Time Risk Allowance for Section 1	0	08-Aug-20 A	08-Aug-20 A	24-Sep-25	24-Sep-25		S1P1000, S1P1040,	SC11120		[Gantt Chart]																							
SC11120	Planned Completion for Section 1	0		08-Aug-20 A		24-Sep-25		SC11110, SC11100	CD1040		[Gantt Chart]																							
Section 2 - Complete All Designs (exclude Sec. 1 & 3)		0	23-Oct-19 A	11-Jun-21 A	24-Sep-25	24-Sep-25					[Gantt Chart]																							
SC21000	Contract Duration of Section 2	0	23-Oct-19 A	11-Jun-21 A	24-Sep-25	24-Sep-25		CD1010	SC21100		[Gantt Chart]																							
SC21100	Completion date - Section 2 (600 days after starting date)	0		11-Jun-21 A		24-Sep-25		SC21000	SC21120		[Gantt Chart]																							
Time Risk Allowance and Planned Completion		0	11-Jun-21 A	11-Jun-21 A	24-Sep-25	24-Sep-25					[Gantt Chart]																							
SC21110	Time Risk Allowance for Section 2	0	11-Jun-21 A	11-Jun-21 A	24-Sep-25	24-Sep-25		S2P1000, S2P1010,	SC21120		[Gantt Chart]																							
SC21120	Planned Completion for Section 2	0		11-Jun-21 A		24-Sep-25		SC21110, SC21100,	CD1040		[Gantt Chart]																							
Section 3 - Complete Design, Construction & T&C for Sidestream Facilities		582	23-Oct-19 A	24-Sep-25	21-Feb-24	21-Jul-25	-65				[Gantt Chart]																							
Contractual Completion (Include Implemented CE)		196	23-Oct-19 A	03-Sep-24	21-Feb-24	03-Sep-24	0				[Gantt Chart]																							
SC31000	Contract Duration of Section 3	44	23-Oct-19 A	04-Apr-24	21-Feb-24	04-Apr-24	0		SC31001		[Gantt Chart]																							
SC31001	Completion date - Section 3 (1625 days after starting date)	0		04-Apr-24*		04-Apr-24	0	SC31000	SC31002		[Gantt Chart]																							
SC31002	NICE-CNE-0248 Inclement Weather (May 2021) - 5days (Implemented)	5	05-Apr-24	09-Apr-24	05-Apr-24	09-Apr-24	0	SC31001	SC31003		[Gantt Chart]																							
SC31003	NICE-CNE-0256 Inclement Weather (June 2021) - 14.5days (Implemented)	15	10-Apr-24	24-Apr-24	10-Apr-24	24-Apr-24	0	SC31002	SC31005		[Gantt Chart]																							
SC31005	NICE-CNE-0264 Inclement Weather (July 2021) - 15days (Implemented)	15	24-Apr-24	09-May-24	24-Apr-24	09-May-24	0	SC31003	SC31006		[Gantt Chart]																							
SC31006	NICE-CNE-0292 Inclement Weather (August 2021) - 19days (Implemented)	19	09-May-24	28-May-24	09-May-24	28-May-24	0	SC31005	SC31007		[Gantt Chart]																							
SC31007	NICE-CNE-0293 Inclement Weather (September 2021) - 3.5days (Implemented)	4	28-May-24	31-May-24	28-May-24	31-May-24	0	SC31006	SC31010		[Gantt Chart]																							
SC31010	NICE-CNE-0313 Inclement Weather (November 2021) - 0.5days (Implemented)	1	01-Jun-24	01-Jun-24	01-Jun-24	01-Jun-24	0	SC31007	SC31011		[Gantt Chart]																							
SC31011	NICE-CNE-0343 Inclement Weather (December 2021) - 4days (Implemented)	4	01-Jun-24	05-Jun-24	01-Jun-24	05-Jun-24	0	SC31010	SC31012		[Gantt Chart]																							
SC31012	NICE-CNE-0344 Inclement Weather (January 2022) - 0.5days (Implemented)	1	05-Jun-24	05-Jun-24	05-Jun-24	05-Jun-24	0	SC31011	SC31013		[Gantt Chart]																							
SC31013	NICE-CNE-0345 Inclement Weather (February 2022) - 6.5days (Implemented)	7	06-Jun-24	12-Jun-24	06-Jun-24	12-Jun-24	0	SC31012	SC31014		[Gantt Chart]																							
SC31014	NICE-CNE-0386 Inclement Weather (March 2022) - 3.5days (Implemented)	4	12-Jun-24	15-Jun-24	12-Jun-24	15-Jun-24	0	SC31013	SC31015		[Gantt Chart]																							
SC31015	NICE-CNE-0387 Inclement Weather (April 2022) - 2.5days (Implemented)	3	16-Jun-24	18-Jun-24	16-Jun-24	18-Jun-24	0	SC31014	SC31016		[Gantt Chart]																							
SC31016	NICE-CNE-0391 Inclement Weather (May 2022) - 8.5days (Implemented)	9	18-Jun-24	26-Jun-24	18-Jun-24	26-Jun-24	0	SC31015	SC31026		[Gantt Chart]																							
SC31026	NICE-CNE-0397 Inclement Weather (June 2022) - 11.5days (Implemented)	12	27-Jun-24	08-Jul-24	27-Jun-24	08-Jul-24	0	SC31016	SC31027		[Gantt Chart]																							
SC31027	NICE-CNE-0405 Inclement Weather (July 2022) - 5.5days (Implemented)	6	08-Jul-24	13-Jul-24	08-Jul-24	13-Jul-24	0	SC31026	SC31028		[Gantt Chart]																							
SC31028	NICE-CNE-0409 Inclement Weather (August 2022) - 17.5days (Implemented)	18	14-Jul-24	31-Jul-24	14-Jul-24	31-Jul-24	0	SC31027	SC31029		[Gantt Chart]																							

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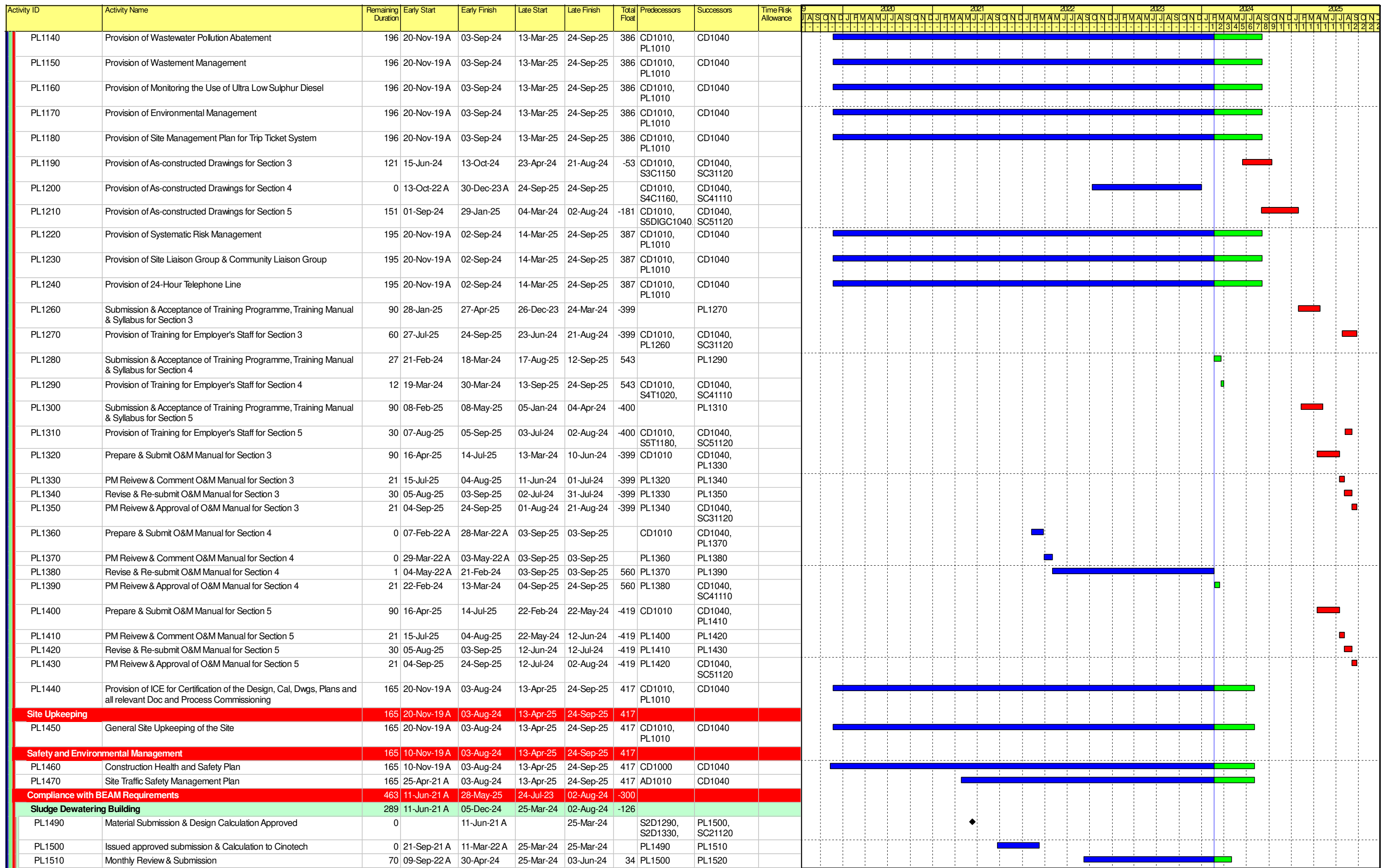
Activity ID	Activity Name	Remaining Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	Time Risk Allowance	2020					2021					2022					2023					2024					2025																
											J	A	S	O	N	J	F	M	A	M	J	J	A	S	O	N	J	F	M	A	M	J	J	A	S	O	N	J	F	M	A	M	J	J	A	S	O	N	J	F	M	A
SC51021-1	NICE-CNE-0428 Inclement Weather (October 2022) - 2days (Implemented)	2	27-Jul-24	28-Jul-24	27-Jul-24	28-Jul-24	0	SC51020-1	SC51022-1																																											
SC51022-1	NICE-CNE-0433 Inclement Weather (November 2022) - 8.5days (Implemented)	9	29-Jul-24	06-Aug-24	29-Jul-24	06-Aug-24	0	SC51021-1	SC51023-1																																											
SC51023-1	CNE-062 Inclement Weather (November 2022) (Time and Cost Implication) - 2days	2	06-Aug-24	08-Aug-24	06-Aug-24	08-Aug-24	0	SC51022-1	SC51024-1																																											
SC51024-1	NICE-CNE-0441 Inclement Weather (December 2022) - 4days (Implemented)	4	08-Aug-24	12-Aug-24	08-Aug-24	12-Aug-24	0	SC51023-1	SC51025-1																																											
SC51025-1	NICE-CNE-0451 Inclement Weather (January 2023) (Time Implication) - 4days (Implemented)	4	12-Aug-24	16-Aug-24	12-Aug-24	16-Aug-24	0	SC51024-1	SC51027-1																																											
SC51027-1	NICE-CNE-0456 Inclement Weather (March 2023) (Time Implication) - 2days (Implemented)	2	16-Aug-24	18-Aug-24	16-Aug-24	18-Aug-24	0	SC51025-1	SC51028-1																																											
SC51028-1	NICE-CNE-0460 Inclement Weather (April 2023) (Time Implication) - 7days (Implemented)	7	18-Aug-24	25-Aug-24	18-Aug-24	25-Aug-24	0	SC51027-1	SC51029-1																																											
SC51029-1	CNE-073 Inclement Weather (May 2023) (Time Implication) - 10days	10	25-Aug-24	04-Sep-24	25-Aug-24	04-Sep-24	0	SC51028-1	SC51030-1																																											
SC51030-1	CNE-076 Inclement Weather (June 2023) (Time Implication) - 22days	22	04-Sep-24	26-Sep-24	04-Sep-24	26-Sep-24	0	SC51029-1	SC51031-1																																											
SC51031-1	CNE-077 Inclement Weather (June 2023) (Time and Cost Implication) - 1day	1	26-Sep-24	27-Sep-24	26-Sep-24	27-Sep-24	0	SC51030-1	SC51032-1																																											
SC51032-1	CNE-078 Inclement Weather (July 2023) (Time Implication) - 14days	14	27-Sep-24	11-Oct-24	27-Sep-24	11-Oct-24	0	SC51031-1	SC51033-1																																											
SC51033-1	CNE-079 Inclement Weather (July 2023) (Time and Cost Implication) - 2days	2	11-Oct-24	13-Oct-24	11-Oct-24	13-Oct-24	0	SC51032-1	SC51099-1																																											
SC51099-1	EWN-0314 Extention of Time for change of access date	242	13-Oct-24	11-Jun-25	13-Oct-24	11-Jun-25	0	SC51033-1	SC51099-2																																											
SC51099-2	CNE-082 Inclement Weather (Aug 2023) (Time Implication) - 19 days	19	12-Jun-25	30-Jun-25	12-Jun-25	30-Jun-25	0	SC51099-1	SC51099-3																																											
SC51099-3	CNE-084 Inclement Weather (Sep 2023) (Time Implication) - 13 days	13	01-Jul-25	13-Jul-25	01-Jul-25	13-Jul-25	0	SC51099-2	SC51099-4																																											
SC51099-4	CNE-086 - Inclement Weather - October 2023 (Time Implication)	5	14-Jul-25	18-Jul-25	14-Jul-25	18-Jul-25	0	SC51099-3	SC51099-5																																											
SC51099-5	CNE-087 -Tropical Cyclone Warning Signal No. 8 and Red Rainstorm Warning - October 2023 (Time and Cost Implication)	2	19-Jul-25	20-Jul-25	19-Jul-25	20-Jul-25	0	SC51099-4	SC51099-6																																											
SC51099-6	CNE-088 - Inclement Weather - November 2023 (Time Implication)	1	21-Jul-25	21-Jul-25	21-Jul-25	21-Jul-25	0	SC51099-5	SC51100-1																																											
SC51100-1	Expected Completion for Section 5	0		21-Jul-25*		21-Jul-25	0	SC51099-6																																												
Time Risk Allowance and Planned Completion		0	24-Sep-25	24-Sep-25	02-Aug-24	02-Aug-24	-419																																													
SC51120	Planned Completion for Section 5	0		24-Sep-25*		02-Aug-24	-419	PL1520, PL1560,	CD1040																																											
Compensation Event		0	23-Oct-19 A	29-Jan-24 A	13-Mar-23	24-Sep-25																																														
CE0001	CE No.001 - Special Work Arrangement in Reducing the Risk of the Spread of Novel Coronavirus	0		30-Jan-20 A		24-Sep-25																																														
CE0002	CE No.002 - The Contractor's Site Accomodation by Modular Integrated Construction (MIC) Method	0		23-Mar-20 A		24-Sep-25																																														
CE0003	CE No.003 - Flowmeter Relocation & Pipework Rearrangement at Effluent Transfer Pumping Station	0		20-Apr-20 A		24-Sep-25																																														
CE0004	CE No.004 - Designated Area for the Contractor's Site Accommodation in Works Area WA1	0		26-Feb-20 A		24-Sep-25																																														
CE0005	CE No.005 - Revised Size of Penstock at UV System No.1 & Effluent Pumping Station No.1 for Ex. Outfall	0		30-Mar-20 A		24-Sep-25																																														
CE0006	CE No.006 - Additional Duty Point for Effluent Transfer Pumps	0		27-Mar-20 A		24-Sep-25																																														
CE0007	CE No.007 - Additional Adjustable Weir at UV System No.1 & Effluent Pumping Station No.1	0		30-Jun-20 A		24-Sep-25																																														
CE0008	CE No.008 - Provision of Additional 2nd Temp. Power Supply for UV System No.1 & Effluent Pumping Station No.1	0		03-Aug-20 A		24-Sep-25																																														
CE0009	CE No.009 - Employment of Temporary Staff under Anti-Epidemic Fund	0		07-Jul-20 A		24-Sep-25																																														
CE0010	CE No.010 - Revised Setting Out Plan for Sidestream Treatment Facilities	0		07-Jul-20 A		24-Sep-25																																														
CE0012	CE No.012 - Provision of Touchscreen Display System for the Project Manager's Office	0		06-Oct-20 A		24-Sep-25																																														
CE0013	CE No.013 - Feasibility Study for Adopting emMIC & DfMA	0		22-Oct-20 A		24-Sep-25																																														
CE0014	CE No.014 - Revised FS Water Supply Arrangement for CHP, Guard House, Workshop No.2, SludgeDigester&DistributionChamber	0		28-Oct-20 A		24-Sep-25																																														



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											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
CE0015	CE No.015 - Revised Plumbing Arrangement for Workshop No.2, UV & Effluent No.1, CHP, SPS&FCDF, DOU No.11&12, H2S, SDDC	0		30-Oct-20 A		24-Sep-25																																			
CE0016	CE No.016 - Elect. Provisions for Addit. 800A ACB w/ CMPD as Standby Supply for MBBR for UV No.2 for Future Expansion	0		28-Oct-20 A		24-Sep-25																																			
CE0018	CE No.018 - MVAC Layout for Plant Service Water System	0		05-Nov-20 A		24-Sep-25																																			
CE0020	CE No.020 - Addit. set of 11kV power feeder panel at 11kV SB in CHP for future connection to Zone B in Stage 2	0		09-Nov-20 A		24-Sep-25																																			
CE0201	NCE-PMI-0201 - Provision of Access Platform for EOT cranes in UV System No.1 & Effluent Pumping Station No.1	0		16-Nov-20 A		24-Sep-25																																			
CE0202	NCE-PMI-0202 - Revised Plumbing Arrangement for Sludge Dewatering Building	0		26-Nov-20 A		24-Sep-25																																			
CE0203	NCE-PPMI-0203 - MVAC Layout for SAS Pumping Station	0		25-Nov-20 A		24-Sep-25																																			
CE0204	NCE-PMI-0204 - CHP - Provisional of Additional ATS for Power Supply for UPS	0		08-Dec-20 A		24-Sep-25																																			
CE0205	NCE-PPMI-0205 - Fibre Optics Network Connection for SCADA Systems between Zone B & Zone C	0		23-Nov-20 A		24-Sep-25																																			
CE0206	NCE-PMI-0206 - SDB - Provisional of Additional ATS for Power Supply for UPS	0		15-Dec-20 A		24-Sep-25																																			
CE0207	NCE-PMI-0207 - TX Rm & Switch Rm - Provision of ATS for Power Supply for UPS	0		01-Dec-20 A		24-Sep-25																																			
CE0208	NCE-PPMI-0208 - Provision of Drainage service Layout for SAS Pumping Station	0		26-Nov-20 A		24-Sep-25																																			
CE0209	NCE-PPMI-0209 - Drainage System for Plant Service Water System	0		26-Nov-20 A		24-Sep-25																																			
CE0210	NCE-PPMI-0210 - Electrical provisions for MVAC & Drainage Systems in SAS Pumping Station	0		08-Dec-20 A		24-Sep-25																																			
CE0211	NCE-PPMI-0211 - Revised MVAC Layout & Electrical Provisions for MVAC in TX and Switch Rm	0		02-Dec-20 A		24-Sep-25																																			
CE0212	NCE-PMI-0212 - Provision of Louvre Panel for Outdoor AC Units at Contractor's Site Accomodation	0		07-Dec-20 A		24-Sep-25																																			
CE0213	NCE-PPMI-0213 - Electrical provisions for MVAC & Drainage System in UV System No.1 & Effluent Pumping Station No.1	0		21-Dec-20 A		24-Sep-25																																			
CE0214	NCE-PPMI-0214 - Additional Sump Pump & Drain Pipes at UV System No.1 & Effluent Pumping Station	0		14-Dec-20 A		24-Sep-25																																			
CE0215	NCE-PPMI-0215 - Revised MVAC Layout for UV System No.1 & Effluent Pumping Station No.1	0		14-Dec-20 A		24-Sep-25																																			
CE0216	NCE-PPMI-0216 - Electrical Provisions for MVAC & drainage Sytems in Plant Service Water System	0		31-Dec-20 A		24-Sep-25																																			
CE0217	NCE-PMI-0217 - Revised Duty Points for Effluent Transfer Pumps	0		29-Dec-20 A		24-Sep-25																																			
CE0218	NCE-PMI-0218 - Scoping Study for Application of Digital Twin & IoT in Zone B & Zone C of SWHEPP	0		04-Jan-21 A		24-Sep-25																																			
CE0219	NCE-NCE-0219 - Change of Site Access Date to SAS Pumping Station Forming Part of Portion B-2 of the Site	0		19-Dec-20 A		24-Sep-25																																			
CE0219a	NCE-NCE-0219 - Portion B-2a (within 771 to 891 days from starting date)	0	23-Oct-19 A	23-Mar-22 A	29-Mar-23	29-Mar-23		CD1010	CE0219b																																
CE0219b	NCE-NCE-0219 - Revised Access Date for Portion B-2a	0	23-Mar-22 A	23-Mar-22 A	29-Mar-23	29-Mar-23		CE0219a	S5SASC1010																																
CE0219c	NCE-NCE-0219 - Portion B-2b (within 615 to 705 days from starting date)	0	23-Oct-19 A	24-Sep-21 A	13-Mar-23	13-Mar-23			CE0219d																																
CE0219d	NCE-NCE-0219 - Revised Access Date for Portion B-2b	0	24-Sep-21 A	24-Sep-21 A	13-Mar-23	13-Mar-23		CE0219c	S5ECHC1000																																
CE0220	NCE-PMI-0220 - Supply of Puddle Pipes for Effluent to Shek Sheung River	0		30-Dec-20 A		24-Sep-25																																			
CE0221	NCE-PPMI-0221 - General Arrangement for Fire Hydrant & Booster Pump Room	0		24-Dec-20 A		24-Sep-25																																			
CE0222	NCE-PMI-0222 - Revised Water Supply Arrangement (FS Water) to Sludge Dewatering Building	0		12-Jan-21 A		24-Sep-25																																			
CE0223	NCE-PMI-0223 - Construction of Trial Pits for Sidestream Treatment Facilities	0		15-Jan-21 A		24-Sep-25																																			
CE0224	NCE-PMI-0224 - Independent Inspection Body (IIB) for the Factory Acceptance Test (FAT) for UV Disinfection System	0		25-Jan-21 A		24-Sep-25																																			
CE0225	NCE-PMI-0225 - Supply of Ductile Iron Puddle Pipes at the Basement of Sludge Dewatering Building	0		09-Mar-21 A		24-Sep-25																																			
CE0226	NCE-PMI-0226 - Provision of Solar Water Heating System at the Contractor's Site Accomodation	0		09-Mar-21 A		24-Sep-25																																			
CE0227	NCE-PMI-0227 - Dual Power Fedder for LV Switch Panel at Sewage Pumping Station	0		11-Mar-21 A		24-Sep-25																																			



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S1D1320	Prepare & Submit FS Works Design & Dwgs UV System No.1 & Effluent Pumping Station No.1	0	14-Apr-20 A	05-Aug-20 A	24-Sep-25	24-Sep-25		S1D1300	S1D1330		[Gantt bars for S1D1320]																														
S1D1330	Review & Accept of FS Works Design & Dwgs UV System No.1 & Effluent Pumping Station No.1	0	09-Jul-20 A	06-Aug-20 A	24-Sep-25	24-Sep-25		S1D1320	SC11110, S4P1030, S4P1140, S4P1150		[Gantt bars for S1D1330]																														
Section 2 - Complete All Designs (exclude Sec. 1 & 3)		1	20-Nov-19 A	21-Feb-24	31-Oct-21	24-Sep-25	581				[Gantt bars for Section 2]																														
Major Plant & Materials Procurement		0	20-Nov-19 A	23-Apr-21 A	30-Dec-22	24-Sep-25					[Gantt bars for Major Plant & Materials Procurement]																														
S2P1000	Procurement & PO for Sludge Screening System (S2)	0	18-May-20 A	16-Oct-20 A	10-Jan-23	10-Jan-23		S2P1020	SC21110, S2D1260, S5P1000, S2P1060, S2P1150, S5P1030		[Gantt bars for S2P1000]																														
S2P1010	Procurement & PO for Sludge Thickening System (S3)	0	20-Nov-19 A	08-Jun-20 A	10-Jan-23	10-Jan-23		PL1010, CD1010	SC21110, S2D1300, S2P1030		[Gantt bars for S2P1010]																														
S2P1020	Procurement & PO for Sludge Digestion System (S5)	0	18-Feb-20 A	12-Aug-20 A	10-Jan-23	10-Jan-23		CD1010, S2P1040	SC21110, S5DIGP1000, S2D1420, S5DIGP1010, S2P1180, S2P1210, S5P1040, S2P1000, S5P1020		[Gantt bars for S2P1020]																														
S2P1030	Procurement & PO for Sludge Dewatering System (S6)	0	20-Nov-19 A	08-Jun-20 A	10-Jan-23	10-Jan-23		PL1010, CD1010, S2P1010	SC21110, S2D1460		[Gantt bars for S2P1030]																														
S2P1040	Procurement & PO for THP System (S4)	0	20-Nov-19 A	05-Jun-20 A	10-Jan-23	10-Jan-23		CD1010, PL1010	SC21110, S5THPP1000, S2D1340, S2P1020		[Gantt bars for S2P1040]																														
S2P1050	Procurement & PO for Biogas Holding Tanks(S7)	0	20-Nov-19 A	20-Aug-20 A	30-Dec-22	30-Dec-22		PL1010	SC21110, S5BIOP1010, S2D1500		[Gantt bars for S2P1050]																														
S2P1060	Procurement & PO for H2S Removal System (S7)	0	17-Jul-20 A	17-Mar-21 A	10-Jan-23	10-Jan-23		S2P1000	SC21110, S5H2SP1000, S2D1500		[Gantt bars for S2P1060]																														
S2P1070	Procurement & PO for CHP System (S8)	0	20-Nov-19 A	08-Jun-20 A	10-Jan-23	10-Jan-23		PL1010	SC21110, S5CHPP1010, S2D1540, S2P1110		[Gantt bars for S2P1070]																														
S2P1080	Procurement & PO for Waste Gas Burning System (S9)	0	17-Jul-20 A	15-Jan-21 A	25-May-23	25-May-23			SC21110, S5WGBP1000		[Gantt bars for S2P1080]																														
S2P1090	Procurement & PO for Plant Service Water System (S12)	0	18-May-20 A	30-Sep-20 A	10-Jan-23	10-Jan-23			SC21110, S5PSWP1000, S2D1660, S2P1190		[Gantt bars for S2P1090]																														
S2P1100	Procurement & PO for SAS Pumping System (S14)	0	18-May-20 A	30-Sep-20 A	13-Mar-23	13-Mar-23			SC21110, S5SASP1000, S2D1700, S2P1220		[Gantt bars for S2P1100]																														
S2P1110	Procurement & PO for Transformers (S17)	0	18-Feb-20 A	13-Jul-20 A	10-Jan-23	10-Jan-23		S2P1070	SC21110, S5WS2P1000, S2P1120, S2P1140, S5TXRP1000		[Gantt bars for S2P1110]																														
S2P1120	Procurement & PO for 11 kV Switchboard (S17)	0	18-Feb-20 A	13-Jul-20 A	10-Jan-23	10-Jan-23		S2P1110	SC21110, S5WS2P1060, S2P1130		[Gantt bars for S2P1120]																														
S2P1130	Procurement & PO for 380V Switchboard (S17)	0	21-Nov-20 A	23-Apr-21 A	10-Jan-23	10-Jan-23		S2P1120, S2D1220	SC21110, S5WS2P1090, S5P1050, S5TXRP1010		[Gantt bars for S2P1130]																														
S2P1140	Procurement & PO for Control & Monitoring System (S18)	0	17-Jul-20 A	11-Jan-21 A	28-Feb-23	28-Feb-23		PL1010, S2P1110	SC21110, S5TXRP1020		[Gantt bars for S2P1140]																														
S2P1150	Procurement & PO for DO System (S21)	0	15-Apr-20 A	24-Jun-20 A	16-Apr-23	16-Apr-23		S2P1000	SC21110, S5DOUP1000, S2D1930		[Gantt bars for S2P1150]																														



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S3D1300	Prepare & Submit Substructure / Superstructure Design / Drawings to ICE & PM	0	10-Oct-20 A	05-Nov-20 A	18-Jan-23	18-Jan-23		S3D1240	S3D1310, S3P1180		[Gantt Bar: 10-Oct-20 to 05-Nov-20]																																																			
S3D1310	Review & Comment on Substructure / Superstructure Design / Drawings by ICE & PM	0	06-Nov-20 A	30-Dec-20 A	18-Jan-23	18-Jan-23		S3D1300	S3D1320		[Gantt Bar: 06-Nov-20 to 30-Dec-20]																																																			
S3D1320	Revise & Re-submit Substructure / Superstructure Design / Drawings to ICE & PM	0	31-Dec-20 A	26-Apr-21 A	18-Jan-23	18-Jan-23		S3D1310	S3D1330		[Gantt Bar: 31-Dec-20 to 26-Apr-21]																																																			
S3D1330	Review & Accept of Substructure / Superstructure Design / Drawings by ICE & PM	0	27-Apr-21 A	18-Feb-22 A	18-Jan-23	18-Jan-23		S3D1320	S3D1340		[Gantt Bar: 27-Apr-21 to 18-Feb-22]																																																			
S3D1340	Prepare & Submit Substructure / Superstructure Design / Drawings to DSD (incl. BCM)	0	13-Dec-21 A	23-Dec-21 A	18-Jan-23	18-Jan-23		S3D1330	S3D1350		[Gantt Bar: 13-Dec-21 to 23-Dec-21]																																																			
S3D1350	Review & Accept of Substructure / Superstructure Design / Drawings by DSD (incl. BCM)	0	24-Dec-21 A	18-Feb-22 A	18-Jan-23	18-Jan-23		S3D1340	S3C1100		[Gantt Bar: 24-Dec-21 to 18-Feb-22]																																																			
ELS		0	07-Sep-21 A	26-Apr-22 A	30-Dec-23	30-Dec-23					[Gantt Bar: 07-Sep-21 to 26-Apr-22]																																																			
S3D1360	Prepare & Submit ELS Plan to ICE	0	07-Sep-21 A	20-Oct-21 A	30-Dec-23	30-Dec-23		S3P1400	S3D1370		[Gantt Bar: 07-Sep-21 to 20-Oct-21]																																																			
S3D1370	Review & Accept of ELS Plan by ICE	0	21-Oct-21 A	18-Nov-21 A	30-Dec-23	30-Dec-23		S3D1360	S3D1380		[Gantt Bar: 21-Oct-21 to 18-Nov-21]																																																			
S3D1380	Prepare & Submit ELS Plan to PM	0	19-Nov-21 A	19-Nov-21 A	30-Dec-23	30-Dec-23		S3D1370	S3D1390		[Gantt Bar: 19-Nov-21 to 19-Nov-21]																																																			
S3D1390	Review & Accept of ELS Plan by PM	0	20-Nov-21 A	26-Apr-22 A	30-Dec-23	30-Dec-23		S3D1380	S3C1080		[Gantt Bar: 20-Nov-21 to 26-Apr-22]																																																			
Process Design		0	06-Jul-20 A	29-Oct-21 A	24-Sep-25	24-Sep-25					[Gantt Bar: 06-Jul-20 to 29-Oct-21]																																																			
S3D1400	Prepare & Submit E&M Works (Process) Design Drawings	0	06-Jul-20 A	10-Nov-20 A	24-Sep-25	24-Sep-25			S3D1410		[Gantt Bar: 06-Jul-20 to 10-Nov-20]																																																			
S3D1410	Review & Comment on E&M Works (Process) Design Drawings by PM	0	11-Nov-20 A	08-Dec-20 A	24-Sep-25	24-Sep-25		S3D1400	S3D1420		[Gantt Bar: 11-Nov-20 to 08-Dec-20]																																																			
S3D1420	Revise & Re-submit E&M Works (Process) Design Drawings	0	09-Dec-20 A	26-Mar-21 A	24-Sep-25	24-Sep-25		S3D1410	S3D1430		[Gantt Bar: 09-Dec-20 to 26-Mar-21]																																																			
S3D1430	Review & Accept of E&M Works (Process) Design Drawings by PM	0	27-Mar-21 A	29-Oct-21 A	24-Sep-25	24-Sep-25		S3D1420			[Gantt Bar: 27-Mar-21 to 29-Oct-21]																																																			
E&M Design		0	07-Jun-20 A	14-Sep-23 A	01-Feb-23	01-Feb-23					[Gantt Bar: 07-Jun-20 to 14-Sep-23]																																																			
S3D1440	Prepare & Submit General Arrangement Drawings	0	07-Jun-20 A	31-Mar-21 A	01-Feb-23	01-Feb-23		S3P1000	S3D1450, S3C1080		[Gantt Bar: 07-Jun-20 to 31-Mar-21]																																																			
S3D1450	Review & Comment on General Arrangement Drawings by PM	0	01-Apr-21 A	07-May-21 A	01-Feb-23	01-Feb-23		S3D1440	S3D1460		[Gantt Bar: 01-Apr-21 to 07-May-21]																																																			
S3D1460	Revise & Re-submit General Arrangement Drawings	0	08-May-21 A	06-Jan-22 A	01-Feb-23	01-Feb-23		S3D1450	S3D1470		[Gantt Bar: 08-May-21 to 06-Jan-22]																																																			
S3D1470	Review & Accept of General Arrangement Drawings by PM	0	07-Jan-22 A	14-Sep-23 A	01-Feb-23	01-Feb-23		S3D1460	S3C1995		[Gantt Bar: 07-Jan-22 to 14-Sep-23]																																																			
BS		0	03-Jul-20 A	07-Jul-23 A	01-Feb-23	01-Feb-23					[Gantt Bar: 03-Jul-20 to 07-Jul-23]																																																			
S3D1480	Prepare & Submit BS Works Design & Dwgs for Sidestream Treatment Facilities	0	03-Jul-20 A	10-Dec-20 A	01-Feb-23	01-Feb-23			S3D1490		[Gantt Bar: 03-Jul-20 to 10-Dec-20]																																																			
S3D1490	Review & Comment on BS Works Design & Dwgs for Sidestream Treatment Facilities by PM	0	11-Dec-20 A	11-Jan-21 A	01-Feb-23	01-Feb-23		S3D1480	S3D1500		[Gantt Bar: 11-Dec-20 to 11-Jan-21]																																																			
S3D1500	Revise & Re-submit BS Works Design & Dwgs for Sidestream Treatment Facilities	0	05-Jan-21 A	31-Mar-21 A	01-Feb-23	01-Feb-23		S3D1490	S3D1510		[Gantt Bar: 05-Jan-21 to 31-Mar-21]																																																			
S3D1510	Review & Accept of BS Works Design & Dwgs for Sidestream Treatment Facilities by PM	0	01-Apr-21 A	07-Jul-23 A	01-Feb-23	01-Feb-23		S3D1500	S3S1020		[Gantt Bar: 01-Apr-21 to 07-Jul-23]																																																			
S3D1520	Submission & Submit FS Works Design & Dwgs for Sidestream Treatment Facilities	0	03-Aug-20 A	10-Dec-20 A	01-Feb-23	01-Feb-23			S3D1530		[Gantt Bar: 03-Aug-20 to 10-Dec-20]																																																			
S3D1530	Review & Comment on FS Works Design & Dwgs for Sidestream Treatment Facilities by PM	0	11-Dec-20 A	19-Jan-21 A	01-Feb-23	01-Feb-23		S3D1520	S3D1540		[Gantt Bar: 11-Dec-20 to 19-Jan-21]																																																			
S3D1540	Revise & Re-submit FS Works Design & Dwgs for Sidestream Treatment Facilities	0	20-Jan-21 A	19-Mar-21 A	01-Feb-23	01-Feb-23		S3D1530	S3D1550		[Gantt Bar: 20-Jan-21 to 19-Mar-21]																																																			
S3D1550	Review & Accept of FS Works Design & Dwgs for Sidestream Treatment Facilities by PM	0	20-Mar-21 A	06-Mar-23 A	01-Feb-23	01-Feb-23		S3D1540	S3S1020		[Gantt Bar: 20-Mar-21 to 06-Mar-23]																																																			
Major Plant & Materials Procurement		55	18-Feb-20 A	15-Apr-24	18-Jan-23	24-Sep-25	527				[Gantt Bar: 18-Feb-20 to 15-Apr-24]																																																			
Civil & Structure		0	01-Feb-21 A	19-Apr-22 A	30-Dec-23	30-Dec-23					[Gantt Bar: 01-Feb-21 to 19-Apr-22]																																																			
S3P1410	Procurement, Manufacture & Delivery of Piling	0	01-Feb-21 A	14-Apr-21 A	30-Dec-23	30-Dec-23			S3C1040		[Gantt Bar: 01-Feb-21 to 14-Apr-21]																																																			
S3P1420	Procurement, Manufacture & Delivery of Metal Works Material	0	09-May-21 A	07-Jul-21 A	30-Dec-23	30-Dec-23			S3C1080		[Gantt Bar: 09-May-21 to 07-Jul-21]																																																			
S3P1430	Procurement, Manufacture & Delivery of Steel Reinforcement	0	11-Mar-22 A	25-Mar-22 A	30-Dec-23	30-Dec-23			S3C1090		[Gantt Bar: 11-Mar-22 to 25-Mar-22]																																																			
S3P1440	Procurement, Manufacture & Delivery of Concrete Mix	0	21-Mar-22 A	19-Apr-22 A	30-Dec-23	30-Dec-23			S3C1090		[Gantt Bar: 21-Mar-22 to 19-Apr-22]																																																			
ABWF		0	01-Sep-23 A	30-Oct-23 A	30-Dec-23	23-Jan-24					[Gantt Bar: 01-Sep-23 to 30-Oct-23]																																																			
S3P1450	Procurement, Manufacture & Delivery of ABWF Works Material	0	01-Sep-23 A	30-Oct-23 A	23-Jan-24	23-Jan-24			S3C1140		[Gantt Bar: 01-Sep-23 to 30-Oct-23]																																																			
S3P1460	Procurement, Manufacture & Delivery of Water Proofing Material	0	01-Sep-23 A	16-Oct-23 A	30-Dec-23	30-Dec-23			S3C1130		[Gantt Bar: 01-Sep-23 to 16-Oct-23]																																																			
E&M Process		55	20-May-22 A	15-Apr-24	18-Jan-23	04-Jul-23	-286				[Gantt Bar: 20-May-22 to 15-Apr-24]																																																			
S3P1470	Manufacture & Delivery of Primary and Secondary Clarifiers for Phospag	0	20-May-22 A	16-Sep-23 A	31-Mar-23	31-Mar-23			S3C2280, S3C2090		[Gantt Bar: 20-May-22 to 16-Sep-23]																																																			
S3P1480	Manufacture & Delivery of Drum sludge thickener	24	31-May-22 A	15-Mar-24	11-Mar-23	03-Apr-23	-347		S3C2240		[Gantt Bar: 31-May-22 to 15-Mar-24]																																																			
S3P1490	Manufacture & Delivery of Tilted Plates for Phospag and Anammox internals	0	11-Jun-22 A	16-Sep-23 A	14-Mar-23	14-Mar-23			S3C2100, S3C2110		[Gantt Bar: 11-Jun-22 to 16-Sep-23]																																																			
S3P1500	Procurement of Air Blower System	0	04-Jul-22 A	08-Aug-22 A	27-Jan-23	27-Jan-23			S3P1510		[Gantt Bar: 04-Jul-22 to 08-Aug-22]																																																			
S3P1510	Manufacture & Delivery of Air Blower System	22	09-Aug-22 A	13-Mar-24	27-Jan-23	17-Feb-23	-390	S3P1500	S3C2310		[Gantt Bar: 09-Aug-22 to 13-Mar-24]																																																			



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- Remaining Work
- Critical Activity
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- Actual Progress

Contract No. DE/2018/03
Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
Sidestream Treatment Facilities and E&M Works for Sludge Treatment Facilities
Revised Programme - as at 20 February 2024

Date	Revision	Checked	Approved
31-Oct-23	Rev.39	IM/LT	KM
30-Nov-23	Rev.40	IM/LT	KM
31-Dec-23	Rev.41	IM/LT	KM
31-Jan-24	Rev.42	IM/LT	KM
29-Feb-24	Rev.43	IM/LT	KM

Activity ID	Activity Name	Remaining Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	Time Risk Allowance	2020			2021			2022			2023			2024			2025																																							
											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	M	J	J	A	S	O	N	D	J
S3C1110	Construction of G/F up to 1/F Slab	0	30-Aug-23 A	12-Nov-23 A	18-Jan-23	18-Jan-23		S3C1100	S3C1120, S3C1130, S3C2155, S3C1125																																																								
S3C1120	Construction of 1/F up to Roof	0	13-Nov-23 A	12-Dec-23 A	18-Feb-23	18-Feb-23		S3C1110	S3C1130, S3C2285																																																								
S3C1125	Water tightness Test for all concrete tank	40	13-Nov-23 A	31-Mar-24	11-Mar-23	19-Apr-23	-347	S3C1110	S3C2120																																																								
S3C1130	Waterproofing	25	01-Feb-24 A	16-Mar-24	30-Dec-23	23-Jan-24	-53	S3P1460, S3C1120, S3C1090, S3C1100, S3C1110	S3C1140																																																								
S3C1140	External & Internal Finishes - 1st Fix (Blockwork, Plastering, Wet Trade)	21	15-Dec-23 A	16-Mar-24	03-Jan-24	23-Jan-24	-53	S3C1130, S3P1450, S3D1090, S3D1130	S3C1150, S3C1160																																																								
S3C1150	External & Internal Finishes - 2nd Fix (Ceiling / Wall/ Floor Finishing, Door)	90	17-Mar-24	14-Jun-24	24-Jan-24	22-Apr-24	-53	S3C1140	S3S1170, S3C1160, PL1190, SC31120																																																								
S3C1160	Landscaping Works	120	28-May-25	24-Sep-25	24-Apr-24	21-Aug-24	-399	S3C1140, S3C1150	SC31120																																																								
E&M Installation		144	08-Oct-23 A	13-Jul-24	18-Jan-23	30-Dec-24	170																																																										
Mechanical Installations		106	08-Oct-23 A	05-Jun-24	18-Jan-23	22-Jul-24	47																																																										
Basement		89	08-Oct-23 A	05-Jun-24	01-Feb-23	19-May-23	-383																																																										
S3C1995	Access to Sidestream Treatment Facilities (B/F)	0	08-Oct-23 A		01-Feb-23			S3C1100, S3D1470	S3C2000, S3C2450, S3C2460																																																								
S3C2000	Installation of Buffer Tank Lifting pumps (3 nos.)	0	08-Oct-23 A	14-Oct-23 A	10-Feb-23	10-Feb-23		S3P1760, S3C1995	S3C2020, S3C2150, S3T1030, S3C2010																																																								
S3C2010	Installation of Secondary Sludge pumps (3 nos.)	0	08-Oct-23 A	14-Oct-23 A	10-Feb-23	10-Feb-23		S3P1780, S3C2000	S3C2030, S3C2150, S3T1030																																																								
S3C2020	Installation of Anammox Feed pumps (3 nos.)	0	08-Oct-23 A	14-Oct-23 A	10-Feb-23	10-Feb-23		S3C2000, S3P1770	S3C2040, S3C2150, S3T1030																																																								
S3C2030	Installation of Metering Pumps (2 nos.)	0	08-Oct-23 A	14-Oct-23 A	10-Feb-23	10-Feb-23		S3C2010, S3P1850	S3C2050, S3C2150, S3T1030																																																								
S3C2040	Installation of Anammox Sludge discharge pumps (2 nos.)	0	08-Oct-23 A	14-Oct-23 A	10-Feb-23	10-Feb-23		S3C2020, S3P1770	S3C2060, S3C2150, S3T1030																																																								
S3C2050	Installation of Struvite Pumps (3 nos.)	0	08-Oct-23 A	14-Oct-23 A	10-Feb-23	10-Feb-23		S3C2030, S3P1790	S3C2070, S3C2150, S3T1030																																																								
S3C2060	Installation of Thickener feed pumps (2 nos.)	0	08-Oct-23 A	14-Oct-23 A	10-Feb-23	10-Feb-23		S3C2040, S3P1810	S3C2080, S3C2150, S3T1030																																																								
S3C2070	Installation of Primary Clarifier sludge discharge pump (3 nos.)	0	08-Oct-23 A	14-Oct-23 A	10-Feb-23	10-Feb-23		S3C2050, S3P1800	S3C2150, S3T1030																																																								
S3C2080	Installation of Flushing Pump (2 nos.)	7	09-Mar-24*	15-Mar-24	28-Mar-23	03-Apr-23	-347	S3C2060, S3P2050	S3C2150, S3C2240, S3T1030																																																								
S3C2090	Installation of Secondary Clarifiers No.1 and 2	30	16-Apr-24	15-May-24	31-Mar-23	29-Apr-23	-382	S3P1470, S3C2180	S3T1110																																																								
S3C2100	Installation of Separator for Phospaq No.1 and 2	21	16-Apr-24	06-May-24	14-Mar-23	03-Apr-23	-399	S3P1490, S3C2180	S3C2130, S3T1140																																																								
S3C2110	Installation of Separator for Anammox No. 1 and 2	34	22-Mar-24	24-Apr-24	31-Mar-23	03-May-23	-357	S3P1490, S3C2260, S3C2270	S3T1150																																																								
S3C2120	Installation of Mixer for Thickened Sludge Tank, Sludge Mlxing Tank, Anammox Effluent Chamber and Filtrate Buffer Tank	14	16-May-24	29-May-24	20-Apr-23	03-May-23	-392	S3P1960, S3C2190, S3C1125	S3T1090																																																								
S3C2130	Installation of Diffusers and pipework for Phospaq	30	07-May-24	05-Jun-24	04-Apr-23	03-May-23	-399	S3P1950, S3C2100	S3T1140, S3C2140																																																								
S3C2140	Installation of Diffusers and pipework for Anammox	30	07-May-24	05-Jun-24	04-Apr-23	03-May-23	-399	S3P1950, S3C2130	S3T1150																																																								



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

Contract No. DE/2018/03
Shek Wu Hui Effluent Polishing Plant - Main Works Stage 1
Sidestream Treatment Facilities and E&M Works for Sludge Treatment Facilities
Revised Programme - as at 20 February 2024

Date	Revision	Checked	Approved
31-Oct-23	Rev.39	IM/LT	KM
30-Nov-23	Rev.40	IM/LT	KM
31-Dec-23	Rev.41	IM/LT	KM
31-Jan-24	Rev.42	IM/LT	KM
29-Feb-24	Rev.43	IM/LT	KM

Activity ID	Activity Name	Remaining Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	Time Risk Allowance	2020												2021												2022												2023												2024												2025											
Section 5 - Complete all remaining Works (incl. T&C)		582	18-May-20 A	24-Sep-25	30-Dec-22	24-Sep-25	0																																																																											
Fabrication, FAT & Delivery of Major Plant & Materials		90	18-May-20 A	20-May-24	10-Jan-23	24-Sep-25	492																																																																											
S5P1000	Procurement & PO for Biogas Booster and Transfer Pumps	0	17-Jul-20 A	30-Nov-22 A	23-Jun-23	23-Jun-23		S2P1000	S5BIOP1000																																																																									
S5P1010	Procurement & PO for Pipeworks & Associated Valves	0	29-Jan-21 A	30-Jul-23 A	24-Feb-23	24-Feb-23		S2D1070	S5CHPP1070, S5DIGP1020																																																																									
S5P1020	Procurement & PO for Lifting Appliances	0	18-May-20 A	29-Oct-21 A	24-Sep-25	24-Sep-25		S2P1020																																																																										
S5P1030	Procurement & PO for Ferric Chloride Storage Tank	0	20-Jul-20 A	18-May-22 A	01-Apr-23	01-Apr-23		S2P1000	S5FCDP1000																																																																									
S5P1040	Procurement & PO for Ferric Chloride Dosing Pump	0	18-May-20 A	13-May-22 A	19-Mar-23	19-Mar-23		S2P1020	S5FCDP1010																																																																									
S5P1050	Procurement & PO for Electrical Sub-contractor	0	21-Jun-21 A	14-Dec-22 A	10-Jan-23	10-Jan-23		PL1010, S2P1130, S2D1370, S2D1570, S2D1270, S2D1310, S2D1430, S2D1470, S2D1510, S2D1630, S2D1670	S5SDBC1170, S5SDBC1310, S5SDBC1540, S5CHPC1100, S5CHPC1230, S5CHPC1290, S5TXRC1030, S5TXRC1040, S5DIGC1120, S5DIGC1160, S5DIGC1200, S5DIGC1260, S5EXAC1030, S5EXAC1080, S5EXAC1100, S5EXAC1070																																																																									
S5P1070	Procurement & PO for mechanical ventilation system	0	28-Dec-21 A	28-Mar-22 A	24-Sep-25	24-Sep-25																																																																												
S5P1080	Fabrication and Delivery of Ventilation Fan	0	07-Sep-23 A	15-Dec-23 A	11-Feb-23	11-Feb-23			S5SDBC1620, S5SDBC1820, S5CHPC1090, S5CHPC1220, S5DIGC1290, S5WS2C1150																																																																									
S5P1090	Fabrication and Delivery of UPS	90	15-Dec-23 A	20-May-24	19-Feb-23	19-May-23	-367		S5SDBC1900, S5SDBC1910, S5ASC1040, S3C2580, S5CHPC1430, S5CHPC1440, S5WS2C1200																																																																									
Sludge Dewatering Building		215	11-Aug-21 A	22-Sep-24	07-Jan-23	24-Sep-25	367																																																																											
Procurement, Fabrication, FAT & Delivery of Major Plant & Materials		70	11-Aug-21 A	30-Apr-24	07-Jan-23	27-Jul-23	-279																																																																											
Procurement		0	31-Jul-22 A	31-Mar-23 A	07-Jan-23	02-Jun-23																																																																												
S5SDBP1000	Procurement & PO for DI pipework (B/F)	0	17-Aug-22 A	30-Sep-22 A	11-Apr-23	11-Apr-23			S5SDBP1630																																																																									
S5SDBP1010	Procurement & PO for DI pipework (G/F and 1/F)	0	24-Aug-22 A	31-Mar-23 A	07-Jan-23	07-Jan-23			S5SDBP1640																																																																									
S5SDBP1020	Procurement & PO for FRP ductworks	0	31-Oct-22 A	30-Nov-22 A	02-Jun-23	02-Jun-23			S5SDBP1650																																																																									
S5SDBP1030	Procurement & PO for Genset	0	31-Jul-22 A	22-Feb-23 A	09-Feb-23	09-Feb-23			S5SDBP1670																																																																									
S5SDBP1040	Procurement & PO for Process Water Pumps	0	17-Dec-22 A	30-Jan-23 A	03-May-23	03-May-23			S5SDBP1210																																																																									
S5SDBP1050	Procurement & PO for Sludge Skip (PS Screen & Dewatering Screen)	0	18-Nov-22 A	31-Mar-23 A	19-May-23	19-May-23			S5SDBP1230																																																																									
Mechanical		70	11-Aug-21 A	30-Apr-24	07-Jan-23	27-Jul-23	-279																																																																											
Fabrication and FAT		40	11-Aug-21 A	31-Mar-24	10-Jan-23	27-Jun-23	-279																																																																											
S5SDBP1060	Fabrication & Delivery of Lift	0	18-Dec-21 A	10-Aug-22 A	17-May-23	17-May-23			S5SDBC1780																																																																									
S5SDBP1070	Fabrication & FAT of External Sludge Transfer Pump	0	11-Apr-22 A	28-Oct-22 A	11-Apr-23	11-Apr-23			S5SDBP1400																																																																									
S5SDBP1080	Fabrication & FAT of PS Screen Feed Pump	0	11-Apr-22 A	28-Oct-22 A	03-May-23	03-May-23			S5SDBP1490																																																																									
S5SDBP1090	Fabrication & FAT of Sludge Screen	0	11-Aug-21 A	26-Jul-22 A	18-Mar-23	18-Mar-23			S5SDBP1520																																																																									
S5SDBP1100	Fabrication and FAT of Centrate Transfer Pumps	0	25-Mar-22 A	31-Jan-23 A	22-Feb-23	22-Feb-23			S5SDBP1360																																																																									
S5SDBP1110	Fabrication and FAT of Conveyor (Dewatering)	0	17-Oct-22 A	02-Jan-24 A	06-Mar-23	06-Mar-23			S5SDBP1370																																																																									
S5SDBP1120	Fabrication and FAT of Dewatering Centrifuge Feed Pumps	0	11-Apr-22 A	28-Oct-22 A	11-Apr-23	11-Apr-23			S5SDBP1380																																																																									
S5SDBP1130	Fabrication and FAT of Dewatering Polymer Powder Unit	0	06-Apr-22 A	17-Nov-22 A	10-Jan-23	10-Jan-23		S5SDBP1200	S5SDBP1390																																																																									
S5SDBP1140	Fabrication and FAT of FRP Tank (Thickening & Dewatering Polymer Dosing System)	0	14-Nov-22 A	05-Jan-24 A	06-Feb-23	06-Feb-23			S5SDBP1410																																																																									
S5SDBP1150	Fabrication and FAT of Hoist	0	21-Mar-22 A	28-Feb-23 A	18-Mar-23	18-Mar-23			S5SDBP1420																																																																									
S5SDBP1160	Fabrication and FAT of Mixers (Digested Sludge Holding Tank)	0	22-Sep-22 A	14-Jun-23 A	08-Mar-23	08-Mar-23			S5SDBP1430																																																																									
S5SDBP1170	Fabrication and FAT of Polymer Dosing Pumps	0	11-Apr-22 A	28-Oct-22 A	18-Mar-23	18-Mar-23			S5SDBP1440																																																																									
S5SDBP1180	Fabrication and FAT of Polymer Transfer Pumps	0	11-Apr-22 A	28-Oct-22 A	11-Apr-23	11-Apr-23			S5SDBP1450																																																																									
S5SDBP1190	Fabrication and FAT of Preparation Tank Mixers	0	28-Mar-22 A	14-Jun-23 A	11-Jun-23	11-Jun-23			S5SDBP1460																																																																									

Date	Revision	Checked	Approved
31-Oct-23	Rev.39	IM/LT	KM
30-Nov-23	Rev.40	IM/LT	KM
31-Dec-23	Rev.41	IM/LT	KM
31-Jan-24	Rev.42	IM/LT	KM
29-Feb-24	Rev.43	IM/LT	KM

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 %		
Drawing Submission for Key Dates												
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)	28/8/2020	18/9/2020	5/11/2020	5/11/2020	Task Completed	no.	26	26	100%		
	KD1A: Submission of Electrical Schematic Drawing (Final)	15/7/2020	15/7/2020	5/11/2020	5/11/2020	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)	30/9/2020	28/9/2020	30/12/2020	31/3/2021	Task Completed	no.	47	47	100%		
	KD1B: Submission of Civil Requirement Drawing (Final)	6/11/2020	5/11/2020	4/6/2021	4/6/2021	Task Completed	no.	47	47	100%		All the CWR Drawings were submitted.
	KD1B: 4 June 2021											
KD3A: 04SC010 - Dismantle & Removal of Emergency Generators in existing Power House	Submission of subletting package for acceptance (C9)	1/3/2020	24/2/2020	14/3/2020	22/4/2020	Task Completed				100%	-	Bestwise resubmitted on 22 April 2020
	Acceptance of subletting package (C9)	14/3/2020	6/5/2020	1/4/2020	5/5/2020	Task Completed				100%	-	AECOM accepted subletting package on 5 May 2020
	Tender invitation (C9)	1/4/2020	15/5/2020	15/4/2020	22/5/2020	Task Completed				100%	-	Invitation to tender was commenced on 12 May 2020 and tender returned on 22 May 2020
	Tender award (C9)	15/4/2020	22/5/2020	29/4/2020	26/5/2020	Task Completed				100%	-	Bestwise submitted tender report on 26 May 2020
	Acceptance of tender award (C9)	-	-	-	6/6/2020	Task Completed				100%	-	AECOM accepted tender report on 2 June 2020, Letter of Acceptance was issued on 6 June
	Dismantle of existing BS equipment		15/6/2020		25/7/2020	Task Completed				100%		
	Removal of emergency generators	1/6/2020	15/6/2020	30/6/2020	25/7/2020	Task Completed				100%		
KD3A: 04SC010 - Dismantle & Removal of Emergency Generators in existing Power House	KD3A: Testing and Commissioning	1/7/2020	3/7/2020	29/7/2020	29/7/2020	Task Completed				100%		First test was conducted on 3 July 2020. Remaining test would be subjected to completion of civil works. KD3A - 29 July 2020. Joint Site Inspection was conducted on 24 July 2020 and Notice of completion of work was submitted on 28 July 2020
	KD3A: 29 July 2020											
KD3B: 6B.2.15 Operation Restoration of Existing Primary Sedimentation Tank (PST) No. 4 and 6	Submission of onsite survey plan on E&M aspects for	1/3/2020	25/3/2020	30/3/2020	27/4/2020	Task Completed				100%	-	Bestwise resubmitted onsite survey plan on 27 April 2020
	Acceptance of submission of onsite survey plan	1/3/2020	25/3/2020	30/3/2020	22/5/2020	Task Completed				100%	-	AECOM accepted the onsite survey plan on 22 May 2020. Onsite coordination with ST1
	KD3B: Submission of onsite survey report	11/7/2020	20/7/2020	16/7/2020	30/7/2021	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	17/7/2020	6/8/2020	23/7/2020	6/8/2021	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: Preparation of procurement package (C11)	2/12/2019	1/8/2020	13/4/2020	7/8/2020	Task Completed				100%		
	KD3B: Tender invitation - Clarifier (C11)	2/12/2019	14/8/2020	13/4/2020	26/8/2020	Task Completed				100%		
	KD3B: Tender Award - Clarifier (C11)	2/12/2019	26/8/2020	13/4/2020	25/9/2020	Task Completed				100%		
	KD3B: Acceptance of tender award (C11)	2/12/2019	11/9/2020	13/4/2020	18/9/2020	Task Completed				-		
	KD3B: Tender invitation - DI Pipe (C11)	2/12/2019	13/1/2021	13/4/2020	19/1/2021	Task Completed				100%		
	KD3B: Tender Award - DI Pipe (C11)	2/12/2019	21/1/2021	13/4/2020	23/1/2021	Task Completed				100%		
	KD3B: Tender invitation - LCP (C11)	2/12/2019	3/2/2021	13/4/2020	5/2/2021	Task Completed				100%		
	KD3B: Tender Award - LCP (C11)	2/12/2019	6/2/2021	13/4/2020	8/2/2021	Task Completed				100%		
	KD3B: Preparation of subletting package for dismantling work (C9)	2/12/2019	21/9/2020	13/4/2020	21/10/2020	Task Completed				100%		
KD3B: Tender invitation for dismantling work (C9)	2/12/2019	12/11/2020	13/4/2020	19/11/2020	Task Completed				100%			
KD3B: Tender Award for dismantling work (C9)	2/12/2019	20/11/2020	13/4/2020	22/11/2020	Task Completed				100%			
KD3B: Acceptance of tender award for dismantling work (C9)	2/12/2019	23/11/2020	13/4/2020	1/12/2020	Task Completed				100%			

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 %		
	KD3B: Preparation and Acceptance of subletting package for installation work (C9)	2/12/2019	15/12/2020	13/4/2020	1/3/2021	Task Completed				100%		
	KD3B: Tender invitation for installation work (C9)	2/12/2019	3/3/2021	13/4/2020	10/3/2021	Task Completed				100%		
	KD3B: Tender Award for installation work (C9)	2/12/2019	12/3/2021	13/4/2020	15/3/2021	Task Completed				100%		
	KD3B: Acceptance of tender award for installation work (C9)	2/12/2019	15/3/2021	13/4/2020	19/3/2021	Task Completed				100%		
	Submission and Acceptance of Drawing Submission	14/4/2020	5/8/2020	10/9/2020	11/1/2021	Task Completed				100%		
	Submission and Acceptance of P&M Submission	14/4/2020	5/8/2020	10/9/2020	30/6/2021	Task Completed						Formal resubmission of P&M for Rotating Bridge Scraper P&M-0024 (Rev.1) was submitted to AECOM on 24 June 2021 and is accepted by AECOM. P&M submission for Local Control Panel Rev.3 was submitted on 20 Mar 2021 and AECOM accepted on 26 Mar 2021.
	Submission and Acceptance of FAT Plan	1/12/2020	27/1/2021	15/12/2020	16/2/2021	Task Completed				100%		
	Submission and Acceptance of SAT Plan	1/3/2021	1/3/2021	1/4/2021	5/5/2021	Task Completed				100%		Bestwise submitted on 13 Apr 2021. AECOM accepted with comments on 5 May 2021.
	Submission and Acceptance of Design Submission (Support to DN700 Feed Pipe)	N/A	22/2/2021	N/A	13/5/2021	Task Completed						Advanced Calculation was provided on 17 Mar 2021 and revised on 18 Mar 2021. Bestwise proposed to use the existing support. Calculation was provided on 1 Apr 2021 via email. Dimension of support column was checked again on 14 Apr 2021. Proposal submitted on 30 Apr 2021. AECOM accepted with comments on 13 May 2021.
	Submission and Acceptance of Design Submission (Stainless steel support to FRP Cover of Effluent	N/A	24/2/2021	N/A	19/4/2021	Task Completed				100%		Advanced Calculation was provided on 17 Mar 2021 and revised on 18 Mar 2021. Bestwise formal submitted on 26 Mar 2021. AECOM accepted with comment on 19 Apr 2021.
	KD3B: Dismantle and Removal of E&M Equipment at PST No. 6	9/2/2021	21/12/2020	19/2/2021	15/1/2021	Task Completed				100%		
	Flow Diversion and drain out PST No.4	N/A	25/1/2021	N/A	26/3/2021	Task Completed				100%		
	KD3B: Dismantle and Removal of E&M Equipment at PST No. 4	9/2/2021	5/3/2021	19/2/2021	1/4/2021	Task Completed				100%		
	KD3B: Material Manufacturing (Clarifier)	12/9/2020	16/12/2020	12/12/2020	20/2/2021	Task Completed				100%		The clarifier would be manufactured in 2 batches (rotating bridge related and FRP launder cover). Manufacturing instruction was issued on 16 Dec 2020. Jash suggested 1st batch of material (clarifier) would be ready for shipping on 20 Feb 2021 and 2nd batch of material (FRP Launder Cover) would be ready for shipping on 13 Mar 2021. (To be confirmed by Jash by providing shipment booking, but supplier cannot provide updated information at this moment due to second surge of COVID-19 in India)
	KD3B: FAT of the Clarifier	N/A	24/2/2021	N/A	1/3/2021	Task Completed				100%		FAT Report submitted on 24 Feb 2021 and AECOM accepted subject to comment on 1 Mar 2021
	KD3B: Material Delivery (Clarifier)	13/12/2020	27/2/2021	18/1/2021	6/4/2021	Task Completed				100%		
	KD3B: Material Deliver to Site (Clarifier)	N/A	6/4/2021	N/A	8/4/2021	Task Completed				100%		
	KD3B: Material Manufacturing (DI pipes and fittings)	11/9/2020	26/1/2021	18/1/2021	15/3/2021	Task Completed				100%		Extracted from C9 package to C11 package to suit the installation programme
	KD3B: Material Delivery (DI pipes and fittings)	11/9/2020	16/3/2021	18/1/2021	24/3/2021	Task Completed				100%		
	KD3B: Material Delivery (FRP Cover)	N/A	26/3/2021	N/A	21/6/2021	Task Completed				100%		All the FRP covers were delivered to site.
	KD3B: Material Manufacturing (LCP)	11/9/2020	4/3/2021	18/1/2021	16/4/2021	Task Completed				100%		
	KD3B: Material Delivery (LCP)	11/9/2020	17/4/2021	18/1/2021	30/4/2021	Task Completed				100%		
	KD3B: Retrofitting Concrete Structure of PST No. 4	N/A	2/4/2021	N/A	22/4/2021	Task Completed				100%		
	KD3B: Installation of E&M Equipment at PST No. 4	27/2/2021	5/4/2021	10/5/2021	17/5/2021	Task Completed						
	KD3B: Testing and Commissioning for PST No. 4	11/5/2021	19/4/2021	9/6/2021	26/7/2021	Task Completed						Wet test for PST 4 completed on 26 July 2021.
	Flow Diversion from PST No.6 to Temporary Filtrate Equalization Tank	N/A	19/5/2021	N/A	20/5/2021	Task Completed				100%		Filtrate feeding to TFES was resumed on 19/5/2021 with fine-tuned control.
	Removal of Accumulated Sludge Inside PST No. 6	N/A	19/5/2021	N/A	30/5/2021	Task Completed				100%		NCE-0229, this includes removal of floating scum/ sludge and clearance of blockage of drain pipe
	KD3B: Retrofitting Concrete Structure of PST No. 6	N/A	28/5/2021	N/A	24/6/2021	Task Completed				100%		
	KD3B: Mechanical Installation of E&M Equipment at PST No. 6	27/2/2021	31/5/2021	10/5/2021	21/7/2021	Task Completed				100%		This includes PST Influent feed pipe, center bearing & slip ring assembly, motor & gearbox assembly, rotating bridge sludge & scum scraper assembly, circular baffle diffuser box, v-notched weir plate, scum baffle plate, scum collection box and FRP cover.
	KD3B: Electrical Installation of E&M Equipment at PST No. 6	27/2/2021	9/6/2021	10/5/2021	21/7/2021	Task Completed				100%		This includes installation of LCP, cable laying & terminations.

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 %		
	KD3B: Testing and Commissioning for PST No. 6	11/5/2021	22/6/2021	9/6/2021	20/8/2021	Task Completed				100%		Wet test (1st) completed on 20 Aug 2021 and wet test (2nd) completed on 3 Sep 2021.
KD3B: 6B.2.15 Operation Restoration of Existing Primary Sedimentation Tank (PST) No. 4 and 6	KD3B: System Commissioning for PST No. 4 & 6	N/A	22/6/2021	N/A	3/9/2021	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 defect rectification was completed. Site training/ demonstration shall be conducted by end Feb and PMI modification work shall be completed by end March.
	KD3B: 9 June 2021											
Section 1 of Works (outstanding works list)												
6B.2.12 Provision of New Replacement Filter Plates	Submission of onsite survey plan for acceptance	1/3/2020	25/3/2020	30/3/2020	21/4/2020	Task Completed				100%	-	Bestwise resubmitted onsite survey plan on 21 April 2020
	Acceptance of submission of onsite survey plan	1/3/2020	25/3/2020	30/3/2020	12/5/2020	Task Completed				100%	-	Survey plan acceptance received on 12 May 2020. Onsite discussion with ST1 was
	Submission of onsite survey report	21/5/2020	21/5/2020	29/5/2020	29/5/2020	Task Completed				100%		
	Acceptance of onsite survey report	30/5/2020	30/5/2020	15/6/2020	15/6/2020	Task Completed				-		
	Preparation of procurement package (C11)	22/6/2020	22/6/2020	6/7/2020	14/7/2020	Task Completed				100%		
	Tender invitation (C11)	15/7/2020	15/7/2020	22/7/2020	24/7/2020	Task Completed				100%		
	Tender Award (C11)	23/7/2020	25/7/2020	29/7/2020	31/7/2020	Task Completed				100%		Revised survey report (second draft) was sent to AECOM on 21 Oct 2020. Technical
	Material Submission	21/8/2020	21/8/2020	28/8/2020	7/12/2020	Task Completed				100%		Material submission (Rev.1) resubmitted on 7 Dec 2020. AECOM accepted subject to comments on 24 Dec 2020. Material submission (Rev. 2) resubmitted on 12 Jan 2021. AECOM accepted subject to comment on 22 Jan 2021.
6B.2.12 Provision of New Replacement Filter Plates for Existing Membrane Filter Presses at Existing Sludge Press House	Material Delivery	1/12/2020	1/12/2020	8/8/2021	8/8/2021	Task Completed				-		"Filter Press Plates and Cloths" were handed over to DSD.
6B.2.12 Provision of Membrane Filter Press System at Existing Sludge Press House	Submission of onsite survey plan for acceptance	1/3/2020	25/3/2020	30/3/2020	Task to be deleted	Task to be deleted				-	-	PPMI No.5 was issued by PM on 24 April 2020. Bestwise is requested to submit quotation on delete the provision of one (1) no. of membrane filter press system in pursuant to Particular Specification Clause 6B.2.12.
6B.2.16 Temporary Filtrate Equalisation System (Sub-programme was provided by Bestwise)	Submission of onsite survey plan on E&M aspects for acceptance	1/3/2020	1/4/2020	30/3/2020	7/5/2020	Task Completed				100%	-	Bestwise resubmitted onsite survey plan on 7 May 2020
	Acceptance of submission of onsite survey plan	1/3/2020	1/4/2020	30/3/2020	23/5/2020	Task Completed				100%	-	AECOM accepted the onsite survey plan on 23 May 2020
6B.2.16 Temporary Filtrate Equalisation System (Sub-programme was provided by Bestwise)	Submission and Acceptance of ELS Design for Lifting Well	15/06/2020 -> 17/08/2020*	2/9/2020	30/07/2020 -> 30/11/2020*	9/2/2021	Task Completed				100%	Bestwise	- * = PMI014 - Revised Location for Construction of Temporary Filtrate Equalization System received on 17 Aug 2020. - Re-design work was proceeded and the planned start date was revised to 17 Aug 2020. Bestwise submitted Rev.0 on 21 Oct 2020 and resubmitted Rev.2 on 23 Jan 2021. - AECOM provide consent for the ELS temporary works on 9 Feb 2021. AECOM accepted on 9 Feb 2021.
	Submission and Acceptance of Design for Filtrate Lifting Well Construction	15/06/2020 -> 17/08/2020*	2/9/2020	30/07/2020 -> 30/11/2020*	15/1/2021	Task Completed				100%		* = PMI014 - Revised Location for Construction of Temporary Filtrate Equalization System received on 17 Aug 2020. - Re-design work was proceeded and the planned start date was revised to 17 Aug 2020. AECOM commented on 21 Dec 2020. Bestwise submitted Rev.0 on 2 Nov 2020 and Rev.1 on 8 Jan 2021.
	Submission and Acceptance of Design of FRP Filtrate Equalization Tank	15/06/2020 -> 07/09/2020**	2/9/2020	30/07/2020 -> 22/10/2020*	15/1/2021	Task Completed				100%		** = Change of material of temporary filtrate equalization tank from concrete to FRP on 07 Sep 2020. - Re-design work was proceeded and the planned start date was revised to 17 Aug 2020. - Bestwise submitted Rev.0 on 08 Jan 2020.
	Submission and Acceptance of Design of footing for FRP Filtrate Equalization Tank	15/06/2020 -> 07/09/2020**	2/9/2020	30/07/2020 -> 22/10/2020*	19/2/2021	Task Completed				100%		** = Change of material of temporary filtrate equalization tank from concrete to FRP on 07 Sep 2020. - Re-design work was proceeded and the planned start date was revised to 17 Aug 2020. - Design of Footing was submitted on 8 Feb 2021.
	Submission and Acceptance of Design of Formwork & Flasework Design for Construction of Lifting Well	15/06/2020 -> 17/08/2020*	2/9/2020	30/07/2020 -> 30/11/2020*	15/1/2021	Task Completed				100%		- * = PMI014 - Revised Location for Construction of Temporary Filtrate Equalization System received on 17 Aug 2020. - Bestwise submitted Rev.0 on 12 Jan 2020.

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 %		
	Submission and Acceptance of Contractor's Design for Temporary Filtrate Equalisation System (E&M Works) (CDS010-2)	01/06/2020 -> 7/9/2020**	5/7/2020	30/07/2020 -> 30/11/2020*	30/7/2021	Task Completed				-	Bestwise	** = Change of material of temporary filtrate equalization tank from concrete to FRP on 07 Sep 2020. - Bestwise submitted (CDS 0010 Rev.0) on 6 August 2020, AECOM commented on 27 Aug 2020. Bestwise to resubmit (Separate submissions P&M0049, DWG0038, CDS0026, P&M0008, P&M0004, CDS0037, CDS0027, DWG0040 were submitted) - Control philosophy (CDS0027 Rev.0) was submitted on 22 Dec 2020. AECOM commented on 13 Jan 2021, Bestwise resubmitted on 27 May 2021 formally, AECOM accepted with comments on 4 Jun 2021.
	Drawing Submission	01/06/2020 -> 17/08/2020*	29/9/2020	30/07/2020 -> 30/11/2020*	5/3/2021	Task Completed				100%	Bestwise	- * = PMI014 - Revised Location for Construction of Temporary Filtrate Equalization System received on 17 Aug 2020. - Bestwise submitted (rev.0) on 29 Oct 2020 and resubmitted (rev.2) on 25 Jan 2021, AECOM accepted on 5 Feb 2021.
	Material Submission	01/06/2020 -> 17/08/2020*	29/11/2020	30/07/2020 -> 30/11/2020*	25/2/2021	Task Completed				100%	Bestwise	** = Change of material of temporary filtrate equalization tank from concrete to FRP on 07 Sep 2020. - P&M submission of temporary filtrate equalization tank (P&M 0030 Rev.1) on 29 Jan 2021. AECOM accepted subject to comments on 25 Feb 2021.
Subletting Package for Temporary Filtrate Equalization System	Tender invitation (C11) (EQT-002 & EQT-004)	17/4/2020	17/4/2020	7/5/2020	7/5/2020	Task Completed				100%		
	Tender award (C11) (EQT-002 & EQT-004)	14/4/2020	24/4/2020	13/5/2020	13/5/2020	Task Completed				100%	Bestwise	Bestwise submitted tender report on 29 April 2020 for filtrate pumps, AECOM commented on 29 May 2020, Bestwise to resubmit. Bestwise submitted tender report of instrument on 13 May 2020, AECOM noted on 26 May
	Acceptance of tender award (C11) (EQT-002 & EQT-004)	25/4/2020	25/4/2020	21/5/2020	21/5/2020	Task Completed				100%	Bestwise	
	Material Submission	20/07/2020 ->	16/10/2020	20/08/2020 ->	5/2/2021	Task Completed				-	Bestwise	** = Change of material of temporary filtrate equalization tank from concrete to FRP on 18
	Submission of subletting package for acceptance (C9)	1/3/2020	13/7/2020	14/3/2020	13/7/2020	Task Completed				100%		
	Acceptance of subletting package (C9)	15/3/2020	14/7/2020	28/3/2020	14/7/2020	Task Completed				100%		
	Tender invitation (C9)	29/3/2020	15/7/2020	11/4/2020	22/7/2020	Task Completed				100%		
	Tender award (C9)	12/4/2020	23/7/2020	25/4/2020	13/8/2020	Task Completed				100%		
	Acceptance of tender award for civil construction work (C9)	26/04/2020	14/8/2020	5/5/2020	2/9/2020	Task Completed				100%		
	Preparation of subletting package for mech work (C9)	01/08/2020 -> 01/12/2020*	25/1/2021	08/08/20 -> 08/12/2020*	1/3/2021	Task Completed				100%		* = PMI014 - Revised Location for Construction of Temporary Filtrate Equalization System received on 17 Aug 2020. Subletting package would be submitted on 25 Feb 2021 and AECOM accepted on 1 Mar
	Tender invitation for mech work (C9)	08/08/20 ->	2/3/2021	15/08/2020 ->	9/3/2021	Task Completed				100%		Tender invitation was conducted on 2 Mar 2021 and returned on 9 Mar 2021
	Tender Award for mech work (C9)	15/08/2020 ->	10/3/2021	22/08/2020 ->	15/3/2021	Task Completed				100%		Tender report was submitted on 15 Mar 2021
	Acceptance of tender award for mech work (C9)	22/08/2020 ->	15/3/2021	29/08/2020 ->	19/3/2021	Task Completed				100%		Tender award on 19 Mar 2021.
	Preparation of subletting package for elect work (C9)	01/08/2020 -> 01/12/2020*	2/2/2021	08/08/20 -> 08/12/2020*	1/3/2021	Task Completed				100%		* = PMI014 - Revised Location for Construction of Temporary Filtrate Equalization System received on 17 Aug 2020. Subletting package resubmitted on 26 Feb 2021 and AECOM accepted on 1 Mar 2021..
Tender invitation for elect work (C9)	01/08/2020 ->	2/3/2021	15/08/2020 ->	9/3/2021	Task Completed				100%		Tender invitation was conducted on 2 Mar 2021 and returned on 9 Mar 2021	
Tender Award for elect work (C9)	08/08/20 ->	10/3/2021	22/08/2020 ->	15/3/2021	Task Completed				100%		Tender report was submitted on 15 Mar 2021	
Acceptance of tender award for elect work (C9)	15/08/2020 -> 15/12/2020*	15/3/2021	29/08/2020 -> 29/12/2020*	19/3/2021	Task Completed				100%		Tender award on 19 Mar 2021.	
Construction of Temporary Filtrate Equalisation System	Construction of minor civil works under PMI 014	22/08/2020 -> 22/12/2020*	5/10/2020	15/10/2020	31/3/2021	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	7/11/2020	12/1/2021	30/12/2020	25/2/2021	Task Completed				100%		
	Construction of concrete plinth for filtrate EQ tank	23/1/2021	8/2/2021	1/2/2021	26/2/2021	Task Completed				100%		
	Offsite fabrication and delivery of filtrate EQ tank	31/10/2020	16/1/2021	2/2/2021	4/3/2021	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	1/3/2021	12/3/2021	16/4/2021	Task Completed				100%		
6B.2.16 Temporary Filtrate Equalisation System	Mechanical Installation	17/3/2021	30/3/2021	12/4/2021	14/5/2021	Task Completed				-		
	Electrical Installation	13/3/2021	29/3/2021	15/4/2021	10/12/2021	Task Completed				-		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 by end November.
	Testing and Commissioning	15/4/2021	22/4/2021	1/5/2021	30/11/2022	Completed				-		Defect rectification for BCM comments was partially completed and Site Acceptance Test (72 hours) was completed.
6B.1.17 Overall plant treatment process review by the Treatment Process Specialist	Submission of Treatment Process Specialist's review report	1/6/2020	1/6/2020	30/6/2020	2/7/2020	Task Completed				-	Bestwise	Preliminary Draft submitted, meeting completed on 15 May 2020 with SRE and TPS. Initial process design evaluation was submitted on 20 May 2020. Design calculation submitted on
	Acceptance of submission for further design	14/6/2020	3/7/2020	30/6/2020	17/7/2020	Task Completed				-		

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 %		
6B Overall plant process equipment sizing review	Submission of Contractor's Design Calculation for Acceptance of submission for further detail design	1/6/2020 14/6/2020	1/6/2020 3/7/2020	30/6/2020 30/6/2020	2/7/2020 17/7/2020	Task Completed Task Completed				- -	Bestwise	Preliminary Draft submitted, meeting completed on 15 May 2020 with SRE and TPS. Initial
6B.2.1 Inlet Works	Submission of Contractor's Design for Inlet Works No. 1	6/9/2020	16/11/2020	14/5/2021	31/3/2024	99%				-	Bestwise	All finalized design calculations for Inlet Works no.1 shall be submitted by 20 Jan 2023.
	Submission of P&M Submission	6/9/2020	7/9/2020	14/5/2021	31/3/2024	99%						P&M0022 - Inlet Pumps (status: B) P&M0003 - Coarse Screens & Fine Screens (status: B) P&M0085 - Grit Traps (status: B) P&M0084 - Screw Compactor (status: B) P&M0042 - Screw Conveyors for Coarse Screens and Fine Screens (status: B) All P&M for Inlet Works no.1 shall be submitted by 20 Jan 2023.
	Submission of P&ID Drawing	6/9/2020	6/9/2020	14/5/2021	29/12/2020	Task Completed						PID (rev.B) submitted on 13 Nov 2020. AECOM accepted subject to comments on 29 Dec 2020.
	Submission of GA Drawing	6/9/2020	5/1/2021	14/5/2021	31/3/2024	99%						E&M GA submission DWG0082 resubmitted on 9 July 2021. AECOM commented on 19 Feb 2021. Bestwise reviewed GA in BIM with AECOM on 12 Jan 2022. Electrical GA DWG0095 resubmitted on 3 July 2021. AECOM commented on 21 Apr 2021. Bestwise reviewed GA in BIM with AECOM on 12 Jan 2022. All finalized drawings for Inlet Works no.1 shall be submitted by 30 June 2022 and BIM GA review meeting is scheduled on 5, 12, 19/5/2022.
	Submission of Electrical Drawing	6/9/2020	15/1/2021	14/5/2021	31/3/2024	99%						Electrical SLD submitted on 5 Feb 2021. AECOM commented on 20 Feb 2021. Bestwise to resubmit. All finalized drawings for Inlet Works no.1 shall be submitted by 20 Jan 2023.
	Acceptance of submission	15/5/2021	15/5/2021	29/5/2021	31/3/2024	99%				-		
	Submission of detailed design for electrical installation for Inlet Works No. 1 (CDS021)	6/9/2020	6/9/2020	14/5/2021	14/5/2021	Task Completed						
	Submission of detailed design for LV Switchboards for Inlet Works No. 1 (CDS025-1)	6/9/2020	6/9/2020	14/5/2021	14/5/2021	Task Completed						
	Submission of detailed design for electrical installation BS for Inlet Works No. 1 (CDS034-1)	6/9/2020	6/9/2020	14/5/2021	14/5/2021	Task Completed						
	Submission of civil work requirements for Inlet Works No. 1 up to +8.0 mPD (CDS080-1)	1/9/2020	1/9/2020	30/10/2020	30/10/2020	Task Completed						
	KD1A: Submission of civil requirement drawing for Inlet Works No. 1 up to +8.0 mPD (First Draft)	15/7/2020	15/7/2020	15/8/2020	17/9/2020	Task Completed	no.	3	3	100%		1st draft of drawing submitted on 17 September 2020
	KD1A: Submission of civil requirement drawing for Inlet Works No. 1 up to +8.0 mPD (Final)	28/8/2020	18/9/2020	5/11/2020	5/11/2020	Task Completed	no.	3	3	100%	Bestwise	Bestwise resubmitted (rev.A) on 27 Oct 2020.
	KD1A: Submission of electrical schematic drawings for Inlet Works No. 1 (First Draft)	15/7/2020	15/7/2020	15/8/2020	30/9/2020	Task Completed	no.	2	2	100%		1st draft of drawing submitted on 30 September 2020
	KD1A: Submission of electrical schematic drawings for Inlet Works No. 1 (Final)	7/9/2020	1/10/2020	5/11/2020	20/10/2020	Task Completed	no.	2	2	100%	Bestwise	Bestwise submitted on 20 Oct 2020
	KD1A: 6 November 2020											Notice of completion works was submitted on 17 Nov 2020
6B.2.2 Primary Sedimentation Tank No. 1-4	Submission of Contractor's Design for Primary Sedimentation Tanks No. 1-4	6/9/2020	28/12/2020	14/5/2021	31/3/2024	99%				-	Bestwise	PFD (rev.B) under DWG0004 submitted on 22 June 2021. Finalized design calculations for PST shall be submitted by 20 Jan 2023.
	Submission of P&M Submission	6/9/2020	26/11/2020	14/5/2021	31/3/2024	99%						P&M0058 - Lamella Plate Settler (status: B) P&M0097 - Scum Skimmer and Scum Collection Pipe (status: B) P&M0086 - Sludge Bottom Scraper (status: B) P&M0051 - Drain Pump (status: B) P&M0044 - Primary Sludge Pump (status: B) Finalized material submissions for PST shall be submitted by 20 Jan 2023.
	Submission of P&ID Drawing	6/9/2020	2/10/2020	14/5/2021	24/6/2021	Task Completed						PID under DWG0037 (rev.1) submitted on 24 June 2021 and is accepted by AECOM.

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 %			
	Submission of GA Drawing	6/9/2020	3/2/2021	14/5/2021	31/3/2024	99%						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 30 Aug 2022.	
	Submission of Electrical Drawing	6/9/2020	15/1/2021	14/5/2021	31/3/2024	99%						Electrical SLD submitted on 5 Feb 2021. AECOM commented on 20 Feb 2021. Bestwise to resubmit. Finalized drawings for PST shall be submitted by 20 Jan 2023.	
	Acceptance of submission	15/5/2021	2/4/2021	29/5/2021	31/3/2024	99%				-		Refer to outstanding list under "Certificate of completion no.1 - section 1 of the works".	
	Submission of detailed design for electrical installation	6/9/2020	6/9/2020	14/5/2021	14/5/2021	Task Completed							
	Submission of detailed design for LV Switchboards for Primary Sedimentation Tanks (CDS025-2)	6/9/2020	6/9/2020	14/5/2021	14/5/2021	Task Completed							
	Submission of detailed design for electrical installation	6/9/2020	6/9/2020	14/5/2021	14/5/2021	Task Completed							
	Submission of civil work requirements for Primary Sedimentation Tanks up to +8.0 mPD (CDS080-2)	1/9/2020	1/9/2020	30/10/2020	30/10/2020	Task Completed							
	KD1A: Submission of civil requirement drawing for Primary Sedimentation Tanks No. 1-4 up to +8.0 mPD	15/7/2020	15/7/2020	15/8/2020	30/9/2020	Task Completed	no.	4	4	100%		1st part of drafted drawing (2 nos.) was submitted on 23 Sept 2020. Remaining drawings (2 nos.) were submitted on 30 Sept 2020.	
	KD1A: Submission of civil requirement drawing for Primary Sedimentation Tanks No. 1-4 up to +8.0 mPD	28/8/2020	1/10/2020	5/11/2020	5/11/2020	Task Completed	no.	4	4	100%	Bestwise	Bestwise resubmitted (Rev.A) on 27 Oct & 13 Nov 2020.	
	KD1A: Submission of electrical schematic drawings for Primary Sedimentation Tanks No. 1-4 (First Draft)	15/7/2020	15/7/2020	15/8/2020	30/9/2020	Task Completed	no.	1	1	100%		1st draft of drawing submitted on 30 September 2020	
	KD1A: Submission of electrical schematic drawings for Primary Sedimentation Tanks No. 1-4 (Final)	7/9/2020	1/10/2020	5/11/2020	20/10/2020	Task Completed	no.	1	1	100%	Bestwise	Bestwise submitted on 20 Oct 2020	
	KD1A: 6 November 2020											Notice of completion works was submitted on 17 Nov 2020	
6B.2.3 Chemical Storage and Dosing System	Submission of Contractor's Design for Chemical Dosing System (CDS006)	6/9/2020	7/1/2021	14/5/2021	29/10/2021	Task Completed					-	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 was submitted on 29 Oct 2021.
	Submission of P&M Submission	6/9/2020	6/9/2020	14/5/2021	30/10/2021	Task Completed							Finalized material submissions for chemical system was submitted on 30 Oct 2021.
	Submission of P&ID Drawing	6/9/2020	11/12/2020	14/5/2021	29/6/2021	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	6/9/2020	8/2/2021	14/5/2021	31/3/2024	99%							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. All finalized drawings for chemical systems shall be submitted by 30 June 2022 and BIM GA review meeting is scheduled on 17, 21, 28/4/2022.
	Submission of Electrical Drawing	6/9/2020	15/1/2021	14/5/2021	31/3/2024	99%							Electrical SLD submitted on 5 Feb 2021. AECOM commented on 20 Feb 2021. Bestwise to resubmit. All finalized drawings for chemical system shall be submitted by 20 Jan 2023.
	Acceptance of submission	15/5/2021	15/5/2021	29/5/2021	31/3/2024	99%					-		
	Submission of detailed design for electrical installations	6/9/2020	6/9/2020	14/5/2021	14/5/2021	Task Completed							
	Submission of detailed design for electrical installations	6/9/2020	6/9/2020	14/5/2021	14/5/2021	Task Completed							
	Submission of detailed design for electrical installations	6/9/2020	6/9/2020	14/5/2021	14/5/2021	Task Completed							
	Submission of detailed design for electrical installation	6/9/2020	6/9/2020	14/5/2021	14/5/2021	Task Completed							
	KD1A: Submission of civil requirement drawing for	15/7/2020	15/7/2020	15/8/2020	16/9/2020	Task Completed	no.	2	2	100%			1st draft of drawing submitted on 15 September for CHS1 and 16 September 2020 for
	KD1A: Submission of civil requirement drawing for	7/9/2020	17/9/2020	5/11/2020	5/11/2020	Task Completed	no.	2	2	100%			Bestwise resubmitted (Rev.A) on 5 Nov 2020.
	KD1A: Submission of electrical schematic drawings for	15/7/2020	15/7/2020	15/8/2020	15/9/2020	Task Completed					-		1st draft of drawing to be submitted by 16 September 2020
	KD1A: Submission of electrical schematic drawings for Chemical System No. 1 and No. 2 (Final)	7/9/2020	16/9/2020	5/11/2020	5/11/2020	Task Completed							
	KD1A: Submission of civil requirement drawing for Temporary Chemical System up to +8.0 mPD (First	15/7/2020	15/7/2020	15/8/2020	15/9/2020	Task Completed	no.	1	1	100%			1st draft of drawing submitted on 15 September 2020

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 %		
	KD1A: Submission of civil requirement drawing for Temporary Chemical System up to +8.0 mPD (Final)	7/9/2020	16/9/2020	5/11/2020	5/11/2020	Task Completed	no.	1	1	100%		Bestwise resubmitted (Rev.A) on 5 Nov 2020.
	KD1A: Submission of electrical schematic drawings for Temporary Chemical System (First Draft)	15/7/2020	15/7/2020	15/8/2020	15/9/2020	Task Completed				-		1st draft of drawing to be submitted by 16 September 2020
	KD1A: Submission of electrical schematic drawings for KD1A: 6 November 2020	7/9/2020	16/9/2020	5/11/2020	5/11/2020	Task Completed						Notice of completion works was submitted on 17 Nov 2020
6B.2.4 Membrane Bioreactor (MBR) System - Bio Reactor 2A and 2B	Submission of Contractor's Design for Bioreactor 2A and 2B (CDS004)	6/9/2020	12/1/2021	14/5/2021	31/3/2024	99%				-	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 20 Jan 2023.
	Submission of P&M Submission	6/9/2020	26/11/2020	14/5/2021	31/3/2024	99%						P&M0060 - Pre-treatment Fine Screen (status: B) P&M0053 - MLR Pump (status: B) P&M0118 - Scum Skimmer & Scum Pump (status: C) P&M0088 - Fine Bubble Air Diffuser (status: B) P&M0xxx - Wash Compactor (status: B) P&M0041 - Submersible Mixer (status: B) Finalized material submission shall be submitted by 20 Jan 2023.
	Submission of P&ID Drawing	6/9/2020	2/11/2020	14/5/2021	2/7/2021	Task Completed						PID (Rev.1) under DWG0042 resubmitted on 6 July 2021.
	Submission of GA Drawing	6/9/2020	17/2/2021	14/5/2021	31/3/2024	99%						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. BIM GA review meeting is scheduled on 1, 8, 15/6/2022.
	Submission of Electrical Drawing	6/9/2020	15/1/2021	14/5/2021	31/3/2024	99%						Electrical SLD submitted on 5 Feb 2021. AECOM commented on 20 Feb 2021. Bestwise to resubmit. Finalized drawing shall be submitted by 20 Jan 2023.
	Acceptance of submission	15/5/2021	15/5/2021	29/5/2021	31/3/2024	99%					-	
	Submission of detailed design for electrical installation	6/9/2020	6/9/2020	14/5/2021	14/5/2021	Task Completed						
	Submission of detailed design for LV Switchboards for BR 2A and 2B (CDS025-3)	6/9/2020	6/9/2020	14/5/2021	14/5/2021	Task Completed						
	Submission of detailed design for electrical installation	6/9/2020	6/9/2020	14/5/2021	14/5/2021	Task Completed						
	Submission of civil work requirements for BR 2A and 2B up to +8.0 mPD (CDS080-3)	1/9/2020	1/9/2020	30/10/2020	30/10/2020	Task Completed						
	KD1A: Submission of civil requirement drawing for BR 2A and 2B up to +8.0 mPD (First Draft)	15/7/2020	15/7/2020	15/8/2020	30/9/2020	Task Completed	no.	2	2	100%		1st draft of drawing submitted on 30 September 2020
	KD1A: Submission of civil requirement drawing for BR 2A and 2B up to +8.0 mPD (Final)	28/8/2020	1/10/2020	5/11/2020	5/11/2020	Task Completed	no.	2	2	100%	Bestwise	AECOM commented on 23 Oct 2020, Bestwise resubmitted on 5 Nov 2020.
	KD1A: Submission of electrical schematic drawings for BR 2A and 2B (First Draft)	15/7/2020	15/7/2020	15/8/2020	30/9/2020	Task Completed				-		1st draft of drawing was sent to AECOM via email on 15 September 2020
	KD1A: Submission of electrical schematic drawings for KD1A: 6 November 2020	7/9/2020	1/10/2020	5/11/2020	5/11/2020	Task Completed						Notice of completion works was submitted on 17 Nov 2020
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)	6/9/2020	11/1/2021	14/5/2021	31/3/2024	99%				-	Bestwise	PFD (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 Aug 2022.
	Submission of P&M Submission	6/9/2020	19/11/2020	14/5/2021	31/3/2024	99%						P&M0072 - Membrane Module (status: B) P&M0069 - Permeate Pump (status: B) P&M0047 - RAS Pump (status: B) P&M0050 - Drain Pump (status: B) P&M0074 - Air Scour Blower (status: C) P&M0073 - Aeration Blower (status: C) P&M0093 - Air Compressor (status: B) P&M0091 - Chemical Pump (status: B) P&M0xxx - Chemical Tank (to be submitted) Finalized material submission shall be submitted by 20 Jan 2023.
	Submission of P&ID Drawing	6/9/2020	30/10/2020	14/5/2021	2/7/2021	Task Completed						DWG0049 (Rev.1) was resubmitted on 2 Jul 2021.
	Submission of GA Drawing	31/3/2021	18/2/2021	14/5/2021	31/3/2024	99%						DWG0121 (rev.1) was resubmitted to AECOM on 17 Jul 2021 Finalized drawings shall be submitted by 30 June 2022. BIM GA review meeting is scheduled on 19, 26/5/2022 and 2/6/2022 (Lower part) BIM GA review meeting is scheduled on 16, 23, 30/6/2022 (Upper part)

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		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 %		
	Submission of Electrical Drawing	15/4/2021	15/1/2021	14/5/2021	31/3/2024	99%						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 20 Jan 2023.
	Acceptance of submission	15/5/2021	15/5/2021	29/5/2021	31/3/2024	99%				-		
	Submission of detailed design for electrical installation	6/9/2020	6/9/2020	14/5/2021	14/5/2021	Task Completed						
	Submission of detailed design for LV Switchboards for	6/9/2020	6/9/2020	14/5/2021	14/5/2021	Task Completed						
	Submission of detailed design for electrical installation BS for MFB (CDS034-4)	6/9/2020	6/9/2020	14/5/2021	14/5/2021	Task Completed						
	Submission of civil work requirements for MFB up to	1/9/2020	1/9/2020	30/9/2020	30/9/2020	Task Completed						
	KD1A: Submission of civil requirement drawing for	15/7/2020	15/7/2020	15/8/2020	30/9/2020	Task Completed	no.	7	7	100%		1st draft of drawing submitted on 30 September
	KD1A: Submission of civil requirement drawing for MFB No. 2 up to +8.0 mPD (Final)	28/8/2020	1/10/2020	5/11/2020	5/11/2020	Task Completed	no.	7	7	100%	Bestwise	Bestwise resubmitted (Rev.1) on 5 Nov 2020.
	KD1A: Submission of electrical schematic drawings for	15/7/2020	15/7/2020	15/8/2020	30/9/2020	Task Completed	no.	3	3	100%		1st draft of drawing submitted on 30 September 2020
	KD1A: Submission of electrical schematic drawings for MFB No. 2 (Final)	7/9/2020	1/10/2020	5/11/2020	20/10/2020	Task Completed	no.	3	3	100%	Bestwise	Bestwise submitted (Rev.1) on 20 Oct 2020
	KD1A: 6 November 2020											Notice of completion works was submitted on 17 Nov 2020
6B.2.6 Deodorisation System (EQT-001 - Deodorization Unit)	Tender invitation (C11)	17/4/2020	17/4/2020	24/4/2020	24/4/2020	Task Completed				100%		
6B.2.6 Deodorisation System (EQT-001 - Deodorization Unit)	Tender award (C11)	25/4/2020	25/4/2020	12/5/2020	12/5/2020	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)	13/5/2020	13/5/2020	21/5/2020	21/5/2020	Task Completed				100%		
	Submission of Contractor's Design for Deodorisation System, DOU No. 1 (CDS0019 & CDS0045)	6/9/2020	6/9/2020	14/5/2021	31/12/2021	Task Completed				-		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 was completed.
	Submission of P&ID Drawing of DOU No. 1	6/9/2020	5/8/2020	14/5/2021	2/7/2021	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	6/9/2020	6/9/2020	14/5/2021	31/3/2024	99%						GA submitted on 21 Jun 2021 Finalized drawings shall be submitted by 30 June 2022 and BIM GA review meeting is scheduled on 11, 18, 25/5/2022.
	Submission of Electrical Drawing of DOU No. 1	21/3/2021	30/1/2021	14/5/2021	31/3/2024	99%						Control wiring diagrams was resubmitted on 1 April 2021. AECOM commented on 23 Apr 2021. Bestwise to resubmit. Finalized drawings shall be submitted by 20 Jan 2023.
	Acceptance of submission	15/5/2021	15/5/2021	29/5/2021	31/3/2024	99%				-		
	KD1A: Submission of civil requirement drawing for Deodorisation System, DOU No. 1 up to +8.0 mPD (First Draft)	15/7/2020	15/7/2020	15/8/2020	28/9/2020	Task Completed	no.	1	1	100%		1st draft of drawing was submitted on 28 September 2020
	KD1A: Submission of civil requirement drawing for Deodorisation System, DOU No. 1 up to +8.0 mPD (Final)	28/8/2020	29/9/2020	2/11/2020	5/11/2020	Task Completed	no.	1	1	100%	Bestwise	Bestwise resubmitted (rev.1) on 5 Nov 2020.
	Submission of Contractor's Design for Deodorisation System, DOU No. 2A (CDS0019 & CDS0048)	6/9/2020	6/9/2020	14/5/2021	10/12/2021	Task Completed				-		CDS0019: Design Calculation for Deodorisation System (status: B) CDS0048: Design Calculation on DOU2A - air extraction fan (status: B)
	Submission of P&ID Drawing of DOU No. 2A	6/9/2020	5/8/2020	14/5/2021	2/7/2021	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	6/9/2020	3/8/2020	14/5/2021	31/3/2024	99%				-	Bestwise	Bestwise submitted (rev.1) on 30 Nov 2020. AECOM commented on 16 Dec 2020. Bestwise to resubmit. Finalized drawings shall be submitted by 30 June 2022 and BIM GA review meeting is scheduled on 1, 8, 15/6/2022.
	Submission of Electrical Drawing of DOU No. 2A	21/3/2021	26/1/2021	14/5/2021	31/3/2024	99%						Bestwise submitted (rev.0) on 26 Jan 2021, AECOM commented on 4 Feb 2021. Bestwise to resubmit. Finalized drawing shall be submitted by 20 Jan 2023.
	Acceptance of submission	15/5/2021	15/5/2021	29/5/2021	31/3/2024	99%				-		
	Submission of Contractor's Design for Deodorisation System, DOU No. 3A (CDS0019 & CDS0055)	6/9/2020	6/9/2020	14/5/2021	10/12/2021	Task Completed				-		CDS0019: Design Calculation for Deodorisation System (status: B) CDS0055: Design Calculation on DOU3A - air extraction fan (status: B)
	Submission of P&ID Drawing of DOU No. 3A	6/9/2020	5/8/2020	14/5/2021	2/7/2021	Task Completed				-	Bestwise	Bestwise resubmitted rev.3 on 29 Mar 2021. AECOM accepted subject to comments on 13 Apr 2021.

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 %		
	Submission of GA Drawing of DOU No. 3A	6/9/2020	8/7/2020	14/5/2021	31/3/2024	99%					Bestwise	Bestwise submitted (rev.1) on 28 Oct 2020. AECOM commented on 16 Dec 2020. Bestwise resubmitted on 24 June 2021. Finalized drawings shall be submitted by 30 June 2022 and BIM GA review meeting is scheduled on 27/4/2022, 4, 11/5/2022.
	Submission of Electrical Drawing of DOU No. 3A	21/3/2021	26/2/2021	14/5/2021	31/3/2024	99%						Bestwise submitted on 17 Apr 2021. AECOM commented on 27 Apr 2021. Bestwise to resubmit. GA submitted on 24 Jun 2021. Finalized drawing shall be submitted by 20 Jan 2023.
	Acceptance of submission	15/5/2021	15/5/2021	29/5/2021	31/3/2024	99%						
	KD1A: Submission of civil requirement drawing for Deodorisation System , DOU No. 3A up to +8.0 mPD	15/7/2020	15/7/2020	15/8/2020	28/9/2020	Task Completed	no.	1	1	100%		1st draft of drawing was submitted on 28 September 2020
	KD1A: Submission of civil requirement drawing for Submission of Contractor's Design for Deodorisation System , DOU No. 3B (CDS0019 & CDS0049)	28/8/2020	29/9/2020	2/11/2020	5/11/2020	Task Completed	no.	1	1	100%	Bestwise	Bestwise resubmitted (rev.1) on 5 Nov 2020.
	Submission of P&ID Drawing of DOU No. 3B	6/9/2020	6/9/2020	14/5/2021	10/12/2021	Task Completed						CDS0019: Design Calculation for Deodorisation System (status: B) CDS0049: Design Calculation on DOU3B - air extraction fan (status: B)
	Submission of P&ID Drawing of DOU No. 3B	6/9/2020	5/8/2020	14/5/2021	2/7/2021	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	6/9/2020	6/9/2020	14/5/2021	31/3/2024	99%						Bestwise submitted DWG0081 (rev.0) on 5 Feb 2021. AECOM commented on 12 Mar 2021. Bestwise to resubmit. Finalized drawings shall be submitted by 30 June 2022 and BIM GA review meeting is scheduled on 16, 23, 30/6/2022.
	Submission of Electrical Drawing of DOU No. 3B	21/3/2021	22/2/2021	14/5/2021	31/3/2024	99%						GA submitted on 24 Jun 2021. Finalized drawing shall be submitted by 20 Jan 2023.
	Acceptance of submission	15/5/2021	15/5/2021	29/5/2021	31/3/2024	99%						
	Submission of detailed design for electrical installation	6/9/2020	6/9/2020	14/5/2021	14/5/2021	Task Completed						
	Submission of detailed design for LV Switchboards for	6/9/2020	6/9/2020	14/5/2021	14/5/2021	Task Completed						
	Submission of detailed design for electrical installation	6/9/2020	6/9/2020	14/5/2021	14/5/2021	Task Completed						
	Submission of civil work requirements for MFB up to	1/9/2020	1/9/2020	30/9/2020	30/9/2020	Task Completed						
	Submission of civil requirement drawing for MFB up to	28/8/2020	28/8/2020	2/11/2020	2/11/2020	Task Completed						
	KD1A: Submission of electrical schematic drawings for	15/7/2020	15/7/2020	15/8/2020	30/9/2020	Task Completed						1st draft of drawing to be submitted by 30 September 2020
	KD1A: Submission of electrical schematic drawings for	7/9/2020	1/10/2020	5/11/2020	5/11/2020	Task Completed						
	KD1A: 6 November 2020											Notice of completion works was submitted on 17 Nov 2020
04SC008 - Design, Supply and Installation of detailed design for lifting appliances	Acceptance of tender award (C9)	-	-	-	6/7/2020	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)	6/9/2020	5/12/2020	6/9/2020	31/3/2024	99%						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 20 Jan 2023.
	Submission of detailed design for lifting appliances for Primary Sedimentation Tanks (CDS050-2)	6/9/2020	5/12/2020	6/9/2020	31/3/2024	99%						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 20 Jan 2023.
	Submission of detailed design for lifting appliances for BR 2A and 2B (CDS050-3)	6/9/2020	5/12/2020	6/9/2020	31/3/2024	99%						DWG 0065 (Rev.0) was submitted on 18 Jan 2021. AECOM commented on 9 Mar 2021. Bestwise to resubmit. P&M-0026 (Rev.1) received status B. Finalized design calculation shall be submitted by 20 Jan 2023.
	Submission of detailed design for lifting appliances for MFB (CDS050-4)	6/9/2020	5/12/2020	6/9/2020	31/3/2024	99%						DWG 0066 (Rev.1) was submitted on 1 Mar 2021. AECOM commented on 5 Mar 2021. Bestwise to resubmit. P&M-0027 (Rev.1) received status B. Finalized design calculation shall be submitted by 20 Jan 2023.
	Submission of detailed design for lifting appliances for Temporary Filtration Tank (CDS050-5)	6/9/2020	5/12/2020	6/9/2020	21/5/2021	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	10/12/2020	N/A	31/3/2024	99%						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 20 Jan 2023.

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 %		
Lightning Protection System for DOU3A (underground)	Submission and Acceptance for Lightning Protection System Design	6/12/2021	6/12/2021	31/1/2022	31/1/2022	Task Completed						
	Material Delivery	7/2/2022	7/2/2022	28/2/2022	28/2/2022	Task Completed						
	Installation Work	31/3/2022	26/4/2022	5/5/2022	5/5/2022	Task Completed						
	Testing & Commissioning	7/1/2023	7/1/2023	31/1/2023								
Lightning Protection System for Inlet Works (underground)	Submission and Acceptance for Lightning Protection System Design	20/12/2021	20/12/2021	31/1/2022	31/1/2022	Task Completed						
	Material Delivery	15/12/2022	1/10/2022	31/3/2022	31/10/2022	Task Completed						
	Installation Work	15/3/2022	1/11/2022	30/10/2022	14/12/2022	Task Completed						
	Testing & Commissioning	1/11/2022	15/12/2022	15/11/2022	31/12/2022							
MFB No.2	Lifting Appliance Installation at Basement 2	12/5/2023	22/5/2023	11/7/2023								
	MVAC Installation at Basement 2	8/5/2023	8/5/2023	7/7/2023								
	Fire Services Installation at Basement 2	8/5/2023	8/5/2023	7/7/2023								
	Plumbing Services Installation at Basement 2	8/5/2023	8/5/2023	7/7/2023								
	Mechanical Installation	7/3/2024		6/5/2024								
	Lifting Appliance Installation at G/F	18/11/2023	22/11/2023	18/12/2023								
	Lifting Appliance Installation at 1/F	22/3/2024		21/4/2024								
	Mechanical Installation	21/3/2024		20/5/2024								
BR2A/2B	Lifting Appliance Installation	30/3/2024		29/4/2024								
Inlet Works	Lifting Appliance Installation	30/3/2024		29/4/2024								
Section 3 of Works												
6B.2.12 Provision of New Replacement Filter Plates	Submission of onsite survey plan for acceptance	1/3/2020	25/3/2020	30/3/2020	21/4/2020	Task Completed				100%	-	Bestwise resubmitted onsite survey plan on 21 April 2020
	Acceptance of submission of onsite survey plan	1/3/2020	25/3/2020	30/3/2020	12/5/2020	Task Completed				100%	-	Survey plan acceptance received on 12 May 2020. Onsite discussion with ST1 was
	Submission of onsite survey report	21/5/2020	21/5/2020	29/5/2020	29/5/2020	Task Completed				100%		
	Acceptance of onsite survey report	30/5/2020	30/5/2020	15/6/2020	15/6/2020	Task Completed				-		
	Preparation of procurement package (C11)	22/6/2020	22/6/2020	6/7/2020	14/7/2020	Task Completed				100%		
	Tender invitation (C11)	15/7/2020	15/7/2020	22/7/2020	24/7/2020	Task Completed				100%		
	Tender Award (C11)	23/7/2020	25/7/2020	29/7/2020	31/7/2020	Task Completed				100%		Revised survey report (second draft) was sent to AECOM on 21 Oct 2020. Technical
6B.2.12 Provision of New Replacement Filter Plates for Existing Membrane Filter Presses at Existing Sludge Press House	Material Submission	21/8/2020	21/8/2020	28/8/2020	7/12/2020	Task Completed				100%		Material submission (Rev.1) resubmitted on 7 Dec 2020. AECOM accepted subject to comments on 24 Dec 2020. Material submission (Rev. 2) resubmitted on 12 Jan 2021. AECOM accepted subject to comment on 22 Jan 2021.
	Material Delivery	1/12/2020	1/12/2020	8/8/2021	13/7/2021	Task Completed				-		Handed over to DSD.
Completion Date of Section 3: 22 September 2021												
Subcontracting												
	Submission of subletting package for acceptance	1/1/2020	6/3/2020	30/3/2020	6/3/2020	Task Completed				100%	-	
	Acceptance of subletting package	1/3/2020	21/3/2020	30/3/2020	21/3/2020	Task Completed				100%	-	
	Tender invitation	1/3/2020	24/3/2020	1/4/2020	30/3/2020	Task Completed				100%	-	

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 %		
	Tender award	22/3/2020		14/4/2020	6/4/2020	Task Completed				100%	-	Bestwise submitted tender report on 6 April 2020
	Acceptance of tender award	-	-	-	15/4/2020	Task Completed				100%		AECOM accepted tender report on 15 April 2020
Construction of Contractor's site accommodation in WAI-C	Design of MiC	15/4/2020	16/4/2020	1/6/2020	15/8/2020	Task Completed				100%		Revised layout drawings received from AluHouse on 28 May 2020. Comments provided to AluHouse on 2 June 2020.
	Submission of detailed design including foundation works, septic tank	1/7/2020	1/7/2020	14/7/2020	4/9/2020	Task Completed				100%		Design calculation of foundation work was submitted on 7 July 2020, comment received on 27 July 2020. Bestwise to resubmit.
	Site Clearance Work	15/7/2020	20/7/2020	31/7/2020	15/8/2020	Task Completed				100%		Tender invitation commenced on 29 May 2020 and tenders received on 4 June 2020. Tender
	Off-site fabrication of Septic tank	15/7/2020	20/7/2020	31/7/2020	31/7/2020	Task Completed				100%		Site clearance work started on 20 July 2020
	Submission of method statement with ICE certificate	1/8/2020	1/8/2020	7/8/2020	8/10/2020	Task Completed				100%		CV of ICE was submitted on 4 August 2020 and accepted on 25 August 2020
	Submission of design calculation with ICE certificate	1/8/2020	1/8/2020	7/8/2020	8/10/2020	Task Completed				100%		Design calculation of foundation work was submitted on 7 July 2020, comment received on
	Acceptance of method statement and design calculation	8/8/2020	9/10/2020	14/8/2020	16/10/2020	Task Completed				100%		Method Statement and Design Calculation was submitted on 8 Oct 2020.
	Submission of method statement with ICE certificate	1/8/2020	1/8/2020	7/8/2020	23/11/2020	Task Completed				100%		
	Submission of design calculation with ICE certificate	1/8/2020	1/8/2020	7/8/2020	23/11/2020	Task Completed				100%		
	Acceptance of method statement and design calculation	8/8/2020	24/11/2020	14/8/2020	27/11/2020	Task Completed				100%		
	Excavation work	17/8/2020	21/10/2020	18/8/2020	21/10/2020	Task Completed				100%		
	Installation of septic tank	19/8/2020	21/10/2020	20/8/2020	22/10/2020	Task Completed				100%		
	Construction of RC foundation	21/8/2020	23/10/2020	31/8/2020	12/11/2020	Task Completed				100%		
	Off-site fabrication and delivery of MiC Office	1/6/2020	30/9/2020	31/7/2020	4/12/2020	Task Completed				100%		
On-site installation of MiC Office	1/8/2020	4/12/2020	30/8/2020	5/1/2021	Task Completed				100%			
Installation of car park shelter	4/1/2021	7/1/2021	11/1/2021	9/1/2021	Task Completed				100%		Subject to the completion of car park shelter of PM office and JEC office.	
04SC003 - Building Information Modeling (BIM)	Submission of subletting package for acceptance (C9)	1/3/2020	25/3/2020	14/3/2020	25/3/2020	Task Completed				100%	-	
	Acceptance of subletting package (C9)	14/3/2020	2/4/2020	30/3/2020	2/4/2020	Task Completed				100%	-	
	Tender invitation (C9)	1/4/2020	1/4/2020	8/4/2020	9/4/2020	Task Completed				100%	-	
	Tender award (C9)	-	-	-	15/4/2020	Task Completed				100%	-	Bestwise submitted tender report on 15 April 2020
	Submission of subletting package for acceptance	14/3/2020	16/3/2020	30/3/2020	20/4/2020	Task Completed				100%	-	Bestwise resubmitted on 20 April 2020
	Acceptance of subletting package	28/3/2020	4/5/2020	13/4/2020	13/5/2020	Task Completed				100%	-	AECOM accepted subletting package on 13 May 2020
	Tender invitation	11/4/2020	19/6/2020	27/4/2020	26/6/2020	Task Completed				-		Invitation to tender was commenced on 19 June 2020 and tender returned on 26 June 2020
Tender award	25/4/2020	27/6/2020	11/5/2020	4/7/2020	Task Completed				-		Bestwise submitted tender report on 30 June 2020	
04SC007 - Independent Beam Plus Consultant	Submission of subletting package for acceptance	1/3/2020	30/3/2020	14/3/2020	30/3/2020	Task Completed				100%	-	
	Acceptance of subletting package	14/3/2020	3/4/2020	30/3/2020	3/4/2020	Task Completed				100%	-	
	Tender invitation	30/3/2020	30/3/2020	9/4/2020	9/4/2020	Task Completed				100%	-	
	Tender award	-	-	-	15/4/2020	Task Completed				100%	-	Bestwise submitted tender report on 15 April 2020
	Acceptance of tender award	-	-	-	17/4/2020	Task Completed				100%	-	AECOM accepted tender report on 17 April 2020
	Introduction meeting with IBPC, Cinotech	-	-	-	28/4/2020	Task Completed				100%	-	Meeting completed on 28 April 2020 followed by planning work progress
04SC008 - Design, Supply and Installation of detailed	Submission of subletting package for acceptance (C9)	1/4/2020	17/3/2020	14/4/2020	17/3/2020	Task Completed				100%	-	Bestwise submitted subletting package on 3 April 2020
	Acceptance of subletting package (C9)	14/4/2020	17/4/2020	30/4/2020	28/4/2020	Task Completed				100%	-	AECOM accepted subletting package on 28 April 2020
	Tender invitation (C9)	30/4/2020	6/5/2020	14/5/2020	28/5/2020	Task Completed				100%	-	Invitation to tender was commenced on 6 May 2020 and tender returned on 28 May 2020
	Tender award (C9)	14/5/2020	29/5/2020	30/5/2020	9/6/2020	Task Completed				100%	-	Bestwise submitted tender report on 9 June 2020.
Temporary Primary Sludge Thickener and its	Submission of subletting package (C9) for acceptance	15/05/2020 -> 30/05/2020	14/8/2020	15/05/2020 -> 15/06/2020	27/8/2020	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 -> 30/7/2020*	15/8/2020	15/06/2020 -> 15/8/2020*	16/9/2020	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*	14/10/2020	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*	17/9/2020	29/06/2020 -> 29/8/2020*	22/10/2020	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)	-	-	-	16/11/2020	Task Completed				100%		

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 %		
	Submission of subletting package (C9) for acceptance (Elect)	15/05/2020 -> 15/7/2020*	9/12/2020	15/05/2020 -> 30/11/2020*	28/1/2021	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. - Bestwise resubmitted subcontracting package of electrical installation on 28 Jan 2021
	Acceptance of subletting package (C9) (Elect)	30/05/2020 -> 30/7/2020*	29/1/2021	15/06/2020 -> 15/8/2020*	1/2/2021	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*	1/2/2021	22/06/2020 -> 22/8/2020*	11/2/2021	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*	11/2/2021	29/06/2020 -> 29/8/2020*	23/2/2021	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)	-	-	-	26/2/2021	Task Completed				100%		
	Tender invitation (C11)	30/04/2020 -> 15/07/2020*	30/4/2020	30/06/2020 -> 15/09/2020*	18/11/2020	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*	30/5/2020	15/07/2020 -> 18/9/2020	30/11/2020	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)	-	-	-	18/9/2020					-		
	Design Submission	03/07/2020 -> 15/07/2020*	5/8/2020	21/09/2020 -> 02/10/2020*	10/5/2021	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*	21/7/2020	31/08/2020 -> 31/10/2020*	30/6/2021	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.

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 %		
	Drawing Submission	03/07/2020 -> 30/07/2020*	3/8/2020	21/09/2020 -> 21/11/2020*	10/2/2021	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*	4/8/2020	21/10/2020 -> 21/12/2020*	20/4/2021	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 ->	4/11/2020	16/11/2020 -	21/6/2021	Task Completed						
	Mechanical Installation	01/10/2020 -> 01/12/2020*	2/2/2021	15/11/2020 -> 15/01/2021*	17/5/2021	Task Completed				-		
	Offsite Fabrication and Delivery of FRP Tank		16/1/2021		7/4/2021	Task Completed				100%		First batch to be delivered on 23 Mar 2021
	Onsite Installation of FRP Tank		7/4/2021		30/7/2021	Task Completed						Water filling to tank completed; Tank hydraulic test completed.
	Electrical Installation	01/10/2020 -> 01/12/2020*	19/3/2021	15/11/2020 -> 15/01/2021*	19/7/2021	Task Completed				-		Energize of all LCPs on 24 May 2021 and isolated prior to system commissioning.
Temporary Primary Sludge Thickener and its accessories (Sub-programme was provided by Bestwise)	Testing and Commissioning	15/11/2020 -> 15/01/2021*	8/5/2021	22/11/2020 -> 22/01/2021*	30/9/2022	Completed				-		Improvement works under PMI are on-going and defect rectification for BCM comments was partially completed. - Testing and Commissioning (3 x 24hrs) completed by End September.
Modification of Existing Emergency Generator Electrical Works	Submission of subletting package (C9) for acceptance	15/10/2020	15/10/2020	31/10/2020	11/12/2020	Task Completed				100%		
	Acceptance of subletting package (C9)	1/11/2020	5/11/2020	15/11/2020	2/1/2021	Task Completed				100%		
	Tender invitation (C9)	16/11/2020	26/1/2021	30/11/2020	5/2/2021	Task Completed				100%		Tender invitation commenced on 26 Jan 2021, and returned on 5 Feb 2021
	Tender award (C9)	30/11/2020	18/2/2021	7/12/2020	18/2/2021	Task Completed				100%		Tender report was submitted on 18 Feb 2021 and accepted on 26 Feb 2021
	Acceptance of tender award (C9)	8/12/2020	18/2/2021	15/12/2020	26/2/2021	Task Completed				100%		
	Design Submission	15/12/2020	15/3/2021	15/1/2021	23/4/2021	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	9/3/2021	9/3/2021	9/3/2021	9/3/2021	Task Completed				100%		
	Drawing submission (Drawing of General Layout for Existing 600kVA Genset Container)	23/4/2021	23/4/2021	30/4/2021	30/4/2021	Task Completed				100%		
	Drawing submission (Cable route ,general arrangement, etc)	14/5/2021	28/5/2021	21/5/2021	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	12/8/2021	Task Completed				100%		
	Container deliver to HK	TBC	12/8/2021	10/8/2021	12/8/2021	Task Completed				100%		
	Off site modification work at HK factory	TBC	16/8/2021	24/8/2021	24/8/2021	Task Completed				100%		
	FAT plan of modified Genset No.2 P431 MS-036	12/7/2021	12/7/2021	20/8/2021	20/8/2021	Task Completed				100%		
	FAT of Genset No.2 after modification works	25/8/2021	25/8/2021	25/8/2021	25/8/2021	Task Completed				100%		
	Installation Work of I-beam Support	26/8/2021	26/8/2021	26/8/2021	26/8/2021	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	27/8/2021	27/8/2021	27/8/2021	27/8/2021	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	27/7/2021	27/7/2021	31/8/2021								Location to be further coordinated with DSD.
	Modification works of existing switchboard	1/9/2021	1/9/2021	8/9/2021	8/9/2021	Task Completed				100%		

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 %		
	Cables (including control cable and power cables) laying and installation of cable containment, busbar chamber	21/7/2021	30/7/2021	8/9/2021	8/9/2021	Task Completed				100%		
	Supply of busbar chamber/ connection box	10/8/2021	10/8/2021	3/9/2021	3/9/2021	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	1/9/2021	1/9/2021	8/9/2021	8/9/2021	Task Completed				100%		
	Delivery of dummy load and self-test	9/9/2021	9/9/2021	14/9/2021	15/9/2021	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.)	15/9/2021	15/9/2021	15/9/2021	16/9/2021	Task Completed				100%		
04SC009 - Design, Supply and Installation of HVSB	Submission of subletting package for acceptance	21/4/2020		1/5/2020		-						
	Acceptance of subletting package	21/5/2020		30/5/2020		-						
	Tender invitation	1/6/2020		14/6/2020		-						
	Tender award	1/7/2020		14/7/2020		-						
04SC010 - Design, Supply and Installation of LVSB	Submission of subletting package for acceptance	1/5/2020		14/5/2020		-						
	Acceptance of subletting package	1/6/2020		14/6/2020		-						
	Tender invitation	14/6/2020		30/6/2020		-						
	Tender award	1/7/2020		14/7/2020		-						
04SC011 - Design and Installation of Building	Submission of subletting package for acceptance	14/4/2020		30/4/2020		-						
	Acceptance of subletting package	14/5/2020		30/5/2020		-						
	Tender invitation	30/5/2020		14/6/2020		-						
	Tender award	21/6/2020		30/6/2020		-						
04SC012 - Facility Computerized Systems	Submission of subletting package for acceptance	14/5/2020		30/5/2020		-						
	Acceptance of subletting package	14/6/2020		30/6/2020		-						
	Tender invitation	1/7/2020		14/7/2020		-						
	Tender award	21/7/2020		14/8/2020		-						
Plant and Materials (Marking Scheme)												
PS Clause no. 6B.2.1 Inlet Pump	Submission of marking scheme for PM's acceptance (fourth draft)	1/5/2020	1/5/2020	1/9/2020	19/8/2020	Task Completed				100%		AECOM commented on 14 August 2020, Bestwise resubmitted on 19 Aug 2020.
	Submission of marking scheme for PM's acceptance	1/5/2020	1/5/2020	1/9/2020	19/8/2020	Task Completed				100%		Bestwise resubmitted on 19 Aug 2020.
	Acceptance of marking scheme by the PM	15/5/2020	20/8/2020	15/9/2020	1/9/2020	Task Completed				100%		AECOM accepted on 1 Sep 2020
	Tender invitation	29/5/2020	9/9/2020	29/9/2020	18/9/2020	Task Completed				100%		Tender invitation was conducted on 9 Sept 2020 and returned on 18 Sept 2020.
PS Clause no. 6B.2.1 Inlet Pump	Tender award	5/6/2020	19/9/2020	5/10/2020	7/10/2020	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	19/6/2020	17/10/2020	19/10/2020	15/11/2020	Task Completed				-		
	Submission of marking scheme for PM's acceptance (third draft)	1/5/2020	14/5/2020	1/9/2020	19/8/2020	Task Completed				100%		AECOM commented on 14 August 2020, Bestwise resubmitted on 19 Aug 2020
	Submission of marking scheme for PM's acceptance	1/5/2020	14/5/2020	1/9/2020	19/8/2020	Task Completed				100%		Bestwise resubmitted on 19 Aug 2020
PS Clause no. 6B.2.4 MBR Pre-treatment Screen	Acceptance of marking scheme by the PM	15/5/2020	20/8/2020	15/9/2020	1/9/2020	Task Completed				100%		AECOM accepted on 1 Sep 2020
	Tender invitation	29/5/2020	20/11/2020	29/9/2020	11/12/2020	Task Completed				100%		Tender invitation was conducted on 20 Nov 2020 and returned on 11 Dec 2020. Tender
	Tender award	5/6/2020	13/12/2020	5/10/2020	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	Submission of marking scheme for PM's acceptance	1/5/2020	14/5/2020	1/9/2020	2/9/2020	Task Completed				100%		AECOM commented on 1 September 2020, Bestwise resubmitted on 2 Sep 2020
	Submission of marking scheme for PM's acceptance	1/5/2020	3/9/2020	1/9/2020	2/9/2020	Task Completed				100%		Bestwise resubmitted on 2 Sep 2020
PS Clause no. 6B.2.4 Air Diffusion System	Acceptance of marking scheme by the PM	15/5/2020	20/8/2020	15/9/2020	1/9/2020	Task Completed				100%		AECOM accepted on 1 Sep 2020, subject to conditions.
	Tender invitation	29/5/2020	17/2/2021	29/9/2020	12/3/2021	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

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 %		
	Tender award	5/6/2020	18/3/2021	5/10/2020	20/4/2021	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	19/6/2020	20/2/2021	19/10/2020	12/3/2021	Task Completed				-		
PS Clause no. 6B.2.4	Submission of marking scheme for PM's acceptance	14/5/2020	14/5/2020	14/9/2020	19/8/2020	Task Completed				100%		AECOM commented on 14 August 2020, Bestwise resubmitted on 19 Aug 2020
	Submission of marking scheme for PM's acceptance	14/5/2020	14/5/2020	14/9/2020	19/8/2020	Task Completed				100%		Bestwise resubmitted on 19 Aug 2020
PS Clause no. 6B.2.4	Acceptance of marking scheme by the PM	28/5/2020	20/8/2020	28/9/2020	1/9/2020	Task Completed				100%		AECOM accepted on 1 Sep 2020
BR Aeration Blower	Tender invitation	11/6/2020	3/2/2021	12/10/2020	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	18/6/2020	4/3/2021	19/10/2020	12/4/2021	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	2/7/2020	4/3/2021	2/11/2020	25/3/2021	Task Completed				-		AECOM accepted on 1 Sep 2020, subject to conditions.
PS Clause no. 6B.2.4	Submission of marking scheme for PM's acceptance	14/5/2020	1/5/2020	14/9/2020	2/9/2020	Task Completed				100%		AECOM commented on 1 September 2020, Bestwise resubmitted on 2 Sep 2020
	Submission of marking scheme for PM's acceptance	14/5/2020	3/9/2020	14/9/2020	2/9/2020	Task Completed				100%		Bestwise resubmitted on 2 Sep 2020
	Acceptance of marking scheme by the PM	28/5/2020	3/9/2020	28/9/2020	5/9/2020	Task Completed				100%		AECOM accepted on 5 Sep 2020 subject to conditions.
	Tender invitation	11/6/2020	14/9/2020	12/10/2020	5/10/2020	Task Completed				100%		Tender invitation was conducted on 14 Sept 2020 and returned on 5 Oct 2020.
PS Clause no. 6B.2.4	Tender award	18/6/2020	6/10/2020	19/10/2020	2/11/2020	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.
Membrane Modules, Cassettes / Racks	Acceptance of tender award	2/7/2020	3/11/2020	2/11/2020	24/11/2020	Task Completed				-		
	Submission of marking scheme for PM's acceptance (second draft)	14/5/2020	14/5/2020	14/9/2020	19/8/2020	Task Completed				100%		AECOM commented on 14 August 2020, Bestwise resubmitted on 19 Aug 2020
	Submission of marking scheme for PM's acceptance	14/5/2020	14/5/2020	14/9/2020	19/8/2020	Task Completed				100%		Bestwise resubmitted on 19 Aug 2020
	Acceptance of marking scheme by the PM	28/5/2020	20/8/2020	28/9/2020	1/9/2020	Task Completed				100%		AECOM accepted on 1 Sep 2020
	Tender invitation	11/6/2020	25/9/2020	12/10/2020	29/10/2020	Task Completed				100%		Tender invitation was conducted on 25 Sept 2020 and returned on 29 Oct 2020.
PS Clause no. 6B.2.4	Tender award	18/6/2020	30/10/2020	19/10/2020	2/12/2020	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.
RAS Pump	Acceptance of tender award	2/7/2020	21/11/2020	2/11/2020	12/12/2020	Task Completed				-		
Usage of WA2-A		-		21/2/2020	21/2/2020	Task Completed				-		Site works including fencing and site clearnace works to be completed by DC/2018/06 by 30/4/2020 WA2C handedover to Bestwise on 21 February 2020